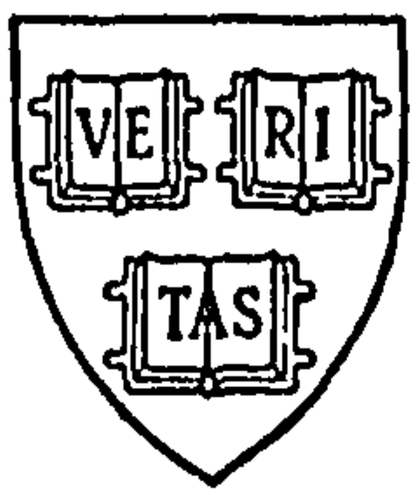

PATENT OFFICE PAPERS

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UNITED STATES PATENT OFFICE

THE CLASSIFICATION OF PATENTS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1915

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PREFATORY NOTE.

Parts A and B of the following pages are designed to acquaint all persons using the Patent Office classification with the principles upon which the reclassification is proceeding.

Part C consists of a few tentative rules advanced with the notion of fixing classification practice within the office in certain doubtful cases.

Part D is intended to inform examiners reclassifying within examining divisions respecting the initial procedure in reforming a class.

CONTENTS.

THE CLASSIFICATION OF PATENTS.

(A) INTRODUCTION.

Classification lies at the foundation of the mental processes. Without the power of perceiving, recognizing resemblances, distinguishing differences in things, phenomena and notions, grouping them mentally according to those resemblances and differences, judgment is impossible, nor could reason be exercised in proceeding from the known to the unknown.

* * * * * * *

The facilitation and abbreviation of mental labor is at the bottom of all mental progress. The reasoning faculties of Newton were not different in qualitative character from those of a ploughman; the difference lay in the extent to which they were exerted and the number of facts which could be treated. Every thinking being generalizes more or less, but it is the depth and extent of his generalizations which distinguish the philosopher. Now it is the exertion of the classifying and generalizing powers which thus enables the intellect of man to cope in some degree with the infinite number and variety of natural phenomena and objects. (Jevons, Principles of Science.)

PAST CLASSIFICATIONS OF UNITED STATES PATENT OFFICE.

As under the patent laws the people of the United States assume all the risks in granting a patent for any means of the "useful arts," a classification that will facilitate a judgment respecting the patentability of any means presented to the Patent Office is of peculiar moment. The enormous extent, diversity, and refinement of the useful arts preclude the formation of a judgment on novelty within a reasonable time, unless the necessary comparisons with known processes and instruments have been previously made along the lines that searches must follow and the results of such comparisons made available in a classification. The vast majority of available disclosures of the arts occur in patents. Hence the Patent Office classification must be adjusted in the main to the analysis, diagnosis, and orderly arrangement of the disclosures of patents.

For more than 80 years United States patents have been classified. The first published classification, promulgated in 1830, comprised 6,170 patents, divided into 16 classes. The change from a registration to an examination system in 1836 instigated a new classification in 22 classes, including 9,800 patents. The next came in 1868 with 36 classes, including about 75,000 patents. On March 1, 1872, a revised classification was adopted, comprising 145 classes, including 131,000

patents. This classification is said to have been planned by Dr. Edward H. Knight. The placing of the patents in accordance with the schedule of classes is said to have been done by the several examiners. The class arrangement was purely alphabetical by class titles, and the number designations followed the alphabetical order. The names of things to be found in the several classes were arranged alphabetically under each class title. No attempt was made to bring the titles of allied materials into juxtaposition or to effect other definite arrangement with reference to subject matter in the printed schedules. A consolidated name index supplemented the list of names by classes.

This classification of 1872 is in part the classification that now exists, many of the same class numbers and titles being still in use. Examiners were apparently permitted to make changes in classification to suit their convenience without notice until 1877. In that year a revision of the published schedule was made by a committee, resulting in the addition of 13 new classes, and examiners were ordered to transfer patents in accordance with the new titles. The first classification published with distinct subclasses appeared in 1880. From that time until 1898 the classification grew by addition and subdivision of classes to suit the ends of individual examiners or in response to supposed exigencies of the work where one division was thought to be overloaded and another underloaded, and the alphabetical arrangement of subclasses under each class has succeeded the alphabetical list of names. The arbitrary correspondence originally established between the alphabetical order of class titles and the numerical order was destroyed as soon as expansion of the classification began.

However suitable to the then-existing material of the useful arts the classification of 1872 may have been, it failed as fail all inductive processes wherein the generalizations are not broad and deep. (Isaac Newton's intellect could detect the resemblance between the falling fruit and the motions of the planets.) The classification of 1872 was not exhaustive; it failed to recognize to the fullest extent what Bishop Wilkins saw nearly 300 years ago, to wit, that there are "arts of arts;" and it failed to provide for future invention of new species in the same art, and to recognize that new arts could be formed from combinations of the old.

BEGINNING OF REVISION.

The Classification Division was created in the hope that guiding principles of classification could be developed and applied for the purpose of amending or revising the classification whereby patents could be placed with greater assurance, and whereby the searcher

with these guiding principles in mind might find the nearest references. It was confronted with the problem of revising while at the same time keeping accurate record of all changes, correcting all indexes of patents, and using copies in constant demand for search at the same time, necessitating much clerical work, and constant interruption—of correcting rather than planning anew; of mending a machine while constantly increasing duty was required of it.

Ideas on the subject of revision were called for by the Commissioner of Patents, and all in the Patent Office had an opportunity to set forth their notions. The views of one met with approval and in accordance with those views a "Plan of Classification" was prepared and promulgated in 1900. What other plans may have been submitted is not now generally known. But in substantial accordance with that published plan, the process of revision has proceeded for more than 14 years until approximately 50 per cent of the patents (including incomplete work) have been placed in revised classes.

PRECEDENTS AND AUTHORITIES.

No effective precedents have been found in any prior classifications of the arts. The classifications of the principal foreign patent offices have not been materially different in principle from the United States Patent Office classifications of the past.

The divisions found suitable for book classification for library use, have not been deemed adequate to the exactness and refinement essential to a patent office classification of the useful arts. The systems of class and subclass sign or number designations of the modern library classifications, with their mnemonic significance, afford the most important suggestions to be drawn from library classification. None of these systems of designation has been adopted, (1) because of a serious doubt as to the availability of such designations by reason of the length or unwieldiness to which they would attain in the refinements of division necessary in a patent office classification, and (2) because of the enormous amount of labor necessary to make the change from present practice.

The best analogies are in the known (but changing) classifications of the natural sciences, and in them the problems are so different that they can serve only to illustrate general principles. The broad principles of classification are well understood. The authorities are the logicians from the ancient Aristotle to the modern Bentham, Mill, and Jevons. The effort of the Classification Division has been to adapt and apply these well-known principles to the enormously diversified useful arts, particularly as disclosed in patents and applications for patents.

DEFINITION OF SCIENTIFIC CLASSIFICATION.

It may be well to insert here an authoritative definition: "A scientific classification is a series of divisions so arranged as best to facilitate the complete and separate study of the several groups which are the result of the divisions as well as of the entire subject under investigation." (Fowler, Inductive Logic.)

Investigation and study of any subject will be facilitated if the facts or materials pertinent to that subject be so marshaled and arranged that those most pertinent to it may appear to the mind in some form of juxtaposition. It is the purpose of the Patent Office classification to divide and arrange the body and multitudinous units of the useful arts so that, having the question of novelty of any defined means to answer, one may with reasonable assurance approach that portion of the rank of arts in which it will be found if it is not new, and in propinquity to which will also be found those means that bear the closest resemblances to that sought for, the resemblances of other units growing less in proportion to their distance therefrom.

Success in the fundamental aim of facilitating adequate search should evidently at the same time reduce proportionately the danger that interfering applications will be overlooked and also effect a distribution of labor favorable to the acquisition of special skill.

(B) PRINCIPLES OF THE NEW CLASSIFICATION OF THE PATENT OFFICE.

THE ELEMENTS OF A PATENT OFFICE CLASSIFICATION.

A classification will be useful in proportion (1) to the pertinence to the subject under investigation of the facts selected to be grouped together, or, in other words, in proportion to the appropriateness of the "basis of classification" to the subject in hand; (2) to the convenience, stability, and uniformity of the arrangement of the subdivisions whereby the investigator may proceed with reasonable assurance to that portion of the rank of groups within which he will find cognate material; (3) to the accuracy and perspicuity of the definitions of the several divisions and subdivisions; (4) to the completeness and reliability of the cross-referencing and cross-notations; (5) to the uniformity, feasibility, and certainty of the rules by which the accessions of patents disclosing one or several inventions may be diagnosed and distributed to the appropriate divisions of the classification in accordance with the basis adopted.

Corresponding to the foregoing analysis the theory of Patent Office classification may be treated in five parts: (1) The principles on which the arts shall be divided (basis of classification); (2) subdivision and mechanical arrangement of groups; (3) definition; (4) cross-referencing and search-notes: (5) the choice of features by which a patent shall be assigned in the classification (diagnosis).

BASIS OF CLASSIFICATION.

The first and most vital factor in any system of classification is the basis of division, that is, the kind of characteristics common to any number of objects selected to characterize groups, whereby the individuals of any group will resemble each other for the purpose in view more closely than any individual in any group will resemble any individual in any other group.

"There is no property of objects which may not be taken, if we please, as the foundation for a classification or mental grouping of those objects, and in our first attempts we are likely to select for that purpose properties which are simple, easily conceived, and perceptible in a first view without any previous process of thought but these classifications are seldom much adapted to the ends of that classification which is the subject of our present remarks." (J. S. Mill, System of Logic.)

It is clear that a number of objects may be classified on several different bases. For example, a number of books could be divided into groups (1) according to the subject of their contents; (2) according to the language in which the books are written; (3) according to the size of page; (4) according to the binding material; or (5) according to the color of the binding. Each of these may be useful classifications for some purpose. For the student of literature none is of value except the first; for the connoisseur in bindings, only the last three. A classification of animals including classes of land animals and water animals would hardly suit a student of zoology, as it would associate with the shad and perch such differently organized creatures as the porpoise, whale, and seal. Yet such a classification might prove very suitable for a student of fisheries.

Art as a basis.[1]—So in seeking a basis for a patent office classification the purposes of the classification should be the guide. Allegations of ulterior uses[2] (such as may be made merely because the inventor thought of applying his invention to those uses only, or in an effort to get the application examined in a certain division) and other superficial bases should be avoided. That basis will best suit the purpose which effects such an arrangement as will exhibit in suitable groups the "state of the prior art," by which is here meant not necessarily all the instruments of a trade or industry, or all the articles sold by a shopkeeper, as a stationer, but those means that achieve

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[1] An "art," in the sense of a single unitary invention, is a synonym of process, method, and operation. The term "art" is ambiguous in popular usage. In the phrase "useful arts" in the Constitution, it denotes the area of endeavor to which the patent laws apply. When the word "art" is used to specify some fragment of the useful arts, it commonly raises different notions in different minds. It may be correctly used to designate *any* division of the useful arts. It is as proper to speak of the art of grinding or the art of molding as of the art of metal-working or the art of brickmaking.

[2] A "use" is an application of a means to substance to produce an effect which may or may not be the necessary effect of the means in its normal operation. A catalytic may be used to ignite gas or to convert oleins into stearines. An ice pick may be used to hold a chalk line or prick holes in leather, etc.

similar results by the application of similar natural laws[1] to similar substances.

As all inventions are made with the ultimate object of satisfying some human desire, the utility of an invention appears to be a natural basis of classification. It is apparent, however, that most inventions may contribute to numerous utilities besides the ultimate one. Many processes and instruments intervene between the seed planter and the wheaten rolls upon the breakfast table. The plow may be viewed as an agricultural instrument or as an instrument of civil engineering, according as it is used for preparing the field for planting or roading a road. A radiating coil of pipe may be thought of as a condenser of steam or of alcoholic vapors, according as it is applied to one material or another; as a cooler or a heater, according to the temperature of a fluid circulated through it. A hammer may drive nails, forge iron, crack stone or nuts. Underlying all of these ulterior utilities, there is a fundamental one to which the normal mind will reach in its natural processes and there rest. The plow loosens or turns over the surface of earth; the coil effects an exchange of heat between its interior and exterior; the hammer strikes a blow. A classification of plows in agriculture, road building, or excavating, according to stated ultimate use; of a radiator coil as a steam condenser, still, jacket-water cooler, refrigerator, or house heater; of the hammer as a forging tool, a nail driver, or a nut cracker, appears to separate things that are essentially alike. But classifying a plow on its necessary function of plowing, a radiator on its necessary function of exchanging heat, a hammer on its necessary function of striking a blow, evidently results in getting very similar things together. Assuming for the moment that utility is a reasonable basis of division of the useful arts, it is deemed more logical to adopt as a basis some utility that *must* be effected by the means under consideration when put to its normal use rather than some utility that *may* be effected under *some* conditions. Two of the five predicables of ancient logic are property[2] and accident.[3] The capacity of the hammer to strike a blow, the capacity of the radiator coil to exchange heat, are in the nature of properties. The capacity of the hammer to crack nuts, of the coil to condense steam, are in the nature of accidents—something that follows

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[1] By "natural law" in the useful arts is meant that uniformity of action which is manifested whenever any particular substance in any particular condition is brought into such relation with any particular manifestation of energy that the force exerted modifies or prevents modification of the form, nature, condition, or locus of the substance or modifies the manifestation of energy or both.

[2] A "property" may be described as any quality common and essential to the whole of a class but not necessary to mark out that class from other classes. Thus, all wheel tires may be said to possess annularity; but washers and finger rings are also annular. A "peculiar property" is one that not only always belongs to a class of objects but belongs to that class alone; thus a circle has the peculiar property of containing the greatest space within a line of given length, and catalytic substances have the power of setting up chemical reaction without themselves being changed.

[3] An "accident" is any quality that may indifferently belong or not belong to a class without affecting the other qualities of the class. That a man's name is James is an accident telling nothing of the man's physique or character.

from the impact and the heat exchange because of the particular accidental conditions of operation. To select an accident as a basis of classification is contrary to the laws of thought.

It may be said then that the Patent Office classification is based upon "art" in the strict sense in which the word may be said to be used in section 4886, Revised Statutes, but not necessarily in the looser sense of industries and trades. A proper maintenance of the distinction between the word "arts" of the statute and the phrase "industrial arts" used in the sense of industries and trades is essential to an effective classification for the purposes of a patent office search. Similar instruments have been patented in three different classes, because of the statements that one was designed for cooling water, another for heating water, another for sterilizing milk; in four different classes, because of the statements that one apparatus was to separate solids from the gases discharged from a metallurgical furnace, another to separate carbon from the combustion gases of a steam-boiler furnace, another to remove dust and tar from combustible gas, and another to saturate water with carbon dioxid. Owing to the continuance of a classification based largely on remote use, many applications come into the office setting forth inventions of very general application which nevertheless have to be classified more or less arbitrarily in one of several arts in which they may be used but to which they are not limited.

Function or effect as a basis.[1]—Means of the useful arts are related in different degrees. Resemblances selected as bonds for a number of inventions may be more or less close. It is axiomatic that close resemblances should be preferred over looser ones for classification purposes. Processes and instruments for performing general operations, such as moving, cutting, molding, heating, treating liquids with gases, assembling, etc., are more closely bonded than those for effecting the diverse separate successive operations directed toward complex special results, such as making shoes, buttons, nails, etc. Means of the former sort perform an essentially unitary act—the application of a single force, the taking advantage of a single property of matter. Those of the latter sort require the application of several different acts employing frequently a plurality of forces or taking advantage of several properties of matter. In the former case, classification can be based on what has been called function, in the latter it cannot be

[1] "Effect" or "result" is the consequence of a process of the useful arts practiced with or without instruments. The effect of an instrument is the effect of its operation. Effects may be direct or indirect, proximate or remote, necessary or accidental.

"Product" is an effect consequent upon a process that changes the form, state, or ingredients of matter perceptibly and permanently, as distinguished from effects that are fleeting or involve no change in perceptible form, state, or ingredients of matter.

"Function" is the "action of means upon an object while producing the effect." (Robinson.) Functions may be direct or indirect, proximate or remote, necessary or accidental. The direct, proximate, or necessary function of the hammer in normal operation is impacting. Indirect, remote, or accidental functions of a hammer may be comminuting, forging, driving, etc.

based on function but can be based on what has been called effect (or product).

Function is closely related to cause. It is an axiom of logic that cause is preferable to effect as a basis of those classifications designed for scientific research. Hence the functional basis is preferred in all cases in which it can be applied. A condenser for the fumes of zinc is much more like a condenser for the fumes of acid or the vapor of water than it is like the art of recovering zinc from its ores, and it employs only one principle, to wit, heat interchange. A water-jacket for cooling the walls of a gas-producer or glass-furnace is much more like a water-jacket for cooling the walls of a limekiln or steam-boiler furnace than it is like the art of gas-making or manufacture of glass articles. In accordance with what are thought to be the correct principles, therefore, the zinc-condenser ought not to be classified as a part of the art of metallurgy, nor the water-jacket as a part of the art of gas-making, merely because these instruments have a use in these arts, but should be included, respectively, in classes based upon the more fundamental utilities effected by them.

Although it is evident that molding a button is more like molding a door-knob than it is like making buttons by the combined operations of sawing, grinding, turning, and drilling, wherefore the molding of buttons should be classified in a general plastic art rather than in a special button-making art, yet the making of buttons by a plurality of different kinds of operations can be placed only in a class based upon the product, to wit, button-making. Since, therefore, the combination of many different operations for the production of a specific article can not be classified on the basis of any single function, it must be classified on the basis of product. Thus by selecting essential function as a basis when possible, and resulting effect when the functional basis is not possible, one may approximate to the correct classification described by Herbert Spencer as follows: "A true classification includes in each class those objects that have more characteristics in common with one another than any of them have with objects excluded from the class."[1]

So it is deemed better to classify in accordance with the function or effect it is known a means *must* perform or accomplish than in accordance with the *object* with respect to which an act or acts are directed or in accordance with some *effect* which may or may not result.

Structure as a basis.—The phrase "structural classification" is frequently made use of. The application of the phrase to processes is manifestly absurd. The Patent Office never had a structural classification except in a limited sense. How could a machine, for example, be classified on structure, leaving out of consideration its function and the effect of its normal operation? In the refinements of sub-

[1] Classification of the Sciences.

division, however, it becomes frequently desirable to form minor subdivisions on structural differences. And it may also be that instruments will be presented for classification that are of such general utility as to baffle the efforts of the intellect to attain to the fundamental and necessary function, in which case a structure-defined class may best suit the needs of classification.

As between a classification based upon structure and one based upon utility, the choice has been for the latter, without prejudice, however, to instances that may arise in favor of the former.

The subject of structural classification will be dropped with a quotation from the original pamphlet "Plan of Classification," etc. (p. 5): "A purely 'structural' classification is almost impossible on account of the infinite variety of mechanical combinations, and to attempt it would probably result in utter confusion, for the classes could not be defined, and the classification would be a mere digest of mechanical elements having no community of function."

DIVISION AND ARRANGEMENT.

Having divided the aggregate of things to be classified into a large number of groups on a satisfactory basis, a most useful work will have been accomplished and the purpose of a classification to assemble the things most nearly alike and separate them from other things will have been partially achieved. Unless these numerous groups are arranged in some definite understandable relation to each other, or are placed in definite known positions where they can be found, the mere formation of the groups, on however good a basis, is not a complete classification. Furthermore, unless the position of each group with respect to those other groups that resemble it in whole or in part is made known, he who wishes to find other related matter must seek aimlessly with no assurance that his quest will end until the whole series shall have been investigated. Each classified group is metaphorically a pigeonhole to contain similar material. If the pigeonholes are properly labeled, one can ultimately locate those that contain the matter he is seeking if he knows the name that has been applied to it. If the pigeonholes are arranged in alphabetical order, for example, he may find all related material, *provided he knows the name of every related group of material*, even though very similar things may bear names as far apart as A and Z. But if all things were so placed that, adjacent and in certain fixed relation to each pigeonhole, other related matter could be found, the resemblances lessening in proportion to the separation, and if the entire area of pigeonholes were divided, and certain areas assigned to certain kinds of things defined in general terms, guessing the location of and desultory search for things that may have different names, but yet be very much alike, would be lessened and all cognate material be bunched. A second vital factor of a system of classification, therefore, is the arrangement of the groups.

Infinitude of possible combinations.—There are now over 1,125,000 United States patents, each presumptively covering a creation of the useful arts that is different from every other. Most of those patents also disclose a plurality of elements or acts. Each of those patented items is potentially an element of a more complex combination that may be patented. When one considers merely the number of forms of energy, the number of known substances and known mechanical elements, and attempts to figure possible combinations and permutations, it becomes apparent that the size of the numbers resulting is incomprehensible. Consider the possibilities of combination also of the enormously varied disclosures of patents. Calculations of the possible combinations and permutations of a small number of objects are familiar. Different combinations of the letters of the alphabet are sufficient to record the sum of human knowledge in many languages. With substantially two octaves of the diatonic scale the world's melodies have been sounded, nor do any doubt that our successors will thrill to airs that we have never heard. "Thirty metals may be combined into 435 binary alloys, 4,060 ternary alloys, 27,405 quarternary alloys" (Jevons). This does not take into consideration differences in proportion that figure so largely in results in the arts of substance-making. The total number of possible alloys of the known metals is incomprehensible. A moment's thought respecting the numbers of the items of the useful arts will alleviate any fears that the possibilities of invention are near the limit and will give food for further thought to all concerned with this attempt to classify the useful arts to the point of refinement necessary to enable this office to pass judgment with reasonable speed and accuracy upon the approximately 75,000 applications filed each year.

Division and arrangement in the natural sciences.—Some of the natural sciences are said to be in what is known as the classificatory stage of development. In some sciences the subject of classification has been predominant and these furnish excellent examples of scientific classification.

The much-admired classifications of zoology, botany, and mineralogy are among the best available models of logical division,[1] systematic and analytical arrangement. The most casual consideration of these classifications, however, renders apparent the relative simplicity of the task of classifying natural objects differentiated by fixed natural laws as compared with the task of classifying the products of the creative and imaginative faculties as applied to the useful arts. The chimera and other animal monsters occur only as figments of the mind. Zoological classification does not have to classify combinations of birds, fishes, reptiles, and mammals, nor

[1] Logical division is the process by which the species of which a genus is composed are distinguished and set apart. Physical division or partition is the process by which the parts of any object are distinguished and set apart. Metaphysical division is the process by which the qualities of a thing are segregated and set apart in thought.

does it deal in the way of classification with the parts of animals, nor is the question of absolute numbers of instances a matter of moment to such a classification, all of the members of a species being alike for classification purposes. But any instrument of the useful arts may be combined with some other, any part with some other part. Organizations may be parts of some other organizations, or even mutually parts of each other, as, for example, a pump may be a part of a lubricator, or a lubricator may be a part of a pump. Some parts are peculiar to one instrument, some are common to many. Every member of a species differs from every other member. Added to this, the intellectual differences between the persons who present the applications for patent, the differences in their generalizing powers, the relatively broad and narrow views of two or more persons presenting the same invention (variations not indulged in by nature) complicate the problem of classifying the useful arts.

Difficulty of entitling a subclass corresponding to every combination.—In any main class or group of the useful arts there are always a number of characteristics that it may be desirable to take note of in subdivision titles. A moment's thought shows the impossibility of taking care of any large number of combined characteristics so as to provide exactly for each combination, for the reason that the limitations of space and of the perceptive faculties forbid. For a simple illustration, the imaginary classification of books for use by a bookseller may be recurred to. The dealer, it may be assumed, has books on (1) four different subjects, history, science, art, and fiction, (2) each printed in four languages, English, German, French, Spanish, (3) in four different sizes of page, folio, quarto, octavo, duodecimo, (4) bound in four materials, leather, rawhide, cloth, paper. Here are four main characteristics, each in four varieties. A customer is likely to ask for Ivanhoe in English, octavo, bound in leather. Now if the bookseller had sought to arrange the books into one class according to subject matter, into another according to language, another according to size, another according to binding, he would have fallen into confusion, because his classes would be formed on different principles or bases and overlap. Some histories will be in French, some will have octavo pages, and some cloth bindings. But if he divides first on the basis of subject matter, then each subject matter into language, each language book into sizes, each size into material of binding, he can immediately place his hand on a class wherein the book will be if he has it; but this classification, based on four different characteristics and four varieties of each, has necessitated the formation of 256 classes or divisions, and if five characteristics were provided for, 1,024 divisions would be required.

Adapting the illustration of the books to a patent office classification: If it were possible to view these characteristics as patentable

in combinations of all or in any combinations less than all, and also as separate characteristics, 16 divisions additional to the 256 for each independent characteristic would have to be provided, as well as other divisions for combinations of less than the whole, in order to make the classification absolutely indicative of every feature, and the number of divisions would be enormous. In such a classification, after the proper division had been located, the search would be nothing, the difficulty would be to find the appropriate class.

Expedients to reduce the number of subdivisions.—Fortunately most people carry on their mental processes in accordance with certain uniformities. Under this uniformity of thought no patentable relationship may be alleged between a quarto volume and the subject of history or between a leather binding and the German language; wherefore 4 classes of coordinate value, based on the 4 characteristics, each divided into 4 subclasses, 16 divisions in all, may serve the purpose of a Patent Office search. But if, as sometimes happens, a patentable relationship had been assumed and admitted between a leather binding and any of the languages, or any of the subjects, or between any two or more of those different characteristics, provision could be made for such combinations by the following expedients:

(1) Arrange the characteristics, in the order of relative significance or importance for the purpose in view, in four groups, giving each group the characteristic title. Under each title arrange the varieties in a similar relation as follows in either (1) or (2):

(1)

Cl. X.—Books.

0. Miscellaneous.
0.5 Subject-matter—
1. History.
2. Science.
3. Art.
4. Fiction—
4.5 Language—
5. English.
6. German.
7. French.
8. Spanish.
8.5 Size—
9. Folio.
10. Quarto.
11. Octavo.
12. Duodecimo.
12.5 Binding material—
13. Leather.
14. Rawhide.
15. Cloth.
16. Paper.

(2)

Cl. X.—Books.

1. Subject-matter—
2. History.
3. Science.
4. Art.
5. Fiction.
6. Language—
7. English.
8. German.
9. French.
10. Spanish.
11. Size—
12. Folio.
13. Quarto.
14. Octavo.
15. Duodecimo.
16. Binding—
17. Leather.
18. Rawhide.
19. Cloth.
20. Paper.

Subject-matter, assumed to be the most important characteristic, is placed first. Any exhibit of mere material for binding, mere size, mere language, or mere subject-matter, would fall into the correspondingly entitled group. If, however, a book on history in German or a history in red leather, etc., were to be classified, it would be placed in subclass "History" in the subject-matter group, and a French book in green cloth would be placed in subclass "French" in the language group. That is, combinations of any characteristic with any one or more other characteristics may be placed in the group for that characteristic deemed the most significant and which is highest in the schedule. Again, by assigning a number to each generic title, each such title becomes thereby the miscellaneous group for varieties other than those indented under it, as well as for all varieties associating any characteristic with one or more of those standing lower down. Thus, a book of poems would belong in subclass "Subject-matter" and a 16mo volume bound with purple celluloid covers would belong in subclass "Size." So, by giving meaning to relative position, exhaustive arrangement is sought to be provided in a reasonable number of groups. To provide for other features that may be presented in future, an additional miscellaneous group may be added at the top (1), or the class title (2) might be deemed to represent the unclassified residue and a depository for future matter not specifically provided for.

(2) If the number of instances of association of subject-matter and binding materials, language and size, etc., are numerous, additional groups might be placed above the groups having the names of the characteristics, the fact of the existence of these groups indicating that the characteristic groups are for single characteristics only and do not include books having several different ones. In such case the schedule might be headed by a miscellaneous group, having either the title "Miscellaneous" or the title of the class, to receive associated characteristics not provided for by specific titles, immediately followed by subclasses for the particular associations found to be most numerous, as follows:

BOOKS.

Miscellaneous.
Subject-matter and language.
Subject-matter and binding material.
Subject-matter.
Language.
Size.
Binding material.

To illustrate further, selecting for the purpose a mass of objects presenting problems more nearly like those presented to the office in

questions of patentability, let it be assumed that one is to classify the objects in a heap of metal scrap.

On looking over the material of the heap it is noticed that there are a large number of metal balls; some have holes through them, some are hollow, some are smooth on the outside, and some are hollow, smooth, and perforated, but they are all nevertheless balls, and accordingly all balls can be separated out and placed in a heap by themselves. Next, the presence of bars in the general mass is observed, some long, some short, some straight, some twisted, some of round stock, some of square stock, etc. These may be gathered together and placed in a separate pile at the left of the balls. It is further observed that there are many differently shaped annular bodies in the heap resembling generally the single links of a chain, some circular, some elliptical, some twisted, some made of round stock, some of square stock, etc. They are all nevertheless annular bodies; these may be placed in a separate pile at the left of the bars.

Now, in the remnant of the original heap, a sufficient number of similar single elements does not remain from which to make a smaller pile of elements. Different combinations of links, balls, and bars are, however, observed in the remaining heap. Some are combinations of links, some combinations of a ball and link, some of a bar and link, and some of a bar, link, and ball. These different combinations may be separated out in the order named and placed in separate piles. After all these things have been removed, there is left in the original heap a number of odds and ends or miscellaneous metal objects.

These several groups may now be arranged in the inverse order in which (in the particular illustration adopted) they have been removed, thus:

1. Miscellaneous (remnants of the original heap of scrap).
2. Combined bar, link, and ball.
3. Combined bar and link.
4. Combined bar and ball.
5. Combined link and ball.
6. Chains.
7. Links.
8. Bars.
9. Balls.

Knowing that objects of metal scrap not covered by the specific titles will be found in the miscellaneous group, and that the more complex specifically-named things are to be found first after the miscellaneous or at the left of the row of piles of materials thus separated and arranged, and the more simple things and parts farther to the right, the particular piles to resort to for the things

wanted may be definitely determined. The same processes may be applied to each of the piles. Thus, balls, in the above illustration, may be divided into—

Balls—
10. Hollow perforated.
11. Hollow grooved.
12. Hollow.
13. Perforated.
14. Grooved.

Again, the same processes may be applied to a mass of more diversified junk, of which the metal scrap may form one pile, rags another, old bricks another, old timber another, and, still another, timber having metal-straps, bolts, nails, etc., connected with it.

Superiority and inferiority.—In the arrangement of subclasses in a class, those groups that are related to each other as wholes and parts are arranged so that the wholes shall stand before the parts, and so that subclasses defined by effect or by special use shall stand before those defined by function or general use. For example, in the scrap illustration above, assuming the titles to be in a printed arrangement, "chains" precedes "links," which may be parts of chains, and if it had been desired to separate animal-drags, for instance, from the scrap, some animal-drags being particular adaptations of a bar, links, and ball, the group of animal-drags should precede "Bar, link, and ball." The words "superior" and "inferior" have been used to indicate this relationship. A class or subclass defined to receive a certain combination is superior to one defined to receive an element or a combination that is a part of that certain combination. A class or subclass defined to receive means for making a particular product, as an electric lamp, is superior to a class or subclass designed to perform a general function, as pumping air from a container. And whenever a question of assignment of a patent or application that contains matters of two or more groups bearing that relation is raised, the "superior" group is selected to receive it.

Further, in those instances in which groups are formed on different bases or different characteristics, not comparable with each other, and a patent is presented having matter falling in each group, that group which is highest in position is preferred in those instances where separate provision for means having both characteristics has not been made.

In cases of necessity, as where a combination is presented for which no class has been definitely provided, but classes exist into which the several parts would fall if separately claimed, the same practice that obtains in similar situations with respect to two or more *subclasses* of a class may be followed with respect to two or

more *classes* and the patent placed in that class which, in accordance with above-stated principles, should be deemed the "superior."

Definite positional relationship of subdivisions.—In the metal scrap example, above, division has been effected on the one basis of form or contour. If it had been desired to separate also on material, for example, if it were deemed important to locate all brass scrap, each of the groups based upon form could be divided into one of *brass* and one *not brass*, or the entire heap could be divided into *brass* and *not brass*, and under the heading "brass" could be indented the various articles made of brass, and under "not brass" the various articles not made of brass, and this would double the number of divisions. If also it were desired to separate the lead articles in the same manner the number of classes would be tripled. But, as in the book illustration, it may be impracticable thus to multiply subdivisions, and the basis "form" having been selected as of *first-rank* importance, all divisions based upon form should be completed and kept together. Then, "material," having been selected as of *second-rank* importance, should be carried out with respect to all objects in which form is nonessential. If enough brass balls were found to render it advisable to make a subdivision of them, they should be assembled into a subclass indented under "balls" and not into a subclass indented under "brass." Having selected one basis as *primary*, it should never subsequently be made *secondary* or *vice versa*. Some such restriction on modes of division appears salutary in a system of divisions designed to definitely limit search. The arrangement herein sought to be explained is susceptible of use to limit all searches for a single definitely stated invention to a subclass properly entitled to receive it or those indented under it, and to those subclasses above, which may include it as a part of an organization or specialized means.

As between coordinate groups divided on the same basis, there is no question of superiority and inferiority. The terms "superior" and "inferior" are useful in questions of relationship between combinations and subcombinations or elements thereof, and between groups founded on effect or product and those founded on simple function. The mere difference in complexity of mutually exclusive coordinate groups involves no relationship of superiority or inferiority. A subclass to receive a screw-cutting lathe is superior to a subclass to receive a lathe-headstock, a locomotive class is superior to a class to receive steam-engines, for the reason that the lathe is a whole of which the headstock is a part, and the locomotive is an organization of which the engine is an element. But the headstock subclass is not superior necessarily to the tailstock subclass simply because the headstock is commonly more complex than the tailstock. Yet arbitrary preference for classification in the headstock subclass may be

established by position where an application or a patent contains claims for both.

Thus in a class that is founded on a well-chosen basis that brings together things bearing close resemblances to each other, all types that contain the elements essential to produce a complete practically operative means will be found in subclasses that have a position somewhere between the beginning and end of the list of subclasses of the class. Those that add features of elaboration of the essential types and those that are highly specialized to some particular purpose within the definition of the class will stand above the essential type subclasses, while those subclasses for parts and details will stand below those for the essential types.

Indented schedules.—In an indented schedule all subclasses in the first column reading from the left are species to the genus represented by the class title.[1] All subclasses indented under another subclass are species to the genus represented by the subclass under which they are indented. If a title has no number, it represents merely a subject-matter to be divided, a genus,—having no representatives except in the species under it. If a subclass having a generic title has a number, it not only represents a subject-matter to be divided into species but also all other species not falling within the titles indented. Although these relative positions might imply that only proximate species are indented one place, yet mechanical difficulties render it impracticable to so arrange that all species shall be indented under their proximate genera.

Indention properly carried out has a tendency to prevent in the process of logical division the logical fault of proceeding from a high or broad genus to a low or narrow species. This latter fault may inadvertently separate things that belong together. If, for example, it were desired to divide balls in the stated illustration according to material, an immediate division of balls into aluminum, zinc, glass,

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[1] Any class of objects may be called a "genus" if it be regarded as made up of two or more different kinds of objects or of two or more species. "Motors" is a genus when the class "Motors" is considered as divided into electric motors and nonelectric motors, or electric motors, spring motors, weight motors, current motors fluid pressure motors, etc. A genus is more extensive than any of its species but less intensive.

A "species" is any class that is regarded as forming a part of the next larger class, "electric motors" being a species of "motors" and "motors" being a species of "energy transformers." A species is more intensive than the genus to which it belongs but less extensive.

Every species may be a genus to another species until no further subdivisions can be made. This last indivisible species is termed the *infima species*. Every genus may be a species to another genus until a point is reached where no further generalization may be made or the *summum genus* is attained. In the Patent Office classification of the useful arts, the *summum genus* is useful arts. The *summum genus* of the plastic arts would be plastics. The *infima species* in the useful arts evidently never can be attained.

"Proximate species" and "proximate genus" indicate, respectively, those species that are divided from a genus without intermediate genera, and those genera from which the species are directly divided. Motors, and not energy transformers, is the proximate genus to the species, fluid motors, electric motors, etc., while fluid motors, electric motors, etc., and not steam engines, alternating current motors, etc., are proximate species to motors.

ivory, rubber, would be less useful than to divide into mineral materials and nonmineral materials as follows:

Balls—
Mineral—
Nonmetallic—
Glass.
Metallic—
Aluminum.
Zinc.
Nonmineral—
Vegetable—
Rubber.
Animal—
Ivory.

However, it is evident that indention carried to its full extent, useful as it is in keeping analogous things together, would make the printing of schedules complex and unwieldy. Nevertheless, in the generalizing process necessary in logical division and arrangement, the divisions of species should always be *mentally indented*, as it were, under their *proximate* genera. Thus, under a genus unnamed may be arranged several species in juxtaposition, without actually printing the name of the genus, so that the schedule above may read:

Balls—
Glass.
Aluminum.
Zinc.
Rubber.
Ivory.

In an arrangement printed in idea-order, though relegating the genera mineral, nonmetallic, metallic, nonmineral, vegetable, animal, to the mind unaided by printed words, the different species of the same genus may be kept together except that species for which no title has been provided must go back to the subclass under which the named species are indented. Thus the arrangement above necessitates placing in subdivision "Balls" all *copper* balls, whereas indention under proximate genus "metal" would have brought all metal balls together. In a finely divided classification, printing of titles for all genera is not practicable; hence great care ought to be directed toward grouping species according to the principles of arrangement herein outlined, noting that whenever a change of basis is made, a new genus is implied, and that subclasses for all other species of the same genus, under whatever name, must be brought into juxtaposition as if indented under the implied genus.[1]

[1] In the Manual of Classification of the U. S. Patent Office the arrangement of subclasses has always been alphabetical, although in the Supplement containing definitions of revised classes the arrangement is numerical. If the latter schedule of "Balls" in the text had been printed in alphabetical order, it is apparent that the species "Aluminum" and "Zinc" of the genus Metal would be as widely separated as possible. In the former schedule of "Balls," in which the genus Metal is printed, "Aluminum" and "Zinc" come together. It is apparent that in an alphabetical arrangement allied species can not be kept together without printing every proximate genus. This fact, among others, indicates the advisability of abandoning the alphabetical arrangement in the classification manual and adopting the idea arrangement in the schedules of revised classes, supplemented by a consolidated alphabetical index of all subclasses.

Bifurcate division.—Most discussions of classification make reference to the so-called bifurcate scheme of division as the only one by which exhaustive division can be surely achieved. This is commonly illustrated by the ancient tree of Porphyry. By this method any subject it is desired to subdivide is first divided by writing the name of one selected species at one branch and writing at the other branch the name of the same species prefixed by "Not." Thus the Agassiz classification of living beings divides them first into sensible and not sensible (plants). A botanical classification divides plants into flowering and not flowering. A zoological classification divides animals into vertebrate and not vertebrate. By continuing the process of division in the same manner, the division is obviously exhaustive of the subject, there being always a negative subdivision to receive any subsequently created or discovered species. Although bifurcate division has been ridiculed by some, it is agreed by highest authority that it is the only plan of division by which one can be sure to have a consistent place for everything, or by which one can be certain that the divisions are mutually exclusive. It can be demonstrated that a classification schedule in which the relation of genera and species is shown by indentions, if correctly formed on the principles now sought to be applied in the revision of the Patent Office classification, is susceptible of conversion into a tree of Porphyry, while unlike the latter it is compact and wieldy.

Utility of arrangement according to resemblances.—The expedient of indicating kinds of relationship between several equally indented divisions by relative position has the following utility:

(1) A uniform rule is provided, applicable to all classes, for placing inventions that bear the relation of whole to part in subdivisions before those that bear the relation of a part to that whole, and those that are defined by a particular effect, product, material, or use before those that are defined by a function or an operation applicable generally to various effects, products, materials, or uses; whereby that portion of the schedule in which any invention belonging to any particular class should be found may be approached whether or not the investigator knows the name of the object sought for or the title of the appropriate subdivision.

(2) The substantial impossibility of dividing many branches of the useful arts exhaustively into a reasonable number of mutually exclusive or non-overlapping subclasses is compensated for; so that when the classifier or the searcher has an invention to place or to find including two or more different kinds of characteristics, for each of which a subdivision is provided, but no subdivision for the plural characteristics, it will be known that the invention should be in the subclass for that characteristic which stands before the subclass for the other characteristic.

(3) It compensates for omission of some generic titles that if written in the indented schedule would lengthen specific titles to a cumbersome extent.

(4) It provides a rule for cross-referencing where several inventions are claimed bearing to each other any of the relationships indicated above, cross-referencing being necessary in one direction only where the matter illustrated is coextensive with the matter claimed.

(5) It definitely limits the field of search for any *unitary invention* in any class so arranged, as no patented invention having the limitations imposed by a unitary claim should be found in any subclass below the subclass properly defined to receive it or those indented under it. Parts of such inventions may be found below or following this subclass in the same class if these parts are within the class definition, or elsewhere in the useful arts if not within that definition. The unitary invention may be found in the subclass limited to it and certain subclasses arranged *above* or *before* it adapted to receive organizations of which it may be a part.

A complete system of arrangement should comprise (1) a display of the entire field of the useful arts in a manner to show the relation of the larger as well as of the smaller groups,—carrying the appropriate relationship as far as possible from the highest genera to the lowest species, the arrangement being such as would bring materials most nearly alike into closest propinquity regardless of the names they may be called by. (2) Supplementary to this classification arrangement by ideas there should be an alphabetical index of subclass titles, appropriately cross indexed, and additional titles of various technical and trade names of things classified under subclass titles.

DEFINITION.

Definition is indispensable in any classification and is very difficult. Every class must be defined and all of the groups under it. After definitions have been made and printed, they are sometimes found inadequate and must be supplemented by the definitions of other classes. This is unavoidable while the complete material remains unexplored. Definition in the strict logical sense is not to be expected, nor is it necessary. It is commonly sufficient if an explanation or comparison be made sufficient to direct the mind to the character of the contents of the group and indicate its limitations. Hitherto four of the five predicables of ancient logic have been mentioned, to wit, genus, species, property, and accident. In connection with definition, the fifth predicable, difference, is useful. To define a class, it is sufficient, generally, for the purposes of office classification, to state a *peculiar property* (not an accident) of the objects included in the

class; and to define a species under the class it is sufficient to state the name of the class plus the difference—i. e., with the addition of the limitations that characterize the species.[1] This procedure in definition is susceptible of application from the highest genus to the lowest species. It is advisable to define the means included within a title without any introductory words, such as "this subclass includes inventions relating to," etc., treating the subclass for definition purposes as if it were a collection of concrete things, in the same manner as in a dictionary definition.

CROSS-REFERENCES AND SEARCH-NOTES.[2]

If patents were in all respects like material objects, cross-references and search-notes would not be necessary. Nails, screws, locks, hinges, and boxes are distinct things susceptible of definite separation and classification. Even though nails, screws, locks, and hinges form part of the box, the box is still a box, not a nail, screw, hinge, or lock. For the needs of the Patent Office classification, however, although a patent for a box must be classified with boxes, yet if a peculiar nail, screw, lock, or hinge is claimed in the same patent with the box, or even if any one of these customary accessories of boxes is illustrated, it may be necessary to provide copies of the patent for the box in each of the several classes provided for nails, screws, locks, or hinges.

Inasmuch as every relatively complex thing is made up of relatively simple things, it is obvious that all disclosures can not be cross-referenced. Any attempt to calculate the number of cross-references to be supplied if all disclosures of the subjects of invention were to be cross-referenced would show the number to be incalculable. It is necessary, therefore, to leave to the judgment of the classifier the propriety of cross-referencing unclaimed disclosures.

Should a patent contain a number of claims defining a number of differently classifiable inventions, complete cross-referencing from

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[1] A species contains all the qualities of the genus and more. These additional qualities form the "difference." The electric motor has the qualities that are common to motors and is differentiated by reason of the fact that electric energy is thereby converted to mechanical motion.

[2] Classification of a patent is said to be "original" in the class and subclass which receives the most intensive claimed disclosure, and in which the patent is indexed in the official classification indexes. "Original classification" is referred to as opposed to "classification by cross-reference."

A "cross-reference" is a copy of a patent placed in a subclass other than that in which the classification is made original, in order to make available for search inventions disclosed therein and additional to that by which the patent has been diagnosed and classified.

A "digest cross-reference" is a cross-reference formed from abstracts or extracts from a patent consisting of illustration and text cut from a photolithograph of a patent and mounted.

A "search-card" is a sheet of the size of a photolithograph of a patent placed with the photolithographs of patents forming a subclass in the examining division and public search room, and containing suggestions for further search, and on the copy for the search room, a definition of the subclass.

"Search notes" are addenda to class and subclass definitions comparing other classes and subclasses with the one defined and giving directions for search when necessary to prosecute search beyond the defined class or subclass.

the class i: which the classification is made original into the other appropriate classes or subclasses should be effected, *unless* cross-search notes or arrangement of subclasses with appropriate titles may be substituted to advantage.

Cross-referencing or cross-search notes are made, as a rule, from combination class to element class, but never or very rarely from the element class to the combination class in which it may be used. Thus cross-referencing should normally be downward in a schedule of subclasses. Search notes indicate parallel or otherwise related classes and subclasses, and those classes and subclasses in which analogous structures having different purposes but adapted to answer broad claims may be found.

By arbitrary rules of arrangement such as have been referred to in the section dealing with division and arrangement, a search may ordinarily be definitely limited to a certain number of subclasses, even where cross-references are not made. In such arrangement any given patent, *if it be directed to one invention*, may be searched in the subclass within which the definition places it or subclasses indented under it, and in certain subclasses above, whose titles will indicate that the invention might be included as a part of the matter defined to belong therein, but it would never have to be searched in any subclass following and not indented thereunder.

DIAGNOSIS TO DETERMINE CLASSIFICAITON.

Each patent and each application discloses one or more means of the useful arts (using the term "means" to cover both processes and instruments in the sense in which it is used by Prof. Robinson), almost always more than one, since most new means are combinations of mechanical elements or acts. In some patents and applications the disclosure is coextensive with that which is claimed; in others there is matter disclosed but not claimed. The unclaimed disclosure may be as valuable as the claimed disclosure for purposes of anticipation, and the classification must provide for both. If the claimed disclosure belongs in one class and the unclaimed in others, the classifier must choose between two or more classes that one in which the patent or application shall be classified and those into which it shall be cross-referenced.

Claimed or unclaimed disclosure.—The claims of a patent are the statutory indices of that which the applicant believes to be new, they define an invention that has been searched by the Patent Office and no anticipation discovered for it. Future action must be based on inductions from past experience; none knows what the future lines of search will be; the only guides for future searches are the searches of the past; the evidence of past searches is the claims

of patents; they trace the course of invention. Furthermore, a presumption of novelty attaches to the claimed matter; no such presumption attaches to the unclaimed. The law requires every patent for improvement to show so much of the old as is necessary to explain the uses of the improvement. In practice much more than that is disclosed. Questions as to the proper placing of patents and cross-references would be diminished by the strict enforcement of Rule 36 of the Rules of Practice requiring that the description and the drawings, as well as the claims, be confined to the specific improvement and such parts as necessarily coöperate with it. In any event both the claimed disclosure and that which is unclaimed must be taken care of, one by cross-reference, and the disclosure selected for cross-reference is that to which no presumption of novelty attaches.

This practice of placing patents by the claimed disclosure is sometimes misunderstood. Its chief application is in determining classification in case of disclosures involving a plurality of main classes. Furthermore, the mere letter of the rule is not to be applied in preference to its spirit. Subcombinations claimed may be placed with the combinations, and in subordinate type subclasses patents must be placed sometimes by claimed and sometimes by not-claimed disclosures.

Diagnosis of pending applications.—What has been said relates to patents. The bearing of the practice of adopting the claimed disclosure as the basis of assignment of applications for examination has also to be considered.

Two pending applications claiming the same means very commonly differ in the kind and extent of disclosure. One application may disclose several inventions. Which of the several disclosures shall be selected as the mark by which to place the application? For instance, the typical wire-nail machine has a wire-feeding mechanism, a shearing mechanism, an upsetting (forging) mechanism, side-serrating mechanism, and pointing mechanism; it may also have a counting mechanism, a packaging mechanism, an electric motor on its frame for furnishing power; and, in addition, numerous power-transmitting and other machine parts, such as bearings, oil-cups, safety appliances, etc. The applicant may have made a complete new organization of nail-machine and may seek a patent for the total combination. He may have invented a new shearing mechanism and have chosen to show it thus elaborately in the place of use he had in mind, or he may have designed a new counter or a new oil-cup or a new power transmission, or even a new motor, and have given his invention this elaborate setting. The shears, the counter, the oil-cup, the power transmission, and the motor are separately classifiable in widely separated classes. How shall the application be diagnosed for determining its place in the office classification? When the

specification and drawing disclose (as most of them do) several subjects matter of invention, though claiming only one, which of those several subjects matter shall control the classification?

The most natural procedure, at first thought, would be to classify on the totality of the showing, in which case the application for the nail-machine, supposed above, would be assigned to nail-making. But imagine the invention claimed by an applicant to be the counter. Then the examiner in charge of nail-making would have to search the class of registers with which he is not familiar. Suppose applicant No. 2 files an application for the same counter which he illustrates and describes in connection with a bottle-filling machine, and that, classifying on the totality of the showing, this goes to the division that has the class of packaging liquids. Now both the examiners in charge of bottle-filling and nail-making, knowing that counters are classified in registers, search the class of registers and also the pending applications in registers. After these examiners have made their searches, suppose applicant No. 3 files an application for the same counter, which he says may be used for counting small articles produced by automatic machines. Perhaps he shows the counter attached to a piece of conventional mechanism representing any manufacturing machine, mentioning, say, a cigarette or pill or cartridge-making machine. It has not occurred to either the the examiner of nail-making or the examiner of bottle-filling that the other might have any such application; nor does it occur to the examiner in charge of registers to search nail-making or bottle-filling. As the specification of the counter application mentions cigarette, pill, and cartridge-making machines to which the counter may be attached, the examiner in charge of registers may search those classes. Suppose that the counter proves to be new, and each of the three examiners allows a patent. Here now are three patents for the same thing. Of course, after allowance, the counter and all other disclosed inventions that give any suggestion of novelty are cross-referenced; but the primary purpose of a patent office classification (to aid in determining patentability) has failed in this instance.

In the imagined situation respecting pending applications, without doubt diagnosis and classification upon the invention claimed is necessary to effect the purpose of the office classification. Cross-referencing after issue can not undo that which has been done.

If no application save that of the nail-machine be pending, no duplication of patents occurs, but the labor of search is increased by reason of the unfamiliarity of the examiner with the inventions he has to search. After the patent is allowed he may find the entire combination of the nail-machine without the counter disclosed in a patent for a nail-making machine, so that as a nail-making machine

this new patent is of no value as a reference. Very probably all of the other inventions illustrated (except the counter) are also old in their respective classes; but the examiner of nail-making can not tell this without extensive searches in those classes, so he notes cross-references for them all.

Difficulties due to varying ideas of claims.—Very troublesome questions are constantly arising as to whether an invention should be classified in a combination class or an element class. The point will be illustrated by example: A describes and illustrates an automobile having an internal-combustion motor and a friction-clutch in the motor transmission-gear. He states that the clutch is in the usual relationship to the motor and gearing, but claims a new clutch for whatever it may be adapted. B discloses an internal-combustion motor said to be for automobiles with transmission-gearing and a friction-clutch and claims "in an internal-combustion motor a friction-clutch," etc., specifying the form of the clutch. C makes the same disclosure, but claims "an internal-combustion motor having a specified clutch," while D, with the same disclosure, claims "the combination with the internal-combustion engine of an automobile" of a specified friction-clutch. E claims and illustrates only the friction-clutch. Should these be classified together? If so, in what class? Should a bearing composed of a specified alloy of copper, tin, and antimony, be classed as a bearing or as an alloy? Should a house painted with a mixture of linseed oil, lead oxid, and barium sulphate go to buildings or coating compositions? A lamp-filament of titanium and zirconium with electric lamps or with alloys? A building-block of cement, lime, sand, and carborundum, with building-blocks or plastic compositions? Whether these be diagnosed as combinations or as elements and compositions respectively, and classified accordingly, criticism will be aroused. The point in view is that although principles of patentability must be considered in a classification designed as an instrument to aid in determining patentability, convenience and accuracy of search and avoidance of voluminous cross-referencing may necessitate some arbitrary rule of classification to meet various and changing theories applied to the drafting and allowance of claims.

From the foregoing it will be evident that classification involves orderly logical processes of induction (supplemented by hypothesis), of definition and of deduction. After gathering a large number of facts generalizations are made from them and a hypothesis is found to be confirmed or modified by more extended research; the divisions are then defined; by correct diagnosis of other instances (as other patents) deductions may be drawn respecting the appropriate place for them in the classification.

(C) RULES OF CLASSIFICATION.

BASIS OF CLASSIFICATION.

(1) The basis of subdivision and assemblage of the means of the "useful arts" in the Patent Office classification is "art" within the meaning of "art" in section 4886, Revised Statutes. The direct, proximate or necessary art, operation or effect, rather than some accidental and remote use or application, should be selected. In all cases qualities or characteristics that persist through all accidental uses and that can be identified as permanent are to be preferred.

(2) The operative, instrumental, or manipulative arts, including machines, tools, and manufacturing processes, should be classified according to whether a single operation of one kind applicable to various materials to be used for various purposes is carried out by the claimed means, or whether plural operations are performed, which, combined, produce a special effect or special product.

Example: An instrument performing a plurality of operations peculiar to shoe-manufacture would be classified on the basis of shoemaking, because that instrument would be incapable of other use, while an instrument peculiarly adapted to drive nails would be classified on the basis of nailing, whether for nailing shoe-heels or other objects, and a hammer would be classified on the basis of its function as an impact tool even though described as for driving nails, and even into shoe-heels.

(3) Structures (passive instruments) will, in general, be classified on the basis of structure, either of special or general application, the essential functions and effects of static structures being resistive or the maintaining of forces in equilibrium.

Example: A structure recognized as peculiar to barriers of the kind known as fences would be classified in the special class of Fences, but posts, joints, beams, etc., recognized as having use in general building, even though described as used in fences, would be classified in a more general building class, such as Wooden Buildings or Metallic Building Structures.

(4) Compositions of matter and manufactured or formed stock or materials will be classified in accordance with the inherent character of the substance or material where possible, otherwise according to special use.

Example: A pure chemical is expected to be classified on the basis of its chemical structure and constituents, even though useful as a food, medicine, dyestuff, explosive, etc., and alloys on the basis of metallic composition, even though used for bearings, coins, tools, etc.; whereas a physical composition having no reason for existence except to function as a cleansing composition or a paint might have to be classified on the basis of its function as a detergent or a coating composition, respectively. Also a bimetallic layered foil, plate, or wire would be expected to be classified as metal stock even though designed for use for dental filler, plowshare, or electric conductor, and a woven textile fabric as a fabric even though described as used for a filter or apron for a paper-making machine.

DIVISION AND ARRANGEMENT.

(5) The divisions or subclasses of a class should be made exhaustive, i. e., they should be susceptible of receiving any future invention that may fall within the scope of the class. The rule as usually phrased is: "The constituent species must be equal, when added together, to the genus." Exhaustive division may be secured by maintaining always a residual or miscellaneous subclass. The miscellaneous subclass represents the remainder of the original undivided material undefined except as the class is defined and may be accurately treated as if it had the class title.

(6) A second rule respecting the subdivision of a class is: "The constituent species must exclude each other." That is, the divisions or subclasses must not overlap. (See exception in Rule 8.)

Example: If a number of balls of several different materials, several different conformations, or constructions, several different colors, were to be divided into glass balls, hollow balls, and red balls, this rule would be violated, because some balls would be glass, hollow, and red.

(7) A third rule respecting subdivision is: "The divisions must be founded on one principle or basis." The application of this rule will generally form divisions that do not overlap. (See exception in Rule 8.)

Example: If a number of balls of several different constructions, several different materials, and several different colors were to be classified so as to provide a place for each kind of characteristic, they should be divided first, for example, according to construction into hollow balls and solid balls, each of these according to materials into glass balls, rubber balls, metal balls, wooden balls, etc., and each of the latter into red balls, blue balls, green balls, etc.

(8) When it is found that division into overlapping subclasses and on different characteristics is a lesser evil than an unwieldy number of subclasses that would otherwise result, then those subclasses based on characteristics deemed more important for purposes of search should precede in the list of subclasses those based upon characteristics deemed less important. (See Rule 6.)

(9) In arrangement of subclasses or subdivisions the miscellaneous groups containing material not falling within any of the specifically entitled subclasses, should stand first; those subclasses defined by effect or special use should precede those defined by function or general use; those containing matter that is related to the matter of other subclasses as whole to part should precede those subclasses that contain the part; and those defined by a characteristic deemed more important or significant for search purposes should precede those defined by characteristics deemed less important.

Whenever superior rank has been assigned to any selected characteristic by placing divisions based upon it in advance of divisions based

upon other characteristics, *this superiority should be maintained throughout.*

Example: A partial schedule of Class 80 follows to illustrate the arrangement of subclasses:

Class 80.—Metal Rolling.

1. Miscellaneous.
2. Heating and rolling.
3. Cutting and rolling.
4. Drawing and rolling.
5. Annular bodies.
6. Screw threads—
7. Concave and roll.
8. Platen rolling—
9. Dies.
10. Rods and wires.
11. Tubes—
12. Idle rolls.
13. Axial rolling.
14. Segmental rolls.
15. Skelping.
16. Wheels and disks.
17. Reworking.
18. Concave and roll.
19. Platen and roll.
20. Platen rolling—
21. Disk platens.
22. Axial rolling—
23. Pattern rolls.
24. Die rolling—
25. Oscillating rolls.

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Mills—

32. Coiling.
33. Work reversing.
34. Three or more coacting rolls.
35. Continuous—
36. Inclined trains.

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41. Roll cooling and heating.
42. Cooling beds.
43. Feeding—
44. Tables.

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55. Housings.
56. Roll adjustments—
57. Relief devices.
58. Rolls—

. . . . . .

60. Processes—

. . . . . .

66. Flanged bars.

In this schedule the miscellaneous subclass is numbered 1, then follow three subclasses (2–4) of rolling plus another function, then four major subclasses (5–16) of rolling, merely, but applied to blanks of special form producing special products, then one special subclass (17) based upon a special class of material treated, then five subclasses (18–31) specialized in type and mode of operation, then general types of rolling mills (32–40), then various parts and accessories (41–59), then processes (60–66). This is the usual arrangement and is an exhaustive division for the art of metal rolling. Had there been miscellaneous subclasses for all combined operations of rolling plus some other function, a miscellaneous subclass for all mere rolling machines, either special or general, and a miscellaneous subclass for all parts and accessories, the requirements of exhaustive division would have been also satisfied.

In the illustrative schedule, there being no miscellaneous subclass for means having combined functions of rolling and another, any patent having claims for the combination of a means for rolling and a means for cooling would fall in subclass 1, Miscellaneous. In that subclass would also fall all "Mills," such as for rolling spiral conveyer-flights, the same not falling under any of the subclasses 32–40, no miscellaneous subclass of "Mills" and no special article-rolling subclass having been provided; also all parts or accessories, such as a water-cooled screen, peculiarly adapted to rolling-mills, there being no existing subclass of screens therein and no miscellaneous subclass of parts. The arrangement of subclasses in Class 80 requires that the combination of a furnace and a rolling-mill shall be placed in subclass 2, even if the combination be designed and adapted for rolling annular bodies (subclass 5) or tubes (subclass 11). Means special to rolling a tube between a concave and roll must be placed in subclass

13 rather than in subclass 18. A work-reversing mill must be placed in subclass 33 rather than in subclass 34 even though it have three or more coacting rolls.

The rolling of "Screw-threads" having been given higher rank than a "Concave and roll" mechanism, any concave and roll mechanism limited for use in rolling screw-threads should be formed into a subclass indented under "Screw-threads" and not into a subclass "Screw-threads" indented under "Concave and roll."

(10) Class schedules are arranged with certain subclasses appropriately indented according to a commonly understood expedient. In a properly indented schedule subclasses in column at the extreme left are the main species (the proximate species) of the class. The titles and definitions of all subclasses proximate to the class (at extreme left) must be read with the title and definition of the class, as if indented under the class title one space to the right; so also with the titles and definitions of subclasses indented under other subclasses. If a title has no number (as in Class 80, "Mills"), it represents merely a subject-matter to be divided, assumed to have no representatives other than those in the species indented under it. If a title having indented species under it has a number, it not only represents a subject to be divided but also a subclass including all other species not falling within the indented titles. Indention does not indicate superiority or inferiority, but merely that the title and the definition of the indented subclass must be read with the title and definition of the subclass under which it is indented. A title selected in a scheme of subdivision to be of first importance and placed, therefore, in advance, should not thereafter be indented under a title selected to be of secondary importance and, therefore, having a lower position. (See Rule 8.)

(11) A group of material may be divided on several different bases. "Use" or "purpose" or "object treated" may be adopted only when the "use" or "purpose" or "object treated" stamps upon the invention such peculiarities of operation or construction as to limit the applicability of the invention to the use or purpose named. (See Basis of Classification, Rule 1.) A group based upon mode of operation also may be divided into subclasses (1) with a "functional" title, usually participial in form, and adapted therefore to receive machines, processes, and tools: (2) with special use, purpose, or object-treated title containing the name of the use, purpose, or object; (3) with "type" title, usually a name or a name with a qualifying adjective; (4) with a title of a part or subcombination, also a name.

Example: In Class 90, Gear-Cutting, Milling, and Planing, are to be found subclasses entitled "Gear-cutting," certain machines being peculiar to that use; also other subclasses with the general functional title "Planing," subordinate to which are the special use subclass "Planing, Soft metal," and the type subclass "Planers" divided into two coordinate subclasses, "Reciprocating bed" and "Reciprocating cutter," and several subordinate "part" subclasses, including "Tool-feeds" and

"Tool-heads." The adjective form of the title "Planers, Reciprocating bed," indicates a type subclass. If the title had been Planers, Reciprocating beds, the indication would be that the subclass was a part subclass to receive planer beds only. In the class referred to for illustration, "Tool-feeds" and "Tool-heads" indicate subclasses for parts and not for types of planers having tool feeds.

(12) In arranging the divisions of a class, such arrangement should be sought as will minimize the need of cross-references. Search for any particular matter can not always be limited to one group without such extensive cross-referencing as would in some cases defeat the purpose of classification. Forming the subdivisions of a class according to the total similarities of the inventions, rather than according to some selected more or less important characteristic, and arranging them in the correct order of superiority and inferiority, with care to maintain throughout the schedule the relative positional values of the several selected bases of division, will ordinarily in a closely bonded class limit the search for any single invention to the subclass particularly suited to receive it and some subclasses preceding that one, excluding from the necessity of search the subclasses succeeding.

Example: In Class 80, Metal-Rolling, it would not be expected to find any tube-rolling mill lower in the schedule than the tube-rolling subclasses, but a tube-mill might be found higher up in "Heating and rolling," "Drawing and rolling," etc. No concave and roll combination should be found succeeding the subclass of "Concave and roll," but it may be found under subclasses above, such as "Tubes, Screw-threads," etc. No rolls should be found lower than the subclass of "Rolls," but they may be found in many subclasses above.

DEFINITION.

(13) Having some knowledge of the nature of the materials about to be classified, a tentative definition of a class to be formed may be framed, which may be either written down or merely carried in mind, to serve as a tentative guide. This tentative definition must be considered as subject to change to any extent by the fuller knowledge obtained by careful consideration of the material. After a full knowledge of the materials to be classified has been acquired, it will be necessary to frame a careful definition of the class, and also of each subclass whose title does not unequivocally indicate what is contained in it.

(14) A definition of any class should state the "qualities and circumstances possessed by all the objects that are intended to be included in the class and not possessed completely by any other objects." A proper definition should not ordinarily contain the name of the thing defined. "Definitions in a circle" are, of course, worthless. A definition should be exactly equivalent to the species defined and should not be expressed in obscure or ambiguous language, but should employ terms already defined or perfectly understood. It should not be in negative form where it can be affirmative. If

the class of objects has a peculiar property, the naming of that may serve as a definition. If no peculiar property can be detected, the definition should name more than one quality or property. Several different classes may have one or more properties alike, but as the number is increased the likelihood of there being others having the same properties is decreased. The briefest possible statement of such properties or qualities as are possessed by all the objects of a class and not completely possessed by any other objects, which will suffice to distinguish the class from other classes and determine its position in the general classification, will be most satisfactory. To define any species, the genus having been defined, the genus should be named and the difference added. Of course, no generic definition should contain any limitation not characteristic of every species of the defined genus. In seeking qualities by which to describe a genus or species, no accident should be selected.

Example: Suppose there be marked out and defined as a genus all means whereby one form of energy is transformed into another form of energy and no more, and the genus be named energy-transformers. We may then name, as species, energy-transformers that are motors and energy-transformers that are not motors. Motors may be defined by merely naming the genus energy-transformers, and stating the difference, to wit, continuously transforming energy into cyclical mechanical motion. Then the definition will be: Energy-transformers that are adapted to continuously transform energy into cyclical mechanical motion. The non-motor division will retain the genus definition.

It would not be illuminating for a searcher having little familiarity with the textile arts to look under the title "Carding" and find that carding is defined as a means for carding fiber.

Even though the first steam-engine invented had been used to run a gristmill, the accident of its use as a part of a gristmill would hardly warrant the definition of a steam-engine as a means to grind corn. Nor would a hammer be properly defined as an instrument to drive nails or to crack nuts or to forge horseshoes, even though a patent should not mention any use other than one of these and should lay heavy emphasis on the special value of the hammer as a nut cracker, nail driver, etc.

(15) In those cases where the title is so obvious that definition is superfluous, explanatory notes may be substituted and will usually be found helpful.

CROSS-REFERENCES AND SEARCH-NOTES.

(16) Inasmuch as nearly every patent discloses unclaimed matter that is classifiable separately from the claimed matter, it is clearly impossible to cross-reference every disclosure of every means in every patent. Many things must be taken as conventional, obvious, or well known, and the good judgment of the classifier is bound to be exercised in cross-referencing matter disclosed but not claimed to be the invention of the patentee.

(17) A mere part or element should rarely be cross-referenced from an element class to a superior combination class. An element

forming part of a combination in a superior class should, if claimed, be cross-referenced to the element class and also if not claimed if it seems to be not merely a conventional form, and patents having claims for more than one differently classifiable invention should always be cross-referenced unless such an arrangement of subclasses with search-notes is substituted as will guide the searcher to all places where the material may be found. Claimed matter additional to that which controls the classification, if belonging in the same class, should be cross-referenced into a *succeeding* subclass. Cross-references of unclaimed disclosure may be in either direction.

(18) To supplement or take the place of cross-referencing, more or less elaborate search-notes are needed, giving directions and suggestions for further search, setting out the relationship between classes and subclasses, and drawing distinctions by example. Search-notes should indicate other classes or subclasses in which the subject-matter of the group to which the search-notes are appended is likely to form a part of a more intensive combination, also analogous matter that might serve as a reference for a broad claim. They need not, in general, indicate where parts or elements of the subject-matter which are common also to other classes can be found, because the index of classes contains the necessary information. For example, it is not necessary in every machine-class to indicate by search-notes where machine-elements and static parts may be found, nor in a class of wooden boxes to point out where the nails, screws, hinges, or locks that may form a part of the box are classified.

DIAGNOSIS TO DETERMINE CLASSIFICATION.

(19) Inasmuch as nearly every patent contains disclosure that is claimed and also disclosure that is not claimed, it has been deemed advisable to establish the general rule that where the claimed and unclaimed disclosures are classified in different classes or subclasses the invention both disclosed and claimed shall determine the placing of a patent (or a pending application) rather than any selected invention that may be disclosed but not claimed. "Not claimed" covers means that may form an element only of a claim as well as means not referred to in any claim. (See exceptions in Rules 21 to 22 inclusive.)

Example: A patent discloses and claims a dash-pot but illustrates it in such relation to a metal-planing machine as to utilize it for checking the movement of the bed at one end of its path, or in connection with an electric generator to aid in effecting the brush adjustment; the patent should be classified in the subclass of Dash-pots. If the classifier finds the disclosed organization of dash-pot and planer or dash-pot and generator more than a conventional illustration of an obvious use, he should note a cross-reference to Planers or Electricity, Generation. A patent discloses an internal-combustion engine associated with a specific form of carbureter; the claims relate to the engine parts only; the class of Internal-Combustion Engines should receive the patent, and a cross-reference should be placed in Carbureters. A patent discloses and specifically claims the combination of a rail-joint comprising abutting rails, fish-

plates, and specific bolts; the patent goes to an appropriate class of rail-joints, and if the bolt is more than a mere obvious conventional bolt, a cross-reference should be noted for the appropriate subclass of Bolts.

(20) The totality of the claimed invention should be selected when possible to determine the appropriate class in which to place a patent. The entire expression of the invention will usually be set forth in the most relatively intensive claim.[1] In a properly drawn patent there is at least one claim that will serve as a mark to indicate the classification of that patent.

(21) Where a patent discloses but does not claim a combination of proper scope to be classified in a combination subclass and claims merely a detail classified in a subclass lower in the schedule, both in the same class, if the subclasses are so related that the combination always involves the detail so that a search for the detail must necessarily be made in the combination subclass, the patent may be placed in the combination subclass. This avoids the need of a cross reference into the combination subclass, and a lack of a copy in the detail subclass is immaterial, as it is seen in the completion of the search through the combination subclass. (See Rule 19.)

Example: A patent for a saw-making machine discloses dressing, jointing, and gaging mechanisms; it claims dressing and jointing only. There is a subclass for dressing, jointing, and gaging, and a subclass for dressing and jointing. In this case the patent may be placed in the first-mentioned subclass, as that must be searched always when the second-mentioned one is searched, cross referencing in this situation being of little value.

(22) Where a subclass with a generic title has indented thereunder a species type-subclass bearing the title of the generic subclass qualified by a difference, any patent which claims an invention falling within the genus subclass and discloses the qualification of the species type-subclass should be classified in the latter whether or not the entire disclosure is claimed. (See Rule 19.)

Example:

Class 29.—Metal Working.
Machine chucks and tool sockets—
Cam closing—
126. Scroll—
127. Bevel pinion or ring.

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[1] All terms have a meaning in extension and in intension. The meaning of a term in extension consists of the objects to which the term may be applied; its meaning in intension consists of the qualities necessarily possessed by objects bearing that name. The term "motors" in extension means all motors—electric, gas, water, spring, weight, etc. "Motors" in intension means instruments to convert some form or manifestation of energy into periodical or cyclical motion of a body. As the intension increases the extension decreases, and *vice versa*. There must be more motors than there are electric motors, and electric motors have more qualifications than are common to all motors. Comparison of arts and instruments with respect to their extension and intension for classification purposes should be made between comparable qualities. A claim for a steam-engine may be very specific while a claim for a reaper may be very broad; here there is no comparable relationship, and the terms intensive and extensive do not have the relative significance most useful in classification. But when a patent or application contains claims for mechanism peculiar to electric motors and other claims for mechanism common to electric motors and other kinds of motors, the claims for the electric motor would control the classification.

If a patent claimed only the scroll of a scroll-chuck, but disclosed it in connection with a bevel pinion and ring, it should be classified in subclass 127, Bevel pinion and ring, and not in subclass 126, Scroll, although if there were no disclosure of the bevel pinion and ring it would go in subclass 126. Any search for scrolls must be prosecuted through all subclasses that include "Scroll" in the title.

(23) Where, as in the case of patents that show and claim a combination that as matter of common knowledge is not new except in one of its elements, to classify a patent strictly in accordance with rule would result in placing the patent where it would serve no useful purpose as a reference and having to cross-reference it to a class where it would serve a useful purpose, it is best to classify the patent in the class to which the element would take it. (See Rule 19.)

Example: A patent claiming a wheeled vehicle, broadly, in combination with an internal-combustion engine comprising a cylinder, a crank-case, a piston and suitably-connected crank, a valve opening into the crank-case, and a valve in the piston opening into the cylinder, may be advantageously classified as an internal-combustion engine notwithstanding the alleged invention is for a motor vehicle.

(24) In order to meet the situation respecting the classification of those patents that indiscriminately claim an article of manufacture defined only by the material of which it is made and those patents that claim those materials, leaving to the specification information regarding the designed uses, patents for articles defined only by their ingredients specifically set forth may be placed in the composition of matter or material class. (See Rule 19.)

Example: A patent having a claim for a cutter made of an alloy of iron, tungsten, and manganese would be classified with Alloys; a patent claiming a box made of paper composed of two layers united by a solution of asphaltum should go to the class of Laminated Fabric and Analogous Manufactures, rather than to paper boxes; and a patent for a house having its exterior coated with equal quantities by volume of carbonate of lead and oxid of barium suspended in a vehicle of linseed-oil would be classified as a paint rather than as a house.

(25) An alleged process of utilizing a specifically-defined composition or material which consists in merely applying it to the use it was designed for may be classified as a composition or material rather than as a process. (See Rule 19.)

Example: A process of painting the bottom of a marine vessel which consists in applying thereto a composition consisting of sulphate of copper, powdered metallic zinc, chlorid of antimony, and hyposulphite of soda, in a vehicle of linseed oil, would be more usefully classified as an antifouling paint than as a ship, as the invention would hardly be distinguishable from a paint claimed as such and described for use on submarine surfaces.

(26) An alleged process consisting merely in the use of a particularly-defined machine or similar instrument operating according to its law of action will ordinarily be classified in the class or subclass

where the machine belongs. But if in addition to defining the operation of a particular machine the claim also specifies acts not performed by the machine, the classification should be in the class or subclass in which the process belongs. (See Rule 19.)

Example: Thus a claim for a method of rolling an iron plate which consists in passing an iron blank between a pair of rolls arranged horizontally in juxtaposition one above the other and geared together so as to rotate in opposite directions, and causing an idle roll supported in bearings on the roll-housings to bear against the central portion of the surface of one of the first pair of rolls on the upper side thereof, should be classified as a rolling-mill, while if to that claim were added the steps of doubling the sheet after one passage between the rolls, again passing between the rolls, again doubling, and then passing the now four-ply pack between the rolls sidewise or turned 90 per cent to the direction in which it had previously been fed, the classification should be with processes of sheet-metal manufacture.

(27) In the absence of settled rules defining permissible joinder of inventions, there may be in one patent claims for one or more or all of the classes of invention named in the statute, to wit, machine, art, manufacture, and composition of matter. There may also be claims to several more or less related inventions in the same statutory class of invention but each belonging to a different industrial art. (1) Where different main classes are involved, the patent will be classified by the most intensive invention, without regard to the statutory class to which it belongs. (2) Where different subclasses of the same class are involved, the patent will be classified in that one of the several subclasses defined to receive the several inventions which stands highest in the schedule of subclasses.

(28) Where a patent contains claims for all or a plurality less than all of the statutory classes, the general rule of preference or superiority of the several classes or subclasses is that represented by the following order, to wit: (1) Machine (or other operative instrument); (2) Art; (3) Manufacture; (4) Composition of matter. This order is, in a general way, the order of intensiveness of the several kinds of invention. (See Rules 29–35.)

Example: An automatic screw-machine, peculiarly adapted to carry out a process of making a novel form of machine-screw out of a new iron alloy, and having a claim to the machine, to the process, to the screw, and to the alloy, would be assigned to Metal-Working, Combined machines, and, if all claims were allowed, cross-referenced to Bolt and rivet-making processes, to Bolts, and to Alloys. If the claim to any one or two of the subjects were eliminated, the order of preference or superiority and the order of cross-referencing would remain the same.

(29) Patents containing a plurality of claims for several different statutory kinds of invention that are classifiable in different main classes, and wherein the rule of relative intensiveness varies from the order Machine, Art, Manufacture, and Composition of matter, may be diagnosed and classified as directed in the following paragraphs (30 to 35).

(30) Where a patent contains claims for a process and for an apparatus susceptible of use as an instrument in carrying out the process, but not peculiar to that use, or for an apparatus adapted to carry out but one step or only a part of the process, the process claim, being in this instance the more intensive, would control the classification. (See rule 28.)

Example: In a patent containing a claim for a process of roasting ore and then collecting the fumes, and another claim for a roasting furnace that is a mere material-heating furnace, the process claim would control; whereas, if one claim were for a method of roasting ores consisting of stirring the ore, applying heat to the same, and collecting the solids from the fumes, and the other claim were for a heating furnace having a stirrer and a fume arrester, the apparatus claim would control. And if a patent contained claims for a process of roasting ores, and other claims for a furnace susceptible of use in carrying out the process but equally useful in annealing glass or steel articles, the process claim would control.

(31) Where a patent claims a specified article of manufacture or other product, and also an instrument for making a part only of that specified article or other product, the product claim, being more intensive, should control the classification; so also in case of a claim for a product and a claim for an instrument performing any minor act with respect thereto. (See Rule 28.)

Example: Where a patent claims a particular construction of a riveted joint, and also a tool for calking the rivet, and where a patent claims a particular construction of shoe, and also a buttonhook for buttoning said shoe, the article and not the tool claims control.

(32) Where a patent contains claims to a process and a product, the process claims govern the classification in those cases where search among machines for making the product would have to be made, and such processes would be classifiable on the basis of the mode of operation, usually in the same class with machines for practicing such processes. (See Rule 28.)

Example: A patent having a claim for a process of making bifocal lenses, consisting in grinding the surface of one piece of glass to form a convex lens, heating another piece of glass until it is plastic, then forcing the ground surface of the first-named piece into the body of the latter and gradually cooling the lens-blank thus formed; and also a claim for a bifocal lens composed of two pieces of glass weld-united, would be classified in Glass-manufacture and cross-referenced into lenses. Or a patent having a claim to a process of making a metal plate with elongated perforations, consisting in forming round perforations in the plate and subsequently rolling the plate, thereby thinning and elongating the plate and elongating the openings, and also a claim to a metallic plate having relatively long and narrow perforations, would be classified on the basis of the process claim.

(33) Where a patent claims both process and product, and the alleged process is disclosed in the product, so that search would have to be made in the appropriate class of products, the product will be adopted as the basis of classification, and classification will be in the appropriate product class. (See Rule 28.)

Example: A claim for a process of making a pencil consisting in assembling a core of graphite with a sheathing of wood, and attaching a cap of rubber-composition to one end, would be classified as a pencil rather than as a process, because conception of the article is inseparable from the process and search must be made in the article class.

(34) Where a patent claims a process of making a composition of matter, and also the composition of matter, the claims will be classified in general in accordance with the classification of the composition of matter in all cases where the process is peculiarly adapted to produce the composition, as by setting forth the introduction or assemblage of particular ingredients, since those processes that include the selection of particular ingredients necessitate search among compositions having such ingredients. (See Rule 28.)

Example: A patent having a claim for a composition consisting of a mixture of caoutchouc and casein, and a claim for the process of preparing a rubberlike substance which consists in adding undissolved raw caoutchouc to casein and thoroughly mixing and kneading the mass, would be classified according to the composition.

(35) Where a patent claims a product such as a specific article of manufacture, or a specific composition of matter, and also claims a process of general application for making one of the parts of the article or one of the ingredients of the composition, the product claim should control the classification. (See Rule 28.)

Example: If a patent claimed a woven textile fabric having the yarns interlaced in a defined relation, and a process of spinning a yarn utilized in the fabric; or if a patent claimed a varnish composed of shellac, dissolved in wood alcohol, and a pigment, and also contained a claim for distilling wood to obtain the alcohol, the product claim would control the classification in each instance, and the process would be cross-referenced.

(D) PROCEDURE IN RECLASSIFYING WITHIN EXAMINING DIVISIONS.

(1) Do not start to make a new class or revise an old one with preconceived fixed notions respecting its scope and the particular subdivisions required. Wait until all patents pertinent to the subject have been seen and adequate knowledge of them acquired. In other words, make no *a priori* classification but discover and assemble all the facts and from them make your inductions. Then the common characteristics of the subject-matter of the class may be intelligently defined, the limitations of the class marked out, and its relation to other classes set forth. Bear in mind that the Patent Office classification deals with the subject-matter of the useful arts rather than merely with existing classes, and that it is not therefore essential to retain classes that are found to be composed of unrelated or too distantly related units.

Assuming that the work of reclassification is undertaken by examiners who are already experienced in the subject-matter to be classified, procedure as follows is recommended:

(2) Utilizing your previously acquired knowledge of the patents in the class you are about to revise, subdivide the existing subclasses into bundles, so as to assemble in each bundle those patents deemed to have the closest resemblance to each other. For the purpose of this assemblage, consider each patent as an entirety and not with reference to various more or less important parts of that entirety.

Example: An apparatus comprising in alleged combination a means for decanting water, a means for electrolytically depositing impurities, and a means for filtering the water, should not be classified either as a decanter, an electrolytic apparatus, or a filter, but should be classified as a combination apparatus (taking it to the general art of liquid purification). So also the combination of a rotary printing-press with a folding mechanism, and a wrapping mechanism, should not be classified merely as a rotary printing-press, a folding machine, or a wrapping machine, but should be classified as a combination of the several mechanisms as an entirety whose functions carried out in proper order produce a printed and wrapped newspaper.

(3) Write an approximate or tentative definition of the matter thus assembled in each bundle and attach it to its appropriate bundle.

(4) Where it appears that the subject matter of any bundle formed from the patents of any subclass is analogous to matter in other subclasses of the same class or in other classes, a note should be added to that effect so that this matter may be given special consideration.

(5) When the same examiner or different examiners are working on different subclasses containing analogous matter, parallel lines of subdivision should be followed wherever possible, in order to effect an arrangement that will facilitate comparisons.

(6) When subdividing a group of more or less complex organized structures or mechanisms, note should be taken of subcombinations that form or it is thought should form the basis of other subclasses, either in the same or different classes, into which those details may be collected, either classified therein originally or by cross-reference.

Example: Assuming that the combination of press, folder, and wrapping mechanism, referred to in a preceding paragraph is to be classified in a class of Printing, on the entirety as a combination having the function of printing, plus other functions, and that folding and also wrapping are separately classified, then the particular type of press should be selected to be cross-referenced into a press-type subclass of the class of Printing, such as "Presses, rotary," while the folding mechanism and the wrapping mechanism would be noted for cross-reference to other appropriate classes. Also, any part of the printing press, such as the inking mechanism, specifically described, should be noted for cross-reference into a subclass of Printing designed to receive the inking mechanism as a part of the printing press.

(7) After a knowledge of the material of the class has been obtained by estimating the resemblances between the individual patents that

have been assembled in the several groups, comparison of these groups, represented by the bundles of photolithographs, by the aid of the approximate definitions and notes attached can be made. It can then be decided whether all of these groups are to be retained in the proposed class, and the retained groups can be organized into a class with the subclasses arranged so as to bring those subclasses having the strongest resemblances in closest relation, and in such order as to comply with the conventions adopted in the official classification. It will probably be necessary to have one subclass or group as broad as the definition of the class, to take unclassifiable matter and to provide for possible future inventions.

(8) Up to this point, more or less cursory attention may be given individual patents; but when an arrangement of subclasses shall have been tentatively adopted it will be necessary to consider each patent carefully to ascertain whether it is properly placed.

(9) Patents that, considered as an entirety, cover means not peculiar to the class or subject-matter being revised, should, in general, when assembled in groups as indicated, have a note attached indicating not only want of limitation to the subject-matter of the class but also a more appropriate class to receive them if such there be. Although a very large proportion of patents can be accurately classified as indicated by their titles and stated uses, the mere fact that in a patent found in a class the invention is called in the specification or claims by a name peculiar to the class is not of itself a reason for considering it peculiar to the class. A gas and liquid contact apparatus may be called a heater, a cooler, a gas-washer, a water-carbonator, a condenser, a disinfecter, an air-moistener, and so on, depending upon accident of use. If there are not elements in some claim to confine the means described distinctively to what it is called, or if there are no functions necessarily implied in the means claimed peculiar to the named use, the patent should not be kept in the class unless there is no other class in the office that can receive it.

Example: Where the matter claimed is a metal beam of peculiar cross-section, it should be classified with other metal beams, as in Class 189, Metallic Building Structures, even if it is named in the application as a beam of particular use, as a railroad-tie, car-sill, bridge-tie, etc. Should a mere dash-pot be found classified in Class 171, Electricity, Generation, a note should be attached indicating that it belongs in the appropriate element class.

(10) In giving this final careful attention to the patents, each should also be scanned to see whether it contains matter that should be cross-referenced. A few lines obscurely located in a specification may contain a disclosure of a most valuable invention. No class can be deemed complete until the disclosures appropriate to it found as parts of more complex inventions in other classes, or disclosures of analogous matter in other classes, are either cross-referenced into it or cross search-notes made.

(11) To indicate cross-references, from one subclass to another within the class or from the class under consideration into another class, attach a small slip of paper to the patent and mark on the slip the subclass number in which the cross-reference shall be mounted. If the matter to be cross-referenced relates only to a portion of a voluminous patent, the portion of the specification and drawing to be cross-referenced should be indicated. If the cross-reference falls outside the class, the class number should be noted in addition to the subclass number.

(12) Should it be found that the handling of copies in making examinations detaches the cross-reference slips, it may be advisable to mark lightly but legibly in pencil on the lower right-hand corner of the examiner's photolithograph the number of the subclass or subclasses into which it is to be cross-referenced, or the number of the class and subclass in case it is to be cross-referenced to another class.

(13) Whether cross-reference notations are written on a separate slip or on the photolithograph, the number of the class and subclass into which a patent is to be cross-referenced should always be preceded by X (thus X 101–23) in order to distinguish the original classification notation from the cross-reference notation and enable sorting and indexing to be done without confusion.

(14) To indicate cross-references from other classes into the one being reclassified, set down the number of the patent in a notebook, placing after the number (1) the class and subclass in which it is classified; and (2) the number of the class and subclass in which it is to be cross-referenced.

(15) Should new subclasses be formed or transfers of patents be determined on, and lists of the patents, instead of copies thereof, be furnished clerks for the purpose of making such subclasses and transfers and correcting the official indexes and other records, each patent should be listed by number in column to the left of a sheet of paper or notebook, and opposite each patent number on the same sheet should be written (1) the number of the class and subclass in which it is officially classified; (2) the number of the class and subclass to which it is intended to transfer it; and (3) the numbers of the classes and subclasses, preceded by X, into which it is intended to cross-reference it.

Note: Even though examiners engaged in reclassifying are confident of their ability to classify and arrange on better principles than those that have been applied thus far in the classification, they ought, nevertheless, to follow those principles under which one-half of the patents have been classified. Until the Commissioner of Patents orders examiners to classify on other principles, it is expected they will follow those now established.

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THE RECORDS OF ASSIGNMENTS OF PATENT PROPERTY

And their relation to the prosecution and examination of applications for patent.

A paper read May 28, 1914, before the Examining Corps of the United States Patent Office

by

WILLIS B. MAGRUDER,
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Assignments of Patents.

Section 4898 of the Revised Statutes provides that:

"Every patent or any interest therein shall be assignable in law by an instrument in writing; and the patentee or his assigns or legal representatives may, in like manner, grant and convey an exclusive right under his patent to the whole or any specified part of the United States. An assignment, grant or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent Office within three months from the date thereof."

RECORD BOOKS.

In order to comply with said law the Patent Office has provided books for the record of such assignments as may be presented, and the assignment records of the Patent Office are intact from 1837 to the present date. In 1836 the entire records of the Patent Office were destroyed in a fire, and that is the reason why the records of assignments prior to 1837 are not in existence.

The books provided for the record of assignments are designated "Transfers of Patents", and contain 500 pages each, in alphabetical series, numbered from 1 to 94, and therefore the designation where an instrument is recorded is referred to by letter and number, as, for example, Liber H 77; W 76; or A 75, etc.

Since 1837 to the present date there are over 2470 of these record books. It would therefore be an endless task to make a search of these volumes to ascertain the title to a patent; so it was necessary to have a separate index in which searches could be readily made, and such books were provided and designated "Digest of Assignments", in which there is an index of each instrument under the name of the inventor only, and consequently it is necessary to know the name of the inventor of the particular patent, application or invention under which a search is to be made, in order to make such a search.

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INDEXING AND BRIEFING.

Prior to 1870 these indexes were made from party to party, as are records of transfers of realty, but it was found that if any particular paper in a chain of title was not recorded, all subsequent assignments under the same patent were lost in making a search. Therefore in 1870 a special appropriation was obtained from Congress that new indexes might be made under the *name of the inventor*, and such indexes and digests were made by the clerks of the Patent Office working outside of Office hours, and in due time a full set of digests were made and were accessible to the public for searches, and said system of indexing under the name of the inventor has been carried out to the present date.

These digests contain the name of the inventor; the assignor or the party who gives or grants the rights in the assignment; the assignee, purchaser or beneficiary in the assignment; the date of the writing; the date of its record; the description or identification of the invention, application or patent transferred which is recited in the assignment itself; a brief description or digest of the interests or rights transferred; designation where the same is fully recorded; when the original was returned, and to whom. This digest is particularly full and clear, being a brief description of the essentials of the instrument, so that one searching the records may find spread upon such digest a condensed description of the writing.

Digesting is one of the important branches of the work done in the Patent Office and its value is inestimable. Into this work enter analysis, analogy, logic, common sense and office precedent. There are no written rules in making these digests, the deeds being so diverse as to render rules of little value. Years ago the digesting was done in a most informal manner, being little more than an index, but for many years past, and especially since the inauguration of a new system in 1898, of briefing on sheets preparatory to revision, alteration and copying into the Digest books, it would be difficult to find a more concise, correct and accessible record and index from which searches can be made.

These briefs are copied to form certified "Abstracts of Title" for use in the courts, and are constantly being

searched by attorneys and others interested in patents, and without the "Digest of Assignments" their work would be not only difficult and voluminous, but the expense thereof would be very largely increased.

At the present time there are 478 of such Digests of Assignments. They are separated alphabetically in the 26 letters of the alphabet, to contain briefs of deeds under the initial letter of the surname of the inventor. Consequently in making a search you would ask for the books under the initial of surname, from a certain date, at least two years prior to the date of filing the application for the patent, to cover the term that the application may have been pending and to obtain access to any assignments recorded prior thereto. In each of these volumes is a separate and detachable index, and this index is made under the *given names of the inventor*, and under the first vowel of the surname.

SEARCHING.

If it be desired to ascertain whether any assignments under the name of John Wesley Richardson are of record, you obtain the books labeled *R*, turn to the index of first name, in this search under the letter *J* and you will find thereunder the combinations Ra, Re, Ri, Ro, Ru, and Ry, so that it is only necessary in making the search for the name of John Wesley Richardson to look under the combination Ri, and if there be any assignments in that volume under said inventor's name, the number of the page will be opposite his name, and if the name John Wesley Richardson does not appear in this combination it is certain that no assignments from him or under his patents are of record in said book. Surnames beginning with a vowel and having no other vowel are indexed as if the initial stood for the first letter of the surname and also as the vowel, as, for example, Erp, Olds, etc. will be found in the combination E-e, O-o, respectively.

It will be apparent that searches are by this system of indexing materially shortened, and that the information sought is particularly accessible.

Under the system of indexing only under the name of the inventor, instruments from an assignee to a third assignee, and from said party to others, will be found under the name of the inventor, and not from party to party, as before mentioned.

Following the regular index of names of sole inventors there is found an index of *joint inventors*, together with names of firms and corporations that are registrants of trade-marks, labels or prints.

Under this system of indexing it is a prerequisite that each deed recite specifically the full name of the inventor or registrant of each invention, application, patent, design, trade-mark, label or print affected by said writing, that a definite index may be made under each name; but frequently a deed that should be recorded fails to contain such identification, for instance, a deed from a company of all its patents, etc., without enumerating same.

This situation necessitated a special index for such papers, and therefore additional indexes were prepared and designated "Irregular Transfers".

Instruments that do not recite the name of the inventor or registrant, or for other reasons are irregular, are indexed among the "Irregular Transfers", under the name of each person, firm, corporation or court, etc., named in instrument, and in making searches it is therefore necessary to continue the search in this index of "Irregular Transfers" under the names of all parties that are found in the search among the regular deeds, in order to have access to such unidentified deeds as may have been made and recorded by any of the owners disclosed by the search.

There are of record in the Assignment Division of the Patent Office all sorts of instruments in relation to the title to inventions, applications, patents, designs, trademarks, labels and prints; such as assignments, licenses, agreements, liens, mortgages, shoprights, decrees of court in relation to title, and other papers. It can be readily appreciated that from such a variety of writings there are a number of very informal writings presented for record, and much difficulty is experienced in intelligently spreading such instruments upon the digest of assignments, so that searches therein may disclose all papers that might in any way affect or relate to the subject matter of the search.

Searches among these records should be made by the examiners when applications are formally abandoned

and when interferences are declared, to ascertain in the former case whether or not the consent to abandonment by an assignee is necessary; and in the latter case to ascertain the address of assignee, to whom notices of interference may be mailed. It frequently occurs that the recorded assignment does not recite the special address of the assignee and in such cases letters should be addressed to assignee in care of the attorney who forwarded the assignment for record.

IDENTIFICATION AND PROPORTION ASSIGNED.

The inquiry has often been made why there cannot be an index under the numbers of the patents, as there is in most all other record offices in plat books, so that a person might at once see who owns a particular patent; but the answer to this question is that there are of record in the Office many instruments that *may* affect title indirectly or equitably, but do not specifically refer directly thereto. It is a common practice for inventors preparatory to even making an application for patent for their inventions, to solicit and obtain the aid of capitalists, and to secure the latter there is drawn an agreement or a transfer that the whole or a certain portion of said invention, after it becomes a patent, will be, or is transferred to the party furnishing the money to develop the invention.

It will be apparent that at this time no identification of the invention is possible, inasmuch as the invention is probably only in the mind of the inventor, and has not even yet been reduced to writing in order to apply for a patent, and therefore there is no data or other means of referring to the invention except by its mere name. If such an instrument be found of record the courts might hold that it would be at least a lien or an equitable transfer of the invention that may become a patent, but should a patent be granted such an instrument would be in the nature of an executory contract and the party who has put up the money for the development of the invention, if denied a legal deed, has the right to go into court, if necessary, and compel a legal transfer from the inventor. In a number of transfers in which an inventor assigns a particular patent or application, specifically identifying same, there is also transferred "all improvements that I may make thereon" or "all improvements which I may

make in the same class of invention". This has been construed to grant at least an equitable interest in any further or future inventions that the inventor may make, and in making searches under a particular patent such writings as above must be taken into consideration and weighed, in order that the rights of the parties mentioned may be determined.

Experience in the Assignment Division of the Patent Office has made me appreciate the extreme carelessness displayed in drawing up instruments in writing affecting the title to patents or applications. In fact some of the papers presented for record show evidence of almost, I might say, criminal carelessness. No sane person in drawing up a deed of real estate would fail to recite the metes and bounds of the property, as that would seem to be the first essential, but many instruments are presented for record in the Patent Office that have no identification whatever. It will be appreciated what an assignment would amount to for instance, if Thomas A. Edison should transfer an electrical invention "for which I am about to make application" without any other identification, inasmuch as Mr. Edison is a prolific inventor, having filed many applications and obtained many patents for improvements in electrical subjects.

Identification of the application or patent transferred is of the utmost importance. The rules provide that if the assignment be dated subsequently to the application, the assignment must identify the application by date of execution, date of filing or serial number of the application, "so that there can be no mistake as to the particular invention intended"—Rule 26.

If the application and assignment be executed on the same date, the assignment should identify the application as "executed of even date herewith", that there may be certainty as to the particular invention and application affected.

If more than one application for the same class of invention be executed upon the same date, care should be exercised to designate each by some arbitrary symbol, that each may be perfectly identified if it be desired to assign either of them. Such applications might be designated by letters, as, for example, "Case A", "Case B",

"Case C", etc., or by numerals, as, for example, "Case 1", "Case 2", etc.

In the decision *Ex Parte* Williamson, 88 Official Gazette, 2065, the Commissioner says:

> "It is possible that the assignment mentioned above has reference to the invention covered by application No. —; but there is no certainty of this, and in such matters the Office requires certainty and not mere probability to justify its action."

The proportion of interest transferred should also be carefully and correctly recited. If an inventor has transferred a part of his interest to one party and desires to sell to another party a part interest, the proportion to each should be designated as a certain part of the *whole and entire interest*, rather than as a portion of "*my* interest".

If two transfers, dated on the same date, sell to each of two parties "one-quarter of *my* right, title and interest", it cannot be determined which writing was first executed, thereby transferring one-quarter of the *whole* interest, or which was thereafter executed, thereby transferring one-quarter of the *remaining* interest. If each writing transferred "one-quarter of the *entire right, title and interest*" the proportion assigned to each would be definite.

REQUEST TO ISSUE PATENT TO ASSIGNEE.

A number of decisions hold that an assignment of an unpatented invention which fails to make a request that should a patent be granted upon the application transferred, it issue to the assignee for his interest, is merely an executory contract and does not transfer legal title.

In the decision Harrison v. Morton, Court of Appeals of Maryland, 83 Md. 476; 76 Official Gazette, 1275, before Judges McSherry, Bryan, Page, Russum, Boyd and Fowler; Judge Fowler says:

> "It follows from what Chief Justice Taney says in Gaylor vs. Wilder (10 How. 480), that prior to the issue of Letters Patent to the inventor he has an imperfect inchoate right to its use,which he may

perfect and make absolute by taking the steps required by law, and especially by having Letters Patent issued to him; or he may by an assignment of this inchoate right, coupled with a request to issue letters to his assignee in compliance with Rule 26 of the Patent Office, transfer to such assignee a legal title to such invention. The legal title passes to the assignee under such an assignment, because he has under it, as the inventor had by law, the right to secure letters in his own name. But the only way in which such letters, which are the evidence of a perfect legal title, can be secured by the assignee, is by request of the inventor first, and of his assignees, as the case may be, expressed in the assignment * * * The general rule seems to be that an assignment without request conveys only an equitable title."

Therefore in all assignments of pending applications it would seem to be absolutely necessary that the writing contain a request that the Commissioner of Patents issue any patent that might be granted thereon, to the assignee for his interest. About seven out of ten assignments presented for record contain such a request, and when the patents are granted upon applications, the assignments whereof do not contain such a request, there is invariably a complaint that the patent has not issued to the assignee, but such complaint is too late, inasmuch as the rules provide that the request must be "embodied in the assignment", which assignment must be recorded in the Patent Office before or at a date not later than that on which the final fee in the application is paid, in order to have the patent issue to the assignee.

In the past year or two the Courts have held that when a patent is granted it vests in the assignee, although it may be issued in the name of the inventor, and it is not essential to such vesting of the title that the assignment shall contain a request to the Commissioner of Patents that the patent issue to the assignee. These decisions are Wende vs. Horine, reported in 191 Federal Reporter, page 620; and Hildreth vs. Auerbach et al, reported in 200 Federal Reporter, page 972.

The Office, however, has not followed these decisions in the granting of patents owing to Rule 26 which has not been abrogated or modified. The rule provides that

"the patent will, *upon request of the applicant, embodied in the assignment,* issue to the assignee; and if the assignee hold an undivided part interest, the patent will, upon like request, issue jointly to the inventor and the assignee; but the assignment in either case must first have been entered of record, and at a day not later than the date of the payment of the final fee".

Such request in an assignment, to issue to the assignee, or the lack of such request, is an important matter in the prosecution of an application where the assignee intervenes in such prosecution.

The assignee of an entire interest in the invention may not revoke a power of attorney given by the applicant and appoint one of his own selection where the assignment does not request that the patent issue to said assignee. Such an assignment conveys merely an equitable and not a legal title. This holding is in the Commissioner's decision *Ex Parte* Stanford, Dec. 1908, 138 O. G., 527.

In the decision *In Re* Wetmore and Jenner, 155 O. G., 799 the administratrix of a deceased applicant was held to be entitled to control the prosecution of the application to the exclusion of the assignee, where the assignment did not contain a request that the patent issue to the assignee, notwithstanding the fact that the petition accompanying the application contained such a request.

FORM OF ASSIGNMENT.

A great many assignments are filled out on printed forms, and frequently an instrument is presented in which it is attempted to transfer a pending application by altering a blank form intended for the transfer of a patent, and some of such attempts in changing the phraseology of the writing, or in filling blanks, are ludicrous. In the Office Rules there are certain suggestive forms for assignments, but even these are not properly followed, and there appear of record among the assignment records some instruments that if taken into court, would receive little consideration. Inasmuch as the law does not provide a particular form for assignments, the Office cannot control the same, and has no authority to withhold them from record, or criticise writings except as a matter of courtesy, which sometimes is resented.

Of course in assignments of applications where there is a request to issue, the Commissioner of Patents is authorized to withhold the assignment from record and require certain identification or the correction of informalities therein, inasmuch as he is requested to act thereon in the issuance of the patent; but in deeds for patents he has no such authority, and consequently very many instruments are spread upon the assignment records of the Patent Office which are utterly worthless, owing to lack of identification of patents affected.

CONFLICTING ASSIGNMENTS.

Where there are conflicting legal assignments of record under a particular application, the senior assignee is, under the practice of the Office, allowed to intervene in the prosecution of the application, (Sparkes v. Small, 113 O. G. 1970) but should such case terminate in a patent said patent would issue to the inventor "his heirs or assigns", that the courts might determine between the contesting parties the ownership of the patent (*In Re* Moller, 108 O. G., 2144). It is therefore questionable as to the proper practice of recording assignments of pending applications.

RELATION OF ASSIGNMENTS TO APPLICATIONS.

What then is the relation existing between the assignment records and the examination of applications and the granting of patents thereon? The law, the rules of practice and many decisions make such relationship very close and intimate. Section 4895 Revised Statutes provides that "patents may be granted and issued or reissued to the assignee of the inventor or discoverer; but the assignment must first be entered of record in the Patent Office", and this section taken in connection with Section 4916 of the Revised Statutes, providing for the reissuing of letters patent "to the patentee, or, in case of his death or of an assignment of the whole or any undivided part of the original patent, then to his executors, administrators, or assigns for the unexpired part of the term of the original patent" necessitates a careful examination of the assignment records in the prosecution of applications, and especially of reissue applications. These two statutes devolve upon the Office the responsibility

of issuing patents and re-issuing patents to the legal representatives, or to the assigns of the inventor.

ABSTRACTS OF TITLE.

Rule 86 of the Rules of Practice requires that a re-issue application must be accompanied by "an order for a certified copy of the abstract of title to be placed in the file, giving the names of all assignees owning an undivided interest in the patent. In case the application be made by the inventor it must be accompanied by the written assent of such assignees". If there be not filed with the application an abstract of title as required by Rule 86 the first action in the examination of the reissue application should therefore be to require the filing of such abstract, to ascertain if there be an assignee in the patent, and to require the assent of such assignee if the same be not already in the petition.

Frequently when reissues are granted and the files are forwarded to the Assignment Division for final examination and for the purpose of continuing the abstract of title to date, it is noted that the abstract of title has never been ordered nor filed with the application, also that the assent of the assignee is not in the file, necessitating the return of the application to the examiner and further delay, that these requirements may be fulfilled.

ADMINISTRATORS AND EXECUTORS.

Prior to 1909 when an inventor died during the pendency of his application, the practice required that a certified copy of Letters of Administration or Letters Testamentary be filed in each of decedent's applications pending before the Office. On January 20th, 1909 Order 1792 (reported in 138 O. G., 970) was issued requiring the filing in the application *or the recording in the assignment records* of the authority of the administrator or executor to intervene in the prosecution of the application, such authority being evidenced by a certified copy of Letters of Administration or Letters Testamentary; and for uniformity of practice the Chief of the Assignment Division was charged with the duty of passing upon the sufficiency of such authority.

On October 22nd, 1909, the above order was modified by Order 1827 (reported in 148 O. G., 837) requiring that such authority "shall *in all cases* be *recorded* in the assignment records of this Office", and also providing that a reference to this record should be placed in each application involved.

Under date of January 13th, 1910, Order 1838 (reported in 151 O. G., 453) was issued, modifying the two previous orders, providing that "the *examiner* will require the recording in the Assignment Division of a certificate of such appointment, or a certified copy of Letters Testamentary or Letters of Administration in each case before finally passing the case to issue"; and under date of October 14th, 1913, Order 2076 (reported in 195 O. G., 543) provided that the "allowance of the application will not be withheld nor the application withdrawn from issue if the executor or administrator does not intervene; modifying Order 1838.

It will be apparent that when an executor or administrator intervenes in the prosecution of an application, or when it is suggested that the inventor is dead, the assignment records should be examined and if the proper authority of the representative of decedent be not found the examiner should require the recording of the proper authority of such representative, so that the patent when issued would issue to the executor or administrator, or his assigns, and that such representative might ratify the actions in the case by the attorney after the death of the applicant.

DIVISIONAL APPLICATIONS, ETC.

Reissue applications, renewal applications, divisional applications, refiled applications, substitute applications and continuation applications are all controlled in ownership by the assignment of the original or parent case. As far back as 1887 it was established by the ~~Commissioner's~~ decision Puetz vs. Bransford, 39 O. G., 1083, that:

> "An assignment before application for letters patent 'of the full and exclusive right to the invention as fully set forth in the specification' car-

> ries with it whatever patents may issue upon the divisions of the application required by the rules of the Patent Office."

If a parent case be assigned the renewal, refiled, substitute or contiuation applications are also affected by said assignment, as the invention is owned by the assignee of the parent case. In the case of renewals the original file wrapper in each case is used, and as the assignee's name appears indorsed thereon it is only necessary to verify such indorsement with the assignment records; but in the case of divisional applications an order was issued November 25th, 1896, (Order 1111) which is applicable also to refiled applications, substitute applications and continued applications, providing that:

> "The examiner will make an entry in red ink on the face of the file wrapper * * * of the serial number and filing date of the original application. The heading of the printed specification and the record of assignments will conform to this entry."

This order was reiterated substantially (providing for a different place on the file wrapper for such entry) by Order 1832 on December 3rd, 1909. The observance of this order is comparatively uniform throughout the Office, but occasionally an application is not so indorsed, and in one case lately a Certificate of Correction was necessitated by the failure of the examiner to make the proper indorsement of the parent case upon the file wrapper of the divisional case, and in consequence thereof the patent issued to the inventor when it should have issued to the assignee of record in the parent case.

The nomenclature of the different applications that "have been carved out of" the original case or contain only the same invention, has become somewhat confused owing to the decision in 1910 *Ex Parte* Kruse, 157 O. G., 208, which is the foundation for designating an application as a "continuation *in part*":

> "A subsequent application may, however, be a continuation of an older application, when the two have common subject matter, even though the later application may contain matter which is a departure from that which is described in the

original application. In such cases the applicant is entitled to the date of the original application for the subject matter which is common to both, and to the date of the latter application only for that matter which has been disclosed therein for the first time."

The question of ownership or title was not under consideration when this decision was made, but it will be evident that an application which is a "continuation in part" and contains matter not common to both cases, would not be so affected by an assignment of the parent case as to warrant the Office in issuing a patent upon such an application to the assignee. It is found that a number of such "continuation in part" applications are erroneously designated "continuations" only, and if such error be made in the indorsement on the file it is particularly misleading in the issuance of the patent. Care should be particularly exercised to recite the fact whether the application be a continuation, or only a "continuation *in part*". In fact it is believed that an indorsement on the file is unnecessary in the case of a "continuation in part", such notation being made in the preamble to the specification only, and therefore should not appear in the heading to the printed patent, nor have any consideration regarding the title thereto, in the issuance of the patent.

Therefore, it is most earnestly urged that the examiner acquaint himself with the assignment records, especially when such records have bearing upon the prosecution of the application under consideration, and any aid necessary for the examination of the records will be gladly furnished, by the Assignment Division.

PUBLIC USE OR SALE

A paper read September 10, 1914, before the Examining Corps of the United States Patent Office

BY

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U. S. Patent Office.

WASHINGTON, D. C.
1914.

THE LAW REPORTER PRINTING COMPANY, WASHINGTON, D. C.

Public Use or Sale.

The term "Public Use or Sale" in its relation to the grant of patents under the Patent Laws of this country is based upon Section 4886 of the Revised Statutes, which provides that the invention, in order to be patentable, must not have been in public use or sale in this country for more than two years prior to the application for a patent. Under Section 4920 a defendant in an action for infringement may plead the general issue and prove on trial that the patentee's invention had been in public use or sale in this country for more than two years before his application for a patent.

DEFINITION.

The first thought that occurs to one interested in this subject is, What is Public Use or Sale? Considering public use first, I should say that the practical employment in public of a complete or operative invention would be a good definition. In the first place, it is necessary that the invention be embodied in an operative form—that is, it must be so complete in its action as to exhibit the inventive idea involved therein. This does not necessarily mean that it be mechanically perfect in details, since industrial skill can be relied upon to cure formal defects. In the second place, it must be practically employed. By this is meant that the invention must be actually used in the ordinary course of trade, and if used efficiently but once, it is regarded as practically employed. In the third place, it must be open to the public or where they can see it if they so desire. In this connection the term public means any person or persons other than the inventor.

Sale under the Statute and as defined by decisions is the unconditional disposal, for profit, of a complete or operative invention.

LEGISLATIVE HISTORY.

Under Section 1 of the Patent Act of 1790, it was provided that the "use" by any one before the grant of the patent, was sufficient to bar such grant. Apparently pretty harsh treatment and very discouraging to inventors, so in the Patent Act of 1793 the limitation "before the application" was introduced into Section 1, so that any use, after the application was filed, did not affect the grant. This was the law until the Patent Act of 1800, Section 1 being amended by the inclusion of the specified limitation, "either in this or any foreign country;" so that any use in this or any foreign country previous to the application was a bar. In the Patent Act of 1836, Section 6, appears the following: "and not, at the time of his application for a patent, in public use or on sale, with his consent or allowance, as the inventor or discoverer." It is to be noted that in this act the use is referred to as "public" and that "sale" is added as an additional bar. The limitation "with his consent or allowance" caused no end of trouble in the courts, and according to their rulings Section 7 was, in 1839, amended to provide that no patent would be declared invalid unless the prior use had been for more than two years prior to the application. In the Patent Act of 1870, Section 24 contained the following: "and not in public use or on sale for more than two years prior to his application." When the Statutes were revised in 1874, Section 4886 contained the same language as Section 24 of the Act of 1870. In the Act of 1897, Section 4886 was amended in several particulars, and it will be noticed upon reading the same that the limitation "in this country" appears for the first time as follows: "and not in public use or sale in this country for more than two years prior to his application." The words "in this country" was not one of the amendments incorporated at that time, and the only reason apparent for their inclusion is, that it was deemed a convenient time to make this section harmonize with the language of Section 4920, which section prior to the revision of the Statutes was Section 61 of the Act of 1870. In the Appropriation Act of June 17, 1910, the sum of two hundred and fifty dollars was appropriated for investigating the question

of public use or sale, and for expenses attending defense of suits instigated against the Commissioner of Patents. In this connection attention is called to the fact that Section 4886 employs the phrase "in this country," whereas Rule 24 of the Rules of Practice uses the phrase "in the United States."

GENERAL STATEMENT.

No definite rule exists defining what is public use or sale under the Statute. Only by previous decisions and the circumstances in each individual case, can the question what or what is not public use or sale be determined. For instance, a single instance of sale or use proved, may be fatal. It is not necessary that a number of persons use it, but one well-defined case of public use is just as effectual as many. A single unrestricted sale, proved, is sufficient to establish the defense of prior public use and sale. The sale of a machine, absolute, unconditional, and for a valuable consideration, is public use or sale within Section 4886 of the Revised Statutes. An invention which has been in public use more than two years, whether with or without the inventor's consent, is abandoned. Where an employee invents under hire, and employer uses, such use, if for more than two years is public use. If an inventor, having made his device, gives or sells it to another, to be used without limitation or restriction, or injunction of secrecy, and it is so used, such use is public use. It is not public knowledge of an invention, but public use or sale which precludes an inventor from obtaining a valid patent. In fact, the following extract from the decision in Thomson-Houston *vs.* Lorain, 117 Fed., 249, 54 C. C. A., 281, indicates clearly some of the points to be considered in determining the question of public use or sale:

> "It is contended that no public use can be a bar to a patent unless there is an element of profit involved or unless the inventor allows the invention to go out of his control. The object of evidence on these points is to distinguish between a use by the public, as in Elizabeth *vs.* Pavement Co., 97 U. S., 126, for the purpose of experiment,

and a use by any part of the public, as in Egbert *vs.* Lippmann, 104 U. S., 333, which is not experimental. The ultimate question is not whether the public used the invention, but whether the use was directed to a development of the invention or test of its practicability. For the purpose of proving the ultimate fact, evidence as to whether the inventor derived a profit from the use, or retained control, may be important, but is not necessarily conclusive."

The Supreme Court, in the Smith & Griggs Mfg. Co. *vs.* Sprague Administratrix, 41 O. G., 1037, clearly specifies the difference between public use and sale of a perfected invention, and experimental use of an incomplete or imperfect invention. The court held that a patentee can not be permitted to use, for profit, a machine "which embodies a perfected invention" for a period of two years or more and then obtain a valid patent. It also stated that the use of an invention by the inventor himself, or by any other person "under his direction" by way of experiment and in order to "bring the invention to perfection," has never been regarded by the court as such public use as under the Statute defeats his right to a patent.

Attention is also called to the Supreme Court decision in the celebrated "driven well" case of Andrews et al. *vs.* Hovey, 41 O. G., 1162, wherein it was held that where the purchase or construction of the patented article took place at a time more than two years prior to the application, whether with or without the knowledge, consent, or allowance of the patentee, the patent is invalid.

In the Supreme Court decision in Root *vs.* Third Avenue Railroad Co., 61 O. G., 1947, the court held that where an inventor disclosed his invention "to a company which adopted it and put it into complete and practical operation in and for the ordinary purposes of "trade and commerce," and where it appears that the inventor "regarded his invention as complete at the time of its adoption by such company," such use for more than two years before application for a patent is public use within Section 4886, and not "one of experiment."

Attention is also invited to the following quotations

from decisions regarded as authoritative on this subject, said quotations illustrating principles or points to be taken into consideration in determining public use or sale:

"A mechanical invention can be put to use only when embodied in a concrete machine, and it is as much embodied in one such machine as in a thousand. Whether, when thus put to use, it is put 'in public use,' is a fact to be determined, not by the number of machines in which it is so embodied nor by the length of time they are run, but by the extent of use to which such inventor allows such embodiment to be put. He may retain his control over the machine which embodies such inventions and reserve to himself the right to select the individuals who shall use it, or secure to himself right of access to it for the purpose of conducting his experiments; but when he parts with such machine unreservedly, so that thenceforth the right to take, and hold, and use, and sell it is free to the public, that machine, and the invention it embodies, is by him put in public use, and he does so part with it when he sells it under a contract which not only allows the individual purchaser to use it, but leaves him free to transfer machine and use to whom he will. Whether the purchaser chooses to resell it or not is immaterial; he has the power to do so and that is enough. If the inventor wishes to keep control of the machine which embodies his invention, to secure his own access to it for examination, and to keep it in the friendly hands of those who he intends shall aid him by practical experiment, he must make such restrictions a part of the contract of sale, and the court can not assume them to exist in the absence of proof. De Lamater *vs.* Heath, 58 Fed., 414; Egbert *vs.* Lippmann, 104 U. S., 333.

"Some inventions are by their very character only capable of being used where they can not be seen or observed by the public eye. An invention may consist of a lever or spring, hidden in the

running gear of a watch, or of a ratchet, shaft, or cog wheel covered from view in the recesses of a machine for spinning or weaving. Nevertheless, if its inventor sells a machine of which his invention forms a part, and allows it to be used without restriction of any kind, the use is a public one within the meaning of the law. So, on the other hand, a use necessarily open to public view, if made in good faith solely to test the qualities of the invention, and for the purposes of experiment, is not public use within the meaning of the Patent Law. Elizabeth *vs.* Paving Co., 97 U. S., 126; Shaw *vs.* Cooper, 7 Pet., 992; Egbert *vs.* Lippmann, 104 U. S., 333.

"The inventor built and set up and licensed to another a machine, without restriction as to secrecy. Later minor improvements were made, but the machine was a successful one from the start. Held, the licensee understood its mechanism and its manner of operation, and under no obligation of secrecy. When the object of the use is the perfecting of the invention, the sale of the product, if strictly incidental to an experimental use, is not public use under Section 4886, Revised Statutes, and will not defeat a patent. A use which is impliedly excepted out of the prohibition of the statute is a use which may be properly characterized as substantially for the purpose of experiment. When the substantial use is not for that purpose, but is otherwise public, and for more than two years prior to the application, it comes within the prohibition. Jenner *vs.* Bowen, 139 Fed., 556."

BURDEN OF PROOF.

It is incumbent upon the party seeking to establish public use or sale to do so not only by a preponderance of evidence, but beyond a reasonable doubt. The courts have practically agreed that it must be established beyond every reasonable doubt.

Judge Coxe, in Lalance & Grosjean Mfg. Co. *vs.*

Haberman Mfg. Co., 53 Fed., 375, stated that "he who alleges prior use must establish it by the same high class of testimony which a prosecuting attorney is required to produce in a criminal cause. If the evidence is susceptible of two interpretations, the one sustaining and the other destroying the patent, the court must accept the former."

Also from the same judge in Brown *vs.* Zaubitz, 105 Fed., 242: "In order to reject the defense (of prior use) it is not necessary for the court to find the testimony in its support to be false; it is enough that the court is unable to say, with reasonable certainty, that it is true. If there be a fair doubt as to its verity, the defense falls and the patent stands. Because of the high character of proof required, it is a defense that seldom succeeds. If a flaw exists of sufficient magnitude to admit of an honest doubt, the entire structure must be condemned as unsafe." Also last, but not least, the Supreme Court, in the Barbed Wire case, 143 U. S., 275, said:

> "We have now to deal with certain unpatented devices, claimed to be complete anticipations of this patent, the existence and use of which are proven only by oral testimony. In view of the unsatisfactory character of such testimony, arising from the forgetfulness of witnesses, their liability to mistakes, their proneness to recollect things as the party calling them would have them recollect them, aside from the temptation to actual perjury, courts have not only imposed upon defendants the burden of proving such devices, but have required that the proof shall be clear, satisfactory, and beyond a reasonable doubt. Witnesses whose memories are prodded by the eagerness of interested parties to elicit testimony favorable to themselves, are not usually to be depended upon for accurate information. The very fact, which courts as well as the public have not failed to recognize, that almost every important patent, from the cotton gin of Whitney to the one under consideration, has been attacked by the testimony of witnesses who imagined they had made similar discoveries long before the

patentee had claimed to have invented his device, has tended to throw a certain amount of discredit upon all that class of evidence, and to demand that it be subjected to the closest scrutiny. Indeed, the frequency with which testimony is tortured, or fabricated outright, to build up the defense of a prior use of the thing patented, goes far to justify the popular impression that the inventor may be treated as the lawful prey of the infringer."

PATENT OFFICE PROCEDURE.

The Supreme Court of the District of Columbia in Ex parte von Heffner-Altenek C. D., 1883, page 139, decided that, under the law, the Commissioner has the authority to institute an inquiry into allegations of public use and sale of an invention, but that the proceeding upon which the Commissioner acquires his knowledge through the testimony of others is a kind of judicial inquiry, and when the testimony is furnished by those in adverse interest, it becomes practically a contest and in such case justice requires that the fate of the application be determined by proof conforming to the law of evidence. The court held that the Commissioner had no right to reject an application on mere ex parte affidavits taken without notice and cross-examination.

A party desiring to establish the bar of public use or sale against an applicant for a patent is required to present his proof, usually in the form of affidavits, accompanied by a petition to the Commissioner, which petition must set forth that copies of the petition and proof have been served upon the applicant; offer to produce the witnesses, and to bear the expenses of the office in conducting the investigation. Siebert *vs.* Bloomberg, C. D., 1906, page 325.

In a public use protest the facts should be set forth as fully as possible, so that the office may pass upon the identity of the machine used with that claimed by the applicant and upon the success of its operation in determining whether proceedings shall be instituted. Corroborating affidavits should also be filed if other wit-

nesses are to be relied upon. Altogether, the protestant should present his prima facie case as well as may be done by affidavits, so as to give the applicant opportunity to oppose the institution of the proceeding and the consequent delay in the prosecution of his application. In re Booth Brothers, C. D., 1907, page 140.

If the petition is in proper form, the papers are referred to the Primary Examiner for consideration and report as to whether, in his opinion, it makes out a prima facie case of public use or sale such as would bar the grant of the patent. The papers, with the Examiner's report, are returned to the Commissioner.

If the Commissioner holds that the affidavits warrant an investigation of the question of public use or sale, he will call upon the applicant to show cause why public use proceedings should not be instituted and give the protestant or affiant an opportunity to be heard at this preliminary hearing before the Commissioner. If, after this hearing, the Commissioner decides to investigate the question, he will issue an order setting a time for taking testimony to prove the facts set up in the affidavits. At this hearing, of course, the affiant will have a right to be heard, and at the taking of testimony to cross-examine witnesses and also to rebut their testimony by witnesses of his own. Ex parte Van Ausdale, C. D., 1900, page 74. The testimony having been filed and printed, the case is taken up for consideration of the testimony and determination of the question whether it establishes a statutory bar of two years public use or sale prior to the filing date of the application.

It is the usual practice to set a time within which briefs may be filed by both parties, no oral hearing being had.

The decision in this proceeding should be analogous to that rendered by the Examiner of Interferences in an interference case, analyzing the testimony and stating the conclusion whether it establishes that the protestants device has been in public use or sale in this country more than two years prior to the date of the application. A copy of this decision should be mailed to both the protestant and the applicant. If the bar of public use or sale is established, an ex parte action will be made rejecting the claims affected thereby. In re Henry, C. D., 1909,

page 40; In re Townsend, C. D., 1913, page 55, and Betts *vs.* Gerson, C. D., 1913, page 83.

This procedure is modified somewhat in interference cases where one or more interferences are suspended by order of the Commissioner for the purpose of conducting public use proceedings, the protestant being or not being one of the interfering parties. The Examiner should then proceed in accordance with Rule 128. He should obtain jurisdiction of said interferences and fix hearings therein which, in accordance with the rule, should be *inter partes* as to the parties involved in each interference. If the bar of public use or sale is established, he will dissolve the interferences as to the counts affected and fix the usual limit of appeal from his decision. After the termination of the interferences, if no appeal has been taken or the Examiner's position is sustained upon appeal, he should reject in the ex parte applications any claims affected. The protestant, if not one of the interfering parties, is not entitled to an oral hearing, but the Examiner should fix a time within which he may file a brief, discussing the evidence and stating what he thinks it establishes. Ms. Dec. Deere & Mansur Co. *vs.* Clement W. Michael et al., vol. 105, page 96.

Where an Examiner holds that the testimony in public use proceedings is insufficient to warrant the rejection of an applicant's claims, his action will be reviewed only where such obvious error appears as will warrant the supervisory action of the Commissioner. Ex parte Hartley, C. D., 1908, page 224.

WHEN AND WHEN NOT INSTITUTED.

It is the well established practice of the office, reiterated in a long line of decisions, that an interference in which testimony has been taken, will not ordinarily be suspended for the purpose of instituting public use proceedings. The determination of priority by means of an interference already established, is of as much importance as the establishment of another statutory bar by means of public use proceedings. See Thomson and Unbehend *vs.* Hisley, C. D., 1894, page 43, wherein a number of previous decisions are analyzed by Assistant

Commissioner Fisher. Also Tyler *vs.* Arnold, C. D., 1898, page 172; Perrault *vs.* Pierce, C. D., 1904, page 73; Burson *vs.* Vogel, C. D., 1907, page 669.

Where an interference is between applicants and no testimony has been taken, and the public use if established will effectually dispose of the interference, it should be suspended for the institution of public use proceedings. In re United States Wood Preserving Co., C. D., 1910, page 47.

Also in an interference between an applicant and a patentee in which no testimony has been taken, and the bar of public use will prevent grant of patent to the applicant, it should be suspended to institute public use proceedings. Sanford Mills *vs.* Aveyard, C. D., 1899, page 126, and Sarfert *vs.* Meyer, C. D., 1902, page 30.

Where an applicant responding to an order to show cause why public use proceedings should not be instituted against his application, states that an interference is in progress involving the same subject-matter, his application not being placed therein owing to the progress already made in the interference when he filed his application, it was held that public use proceedings should be instituted, because, if established, it would cause all proceedings upon the applications in interference and that of the applicant to terminate with the interference now pending. In re Setter, C. D., 1907, page 61.

When a party to an interference files a motion for dissolution, and afterward a petition to the Commissioner for the institution of public use proceedings, the petition is not considered, on the ground that the motion must first be heard and determined. Snyder *vs.* Woodward, C. D., 1911, page 235.

MISCELLANEOUS ITEMS.

When a court has ruled that an applicant's structure has been in public use, in view of evidence in possession of the office, a second application by the same party for the same device can be rejected on the ground of public use. Ex parte Tournier, C. D., 1904, page 36.

A structure alleged to have been in public use need not be identical with that disclosed in an application, if

certain claims of said application read thereon. In re Pittsburg Brake Shoe Co., C. D., 1912, page 78.

Public use proceedings are not instituted to determine whether or not the protestant made the invention, but to determine whether the invention was in public use more than two years before the filing of an applicant's application. Ex parte Wenzelmann and Overholt, C. D., 1911, page 218.

Where in connection with a petition for the institution of public use proceedings, it was stated that petitioner became aware that applications were pending for the invention alleged to have been in public use through the application of a party to which it legitimately had access. Held, that this affords no ground for giving one of the applicants involved in the public use proceedings permission to inspect said application since it is in no way relied upon by the petitioner. In re Deere & Mansur Co., C. D., 1912, page 61.

Where after a decision on priority has become final in favor of *G* and public use proceedings are instituted, the decision on priority will not be set aside in view of the public use testimony. The matters at issue in an interference and in public use proceedings are different, and the testimony taken in the latter can not be held conclusive of the question of priority of invention. Ex parte Wenzelman and Overholt, C. D., 1908, page 4.

The question whether the invention in issue was placed in public use by one of the parties to an interference is not one which can be raised in an interference proceeding, but is one for the consideration of the Commissioner of Patents on the final allowance of the patent. Burson *vs.* Vogel, C. D., 1907, page 669.

Where public use is shown by testimony regularly taken, its effect can not be overcome by ex parte affidavits, but only by evidence taken in the regular way. Ex parte Tournier, C. D., 1904, page 36.

In public use proceedings a stipulation as to what a witness would testify if called, signed by counsel for the applicant and counsel for the protestant, is not effective unless approved by the Patent Office. Proceedings of this character are not to be regarded as a contest between the protestant and an applicant, but as an investigation on behalf of the public by the Patent

Office. The approval of the office is necessary to make an agreement affecting the merits of the case binding. Ex parte Kephart, C. D., 1903, page 137.

A motion to dissolve an interference based upon the allegation of two years public use and supported by ex parte affidavits should not be transmitted to the Primary Examiner even though filed within twenty days after approval of preliminary statements. Ex parte affidavits as to public use can in no case furnish ground for dissolving an interference or rejecting claims. Public use must be established by testimony taken in accordance with the rules of evidence. Shrum *vs.* Baumgarten, C. D., 1903, page 150.

If a patent is issued to joint inventors and more than two years public use has occurred before the filing of a separate application by one of the joint inventors, said inventor claiming to be the sole inventor of the device claimed in the joint patent, the public use is a bar to the grant of a patent to the sole inventor. Ex parte MacLay, C. D., 1889, page 220.

Abandonment of Application

A paper read September 10, 1914, before the Examining Corps of the United States Patent Office

BY

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WASHINGTON, D. C.
1914.

THE LAW REPORTER PRINTING COMPANY, WASHINGTON, D. C.

Abandonment of the Application.

The purpose of the Patent Statutes and the conditions precedent to the grant of a patent to an inventor can only be fulfilled by the carrying out to a completion of the original conception. The conception so long as it rests merely in the idea of the originator is not a legal invention. So long as it rests in the experimental stage and has merely been embodied in experiments it can merit no reward and, if discouraged, the originator ceases his endeavors, his efforts to this time are abandoned experiments.

If, however, he proceeds further and embodies his conception in a device practical and useful in operation, and complete to perform the functions desired in accordance with his original idea, he is entitled to a patent.

Abandonment at this time, whether by his words and acts and intention or by the constructive abandonment imposed by statute is an abandonment of the completed invention. His relinquishment is complete.

The inventor, however, having completed his invention may go forward another step and file an application for a patent, and having applied, he may abandon his application with or without abandoning his invention.

It is the abandonment of the application which I wish to consider.

It may be accomplished in various ways, as—

(1) A constructive abandonment under Section 4894.
   (*a*) By failure to complete his application.
   (*b*) By failure to prosecute his completed application.
(2) By positive acts of abandonment.
(3) By failure to renew a forfeited application under Section 4897.

Section 4894 requires that all applications shall be completed and prepared for examination within one

year after the filing of the application, and in default thereof or upon failure of the applicant to prosecute the same within one year after any action thereon, of which notice shall have been given applicant, they shall be regarded as abandoned unless it shall be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

Rules 31, 77, 166, and 171, 172, 173, and 177, and 179, of the Rules of Practice relate to various matters connected with abandonment. It is not deemed necessary here to recite the various provisions of the Rules, which are familiar to all.

FAILURE TO COMPLETE.

The requisites of an application are laid down in the Statutes and in the Rules which are binding on applicants. It is not filed until ail its parts with the legal fee have been received.

The statute states that the application must be completed and prepared for examination within one year from filing the application; Rule 171 uses the words "from filing the petition." I presume the statute would apply whether the part first filed were petition, oath or specification.

"Filing of application" in the statute does not refer to the complete application but only to the depositing of the application referred to in the previous sections with or without a fee (Fenno, 1890).

The case of Dahler (1909-21 Gourick), held the year to begin to run from the date on which the first paper was filed.

It must be in the English language before being sent forward as complete and signed by the inventor, but his name affixed by a third party (Taylor, 1903), or by his authorized attorney (Sassin, 1906, Tropenas, 1900), held informal.

Application was held incomplete where the oath was executed before his attorney (Riegger, 1909), or where it omits the words "does not know" and where a divisional application refers to the parent case but the oath did not contain the allegations as to the public use and prior publications (Halsey, 1903). Dukesmith,

1910, held that there is nothing in the Statutes or Rules requiring defects in the oath to be completed before accepting as a complete application and that under special circumstances, such defects (in that case averments as to patents and printed publications) might be cured without changing the filing date. The case had been forwarded and was in interference when the question arose. Omission in the oath of the word "sole" can be cured after more than one year, without holding abandoned (Mygatt, 1910).

So the full name can be supplied later and omitted parts of the drawings (Michaelis, 1906), or the residence in the petition and oath (Becker, 1901).

A sketch and fee with no other papers are not regarded as even an incomplete application (Elberson, 1905).

A drawing must be furnished where the nature of the case requires (Section 4889), and its absence makes the application incomplete (Palmer et al., 84 O. G.).

A delay in filing the fee of more than one year abandons the application (Kurz, 1905) (Columbia S. E. Co., 1889, 41 M. S.).

Where a petition, specification and oath were filed, the petition and oath referring to the annexed specification, but it appears that the wrong specification was annexed, held that not only a new specification, but a new petition and oath must be filed to complete the case (Page 1901).

Papers in fugitive ink can not be received and date given as complete (Webster, 1902).

Papers not conforming to statutory requirements (as where applicant asks that the patent be issued to two parties as joint inventors with the signature of only one) will not ensure entry as a complete application (Crane, 1903).

The reissue application must be made complete within a year, the same as an original, with the additional requirements peculiar to it.

Absence in the reissue application of any of the essentials, such as the petition, oath, consent of assignee (Pindar, 1906), order for certified abstract (Blackmore, 1903), original patent and offer to surrender, are alike fatal to a complete application and unless remedied in time, will abandon for failure to complete.

Laches can not be predicated of any delay to take necessary steps to complete the application where the delay does not run over the time allowed by the statute for that step, but when the year has expired, with the application uncompleted, abandonment ensues, provided the Commissioner is not satisfied that the delay was unavoidable. The nature of the circumstances and evidence that have been held satisfactory may be considered later under abandonment for failure to prosecute.

VARIATIONS IN ACTUAL PRACTICE.

The actual daily practice in forwarding applications to the Examiner as complete and ready for examination seems now to be more liberal than the strict tenor of the Rules and decisions noted.

Applications are sent forward, having no petition if otherwise complete. This would not seem to violate the spirit of Section 4888, which says that "before an inventor shall receive a patent he shall make application, etc.," from which it might be readily inferred that a petition could be filed later and during the prosecution. So too where an oath is informal, by reason of the absence of non-statutory requirements, the case is forwarded and it may be later cured by a new oath even if the signature is omitted. This is not contrary to the general ruling of the courts which presume the validity of the oath from the issuance of a patent.

The case is not actually withheld from examination because the specification is unwitnessed, but is if unsigned. But a drawing must be filed where the nature of the case requires and in practice no date is set from which to complete the informal filing unless either a petition or specification is filed.

ABANDONMENT BY EXPRESS ACTS OF APPLICANT.

After completion the applicant may abandon his application by express words. This abandonment is provided for by Rule 171, and must be in writing, signed

by the applicant, and assignee, and identify the application by title, serial number, and date of filing.

If signed by one of joint inventors it is of no effect (Barrett, 1907). Neither the joint invention nor application can be abandoned by the word or act of one inventor (Sawyer *vs.* Edison, 1883).

It must also be unequivocal, unconditional, and unlimited. If not so it can not be accepted under Rule 125 to terminate an interference (Gabrielsen *vs.* Felbel, 1906).

If accompanied by reasons for filing the same as that abandoned issues in interference are limited or unpatentable or do not read on the structure, it can not be accepted as a basis of judgment under Rule 125 (Corrington, 1908).

In Weideman's case (1897), a declaration of abandonment unsigned by assignee was accepted on the ground that it was impossible to communicate with him, but on subsequent appearance and objection by him it was held void.

A reissue application may be abandoned and his surrender of the patent revoked under leave of the Commissioner, after which he is restored to his former position (Robinson, 707, Forbes *vs.* Barstow *vs.* Clifford).

A written declaration of abandonment of the invention by one of the parties to an interference or of certain parties thereof is made the basis of a judgment of priority (Rule 125, 132).

Where each party in interference files a written abandonment of the invention in issue the interference should be dissolved (Krakan, 1903).

In Leslie *vs.* Ellins (1909), a stipulation of both parties, setting forth that the issue was unpatentable, was treated as an abandonment and the interference dissolved.

It may be noted that in certain of the cases quoted, the abandonment was not of the application as a whole, but of certain parts of the invention and application therefor.

Non-intervention by an executor does not abandon the application until one year has elapsed (Decker, 1896).

When a substitute application is filed and the original

is formally abandoned, an endorsement should be placed on the file of the second case that it is a continuation. The principle is that the public is entitled to a knowledge of the proceedings leading to the grant.

In Lascelles, 1884, an amendment cancelling all claims and signed by the attorney was refused entry. Later the same amendment signed by applicant and assignee was refiled.

Commissioner Butterworth held it was not clear whether it worked an abandonment since it might be claimed that the applicant had the statutory time in which to amend. That while no particular form of words was necessary to indicate the intention to abandon, yet since claims are indispensable to an application (Section 4888), when applicant cancelled all claims he signified his intention to abandon.

Further that it is in the discretion of the office to require him to put his abandonment in a set form of words. That the amendment was defective in form in that it did not expressly declare his intention to abandon.

For that reason and that only, the amendment was refused entry.

The statutes confer no authority on the Commissioner to revive an application by setting aside a formal abandonment filed by applicant with the consent of his assignee.

The filing of a second or third application by the same inventor is not in itself an abandonment of the first. Even after the issue of one of the patents, the others are not technically abandoned, although there is the implied prohibition of the statute against double patenting (Langlois, 1878). Therefore the formal abandonment of one application is not required as a condition precedent to passing another by the same inventor for same thing to issue (Gaboury, 1890; Feister, 1890).

CONCESSION.

Applicant in interference may, by a written concession of priority, avoid the interference This concession is a basis for judgment of priority and the rejection of any claims involved (Alt *vs.* Carpenter, 1908), and may mean either that the conceder is not the first inventor, or that,

considering the meaning and construction of claims involved, he is not the inventor at all (Martin, 1907). This concession may be made either before or after judgment of priority based on the evidence (Humphrey, 115 O. G.), and by the successful or the defeated party under the judgment (Griffith, 1908; Brown, 188 O. G.).

Such concessions, involving all or part of the invention, constitute substantially, although not technically, an abandonment of all or part of the invention and its corresponding application.

DISCLAIMER.

Applicant in interference may before the preliminary statement, with the consent of his assignee and over his witnessed signature, and accompanied by the cancellation of claims involved, disclaim the invention of the subject-matter involved. This disclaimer is embodied in the specification and forms part thereof. Such disclaimer is made the basis of judgment against him (Rule 107). He can not avoid the interference merely by filing an amendment cancelling the claims involved (Colley *vs.* Copenhaver, 1903), and a petition to cancel claims unaccompanied by disclaimer will be dismissed (Sundh *vs.* Francis, 1903).

CONSTRUCTIVE DISCLAIMER.

Refusal to make a claim suggested under Rule 96 for interference (Ferris, 140 O. G.), and also under Rule 109 (Sutton *vs.* Steele, 1909), is construed as a disclaimer of the matter suggested and will result in the matter so disclaimed being treated as prior art to the applicant and is a basis for rejection and appeal.

Such technical and constructive disclaimers may embody or embrace the entire or only part of the subject-matter of the application and practically result in the disavowal and loss of all or such part of the invention and application therefor.

The inventor has abandoned his invention when he formally disclaims it in an application for some other invention (Legett *vs.* Avery, 101 U. S.).

Disclaimer however of unclaimed subject-matter, embodied in the application as filed has no relation to abandonment of part or all of the application, since he can not abandon claim to that he never claimed.

FAILURE TO PROSECUTE—4894 R. S.

Most abandonments arise from failure to prosecute the application.

When completed an examination of the application is instituted which consists in ascertaining deficiencies in the disclosure or claims and the existence of bars to the claims or interferences.

Applicant may revise and amend his description or claims before or after receiving the notice of rejection with reasons and references required by 4903, R. S., or he may persist in his claim.

The purpose of this procedure of rejection and amendment is to develop the patentable matter and place it in form for allowance, or if irreconcilable differences of opinion exist between the Examiner and applicant as to form or patentable novelty of claims, to bring those differences to a clear issue and brush away formal inaccuracies so far as possible, so that when appeal is made or petition taken the whole matter of substance or form may be adjudicated.

To this end it is desirable and required that full and complete action be made by the Examiner and applicant in turn that all doubtful points be fully explained, by the Examiner as to why claims are barred and by the applicant as to why the objections of the Examiner are not well taken and how references are avoided by the claims as presented or amended.

When an issue is reached the Examiner should make this action final and to it the proper response is a yielding by applicant or a petition to the Commissioner or an appeal.

The final action of the Examiner must be a second one for the same reasons and the action of the applicant must be such proper action as the condition of the case requires. Rules 65 to 78 point out the nature of the procedure by Examiners and applicants in rejecting and amending and it is not deemed necessary

to recite the provisions of the Rules. When an issue has been reached the procedure is defined by the Appeal Rules No. 133 to 150.

Rule 171 defines "failure to prosecute the same within one year, etc.," 4894, R. S., as failure to take such proper action as the condition of the case requires, and provides that admission refusal and any proceeding relative to a non-responsive action will not save a case from abandonment.

Acquiescence for more than one year in the action of the Examiner, though it be erroneous, will abandon, but no abandonment of the application is to be founded on any delay or slowness of applicant to respond provided he does respond in the statutory time.

EXAMINATION.

The prosecution before the Examiner is not a matter of form and the efforts of applicant and Examiner should be directed throughout to a thorough understanding of each other's position (Hahn, 1901). They should take pains to present their reasons, so that the issue reached on appeal or petition will be arrived at only after careful consideration (Tyron, 1902). Complete actions on the part of the office are as important as avoidance of piece-meal actions by applicant (Garrett, 1910).

Careful explanation of references where their bearing is not clear is required by Rule 66, but where such pertinence is obvious, as when a simple patent is cited to a simple case or where a patent including only the one thing claimed, a detailed explanation is unnecessary.

It is desirable and necessary to state *precisely* the ground of rejection and often to support it by authorities, but the Examiner is not required to expound the general principles of the patent law, although it may be necessary to apply the authorities cited to the case in point.

RESPONSE.

If applicant fails to respond to the office action in one year, his case is abandoned and this occurs when the office action was a rejection and equally so if it is merely a matter of form. When definite requirements and

suggestions of other things are made the requirements govern and must be acted on within the year (Hume, 1891).

Requirement, e. g., to file an oath in a case otherwise allowable, not responded to in a year, abandons the case (Kendall, 16 Gourick; Brown, 21 Gourick).

Where the last day of the year comes on Sunday or a holiday, action must be taken not later than the day before.

If the response is a request for reconsideration, it must distinctly and specifically point out the supposed error of the Examiner's action. If an amendment, it must clearly point out all the patentable novelty the applicant thinks the case to present in view of the state of the art quoted, and how the amended claims avoid the references.

The responsive character of action relates to the extent as well as subject-matter and should cover the whole field of action, and be made with the purpose and effect of making a substantial advance toward closing the case. An action delayed till the last moment takes the risk of abandonment if insufficient.

The curing of formal defects without response to the rejection of claims is insufficient (Iddings, 1913), and the correction of part of the formal defects but not others (Thomson, 1912). But if the office accepts and acts on an amendment not fully responsive, the case is open for further action.

Requirement of division should be responded to by dividing or by traversing the requirement and when the requirement is final, it should be complied with or appeal taken (Tuttle, 1905).

Where election has been made and after rejection of the retained claims, attempts to reinsert the cancelled claims, without other action in the year will abandon the case.

Responsive to a rejection by amending and also inserting or reinserting an independent invention is sufficient since there is amendment although the new claims will be required to be cancelled as election has already been made (Gally, 1908).

Requirement of division responded to by election without cancellation of either set of claims is sufficient

and applicant is entitled to an examination of the elected set and ultimately to an appeal thereon and on the question of division together (King, 1913; Stempel, 1913).

If as a matter of language the amended claims do not present the same idea of invention it is an amendment in substance (Griswold, 1890), and because an amendment does not avoid the references is not good ground to hold that it has not been amended in substance (Pfeffer, 1884)

An amendment in good faith making substantial progress in the case may be entered to save the case from abandonment, although not responsive to all requirements, and it may be conditioned on applicants complying within a reasonable time with all requirements or appealing therefrom.

An unsigned or improperly signed amendment received too late for the return of such amendment in the year, should be endorsed on the file wrapper and the applicant notified of the status of the case (Order 1961).

Prompt compliance with the notice by filing a properly signed amendment will ordinarily save the case. Such cases should, however, be referred to the Commissioner by the Examiner.

All applications and those purporting to be continuations of applications pending more than five years are made special for action by the Examiner, but no amendments are to be entered in such cases without reference to the Commissioner after November 30, 1914 (Order 2134, O. G., 203, June 2, 1914).

It may be taken as a rule that amendments, arguments, exhibits or affidavits submitted by applicant which respond to the office action as a whole and tend to make progress in the case toward a final result by procuring an avoidance or withdrawal of that action constitute a sufficient response. If made in good faith, they should be accepted and acted on, even if not completely responsive in all minor details.

But piece-meal actions, directed to a part, and not all of the office action, or actions not responsive, as petitions, arguments, and attempts to amend after final rejection or dilatory and ineffective actions will not save a case from the operation of Section 4894.

The Commissioners have many times applied the

Rules leniently, when the history of a case shows an attempt to prosecute diligently and effectively, but more sharply when the case shows a continuous series of actions delayed to the limit, or of unimportant verbal amendments with no corresponding change in substance and when an issue and appeal could have been reached.

After a second and final rejection for the same reasons in matters of merit and when all claims have been so rejected or allowed and all matters not affecting the merits (except division) settled, the proper response is a compliance with the Examiner's action or an appeal and no other action is responsive. Failure to take such proper action works an abandonment.

ACTION AFTER FINAL REJECTION.

After final rejection unless the case is reopened for the admission of amendments, the appeal is in order. It is not in order and should not be forwarded until all claims appealed have been twice rejected and all matters not affecting the merits disposed of.

The regularity of the final rejection and the refusal to admit claims are petitionable, but such petition must be brought within a year from the action.

If the appeal is held to be prematurely taken, petition will lie from the refusal to forward it. The appeal must embrace all the rejected claims (Benjamin, 1913), and if applicant does not cancel or appeal within one year from the Examiner's action the case is abandoned for lack of proper response. The appeal to be formal comprises the fee and a written petition signed by applicant or his attorney setting forth the points of the decision to which exception is taken. If regular in form and relating to an appealable matter, the Examiner will furnish a written copy of his answer to applicant and forward the appeal and answer to the Board. The appellant will furnish before hearing a brief of the authorities and reasons he relies on.

If the final action relates to a formal matter, the remedy will be by petition to the Commissioner in writing, stating clearly and concisely the matter and the points to be reviewed.

The case when abandoned by failure to prosecute may be revived by the Commissioner on a showing to his satisfaction that the delay in prosecuting was unavoidable.

REVIVAL.

Unavoidable means more than that the inventor was too busy or that it was inconvenient to act. It means circumstances beyond the control of the inventor (Marconi, 108 O. G.; Decker, 1902).

The petition to revive should be accompanied by a statement of facts relied on, duly verified (Raymond, 104 O. G.; Botzky, 1905).

A purposed delay, thinking he had two years instead of one year to act, or a delay to experiment further with his invention, or delay in forwarding instructions to his attorney, lasting over eleven months, can not be called unavoidable. Waiting till the last of the year to file an appeal and then by mistake or clerical error not getting it in in time will not excuse. The delay may be accidental but is not unavoidable. By the intentional delay applicant has assumed all risks of accident or mistake. Intentional delay followed by sickness in the last part of the period, where the history of the case showed a continuous habit of dilatory action (McElroy, 1902), and sickness extending over one year of a four-year period insufficient (Clarke, 1902),

Diligence by a purchaser after abandonment is not sufficient (16, Gourick).

A bona fide mistake is excusable ordinarily as where an attorney amended two applications and forwarded to his associate in ample time, but one through inadvertence was not filed in time. Upon inquiry in a reasonable time, and ascertaining the case to be abandoned, a petition promptly brought was granted (Heldebrant, 1913).

Where attorney has a careful system of checks, but through mistake in entry by a clerk, the time for action passes without action, it may be regarded as unavoidable (Henrich, 1913).

Where the intention is to act in time, and through accident such as is liable to occur even with careful

management, action is delayed, it may usually be regarded as unavoidable. Accidental misdirection of mail and its consequent loss will usually excuse if the petition of reviver is promptly brought where but for such misdirection the action would have been in time. So too the accidental misplacing of attorney's file (in an attorney's interference file) where it was not called to attention till too late was excused (Curtis, 1908).

Sickness long continued and extending through the period of delay suffices (Sellers, 1905).

The error of attorney as to the date of action (Ballot, 1905), the failure of the attorney to notify applicant of his legal rights or his neglect to properly prosecute are insufficient (Clausen, 1905). As a general rule it must appear that applicant and attorney acting in good faith with such care and diligence as are usually observed by good business men and relying on ordinary and trustworthy agencies have unsuccessfully endeavored within the time limited to comply with the requirements (Pratt, 1887).

The existence of a bar to a new application is a good reason for diligence in prosecution but does not alone warrant revival. It has been held to justify the resolution of doubts in applicant's favor (Pietzner, 103 O. G.; Bohlecke, 1901).

The petitioner should take steps to revive as soon as possible after the holding of abandonment (Thomas, 1913) since the delay in bringing the petition will in itself be fatal if unexcused.

Even when reasons for delay in responding to the Examiner's action are satisfactory, a long unexcused delay in bringing the petition to revive will be fatal (LaJeunesse, 1912).

The delay in bringing the case up before the Commissioner to revive must be unavoidable.

The Commissioner has no authority to extend the time for filing an answering amendment (Bauercamper, 1902), nor to revive a case to await future action by applicant. He is authorized to determine the question of delay only in connection with an action actually taken (Raymond, 104 O. G.). Doubts will be resolved in applicant's favor where the delay is slight and the petition is accom-

panied by an amendment placing it in condition for allowance (Richards, 1906).

After decision by the Examiners-in-Chief proper action consists in an acquiescence therein and such steps as will carry it into effect or an appeal to the Commissioner with a fee. Such appeal must be made within a year.

From the adverse decision of the Commissioner in matters of substance, appeal lies to the Court of Appeals, and must be taken in accordance with the Rules of that court which prescribe that it must be made within forty days (excluding Sundays and holidays) from the decision of the Commissioner. Failure to take these appeals abandons the application unless it be shown satisfactorily that the delay was unavoidable.

Rules 5 and 20 (sustained by the attorney general in Adams, 1907) provide that the assignee of the entire invention may prosecute the same to the exclusion of the inventor. If it is desired to appeal after the limit of appeal has expired, the proper course is to file with the appeal a motion to restore jurisdiction to the tribunal from which appeal is taken to consider it. After this a motion to extend the time limit of appeal may be made before the Commissioner supported by a verified showing (Blackman et al., 1903).

That the Commissioner is the final judge of the question whether the delay in prosecution is unavoidable is stated in Robinson #508.

This does not however accord with recent decisions of the Supreme Court of the District of Columbia in Tuttle *vs.* Allen, 1906, which stated that if the office has declared his application abandoned and that decision should be erroneous he has a remedy by appeal therefrom. (Here mandamus was denied not being the proper action.) (See also Moore *vs.* Chott, 192 O. G., 520).

The same views were expressed in Re Selden, 1911, and in Re Mattullath, 1912, by the Court of Appeals of the District of Columbia, which held that where the Commissioner decides that the showing was not sufficient to establish that the delay in prosecuting an application was unavoidable in the meaning of Section 4894, his action was reviewable by the court on appeal. The office

contended that the question was one for the Commissioner's exclusive determination and his decision final. But the court ruled that the delay was unavoidable, the petitioner entitled to relief, reversed the Commissioner, set aside the order of abandonment and ordered the case reinstated. See also, Field *vs.* Colman, Ct. App., 1913. Appeal on such questions can be taken directly from the Commissioner to the court without previous rejection by the Examiner and the Board of Appeals. Favorable decisions of the Commissioner on this question appears to be final as in other matters affecting the rights of parties.

ABANDONMENT SECTION 4897.

Failure to comply with Section 4897, R. S., may also work abandonment of the application.

This section provides that any person who has an interest in the invention or discovery, whether as inventor, discoverer, or assignee, for which a patent was ordered to issue upon payment of the final fee, but who fails to make payment thereof within six months from the time at which it was passed and allowed, shall have a right to make application for such invention or discovery the same as in the case of an original application. But such second application *must be made* within two years after the allowance of the original application and upon the hearing of the renewed application abandonment shall be considered as a matter of fact.

Rule 176 provides that the original papers of disclosure may be used, but a new fee is required. The second application will not be regarded as a continuation of the original for all purposes but must bear date from the time of renewal and be subject to examination like an original application. The application allowed is forfeited only in case of failure to pay the final fee in six months from mailing the notice of allowance. It must be paid to the Commissioner or to a designated depositary within the six months; mere placing in the mail (the sender's agent) or paying to a telegraph or express company is not payment.

The renewal can not be made before the six months

has expired, even on waiver of right to pay the final fee (Schultz, 111 O. G.).

After allowance, amendments may be made with the approval of the Commissioner until the specification has been printed, without withdrawal from issue. The practice is to admit formal amendments or allowable claims where allowability can be determined without reopening the case, but it is not the practice to reopen or withdraw for full examination of contestable claims. The recommendation of the Primary Examiner on reference by the Commissioner is persuasive.

The case may be withdrawn by the Commissioner from issue (Rules 165 and 166) for good and sufficient reason shown, and if so withdrawn a new notice of allowance will be given. If withdrawn on request of applicant, the one-year period runs from the notice of allowance and if no action is taken within that period it will be abandoned under 4894. Applications will not be withdrawn from issue merely to extend the time of payment of the final fee (Brand, 1891; Richling, 1906), and after forfeiture, the Commissioner has no authority to withdraw, the only remedy being renewal (Waterman, 1910).

There is no authority to extend the period of six months directly or indirectly (Simonsen, 1890).

RENEWAL.

Within two years from notice of allowance the case can be renewed. A second or third renewal is allowed. The practice has varied as to this. Prior to 1894, more than one renewal was permitted in the two years. This was overturned by an opinion of the Secretary of the Interior, and in Vulte, 1895, the second renewal was held to be void. But in Butterworth *vs.* U. S. ex rel. Moe, 112 U. S., and in Poole *vs.* Avery, 14 Asst. Atty. Gen. Opin., it was held that those questions involving judicial or quasi-judicial functions of the Commissioner were outside the supervisory authority of the Secretary. Subsequently the original practice has been restored so that as it now stands more than one renewal can be made *if made within two years* (Lambert, 1908).

Patent invalid if renewal made more than two years after original notice of allowance (Weston Electric Co. *vs.* Empire Electric Co., 136 F. R., 597).

Such renewal to be formal must be accompanied by a petition for renewal and a new fee but the old disclosure papers may be used. Both petition and fee must be filed within the two years (Eckerly, 1909), and petitions may be made by applicant, assignee, attorney, or any one having an interest in the invention. Such renewal can present new claims and is subject to re-examination, and the question of abandonment of the invention can be raised as in any other application (Saunders *vs.* Miller, 1906; Cutler *vs.* Leonard, 1908), and it is within the power of the Commissioner whenever he entertains a doubt as to whether there has been an abandonment to require the explanation of the delay in filing the renewal application. If applicant files a new case after allowance, specifically and in writing abandoning the allowed application without complying with Section 4897, the statute is waived and the abandonment of the allowed application is as complete as it would be under Section 4894 (Ostergren, 1901).

Failure to take the proper steps to renew in two years from allowance, will bring into operation the constructive abandonment of the application under 4897, R. S., and when this is once in operation, the Commissioner has no authority to revive the application as under Section 4894. The application is finally abandoned. In Weston Electric Co. *vs.* Empire Electric Co., 136 F. R., 549, a patent was held invalid when granted on a renewal filed more than two years after the first allowance although less than two years after the second allowance.

Copies of forfeited and abandoned applications may be obtained on petition to the Commissioner with a verified showing as to matters not of record in the Patent Office. When reference is made in a patent, on which suit is brought to an abandoned application, and a certificate of the court is filed showing the copy to be necessary evidence, and where a patent purports to be a continuation of an abandoned application, copies will be furnished interested parties after service of copy of petition, and notice and hearing to parties concerned.

Abandonment of the invention is to be carefully distinguished from abandonment of the application. Abandonment of the application is not made a bar to a patent. The abandoned application has been held to furnish no evidence of knowledge or use since it is only a representation of what may have been merely a mental conception of the man who abandoned it, and does not show that the invention was ever known or used in any country. Nor is it a bar as a publication, nor is it evidence of prior invention. If a patent is sought to be defeated by showing the thing to have been made by a prior inventor, his abandoned application may be used as evidence but only to support a showing of what he did outside of his abandoned application (Corn Planter Pats., 1874, 23 Wallace).

Actual abandonment of the invention does not always follow because the application is withdrawn. If the inventor always intended to file a new application, and did so the two are continuous in the meaning of the law (Godfrey *vs.* Eames; Dederick *vs.* Fox, 1893, 53 Fed.; Weston Electric Co. *vs.* Sparry, 1893).

What is continuous is a question of fact in each case, and determinable by circumstances. Whether the applicant ever abandoned his original application by his own will or acts, and whether the two applications are the same are the tests. If by these, the two applications are continuous and the delay not unreasonable and the invention not abandoned, public use must be established prior to the first application to invalidate a patent (Weston *vs.* White, 1876).

Where a new application is filed during the life of the abandoned application, it has generally been treated as continuous for the purpose of giving the benefit of the original date as to bars and in interference (Triple, 1902). But if after technical abandonment no new application is filed soon enough to independently avoid the bars of public use, the invention itself may be abandoned.

This, however, leads into the general field of abandonment of the invention which I wish to avoid.

Walker No. 103 states that by omission to make a renewal application (4897) within two years after allowance an inventor loses all right to obtain a patent for that invention. This does not seem to accord with

the principles set forth in E. P. Livingstone 1881 (and the authorities there cited), which upholds the right to file a second independent application for the allowed matter, which is however totally severed from the application abandoned under 4897, and stands on its own date as to the several bars. Other cases since that date seem to establish the conclusions of E. P. Livingstone (e. g., Sibbold, 1892; Britt, 1905; LeBron, 1912), and Rule 177 provides that abandoned and forfeited applications can not be cited as references.

The German, Austrian, and Hungarian Patent Offices

A paper read September 24, 1914, before the Examining Corps of the United States Patent Office

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The German, Austrian, and Hungarian Patent Offices

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These reports on the facilities and methods of doing business in the German, Austrian, and Hungarian patent offices are the results of our investigations during a visit to these offices in the summer of 1914.

No attempt has been made to make these reports exhaustive. In order to do so, it would be necessary to spend far more time than we had at our disposal and also to repeat much that has already been published. These are therefore only observations which we believed might be of special interest to those familiar with our own practice.

Further information regarding the German patent office can be found in the report of the Investigation of the U. S. Patent Office made by the President's Commission on Economy and Efficiency, 1912.

Of the three offices, the German holds out the greatest interest and our report on this office is the most exhaustive.

In all of the offices visited, we found the officials extremely cordial and attentive, and we wish to express our thanks here for the many courtesies shown us.

THE GERMAN PATENT OFFICE.

The first German patent law was passed in 1877, nearly a century after the passage of our first law. At that time we had already granted nearly 200,000 patents, we were receiving about 20,000 applications a year, and the examining corps consisted of eighty-eight examiners.

The law of 1877 was amended in 1891, and now a further amendment of the law is before the Reichstag which, if passed, will become effective in 1916. The German system is a combination of our system of examination and the English system of opposition.

Some of the distinguishing features of their law over our own are as follows:

The patent is granted to the first applicant and it is immaterial whether the applicant is the first and original inventor or whether it is an individual, firm, partnership, or corporation.

The question of validity of a patent is decided by the patent office. In an infringement suit, the court has no power to declare the patent invalid.

After five years from the date of the publication of the grant of the patent, the validity of the same, as lacking in novelty, can not be attacked.

Articles of food and medicine are not patentable.

Materials produced by chemical processes are not patentable, but the processes therefor are patentable.

The duration of the patent depends on the payment of an annual increasing tax.

The full term of a patent is fifteen years from the date of application.

All papers that are received in the office are stamped with a consecutive number in the upper right-hand corner together with the date. Inasmuch as the date of filing is of great importance, great care is taken to stamp the papers strictly in the order of their receipt.

The German alphabetical index of applications under the name of the inventor is substantially the same as we keep in our application division. Their method of assigning new applications to the examining divisions is also practically the same as with us. They apparently do not have the same extensive conflict of opinion as to where an application should be assigned for examination

as in our office. When such a case arises, it is submitted to the president for decision, but such cases are comparatively rare. The man in charge of assigning new applications, when questioned as to the sufficiency of their classification for the purposes of exact assignment of applications, stated that it was hardly satisfactory. He stated that they would like to avail themselves of the American classification, but did not seem to be able to make it fit into their scheme, in all cases.

The file wrapper has a pocket on the inside for the receipt of the drawing and also for a sheet on which is endorsed various informal matters by the examiners as the case is passed around among them for various purposes. The drawing is smaller than ours, to wit: 21 by 33 cm. in size, within the border lines, and the only signature thereon is that of the applicant. The serial number and classification are endorsed on the back of the drawing. All papers are permanently sewed into the file wrapper. A tab on the bottom of the wrapper carries the application number so as to facilitate the finding of the file. The first sheet contains various data such as are found on the face of our own file wrappers. The usual papers then follow. In every file there is a copy of the drawing on tracing cloth. There are two copies of the specification and claims in the file, one being for the use of the public when the case is laid open for opposition and which is subsequently forwarded to the printer. The contents of the file are kept intact by placing a cloth strap provided with a buckle around the same. The important papers in a file such as a rejection, appeal or an allowance, are each indicated by projecting borders of different distinctive colors such as brown, red, green, etc., so that any desired one of them may be found without delay and the approximate status of the case may be determined by mere superficial inspection. The serial designation consists of the initial letter of the surname of the applicant and a serial number thereafter, there being a separate series of numbers for each letter of the alphabet. The clerical work of handling office letters is different from our method. Only one copy of the official letter is written. All are then sent to the mail room. A press copy is made on a special machine for that purpose.

The original is then sent to the applicant and the press copy put in the file. They do not consider necessary the third or press copy, which we make. Letters for any one firm are collected and mailed in one envelope. Clerks have a definite task to perform each day and are supposed to stay until they have finished it. There are no female employees in the office.

The routine of examining applications is not substantially different from our own. Every examiner has in his own room the patents relating to his special art, both domestic and foreign. They do not have the stiff mounted copies that we have. All copies of patents for search purposes, foreign and domestic (the examiner's and the public's) are used in the original flexible condition in which they are received by the office. They do not consider seriously the idea that they will wear out too soon. They accordingly avoid the inconvenience and expenditure of a large amount of money involved in the mounting of soft copies of patents for search purposes as in our practice. The examiner keeps his copies in a paper portfolio.

An important feature of the action of the examiner is that he sets a time in which the applicant must reply. This time, which is entirely within his discretion, usually runs from three weeks to two months. There is no fixed limit of time in which the applicant may respond, as in our law. This has the result of expediting business. The office also expedites its end of the business by acting on all cases, if possible, within eight days to a month after the receipt thereof.

From the action of the examining division rejecting an application or from its action in an opposition proceeding there is only one appeal.

We attended a session of one of the German boards of appeals. It was presided over by a director and consisted of three to five members. When the board consists of five, two of them are legal and three are technical members. In the sitting at which we were present, all of the men were of mature years. There are a number of these boards of appeals which may be in session at the same time. The membership of any one board is drawn from forty odd members and is not of fixed personages,

those sitting on any special case being selected on account of their special familiarity with the art to which the case relates. A noticeable feature throughout the organization of the office is that those who decide questions of a technical nature must be specially skilled in that particular art. They were entirely unable to understand how our board of appeals, consisting of only three members, could have such an extensive knowledge of the arts or be physically able to decide the technical and legal questions of the numerous arts that might come before them. The idea of having appeal boards comprising members drawn from the office at large, and not of fixed personages and those best skilled in the particular art seems to be a good one.

The first matters brought before the board were ones of minor importance, and accordingly only three members sat. The following were some of the matters decided:

1. In an opposition proceeding relating to a wireless telegraph the question of the operativeness of the device was raised by the opposer. The applicant was willing to prove the operativeness of the same by exhibiting it to the office, but objected to the presence of the opposer on the ground that there were other matters, in connection with the same, which he desired to keep secret. The board ruled that the opposer had a right to be present at the exhibition before the office, and that if there were other matters which the applicant did not wish to show in connection with the same, then he should cover them up or build a separate device without these features.

2. A paper which should have been filed within a certain time was not so filed on account of intervening holidays. They readily gave permission to file the paper. Our impression was that they are lenient in the enforcement of time limits.

3. Access to certain matters relating to the extent of an applicant's business, disclosed in some official papers that would ordinarily be accessible to the public were denied to the petitioner who wished a complete transcript of the record, and who was a competitor in the business.

These questions were briefly presented by legal members of the examining corps and decided after a compara-

tively brief discussion. In none of these cases were parties represented by counsel. In this manner the board expeditiously disposed of over a dozen cases of the above type in less than half an hour.

We next listened to a very important opposition proceeding. The parties were represented by an imposing array of counsel and technical experts, at least twenty being present. The question involved was principally one of patentability. It related to a process for producing a non-splitting electric insulator, in which the identity of the fibres is obliterated by coating sheets of fibrous material, for example, paper, with a coating and impregnating substance, comprising phenol and formaldehyde and winding it under pressure into a solid roll. The importance of this material in the electrical art can be judged by the fact that it is a competitive article of our well known and famous Bakelite. Briefly, the insulator consisted of some fibrous material, such as paper, which was soaked with Bakelite composition. This impregnated material was then wound under heat and pressure into a roll. The resulting article very much resembled lignum vitae wood. It has the property of being an especially good non-conductor for high tension currents and is also weather proof. The art showed it was old to use Bakelite as a non-conductor; that it was old to use fibrous material saturated with resin and rolled up as in this case for a non-conductor (pertifax process); that it was old to saturate a fibrous material with Bakelite and form the same into blocks by pressing a number of sheets together and to be used for a non-conductor. The discussion took a wide range and at times was quite warm. We were very favorably impressed by the character of the arguments, the power of analysis, and the logical development of the subject by the different parties. The subject was presented and handled in a manner that would do credit to the best of our own attorneys. It was urged and admitted that this article filled a long-felt want in the trade and that it had replaced nearly all the other insulators for this purpose. Statistics were given showing the phenomenal advance in sales. In orally stating how the article was made, applicant's attorney went into much more detail than the

written specification and included a step not originally disclosed; viz, the application of heat. Opposing counsel objected on the ground that this step was not originally disclosed. It was answered that this step should nevertheless be read into the specification, because it would be obvious to any one skilled in the art, and in making similar products this step had always been found necessary. Applicant further urged in favor of his device that by winding the impregnated material under tension between heated pressure rolls the solvent material was eliminated much more effectually than was the case with an overlying pack of flat sheets of fibrous material, with the coating material interposed between the sheets, and subsequently subjected to heat and pressure, for the reason that the escape of the solvent was to a certain extent prevented in the latter case, and thus the insulating qualities were diminished to such an extent that the material could not be used for high tension insulators. The answer to this was that the natural result of using this old winding process with this old composition was the evaporation of the solvent formaldehyde, and the advantage gained was only due to the substitution of the new composition for resin in the old winding process. The applicant answered by stating that he used as little of the coating composition as possible and that he found the insulating qualities were better with the least amount of coating composition which would sufficiently transform and preserve against moisture the fibrous material, whereas in the prior art the insulating qualities were attributed to the coating material. While admitting that it possessed novelty, the opposers asserted that this process was a natural development of the art, and that the Bakelite people, in seeking uses for their product, would ultimately have attained the same result and the patent office should be liberal in allowing the Bakelite people sufficient time in which to develop the uses of their invention.

We have gone into the recital of this case in considerable detail, particularly to show how far advanced the Germans are in their manner of thought on such questions.

The director conducted the hearing with great ability,

permitting the parties and their experts to be fully heard, but nevertheless avoiding needless talk and arguments, and holding the discussion within well-defined bounds. The hearing lasted about two hours. Counsel then handed a written copy of their arguments to the director and then all withdrew from the chamber. The board now had a free discussion among themselves in which the technical members, by diagrams and examination of the various specimens, elucidated their respective positions. This lasted about fifteen minutes. Thereupon the board was ready to announce its decision. Counsel for the parties were then called in and the decision was orally announced, affirming the opposition and denying the patent. The expeditious manner in which this very important case was handled by the board, without having to read a mass of briefs or to write a lengthy decision, was in strong contrast to our methods, especially as this was the tribunal of last resort, the decision of the Patent Office being final.

In Germany the courts are never called upon to decide questions of granting or refusing a patent. The board of appeals is provided by law with all the means necessary to reach a decision, make investigations, hear witnesses, experts, etc., and its decision is final.

If the decision is favorable to the applicant, the specification is printed and the letters patent are sealed and a brief of the patent is published in the Imperial Gazette, Patentblatt, and is registered in the Patent Roll.

Of all patent applications filed in Germany about 9 per cent are passed to the board of appeals, and of this small percentage only in 22 per cent of the cases, or in less than 2 per cent of the total number of applications, is the decision of the primary examiner's division reversed.

Much thought has been given at various times in our office as to the advisability of briefing our patents as in England and publishing the same in the official gazette, instead of the first five claims, as at present. The German office has gradually drifted away from the laborious work of briefing. Whereas they formerly briefed every patent and published the same with a figure of the drawing in their gazette, they now publish the claims instead of the brief. Of course, on account of the character and

limited number of claims in their patents, a better conception of the invention can always be formed than by our system, where only the first five claims are printed.

In another respect they have also given up briefing. The Deutsches Reportorium, which is a digest of all published scientific literature, was carried on by them from the beginning of their office until a few years ago. It was then taken over by a private concern and published as Fortschritte der Technik. This concern found that the project was not as profitable as they had anticipated and for several years was given substantial financial assistance by the Patent Office. Lately the company has gone bankrupt and the publication has been suspended. Overtures made to the office to again take up the work have not been at all successful, as the German officials evidently believe there is more work to it than they care to undertake. A form of briefing which they still perform, though it is not very extensive but very useful, is published in one of their gazettes. A brief and suggestive title of the subject-matter of each patent is formulated by the examiner. These titles are then grouped together under the leading word and published annually. Thus anybody interested in any special subject can get approximately all the patents relating to that subject issued during the year to which the report relates by merely looking under the leading word of the group.

The attorneys' or public search hall is about the same size as our own. It is used chiefly for clerical work, considerable being necessary in connection with the publication for opposition. On account of the small filing fee of $5, there is little or no preliminary examination work done by attorneys in Germany. The search hall is conveniently located near the main entrance. The public copy of patents is kept in a flexible binder. The soft copies of patents are permanently sewed into the binder. On the outside cover is a label showing the class and subclass to which the patents therein belong. On the first page is the "number list" of the patents that should be in that subclass and binder, a very desirable feature which we do not have. The bundles are filed in pigeon holes as with us. There is a hinged closure for each pigeon

hole. On the outside of the closure is the class and subclass number.

The scientific library is very much superior to our own. The Reichstag amply provides for the same by an annual appropriation of $25,000. It is in charge of a skilled librarian and from the character of the topics which we discussed with him, he impressed us as being a man of considerable value to the office, especially in the line of making readily available to the examiners, information they might not otherwise readily secure. He complained to us of the fact that he had been unable to secure from our office, the number lists of patents in all the classes and subclasses. He did not appreciate that the composition of the classes and subclasses in our office was continually changing so rapidly that the publication of a printed "number list" similar to their own would soon become out of date. He also called attention to the fact that certain publications of our office could not be secured gratis, as is the universal rule in England. All foreign patents, our own included, are now bound in the German office in serial order in small volumes of fifty patents each, thus materially reducing the size and labor of handling the volumes. The facilities and equipment of the library are all that could be desired. The space is ample for years to come. Everything is scrupulously clean and in good order. The book stacks are not open to the public. The collection of modern scientific books is very complete and is classified according to the modern library classification system. The collection of scientific journals and periodicals is very extensive and is easily available to the examiners and public. Two copies of each important periodical are ordered, one being provided for the special use of the examiners, who are interested in that art.

We made particular inquiries along the line of those features of the German law that were essentially different from our own.

On the question of opposition proceedings there seems to be a consensus of opinion in favor thereof. Opposition is deemed to be especially valuable as a means of bringing to the attention of the examiner evidences of public use that would otherwise be unavailable to him, or of literature.

The law provides that the patent shall go to the first applicant and this applicant does not have to be an original inventor. Various people whom we interviewed, informed us that they are not satisfied with this provision. The proposed new law corrects this in part by giving further recognition to the rights of the inventor. Their reason for not giving such recognition to the inventor hitherto is in conformity with the whole spirit of their present law, which aims to consider the industries first and the inventor afterwards. For this reason the validity of a patent can not be attacked after five years from the date of the publication of the grant on the ground of lack of novelty. This provision was passed for the purpose of placing industries in a secure position, and relieving them of the uncertainty that must always exist with respect to a patent whose validity can at any time be attacked. Many patentees therefore never start a suit on their patent until after the termination of the said five-years period.

The courts have no power to declare a patent invalid in an infringement suit, there being a special proceeding instituted in the patent office for that purpose. When an infringement suit is brought, and a close reference is found, the court recognizes it by interpreting the scope of the patent in view of the reference. When, however, a "dead" reference is found and the patent can not be differentiated therefrom, the court then resorts to a legal fiction, as there is no room for interpretation, and says that no such reference could have existed at the time the patent was granted, and so holds the patent absolutely valid.

In view of the fact that the patent office is the only place where the validity of a patent can be attacked, and that annulment proceedings must take place therein within five years from the date of the patent and in view of the attitude of the courts in their disposition to interpret and hold the patent valid, it is hard to find any fair basis of comparison which would tend to show whether Germany grants a greater or less number of invalid patents than we do. A prominent Berlin attorney told me that he believed that we had granted fewer invalid patents than Germany.

The German system of classification differing from our own, the German examiners of course find references when we are unable to do so, but the same system will also cause them to miss references when we will find them.

Another instance of the doctrine of security to the industries first is found in the principle known as "Gewerbsmässige Gepflogenheit," or the obvious development of the art. While we grant patents for every slight advance in the art, thinking that it encourages and is for the benefit of industry, they refuse to grant them on the ground that it hampers industry. When a patent for a fundamental invention has been granted, they refuse to grant a patent for every slight improvement, under this doctrine, on the ground that if industry is given sufficient time, it will naturally arrive at that point.

The great difficulty of securing patents in Germany has given a great stimulus to the filing of Gebrauchsmuster applications, to the extent that over 600,000 applications have been filed since the inauguration of the law in 1891. The fee is small, 15 marks, with a protection for three years, there is no examination as to novelty, and many people who do not care to spend the money for a patent secure protection on a Gebrauchsmuster (utility model).

The law also provides for annual increasing taxes during the life of the patent. Failure to pay the annual tax causes the patent to lapse. It was stated to us by a prominent attorney that it was not unusual for corporations to starve out a poor inventor by refusing to buy the invention in the hope that he would thereby fail to pay the tax and they might then come into possession of the same by the termination of the monopoly.

At different times figures have been quoted showing that the German office rejects a much larger percentage of applications than our own office, the conclusion thereby being drawn that the German examiners either make a better search or else are much stricter in their ideas of patentability. In view of the very low filing fee of 20 marks it is cheaper to file an application than to make a preliminary examination. Many prospective applications that are eliminated in our country by the preliminary examination by attorneys are filed in Ger-

many. It would seem that this is a very material factor when a comparison is drawn between the two offices on the proportion of rejected applications.

On the question of designs, there seems to be a quite uniform opinion that our law is a farce so far as the examination system is applied to it. The German officials point out, for instance, that in Switzerland 500,000 lace designs have been filed in one year: of what value would an examination made by us in such a line amount to, they ask. They also point out that the filing fees are too high. In Germany 50 designs can be protected for one year for one mark. There are 200,000 designs filed in Germany each year. The reason for this low filing fee is that out of the immense amount of material filed, it is only occasionally that a successful design develops.

In the trade-mark division they have a name index for search purposes which seems quite ingenious. The word Romola will be indexed under the vowels, o, o, and a; so that, in searching a word which is spelled differently, but has the same phonetic qualities as Pomola or Momola, reference to the same can easily be found.

Every movable piece of equipment has an inventory number stamped or printed thereon.

Records of assignments are kept only under the patent number in books of folio size. There are ten numbers on each page and all transfers are indicated thereunder.

Examiners never resign from the office for the purpose of practicing before the same, as such a practice is held to be ethically bad. The office closes during the summer for six weeks. Office hours are continuous from 9 to 3 o'clock. In order to determine the efficiency of examiners they have established a system which is worthy of consideration. Briefly the system consists in giving a weight to the group of subclasses assigned to an examiner marked on a basis of 1.0, and in accordance with the difficulty of that group. From the total number of actions of an examiner during the month are subtracted those which do not represent any work, but which are merely formal actions. The remaining number is multiplied by the said weight, thereby giving a more equitable basis of comparison between examiners than the number of cases acted upon.

The office is not doing anything toward revising its present classification; in fact, it might be said that they are reasonably well satisfied with the same as it now stands. Applications are assigned and patents are classified in accordance with the particular ulterior use for which an inventor may have designed the invention and set it forth in his specification. Accordingly, if any invention was stated to be of especial use in connection with an automobile, it would be classified in the class where automobiles are found, but if the invention was stated to be of use in a railway car or automobile, then it would be classified in the class where railway cars are found because that is the parent class. After examination by the expert on railways it is then turned over to the expert on automobiles for further examination. We asked the question, if an inventor should not care to limit the use of his invention to any particular industrial art, but alleged for it a most general utility, how they would then classify the same. The Examiners stated that they would require him to specify for what particular use he had designed the same, and on that statement, the case would be classified. Thus if an inventor made an improvement in saws which he believed to be of general application, he would be required to state whether it was to be particularly used for meat, wood, stone, metal or for surgical purposes, there being separate classes for each type, and on his statement the case would be classified. It is very easy to classify inventions in this manner in accordance with the mental reservation of the inventor, but it is not so easy to find them later when a different and a heretofore unsuspected ulterior use is assigned to the same old device. We can not but feel that the German system of classification would be inadequate for our purposes.

The patent office is quartered in a modern fire-proof building which was finished seven years ago. The sanitation and lighting are all that could be desired. There is no thought of overcrowding and there seems to be ample space for years to come. The equipment is substantial and ample but nowhere lavish. Most of the examiners have a room to themselves. The president of the office has living quarters in the building.

Taking the German office as a whole, it is well up to date and can certainly be considered as being in our own class. Different social conditions have caused what seems to us peculiar limitations in their law, but it is noticeable that they are gradually drifting in our direction. The personnel of the German office is quite different from our own force. In the relationship of individuals there is a distinct smack of militarism, preciseness and subordination to superior officers. No one ever thinks of entering the room of an examiner without first knocking and upon entrance there is much formal bowing and handshaking, and the same procedure takes place on exit.

We were treated with great cordiality and frankness by all the officers of the bureau. They called attention to the fact that our own country was about the only one that had not made an investigation of their office in recent years. A representative of the Swedish patent office had some time before spent five weeks there investigating their methods and facilities. We felt that the short time we spent in the German patent office did not enable us to get much more than a bird's-eye view.

THE AUSTRIAN PATENT OFFICE.

The Austrian patent law, modeled after that of Germany, is about 15 years old. Prior thereto the government granted privileges or monopolies, some public and some secret. These were never printed but copies of the same are in the examiners' files. The law contains a provision that no patent shall be granted for that which was formerly covered by a privilege. It is seldom that a reference is found among them.

The personnel and procedure is substantially the same as in the German office. The office consists of 10 examining divisions having each 10 or 12 men. The board of appeals consists of five members and does not comprise fixed personages. The office is divided into two groups of five divisions each. When appeal is taken from the decision of a division in Group A, the members of the board of appeals are drawn from Group B. When there are two divisions relating to the same general art, as

where there are two chemical divisions, one division is placed in each group. There are no directors to assist the Commissioner here as in the German office.

The method of keeping the references for search purposes is the same as in the German office, except that they do not have a similar loose copy for public search purposes. All public searching is done in the library through the bound volumes of subclasses, and there is but little of it done apparently.

The Austrian official classification is much the same as is the German, but not so finely subdivided. Nearly every examiner, however, has worked out a private and very detailed classification for his own purposes. Suits for infringement are brought in a court, the members of which are composed of regularly appointed jurists, and having in addition thereto technically trained persons. The latter are usually college professors, doctors of engineering and other strictly professionsl men, but they are never men from the industries. In Austria a patent can be declared invalid at any time, whereas in Germany it can not be declared invalid after five years from the date of publication of the grant. Austria has the same provision of law as Germany to the effect that when a number of employees contribute ideas to an invention, the latter shall nevertheless belong to the employer. Just why they are unable to accept the doctrine of joint invention in the above case is hard to see.

The office is six months behind in its work and there is much complaint on that account. Inasmuch as the law provides that a patent shall not be granted if the same has been published or patented at the time of application, they do not act on any application until three months after the filing date, such time being allowed for the receipt of foreign patents and publications prior to that date.

Their method of keeping assignment records was the best we have found. In bound volumes, folio size, a whole page is reserved for each patent. On this page are recorded all transfers of the patent. In addition thereto there is an alphabetical card index of all assignees. Each card shows the number of the patent involved. There were over 100 cards under the head of United Shoe Machinery Company alone.

The working clause is in effect in Austria, but is seldom invoked and usually only against very important patents. We were informed that the Mergenthaler patent was revoked for non-working. The question of reciprocal rights with our country on that question does not concern them greatly because there are few Austrian applicants for U. S. patents, compared with American applicants for Austrian patents. Fixing the price at which a patented article shall be sold is not forbidden. The only price-fixing that is prohibited by law is where there is an agreement to raise the price.

There is now before the Austrian parliament a new law covering designs, whether they are artistic, as with us, or utilitarian, as with the German Gebrauchsmuster. The law does not attempt to distinguish between the two and protection is to be had wholly by registration, as in Germany.

The facilities and equipment of the office are wretched. The office is scattered through six rented buildings all of which are poorly lighted and in an unsanitary condition. The office furniture is also meagre and poor.

The library is quite extensive, but is also poorly housed. They do not have the modern library classification, although the one they have is quite efficient. All foreign patents are bound in volumes of 100 each.

The personnel impressed us as being of a high order. We surmise that their handling of a case would be as intelligent and thorough as that of the German or our own office. There is, however, a great difference in the general atmosphere of the office. The military preciseness and bearing of officials so conspicuous in the German office is nowhere apparent here. They have the same free and easy manners as one finds in our own office.

THE HUNGARIAN PATENT OFFICE.

The Hungarian Patent Office, at Budapest, is fairly comfortably housed in a substantial stone building of four stories and basement, the approaches to the various rooms leading from galleries surrounding a central court.

Under the Hungarian law of July 7, 1895, now in force, any new invention capable of being utilized industrially

can be patented. A patent will not be granted, however, for an invention:

1. The working of which is contrary to law, an ordinance or to public morals.

2. Which relates to arms for war purposes, explosives, ammunition, fortifications or ships of war necessary for increasing the belligerent power of the army or navy, provided the Minister of Commerce enters an opposition against the granting of such patent within two months of the proposed date of publication.

(Note: Paragraph 2 will probably be eliminated in the proposed new law, for its effect is to prevent the granting of valuable patents.)

3. For scientific theorems or more principles.

4. For articles serving for human and animal nourishment, for medicines and articles produced by chemical processes, although the process itself employed in making such articles may be patented.

An invention is not regarded as new if at the time of filing the application:

1. It has been made so known by printed publications or other reproductions, that it can be used by persons skilled in the art.

2. It has been made so known by public working or by exhibition that its employment by persons skilled in the art has been rendered possible, excepting that an exhibitor at an official exhibition is given an allowance of six months if he states that he intends to file an application for a patent on the article exhibited.

3. It has formed the subject-matter of a prior patent.

The invention is regarded as novel, notwithstanding prior publication or working, if a term of 100 years has elapsed between the time of its last publication or working and the date of application.

Whether an official publication published in a foreign State deprives the patent of novelty is determined by treaties made with such State.

Applications, as soon as they are received, are given a time seal, indicating the exact moment of their receip ,

and also a serial number. Every application must contain:

1. The name, profession, and residence of the applicant and, if he resides abroad, also the name and residence of his representative residing in Hungary.

2. The title of the invention sought to be patented by its general designation:

3. The declaration that the applicant is the inventor of the matter sought to be patented, or that he is the successor (*ayant cause*) of the inventor, and, in the latter case, the application must contain the name, profession, and residence of the inventor, and also designate the document by which the applicant supports his rights as applicant.

The application must be accompanied by a receipt of the Public Treasury indicating that the application fee, 20 crowns, or $4, has been paid, and a duly authorized power of attorney, if the application is filed by a representative of the applicant.

The description of the invention must be in duplicate and be placed in a sealed envelope on which the title of the invention and the name and residence of the applicant are noted. If the applicant be the successor of the inventor, the document determining the succession, assignment or transfer must accompany the application.

Drawings must be in duplicate, the main drawing on white and smooth design paper, and the copy on tracing cloth, and at least the former be executed in black India ink.

The specification or description must comply with the following requisites:

1. It must enable persons skilled in the art to make the invention on the basis of such description without any amplification thereof; in particular, the description must not contain any misleading statements or ambiguities nor must it keep secret anything relating to the means, mode of working or the particular operations necessary for successfully carrying the invention into practice, nor must it name means or devices which are more expensive or have not the same effect.

2. It must enumerate, in one or more claiming

clauses, what is considered as new and what the applicant wishes to have protected by patent. If there be two or more claiming clauses and the substance of the invention does not consist in the matters separately pointed out in the several claiming clauses but in the entirety of the matters pointed out in all of the claims or in groups of such claims, this circumstance must be particularly stated. Defects of the claims can not be remedied by other parts of the specification.

3. It must be accompanied by such drawings as are necessary for its comprehension and, if required, by models or samples.

4. It must bear the signature of the applicant or his representative.

Up to the time of publishing the application, applicant may make alterations or amendments of the description and claims. The effect of such changes upon the priority of the application, however, is determined by the office.

The examining staff comprises sixteen "Patent Judges" of whom twelve are technical examiners or judges and four are jurists without special technical training. Together these persons constitute two "Main Examining Divisions" ("Anmelde Abteilungs-Divisionen"). No examination of an application as to novelty is made, however, prior to its publication and only then when the granting of the patent is opposed, and only with regard to the supposedly anticipatory patents, literature or cases of prior use cited by the opposer.

Each application is assigned according to the official class to which it belongs, by the Assistant Commissioner to an examiner expert in such class, who conducts the correspondence and finally reports to a board ("Anmelde Abteilung") consisting of three judges: two technical examiners, and one jurist. These decide whether or no the formalities required by law have been complied with and if the application is ready for publication. Upon a favorable decision the application is published ("ausgelegt" or "aufgeboten"), and exposed to public examination for a period of two months. In case of an unfavorable decision, appeal lies to a board of five judges.

known as the judicial board ("Richterliche Instanz"), composed of members different from those sitting in the Anmelde Abteilung, and now comprising three jurists and two technical examiners. (Note: the constitution of this board will probably be changed by the new law to three technical members, and two jurists), whose decision is final.

As stated above, if the Anmelde Abteilung, or in case of an appeal, the judicial board, considers the application to be in due order and finds that a patent may be granted, it orders the application to be published and thus allows opposition proceedings, if any, to be instituted.

On request of the applicant, however, the publication may be postponed for a period not exceeding six months from the date of the decision to publish; a request for a delay of not exceeding three months, must be granted by the office. From the day of publication, the specification, drawings, samples, or models are open to public inspection.

Within two months of the day of publication, opposition may be entered against the granting of the patent requested. The opposition papers must be filed in the Patent Office in duplicate and contain all the reasons assigned, but based only on the following propositions:

1. That the invention is not patentable in the meaning of the law as above defined.

2. That the description does not fulfill the requirements pointed out above as to the specification, and 3, that the invention does not lawfully belong to the applicant.

In the cases falling under heads 1 and 2, opposition may be entered by any person, but in case of 3 only by the party injured or by his successor.

The opponent is not bound at present to pay applicant's costs, but this will probably be changed by law, so as to force the opposer to pay if his objections are found to be untenable.

The application fee for a patent or patent of addition (improvement), is 20 crowns (about $4), and the fee for a permissible alteration of the specification is 10 crowns, or $2. During the possible life of a patent (fifteen years), taxes or annuities increasing in amount from 40 crowns for the first year to 500 crowns for the fifteenth year have

Some Consideration of the Term Combination

A paper read October 1, 1914, before the Examining Corps of the United States Patent Office

BY

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Some Consideration of the Term Combination.

The purpose of this paper is to present an inquiry into the use of the term Combination as it is applied in Patent Law to different agroupments or assemblages of parts or elements; to endeavor some consideration of the different agroupments to which the term Combination is applied, and to suggest certain applications of the term to each.

For any consideration of Combination, a definition of that which is meant by the term becomes of first importance, and it is in the search for definitions that the differences in opinions relative to the term become most apparent.

On investigation, definitions for Combination are found to vary from that most limited and specific definition given by the Supreme Court decision in Pickering *vs.* McCullough to that definition which finds some acceptance and vogue in advanced practice and in which combination is set forth as "An inventive assemblage of parts." This definition, however, is better framed to include the many different adjudicated cases of combination than to afford aid for its specific application, as it supplies no determining factors and is much too broad to be of any practical assistance.

Turning, then, as we must, to the court decisions for definitions for Combination we find in decisions of the Supreme Court in the cases of Hailes *vs.* Van Wormer, Rickendorfer *vs.* Faber, and Pickering *vs.* McCullough the following statements of that which is combination:

In Hailes *vs.* Van Wormer, Mr. Justice Strong said:

All the devices of which the alleged combination is made is confessedly old. No claim is made for any one of them singly as an independent invention. It must be conceded that a new combination, if it produces new and useful results, is

patentable, though all the constituents of the combination were well known and in common use before the combination was made. But the results must be a product of the combination, and not a mere aggregate of several results each the complete product of one of the combined elements. Combined results are not necessarily a novel result, nor are they an old result obtained in a new and improved manner. Merely bringing old devices into juxtaposition, and then allowing each to work out its own effect without the production of something novel is not invention.

In Rickendorfer *vs.* Faber, Mr. Justice Hunt announced:

> The combination to be patentable must produce a different force or effect or result in the combined forces or processes from that given by their separate parts. There must be a new result produced by their union; if not so, it is only an aggregation of separate elements.

In Pickering *vs.* McCullough combination is given its most specific definition in the statement:

> In a patentable combination of old elements all the constituents must so enter into it as that each qualifies every other.
>
> To draw an illustration from another branch of the law, they must be joint tenants of the domain of the invention, seized each of every part, *per my et per tout*, and not mere tenants in common, with separate interests and estates.
>
> The combination must form either a new machine of a distinct character and function, or produce a result due to the joint and co-operating action of all the elements, and which is not the mere adding together of separate contributions. Otherwise it is only a mechanical juxtaposition, and not a vital union.

This last definition in Pickering *vs.* McCullough was found, however, entirely too limited and specific to per-

mit of general application, and the criticism taken from Walker on Patents is given:

> "If, instead of an extract, the whole opinion be read, in connection with the authorities which are cited in it, it may be readily perceived that the substance of the doctrine intended to be affirmed is that a combination to be patentable must produce a new and useful result as the product of combination, and not a mere aggregate of several results, each the complete result of one of the combined elements." And that: "If it were essential to a valid patent for any combination whatever that the mode of operation of every element included in the combination should be changed by each of the others, it would have been impossible to sustain several combination patents which have in fact been upheld, as, indeed, it would be difficult to conceive of any mechanical combination which would be both possible and patentable."

As a summation of the accepted definitions of that which comprises a patentable combination, the following is quoted from paragraph 33 of Walker:

> "To make a valid claim for a combination, it is not necessary that the several elementary parts of the combination should act simultaneously. If those elementary parts are so arranged that the successive action of each contributes to produce some one practical result, which result, when attained, is the product of the simultaneous or successive action of all the elementary parts, viewed as one entire whole, a valid claim for thus combining those elementary parts may be made."

In all of these definitions we find Combination determined and defined by result, and no generally employed definition of Combination can be discovered in which the production of a so-called single and unitary result is not required as a determining factor.

With Combination thus defined by result, the fact is most illuminative that on any attempt to illustrate by a

concrete application, an instance is selected presenting the idea of a chemical compound, taken either as a composition of matter or as a process or method for the production for the compound. Generally such an instance is selected as the production of vulcanized rubber by the Goodyear process. And here, considered either as a compound or as a method or process, we have an ideal and perfect illustration of Combination defined by result—an illustration which will answer even the most specific limitations of the full definition of Combination as stated in Pickering *vs.* McCullough, as the parts or elements, raw rubber and sulphur, enter into the combination so that each is seized as joint tenants of the entire domain of the invention; and the combination is easily found to produce a single, new and useful result, the vulcanized rubber.

But when we attempt to apply the definition of Combination to a machine, the application halts at result. What is the result of a machine? Is it the function or operation of the machine, or is it its product? And what is the difference, if any, between the function or operation of a unitary machine and that which we term its inherent law of action by which it is defined and distinguished as a unitary machine?

In Webster Loom Co. *vs.* Higgins the result is defined as the greatly increased effectiveness of the machine.

On attempting analysis, we find the words "increased effectiveness" to be distinctly relative, implying a reference to another construction and a change from the same, the increased effectiveness being a direct result of the change, but not the result of the co-operation or interaction of the parts or elements of the machine. The increased effectiveness may aid in the determination of invention, but can not be easily applied as a test as to whether or not the parts co-operate. If so applied as a test for co operation to the claims of the Richard's patent, No. 308,905, the test of increased effectiveness could well be answered affirmatively, yet such claims in Richards *vs.* Chase Elevator Co., 71 O. G., 1456, a Supreme Court decision, were held to be for a pure aggregation.

A yet greater difficulty in the determination of Combination by result is encountered in the application of

the term to a second class of machines, comprising associations and assemblages of devices or elements which do not possess the inherent law of action characterizing a unitary machine, and of which an illustration is afforded in the case of the Burdett-Rowntree Mfg. Co. *vs.* Standard Plunger Elevator Co., cited in Krell Auto Grand Piano Co. *vs.* Story and Clark, 206 O. G., 316.

In this case the assemblage comprised an elevator car, an electric motor in the basement of the building, call bells, floor bells, and door signals, and in reference to which the court stated:

> By the grouping and arrangement that are said to be merely aggregation, it seems plain that an intimately related whole has in fact been evolved, in which each part has been made more effective to accomplish the common object, and in which the increased efficiency is due to the new relation of each part to the others. The total result is certainly greatly improved in the several particulars already referred to; and, while it is not a tangible product that has been improved, the new method of operation produces a clearly perceptible advance in the art. Elevators with one point control arrangement of signals and motor are operated more rapidly, more easily, more safely, and more efficiently, and greatly improved operation seems to be a new and beneficial result produced by a new combination and arrangement of known elements.

Associations, assemblages, or agroupments of devices of the above class do not possess the law of action found in a unitary machine, but yet are termed machines that they may be held within the limits of the statutory classes for which patents may be granted; and to permit the application of the term Combination to this class of devices, the intervention of the operator has been brought in where necessary to secure co-operation of the elements to produce that result which has been termed the increased efficiency or the greatly improved operation of the assemblage.

In view of the difficulties thus encountered in the

application of the term Combination defined by result, it may be of interest to inquire whether there may not exist other paths to the allowance of claims for Combination than as defined in the production of a single and unitary result.

May we not consider the restriction of the term Combination by result only to claims for processes and for compositions of matter; the use of the term *Combination by Law of Action* for claims for unitary machines, which operate in proper relation and sequence, and the use of the term *Combination by Space Relation* for assemblages and associations of devices comprising the so-called machines of the second class, if thereby any clarification of thought as to the application of the term combination is to be obtained?

Clearly the more definite the rule, the more certain is the determination of the results of its application in any particular case. Hence, if by such definitions of Combination a more certain test is enabled in each particular application, certainly some warrant is to be found for the suggestion, and it only remains to be determined by actual test whether the application of the term Combination as above defined is of value.

In the practical application of such suggested combinations, claims for combinations by result would be considered, as now, by the result attained.

Claims for unitary machines or for pluralities of parts of the same, comprising Combinations by Law of Action, would be considered relative to the questions of novelty, utility and invention in the light of the law of action of the parts, and, if no new law of action should be developed, the fact would be evident that the parts or elements changed were but the mechanical equivalents of like parts in the anticipatory mechanism.

In claims for assemblages comprising Combinations by Space Relation, the novelty, utility and invention should be found in the change in the configuration or relative agroupment of the parts or elements to permit of their association and assemblage in the relation claimed.

A particular illustration of that relation intended by the phrase *Combination by Space Relation* is afforded by devices of that class or order comprehended by the term

Compound Tools. Devices of this class present associations of different tools or implements in which great ingenuity involving invention is displayed in making changes or modifications of one or both of the devices or implements to permit them to be brought together, yet the changes are entirely in form and are without any change in function or result.

The application of the test of Combination by result to compound tool construction is found in Rickendorfer vs. Faber, the well-known case of the application of a piece of rubber serving as an eraser to one end of a lead pencil; and the decision naturally found no Combination for the production of a result.

If viewed as a Combination by Space Relationship, the inquiry would have been directed to the determination of the degree of change in shape or adjustment of the parts to permit them to be associated, and the interaction of the two devices in co-operation to a novel and unitary result could have been disregarded.

As a clear concept of the conditions for the application of the term Combination is so essential in the practice of this office for the proper determination of patentability and for the analysis of claims, any attempt to throw additional light on the subject may be of value. This paper is therefore submitted in the hope that at least the matter may be opened to discussion and the expression of other thoughts thereon.

Application and Scope of Order No. 2010

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Application and Scope of Order No. 2010.

When an application is filed which, in the opinion of the Examiner is a division of, a continuation of, or a substitution for a previously filed application, but which contains no reference to such prior application, the Examiner will make a proper reference to the prior application in the record and an appropriate entry upon the face of the file wrapper.

This is the substance of Order No. 2010, October 18, 1912, as modified by Order No. 2071, September 19, 1913.

In Order 2071 divisional applications are not mentioned specifically, but as they are merely a species of continuing applications the scope of the order is the same as Order 2010.

It is not difficult to recognize a divisional application.

The rules of practice disclose clearly the nature of a divisional application, but they do not define substitute applications, and continuing applications. Such information must be drawn from the decisions.

These questions may present themselves on any Examiner's desk, any day, and each one should be prepared to take the proper action, and make the proper endorsement on the file.

The requirement is so just, it is surprising to realize it is of such recent origin.

It is the simplest way by which the complete records of the prosecution of such applications can be lawfully thrown open to the public after patents issue thereon.

However, from the organization of the Patent Office until June, 1903, it was possible for an applicant to prosecute an application until it was ready for issue or allowed, make and file a clean copy of the contents of the patentable file, then abandon the parent application and receive a patent from this office which, as far as the records open to the public showed, was passed to issue without a criticism, or the citation of a reference.

The great injustice to the public of such a proceeding was generally recognized by the examining corps, commented upon frequently and greatly deplored, but there was no authority in the rules or in the decisions for preventing such an abuse.

These tactics were employed so frequently that, instead of being the exception, they became the settled practice of some attorneys and were resorted to every time they had a client who was willing to pay another filing fee, and the expense of preparing the clean application.

The circumstances which resulted in establishing the present practice arose in this manner:

Lewis and Unger filed an application claiming the invention of a process for cutting steel plates. Some of the claims of that application were finally rejected and, on appeal to the Board of Examiners-in-Chief, the final rejection was sustained. They then filed two new applications disclosing and claiming the same invention. Some of the claims in these two applications were finally rejected, but, upon appeal to the Board, the rejection was overruled and the claims were allowed. The Examiners-in-Chief suggested that all the claims be incorporated into a single application. Lewis and Unger adopted the Board's suggestion. All the claims were placed in a single case, and that case was passed to issue. Thereupon, after notice of allowance the objectionable practice of filing a new and clean record was resorted to, and a new application was filed which was a literal copy of the allowed case, but made no reference to the prior applications and, of course, eliminated all amendments, rejections, appeals, consolidations, etc., and, on the day after *that* application was filed, a formal abandonment of the allowed application reached the office. It was as follows:

> "We hereby abandon the prosecution of the above entitled application, without abandoning the invention described and claimed therein, as we are, today, forwarding to the Patent Office, for filing, another application covering substantially the same subject-matter."

It is apparent that, from the filing of the first or parent application to the issuing of the patent on the fourth application there would have been a continuous unbroken line of live applications, describing and claiming the same invention, securing to the patentees all the benefits which accrued from the filing date of the parent application, which should be open to public inspection, but all of which would have been concealed excepting the last one—the clean copy of the previously allowed application—if the old and vicious practice of getting a clean record, as it was called, had not been stopped.

This was such an extreme example of withholding information most valuable and necessary and to which, in consideration for the grant of the patent, every one interested or concerned was entitled, that it was submitted to the Commissioner of Patents by the Primary Examiner for instructions as to the action which should be taken. The question being: Shall the application be allowed without some reference to prior abandoned applications for which it was substituted?

June 24, 1913, Commissioner Allen handed down the decision which is the foundation of the present practice.

Briefly stated the reasons and conclusions in Ex parte Lewis and Unger, C. D., 1903-303 are:

The claims were allowed by the Board of Examiners-in-Chief. There is nothing in the new application to show that fact. If the case be passed to issue without a reference to the prior cases it would appear that it was allowed without the citation of a single reference. The date of filing printed in the patent would be misleading because the last application was a continuation of the prior applications. The language of the letter of abandonment is such that it is clear applicants intend to retain all the benefits resulting from the prior applications but they wish to conceal those applications from the public. This would mislead and deceive the public as to the record date to which the patentees were entitled. The office can not knowingly permit the patents issued to contain a false suggestion of fact which may mislead the public. Neither should the office conceal from the public the proceedings

which lead to the grant of a patent. All such proceedings should be open to the public. *It is held* that the present application should not be allowed without a reference to the prior applications and that there should be endorsed upon the file wrapper a statement that it is a continuation of those applications.

In January, 1905, Ex parte Taylor, Jr., C. D., 1905-45, was decided.

This was a case where an application was allowed and forfeited and a new application was filed for the same thing.

It was held that notice of the first case should be included in the second.

In April, 1905, Ex parte Britt, C. D., 1905-156, was decided.

In this case, an application was prosecuted to allowance, but was allowed to become abandoned, and thereafter a new application was filed for the same invention, and containing the allowed claims. It was held that there should be a reference in the new application to the abandoned application.

Give careful consideration to this case. The first application was abandoned--totally dead, yet a reference to it was required in a subsequently filed application by the same applicant for the same invention.

This ruling was probably based on the holding of the Supreme Court of the United States that if a party choose to withdraw his application for a patent, and file a new application for the same subject-matter the two applications are to be considered parts of the same transaction. Godfrey *vs.* Eames, 1 Wall., 317.

These three decisions established the practice upon which Order No. 2010 was based.

To correctly apply the order, we must be able to tell when applications are divisions of, continuations of, or substitutes for previously filed applications, because when an application is a continuation of or a substitute for an earlier application the record made in the parent application should be as much open to the inspection of the public as the record in the patented file. *In re* Doman, C. D., 1905-101.

Taking up the question of divisional applications, which are a species of continuing applications:

It is fundamental that a proper divisional application does and can contain only matter carved out of the original case. *Ex parte* Henry, C. D., 1893-88, 64 O. G., 299; *Ex parte* Kruse, C. D., 1910-119.

The addition of unessential details, such as braces for a frame, does not affect the status of an application as far as the question of its being properly divisional is concerned. Phelps *vs.* Hardy *vs.* Gatman & Stern, 77 O. G., 631, C. D., 1896, 70.

Nor does a mere enlargement or extension of a certain feature, whereby no additional function or capability is given the apparatus, prevent a case from being a divisional application. *Ex parte* Kayser, C. D., 1898-65; 83 O. G., 915.

But where an application contains matter divided out of a prior application and also contains other matter it is not a divisional application. *Ex parte* Hicks, C. D., 1903, 148; 104 O. G., 309.

In fact where there is any departure from the disclosure of the alleged parent case, the application can not be referred to as a division thereof. *Ex parte* Kruse, C. D., 1910-119; 157 O. G., 208.

Turning now to continuing applications:

For an application to be a continuation of another such as to warrant giving to the second the benefit of the first filing date, the proceedings relating to the two must be merged into a single proceeding. There must be a connection between the two which is warranted by law. Sarfert *vs.* Meyer, C. D., 1902-30.

The rule of continuity rests broadly upon the subject-matter of the invention and not upon the specific embodiment. Latterhead *vs.* Hanson, C. D., 1904-646.

Hence an application may be a continuation of an older application when the two have common subject-matter even though the later application contains matter which is a departure from that shown and described in the original application. *Ex parte* Kruse, C. D., 1910-119; Lorimer et al. *vs.* Keith et al., 205 O. G., 1555; Godfrey *vs.* Eames, 1 Wall., 317; Cain *vs.* Park, C. D., 1899-278; Latterhead *vs.* Hanson, C. D., 1904-646;

Lotz *vs.* Kenney, C. D., 1908-467; Von Recklinghausen *vs.* Dempster, C. D., 1910-365; Field *vs.* Colman, C. D., 1913-450; *Ex parte* Luten, C. D., 1913-165.

An application filed to take the place of another application subsequently abandoned is a continuation of the parent application. Lewis and Unger, C. D., 1903-303. *In re* Doman, C. D., 1905-101; *In re* Vacuum Specialty Co., C. D., 1909-88.

So is a new application filed, by an executor, during the life of the parent application. *Ex parte* Smith, C. D., 1888-24.

But an application disclosing and claiming subject-matter disclosed in a patent granted prior to the filing of such application can not be considered as a continuance of the prior application, since after the application has eventuated into a patent there is nothing left pending before the Patent Office upon which it could act or to which the later application could attach. Wainwright *vs.* Parker, C. D., 1909-379; *In re* Spitteler and Krische, C. D., 1908-374.

Neither can a second application be a continuation of a first or earlier application by the same inventor unless it contains the same invention. Green *vs.* Hall *vs.* Siemens *vs.* Field, C. D., 1889-110; *Ex parte* Luten, C. D., 1913-165; Field *vs.* Colman, C. D., 1913-450.

Likewise applications by joint applicants can not be continuations of applications filed by sole applicants, and vice versa; because the applicants in the two cases are different entities. Arnold *vs.* Vaughn, and Cabot *vs.* Arnold and Fisher, C. D., 1904-78.

Furthermore when an application is abandoned for failure to prosecute or otherwise, a second application thereafter for the same subject-matter is not a continuing application. Hien *vs.* Pungs, C. D., 1894-92. Carty *vs.* Kellogg, C. D., 1895, 83; *Ex parte* Britt, C. D., 1905-156.

The decision of the Supreme Court of the United States in Smith *vs.* The Goodyear Dental Vulcanite Co., C. D., 1877-171 does not establish a doctrine contrary to the last statement.

In that case Smith filed an application in 1855, prosecuted it until some time in 1856, and then did nothing until 1864, eight years afterwards, when he filed

a new application for the same invention, and the court held the second application was a continuation of the first. The explanation is:

Abandonment for failure to prosecute was not enacted as a part of the patent law until 1870. Consolidated Patent Act of 1870, sec. 32, 16 Statutes at Large, p. 198; R. S., 4894.

In the order under consideration three species of applications are named—divisional, continuous, and substitute.

It is believed that the attention already given to the first two is quite sufficient to enable one to establish their identity easily and certainly. However, the foregoing statements based on various decisions bearing on the subjects are sufficient authority for the following definitions for the terms divisional application and continuous application.

A divisional application is an application carved out of a prior application, which does not vary materially from the disclosure in the parent application. It must be filed by the person who filed the parent application or by his legal representative while the parent application is pending.

A continuous application is an application filed subsequently to another application, while the prior application is pending, disclosing all or a part of the subject-matter of the prior application and containing a claim to subject-matter common to both applications, both applications being filed by the same inventor or his legal representative. Putting it in a simpler way a continuous application is one which is entitled to the filing date of a prior application for a constructive reduction to practice.

But when the subject of substitute applications is taken up for consideration no line of decisions giving examples and definitions is found.

Divisional applications and continuing applications have been called substitute applications. In fact the term appears to be loosely applied to any application which takes the place of a prior application. Ex parte Lewis and Unger, C. D., 1903-303; Ex parte Taylor, Jr. C. D., 1905-45; In re Doman, C. D., 1905-101.

As far as now appears, all cases in which endorsements on the file wrappers are necessary to carry out the spirit and the letter of Order 2010 can be classified as divisional applications or continuing applications excepting the single species represented by *Ex parte* Britt—cases in which a period of abandonment intervenes between the filing of the first application, and the filing of the second application. During such period of abandonment no live case is before the office.

Doubtless the Commissioner had in mind this type of cases when he introduced the word "substitute."

Therefore, all applications affected by Order No. 2010, which are neither divisional applications nor continuing applications, should be termed substitute applications in the endorsement upon the file wrapper.

This being the case, the conclusion necessarily follows that Order No. 2010 is comprehensive enough to cover every instance where the public is entitled to examine the complete record of the proceedings in the Patent Office leading to the issuing of a patent when such record is not all in the patented file; and that one or another of the three terms—divisional, continuous, and substitute—will clearly designate every case in which the public has such a right.

MECHANICAL METHODS

A paper read October 8, 1914, before the Examining Corps of the United States Patent Office

BY

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Mechanical Methods.

The term "art" as used in the patent law is intended to include "methods" and "modes" of operation as well as "processes."

Mr. Justice Grier, in delivering the opinion of the court in Corning *vs.* Burden (15 How., 252), said:

> "A process *eo nomine*, is not made the subject of a patent in our act of Congress. It is included under the general term 'useful art.' An art may require one or more processes or machines in order to produce a certain result or manufacture. . . . But where the result or effect is produced by chemical action, by the operation or application of some element or power of nature, or of one substance to another, such modes, methods, or operations, are called processes. A new process is usually the result of discovery; a machine of invention."

As stated in Cochrane *vs.* Deener, C. D., 1877, 242; 11 O. G., 687; 97 U. S., 780:

> "A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. . . . The process requires that certain things should be done with certain substances and in a certain order; but the tools to be used in doing this, may be of secondary consequence."

The terms "process," "method," and "mode" are, to a certain extent, used interchangeably in the domain of invention and discovery; although the best usage would seem to indicate that the term "process" should be used when it is intended to refer to an operation including

some chemical or other similar elemental action or the action of an agency of nature.

The terms "method" and "mode" are employed more accurately where the operation intended to be defined, is mechanical and the various elements and parts suffer no change in composition.

The Supreme Court held in Risdon Iron and Locomotive Works *vs.* Medart et al., C. D., 1895, 330:

> "It may be said in general that processes of manufacture which involve chemical or other similar elemental action are patentable, though mechanism may be necessary in the application or carrying out of such process, while those which consist solely in the operation of a machine are not."

In this case, after discussing the cases of: Mowry *vs.* Whitney, 1 O. G., 499, 14 Wall., 620; Cochrane *vs.* Deener, C. D., 1877, 242; Tilghman *vs.* Proctor, C. D., 1881, 163; O'Reilly *vs.* Morse, 15 How., 62; New Process Fermentation Co. *vs.* Maus, C. D., 1887, 402; Bell Telephone case, C. D., 1888, 321, and American Bell Telephone Co. *vs.* Dolbear, C. D., 1883, 160, the court said:

> "It will be observed that, in all these cases, the process was either a chemical one, or consisted in the use of one of the agencies of nature for a practical purpose.
>
> "It is equally clear, however, that a valid patent can not be obtained for a process which involves nothing more than the operation of a piece of mechanism, or, in other words, for the function of a machine."

It may be remarked that this discussion of the Supreme Court followed a number of decisions which it had rendered in dealing with mechanical methods and processes as follows:

In Downton *vs.* The Yeager Milling Co., 1883, 434, 25 O. G., 697, it held a mechanical process of "manufacturing middlings-flour" unpatentable over references, but it does not appear to have considered it as relating otherwise to an unpatentable process.

In Eames *vs.* Andrews et al., C. D., 1887, 378, it held a "process of constructing wells" to be patentable and the patent to have been infringed. In Hoff et al. *vs.* The Iron Clad Manufacturing Co., C. D., 1891, 332; 55 O. G., 139, it was decided that claim 1 for a "method of forming the body of a coal-hod or other similar vessel," and claim 2 for an "article of manufacture," made by such method, had not been infringed, and while some doubt was expressed as to patentability over references, nothing was said as to the unpatentability of a mechanical method.

In Hoyt *vs.* Horne, C. D., 1892, 435, the following claim for a purely mechanical method was held to be valid and infringed:

> "The improvement in beating rags to pulp in a rag engine having a beater-roll and bed-plate knives, consisting in circulating the fibrous material and liquid in vertical planes, drawing the same between the knives at the bottom of the vat, carrying it around, and over the roll and delivering it into the upper section of the vat, substantially as described."

In Weatherhead et al. *vs.* Coupe et al., C. D., 1893, 203, this quoted claim was held to be for the function of a machine, but it was not intimated in the opinion that mechanical methods were unpatentable:

> "The improvement in the method of stretching hides, which consists in dragging the hide over a stretcher, and also over a friction table or beam, by means of a revolving roller, to which the hide is secured, as described, whereby as the hide is passed over the table or beam, the thicker portions of the hide are detained or made to lag by pressure applied to such thicker portions, to increase at such points the friction between the hide and the table, substantially as specified."

Risdon *vs.* Medart was followed in a few years by Westinghouse *vs.* Boyden, C. D., 1898, 444, 170 U. S.,

537, in which Mr. Justice Brown delivered the opinion of the court, saying among other things:

> "Risdon Locomotive Works *vs.* Medart and other cases assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions. Where a process is simply the function or operative effect of a machine, Corning *vs.* Burden, Risdon Locomotive Works *vs.* Medart, and other cases are conclusive against its patentability; but where it is one which, though ordinarily and most successfully performed by machinery, may also be performed by simple manipulation—such, for instance, as the folding of a paper in a peculiar way for the manufacture of paper bags or a new method of weaving a hammock—there are cases to the effect that such a process is patentable, though none of the powers of nature be invoked to aid in producing the result (Eastern Paper Bag Co. *vs.* Standard Paper Bag Co., C. D., 1887, 537, 41 O. G., 231, 30 F. R., 63; Union Paper Bag Machine Co. *vs.* Waterbury, 30 F. R., 389; Travers *vs.* Am. Cordage Co. C. D., 1895, 125, 70 O. G., 277, 64 F. R., 771);" and Mr. Justice Shiras stated in his dissenting opinion: "I can not assent to what is perhaps rather intimated than decided in the opinion of the court—that what is called a 'process,' in order to be patentable, must involve a chemical or other similar elemental action."

After Westinghouse *vs.* Boyden, above referred to, in which the majority opinion said in effect that it is still an open question whether claims to mechanical methods are patentable, came the decision The Expanded Metal Co. *vs.* Bradford et al., and The General Fireproofing Co. *vs.* The Expanded Metal Co., C. D., 1909, 521. The claim in the patent in suit read as follows:

> "The herein-described method of making open or reticulated metal work, which consists in

simultaneously slitting and bending portions of a plate or sheet of metal in such manner as to stretch or elongate the bars connecting the slit portions and body of the sheet or plate, and then similarly slitting and bending in places alternate to the first mentioned portions, thus producing the finished expanded sheet metal of the same length as that of the original sheet or place, substantially as described."

The most pertinent paragraph of this opinion is:

> "We therefore reach the conclusion that an invention or discovery of a process or method involving mechanical operations, and producing a new and useful result, may be within the protection of the Federal statute, and entitle the inventor to a patent for his discovery."

In Corning *vs.* Burden, Mr. Justice Grier said:

> ". . . It is when the term process is used to represent the means or method of producing a result that it is patentable, and it will include all methods or means which are not effected by mechanism or mechanical combinations.
>
> "But the term process is often used in a more vague sense, in which it can not be the subject of a patent. Thus we say that a board is undergoing the process of being planed, grain of being ground, iron of being hammered or rolled. Here the term is used subjectively or passively as applied to the machinery operated on, and not to the method or mode of producing that operation, which is by mechanical means, and the use of a machine, as distinguished from a process.
>
> "In this use of the term it represents the function of a machine, or the effect produced by it on the materials subjected to the action of the machine. But it is well settled that a man can not have a patent for the function or abstract effect of the machine, but only for the machine which produces it."

It will be observed that the court did *not* directly say that methods "which are effected by mechanism or mechaniel combinations" are *not* patentable.

In the case of Ex Parte Shippen, C. D., 1875, 126, decided by the Commissioner of Patents, the claim was as follows:

> "The improvement in the art of manufacturing wooden shoes by machinery, hereinbefore set forth, which consists in cutting, shaping, and boring the blank by submitting it successively to the operation of mechanism substantially such as set forth."

The following quotation from that decision, although the holding be by a minor tribunal and prior in point of time, appears, in view of the Expanded Metal case to set forth in apt language, the present attitude of the courts and the Office:

> "What is set forth is a well-defined order of mechanical operations. The successive steps are all adapted to each other, and the operation performed on the block at one step fits it to receive the operation to be performed upon it at the next; and although the operation is wholly mechanical, and requires a peculiar set of instruments, yet the order in which the successive operations are performed is not inherent in the machinery.
>
> "The function of a machine is that operation which, when set in motion, it inevitably performs. Thus it is the function of a grinding-mill to comminute whatever is passed through it, of a lathe to give shape to bodies placed in it, or of an auger to bore. But where the operation of the machine, or of a series of machines, is supplemented by some new method of operation not contemplated in the construction of the machine, and not the inevitable result of its operation, and the new method subserves a new and useful purpose, it may amount to a patentable process, even though the operation depend necessarily upon the machinery. Such was the process

claimed in the Voelter patent sustained by the court (5 Fish., p. 340), in which the mill or stone upon which the wood was to be reduced to fibre was old, and the novelty consisted in placing the wood in such a way that the fibre was torn transversely—the change in which the invention consisted being solely in the method of using the machine, which method was not contemplated originally in making the machine, did not necessarily result from its operation, required evident invention, and produced a new and improved result."

The opinion of the Court of Appeals of the District of Columbia, in the decision In re Weston, C .D., 1901, 290, 94 O. G., 1786, intimates that Risdon *vs.* Medart seems to have been misunderstood by some courts and by the Patent Office, as restricting the patentability of processes to those which involved chemical or other elemental action, and further states: "But we deem it unnecessary to go into that consideration; for we find no real antagonism between the two cases;" that is, between Risdon *vs.* Medart and Westinghouse *vs.* Boyden.

Whether there be an apparent conflict between the two decisions or not, a discussion of it becomes immaterial in view of the Expanded Metal case.

Article on Patentable Processes

A paper read October 8, 1914, before the Examining Corps of the United States Patent Office

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Processes.

This article is not intended as an exhaustive or comparative exposition of the theory of processes, which task, it is to be hoped, will later be taken up in an authoritative manner by some one of our seniors in the service. What has been aimed at here is to refresh our memories by means of a brief sketch, with a few homely examples, of some of the familiar basic principles of the process claimed from the standpoint of patentability.

What is a process? The answer is not easily found, although there are many definitions. Robinson states in Vol. I, sec. 159, that:

> "An art or process is an act or series of acts performed by some physical agent upon some physical object and producing in such object some change either of character or of condition."

In Cochrane *vs.* Deener, 11 O. G., 687, it is said that:

> "A process is a mode of treatment of certain materials to produce a given result; it is an act or series of acts performed upon the subject-matter to be transformed and reduced to a different state or thing."

As stated in Hopkins on Patents, Vol. I, page 45—

> "where a result or effect is produced by chemical action, by the application of some element or power of nature, or of one substance to another, such operations are called Processes. One may discover a new and useful improvement in the process of tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores, etc., irrespective of any particular form of machinery or mechanical device." This is a *process*.

To these definitions there are certain limiting principles, as laid down in the decisions, which form, in the majority of cases, uniformly logical and consistent precedents for our guidance. As to the seemingly contradictory decisions, we must remember that the doctrine

of *stare decisis* does not always find sympathy here; and furthermore, that our old rule of law that "decisions—not dicta—make precedents" is observed as much by its breach as otherwise. And fortunately so, since after all every patent case stands upon its own merits, and each one of our guiding decisions may be entirely misleading, if interpreted in any broad sense apart from the peculiar facts connected with that case. Hence, our judicial authorities, by decisions, and where necessary by *obiter dicta*, as our inventive world progresses, are constantly changing the illogical and unethical practices which are not consistent with our broadening ideas of patentability.

Therefore, in our consideration of an application for a process, where the decisions appear inconsistent, we must examine the case under the searching rays of the one great question: *Is this process new, and if not, has a new, useful and unobvious result been obtained?* Then, a logical application of a few guiding principles, in the endeavor to do justice, will generally determine whether the claim is, in form and subject-matter, patentable.

Processes have been classified as:

(*a*) Those involving chemical or other elemental action.

(*b*) Mechanical.

A chemical process is clearly and uniformly held patentable. See *Westinghouse vs. Boyden Co.*, *C. D.*, 1898, 443; *Ex parte Rogers and Winslow*, 87 *O. G.*, 699.

As to the mechanical process, the decisions hold that if the process consists of a mere function or principle of a *particular* mechanism, and it does not appear that it can be carried out by hand or by any other form of mechanism, it is not patentable. The machine alone, and not its method of operation, should be claimed. See *In re White*, 136 *O. G.*, 1771; *Expanded Metal Co. vs. Bradford*, 143 *O. G.*, 863. See, also, *Denning Wire and Fence Co. vs. American Steel and Wire Co.*, 169 *Fed. Rep.*, 793, in which it is stated that:

> "The phrase 'functions of a machine' is defined as that power or property of the machine of acting in the specific manner designed or intended by its construction; in other words, that which the

> machine is designed to do, as distinguished from the machine itself and from the product of its action on something external to itself."

There was a great doubt as to whether a process is patentable *if it could be practiced by several mechanical instrumentalities, so that it existed as an invention independently from any particular machinery.* This point was finally settled by Mr. Justice Day in Expanded Metal Co. *vs.* Bradford, 214 U. S., 366, in which he held that such a mechanical process is patentable, if a new and useful result is obtained, any expressions in Corning *vs.* Burden, 15 Howard, 252; Risdon Iron and Locomotive Works *vs.* Medart, 158 U. S., 68, to the contrary notwithstanding. See, also, *Cochrane vs. Deener*, 94 *U. S.*, 780.

The machinery to perform the process may be old, or it may be new and patentable. If the machinery is old, but is operated in a new way to produce a new and unexpected result, the process is patentable.

Of the rules, covering processes in general, we have:

(I) As stated in *Houschill Co. vs. Neilson*, 1 *Webster Patent Cases*, 673, a *principle* can not be the *subject* of a valid patent, but as *applied* it may be the subject of a patentable invention. Robinson (Vol. I, sec. 135) states that:

> "A principle is some natural power or energy which operates with uniformity under given circumstances, and may thus be contemplated as obedient to law." . . .

A principle covers every mode, apparatus or process that accomplishes the result. See, for example, *Tilghman vs. Proctor*, 19 *O. G.*, 859.

In *O'Reilly vs. Morse*, 15 *Howard*, 112, the eighth claim of Morse on the telegraph was construed to be for the *use* of an electric current for marking signs at any distance, i. e., to be for the exclusive use of one of the powers of nature for a particular purpose and hence void.

See, also, *American Bell Telephone Co. vs. Dolbear*, 23 *O. G.*, 535, which states that the discoverer of a natural force or scientific fact can not have a patent for

that; but he may patent a process by which he makes use of a certain effect of one of the forces of nature. In other words, the principle that heat will decompose substances can not be patented, as involving merely the use of a natural force, but the process involving the decomposition of marble into lime and carbon dioxide by the application of sufficient heat thereto might be patentable. This involves the specific application of a principle.

(II) Along the same lines we find that a mere process carried out by nature alone is not patentable. But a patentable process may be had where a force of nature is put into operation under a certain specified condition and then used for a practical purpose, as shown by the decision in *Cameron Septic Tank Co. vs. Village of Saratoga Springs*, 159 *F.*, 453, which involved the process of purifying sewage consisting in—

> "subjecting the sewage under exclusion of air, of light and of agitation to the action of anaerobic bacteria until the whole mass of solid organic matter contained therein becomes liquefied, and then subjecting the liquid effluent to air and light."

This claim was not considered to cover a mere process of nature.

(III) Similarly, it is clear that a process must cover more than a mere operative theory. See, for example, Manhattan General Construction Company *vs.* Helios Upton Co., 135 Fed. Rep., 785.

(IV) It goes without saying that a process must possess some utility. See Rembert Roller Compress Co. *vs.* American Cotton Co., 129 Fed. Rep., 355.

(V) A claim should be either to a manufacture or a process, not merely to the *use* of a thing. See *Ex parte Mayall*, 1873, *C. D.*, 134; *Ex parte Averell*, 11 *Gourick*, 2, 9.

In the case of Morton vs. N. Y. Eye Infirmary, 2 *Fisher*, 320, it was held that "the *use* of ether as an anesthetic was invalid."

(VI) "Where a process is capable of being carried out by a variety of apparatus, the validity of the claim is

, not affected by the want of novelty in the apparatus, if this process is new and produces a new result."

New Process Fermentation Co. *vs.* Maus,
C. D., 1887, 402, 122 U. S., 413.

(VII) "A claim for a process, to whatever substance known or unknown it may be applied, is too broad." *Bailey Washing and Wringing Machine Co. vs. Lincoln*, 4 *Fisher*, 379.

Obviously, the claim must be limited to some art involving a particular material or group of analogous materials. For example, the process of heating *a substance* to 1,000 degrees centigrade to melt it, and then crystallizing it by cooling to 800 degrees could be applied neither to water nor to platinum. The process is necessarily limited in scope to a few particular materials, and should not be claimed in any broader application.

Of course, one may claim his invention as broadly as the limits of the art allow, provided the claim is not broader than the original disclosure, which disclosure, in turn, must be sufficiently clear that one skilled in the art may be able to utilize the same. (Rule 34.) For example, in *Eisenstein vs. Fibiger*, 160 *Fed. Rep.*, 686, a method involving coating canes with varnish and subjecting to a temperature of 240 to 300 degrees for not less than 3 hours was held void, because the limits of temperature stated were so wide apart that the process could not be carried out throughout the whole range claimed; hence, the claim was too broad in the sense of being inaccurate, vague and indefinite. This rule has been followed in *The Incandescent Lamp Patent Case*, 159 *U. S.*, 465, and *In re Dosselman et al.*, 167 *O. G.*, 983.

(VIII) "A patentable process claim must include all steps necessary to produce the stated or any useful result." In re Creveling, 117 O. G., 1167.

As stated in this decision, the claim "appears to be neither a broad statement of the essence of the invention, nor a statement of a segregable part thereof, in itself novel or capable of producing a useful result. It is, upon its face, a claim purporting to cover a method but *lacking one of the steps which is essential* to the carrying out of the alleged method."

This seems to be clear, following the precedents of the decisions covering claims to structure. Each claim must define an operative process, however broadly stated. For example, in making a battery plate involving the four steps of pasting lead oxide on a grid, treating it with sulphuric acid, drying it and then electrolyzing as a cathode in a suitable bath to form a spongy lead electrode—if these four steps are all essential steps in making the electrode, then the first two steps alone, for example, are not patentable, since a finished and useful product is not produced thereby.

Of course, one is entitled to subprocess claims where they can be properly drawn. As stated in *Ex parte Arnard et al.*, *C. D.*, 1899, *page* 170:

> "An applicant may properly in one case have claims covering the principal or essential steps of his process, and other claims including these steps together with other specific steps which are not absolutely necessary to the performance of the process, but which add to its efficiency or make its operation more perfect."

In this case, claim 1 omitted the intermediate step, in a process of making sugar, of "agitating and reducing the temperature." Applicant contended that the omitted step was not essential to the performance of his process, although it was an improvement and rendered the process more practical. On this ground, the Examiner's requirement for division between claims 1 and 2 was overruled.

Similarly, in the example covering the making of a battery plate, referred to, if the step of drying the plate is not essential, but merely works toward greater efficiency and a better product, it may be left out of a broad claim. The claim without this additional step covers a complete, useful and operative invention by itself, and therefore is a true subprocess claim under the specific process.

(IX) This hypothetical claim suggests a difficulty, that of setting forth structure in a process claim. As a rule, a process claim should be expressed independently of the specific structure of the article treated and independently of the structure of the apparatus in which the

process is carried out. So far as the steps of the process are concerned, it is clear that it is immaterial whether the battery grid, or plate, is made of woven lead wire gauze or of a reticulated lead plate made up of V-shaped bars cast together; since these steps of pasting, treating with acid, drying and electrolyzing can be carried out with the one electrode structure as well as with the other. Similarly, if the claim specified "applying the lead oxide paste with a *trowel* and treating the electrode with acid in a *rubber lined wooden tank*," it would be objectionable. These structures have no patentable relation to the process steps. See *ex parte Creedius*, 116 *O. G.*, 2531.

For example, it is held in *ex parte Ach*, 97 *O. G.*, 2411, that:

> "It is better form in a method claim to state that a mixture is heated at a moderate temperature than to state that the same is heated over a water bath." See, also, *In re Luten*, 143 *O. G.*, 1110.

This rule can not always be applied, however, in individual cases, especially in mechanical processes. Here the best we can say is that whatever structure is essential should be set forth to the minimum extent and only in the broadest possible terms, since no patentability is involved over the broad proposition in specifying particular structure.

(X) A troublesome question is that of *Analogous Arts*. The rule, simply stated, seems to be that a process claim in an application is anticipated by a patent for a similar process in an analogous art. See Ansonia Brass and Copper Co. *vs.* Supply Co., 58 O. G., 1694; Lovell Manufacturing Co. *vs.* Cary, 147 U. S., 623.

The rule is clear, but its application is difficult. The sweeping statement has been made that an old process applied to new material is not patentable. That this statement is too broad may be seen from the decision in *Tilghman vs. Morse*, 1 *O. G.*, 574, to the effect that "Driving cattle off a railroad track with a blast of sand does not anticipate sand blasting for cutting purposes."

The decisions along this line seem confusing until we

approach our basic question—does such an application of an old process in this new art involve inventive skill—by first asking what is the purpose or the result to be obtained in this new field? If a *new, useful and unobvious result* is obtained, a patent should be granted. To make this clear, we might consider a few guiding decisions. For example: There is no invention involved in the cleansing of chewing gum by the same process used for cleansing rubber. These are analogous materials. Adams *vs.* Loft, 4 Banning & Arden, 495.

On the other hand, in *Tannage Patent Co. vs. Zahn*, 70 *Fed. Rep.*, 1003, a process of manufacturing leather was held to be not at all analogous to a similar process for treating and dyeing fabrics.

In the former case (Adams *vs.* Loft) the only process was that of cleansing some thing, the nature of the thing being immaterial, since the results in the two operations were the same. In the latter case it was held that:

> While the process of tanning hides, abstractly considered, involving "saturating with acid, and then converting this into an oxide by chemical reduction" must always be the same chemical operation, it does not follow that there is no different process involved when this operation is applied to different materials to accomplish dissimilar results.

In accordance with these decisions, we find the following processes held unpatentable:

> No invention is involved in making artificial tooth crowns by the well-known process of striking up metals by means of a die, such as used in making thimbles, eyelets, etc. Rynear Co. *vs.* Evans, 83 Fed. Rep., 696.
>
> The method of casting stove covers is unpatentable over a similar method for casting wheels, shovels, etc. The process is merely that of casting, irrespective of what is formed thereby. Ex parte *Little*, C. D., 1869, page 25.
>
> Painting on canvas with a spray anticipates such on china. Fry *vs.* Rockwood Pottery Co., 101 Fed. Rep., 723.

A process for coating carbon paper anticipates the same applied to photographic bromide films. Eastman Co. *vs.* Getz, 84 Fed. Rep., 458.

A method of filling vessels with soda water anticipates the same applied to beer. Golden Gate Mnfg. Co. *vs.* Newark, 130 Fed. Rep., 112.

The difference between a process of blue tempering wire clock bells and the process of blue tempering furniture springs is at most a difference in the articles to which the process is applied and is not a difference in process. Lovell Mnfg. Co. *vs.* Cary, 62 O. G., 1821. See, also, Howe *vs.* Abbott, 2 Story, 190; Brown *vs.* Piper, 91 U. S., 37; Penn. R. R. *vs.* Locomotive Truck Co., 110 U. S., 490.

On the other hand, we find a class of decisions holding certain processes patentable and supporting the theory of *Ansonia Brass & Copper Co. vs. Supply Co.*, 58 *O. G.*, 1694. It was held in this decision that:

> "If an old process be put to a new use which is not analogous to the old one, and the *adaptation* of such process to the new use is of such character as to require the exercise of inventive skill to produce it, such new use will not be denied the merit of patentability."

Similarly, a process applied to a new object and producing a new and previously unknown result is patentable. See *Mowry vs. Whitney*, 14 *Wallace*, 620.

> The process of regulating electric lights does not anticipate a similar one for controlling the speed of electric cars. Electric Car Co. *vs.* Nassau, 91 Fed. Rep., 142.
>
> If the adaptation of an old process to a new use is of such character as to require the exercise of inventive skill, it may be patentable. Smith *vs.* Nichols, 21 Wallace, 112.

This case held, it might be noted, that merely making a more perfect article or a change only in form, proportion or degree or the substituting of equivalents does not involve invention.

From these two lines of decisions we are safe, I believe, in deducing that an old process is patentable where applied in a new art to produce a new, useful and unobvious result. (But, where the processes differ merely in the nature of the material acted upon, and no new result is produced, patentability is not involved.) Hence, if by any accidents of classification, patents covering non-analogous arts should be found together, that is no reason for rejecting an application in one art upon a patent in the other art, although they involve the same process steps, if there is a difference in result between the two cases. If a patent, for example, for a rotary dasher churn has become located in the class involving the absorption of impurities from a gas, an application for the latter claiming the process of washing a gas in the spray of a suitable solution, produced by a dasher arrangement, and covering a similar structure to the churn and *apparently* the same process, namely, that of agitating a liquid, should not be rejected on the patent, because of the entirely different functions and results obtained in the two processes, one, that of making butter from milk, the other, that of removing impurities from a gas.

For, in the initial analysis of a claim, one determines primarily the function or purpose of the process, what result is to be accomplished. Then, in the effort to judge the patentability of the claim the main question is *not*, are the steps of the process *met* by the patent reference, but, even if the steps disclosed in the application are apparently identical with those in the patent, *do the two processes accomplish the same results*, and would a knowledge of the process in the patent lead one, skilled in the art, to carry out the process of the application for the purpose stated, without exercising the inventive faculty?

(XI) Aggregation of Processes:

"The addition of one well-known process to another well-known process does not constitute invention unless some different or better result is produced than that which had been previously obtained." Mond *vs.* Duell, Commr. of Patents, 91 O. G., 1437.

In *ex parte Harris*, 168 *O. G.*, 1033, claims for preparing, storing and dispensing a beverage were considered aggregational, since each of the steps was complete in itself and independent of the others. In the case of Mond *vs.* Duell, cited above, applicant claimed the lixiviating of roasted zinc ores by caustic soda, thus producing a zincate solution, combined with a specific process of electrolytically depositing zinc on an electrode from a zincate solution. So far as anything set forth in the claim was concerned the zincate solution made by treating the ores might well have been employed in many kinds of processes, and, again, the zincate solution of the second process could have been made by any suitable method other than the one specified.

The court hinted, however, that a claim properly drawn, tying together these different steps to produce a unitary and continuous process with a useful and novel result would be patentable. And it must be said that it is more often faulty construction of a claim than any defect in the inventive idea that results in claims being rejected as covering an aggregation of processes. Hence, a hint thrown out by the Examiner to this effect will often result in the granting of a good patent. In that case of Mond *vs.* Duell, applicant probably had invented a patentable process involving the manufacture of metallic zinc from the ore by the use of caustic soda and the regeneration of the soda with the formation of chlorine as a by-product, all neatly combined in a unitary process; *but the claim did not say so.* As shown by *Bate Refrigerating Co. vs. Gillett*, 9 *F. R.*, 387, to add old processes to obtain a better result is patentable. Similarly, omitting a step with new results may make a new process. See *Lawther vs. Hamilton*, 42 *O. G.*, 487.

(XII) "An accidental, unutilized anticipation of a process is not a reference." Tilghman *vs.* Proctor, 102 U. S., 707.

In *Carnegie Steel Co. vs. Cambria Iron Co.*, 99 *O. G.*, 1866, it was stated that:

> "Where patentee's process of mixing molten metal drawn from several blast furnaces includes retaining at all times a substantial quantity of molten metal in the mixer and this step is what

> adds value to the process and makes it a success. Held, not anticipated by mixing devices in which the metal might be retained when the users did not contemplate such use or understand its advantages."

In order that a process be anticipated by a prior patent for a mechanism, it is not only necessary that the prior patent might have been used to carry out the process, but that such use was either contemplated or *would have occurred in the ordinary mechanical operation of the device*. In the decision, *In re Moulton and Jones*, 191 O. G., 588, it is held that:

> "A method of condensing steam is unpatentable over a prior patent showing a condenser, in which the several steps of the process are carried out, where applicant has discovered only the *underlying principle* of the device."

In such a case—

> "the first patentee is entitled to his mechanism for every use of which it is capable, even though he did not foresee all of them." See the decision in *New Process Fermentation Co. vs. Koch*, 29 O. G., 535.
>
> (XIII) "If the process is no more than the necessary or obvious manner of effecting the product, the product alone is patentable." Ex parte Trevette, 97 O. G., 1173.

If the claims are accordingly in the wrong form the Examiner may suggest to applicant that the claim, although expressed as a process is nothing more in fact than an improperly worded claim for the product. Although any discussion of the questions of election and joinder of invention will not be attempted here, it may be noted that if the claim was not in the wrong form and applicant had elected to prosecute the process claim, then he has bound himself by the election and can not shift over to the article or apparatus in support of this statement, see *Ex parte Aberli*, 91 O. G., 2371.

SPECIFICATION.

(XIV) Finally, it should be stated that applicant need not disclose *every* mode or all the types of apparatus that he may employ, but he should set forth clearly and completely some one particular mode or apparatus by which the process can be carried out. See *Tilghman vs. Proctor*, 12 *Otto*, 707.

> "If a process has been described without the disclosure of any known means to accomplish the result, and inventive skill would be required to determine such means, then no patentable process is involved." Downton *vs.* Yeager Milling Co., 17 O. G., 906.

CONCLUSION.

In concluding this article, it is considered sufficient merely to repeat the one important principle, which underlies basically the whole theory of the process claim:

A process claim is patentable if it covers a new process, whether the result is new or old; but, if the process steps are old, the claim is not patentable, unless a new and useful result, unobvious to those skilled in the art, is obtained.

With this in mind, a logical and conscientious application of the few theories, as outlined here, will surely not work any injustice, either to the inventive world or to the general public.

FUNCTIONAL STATEMENTS IN CLAIMS

A paper read October 8, 1914, before the Examining Corps of the United States Patent Office

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Functional Statements in Claims.

In Corning *vs.* Burden (1853), 15 How., 252, the court said:

> It is for the discovery or invention of some practical method or means for producing some beneficial result or effect, that a patent is granted, and not for the result or effect itself.

In the case of O'Reilly *vs.* Morse (1853), 15 How., 62, involving the settlement of some of the most important principles of patent law, Chief Justice Taney said:

> Whoever discovers that a certain useful result will be produced in any art, machine, manufacture, or composition of matter, by the use of certain means, is entitled to a patent for it; provided he specifies the means he uses in a manner so full and exact, that any one skilled in the science to which it appertains, can . . . produce the result he describes.

In Curtis *vs.* Platt (1863), cited by Robinson under section 90, the court declared:

> In all discoveries of course there are two things. . . . There is an object to be achieved and a means of achieving that object. . . . No novelty is required as to the object; the novelty may be in the means for effecting the object whether old or new.

There are innumerable decisions to the same tenor, and they are all summarized by Robinson (sec. 90), in one statement:

> Judged by this test, it is apparent that an invention, considered in itself, is neither an end nor a combination of both means and an end, but is the means for the attainment of an end.

This determination of what constitutes invention is not based upon the express terms of any statute or rule of practice, but arises solely from analysis of the mental processes accompanying the inventive act. It is a natural consequence of the conditions limiting the field in which the creative faculties can operate. Thus, Section 4888 of the Revised Statutes provides that an applicant for a patent "shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery." Rule 37 gives effect to this provision of the statutes by stating, "The specification must conclude with a specific and distinct claim or claims of the part, improvement, or combination which the applicant regards as his invention or discovery." There is nothing in the precise terms of these provisions which limits the claims to an expression of the means by which the invention performs its office. But a study of what comprises the essence of an invention will at once make clear why the language of the law is ample and conclusive basis for the doctrine enunciated.

FUNCTIONAL CLAIMS AND WHY THEY ARE DEFECTIVE.

The idea of invention involves two mental acts—the perception of a need and the conception of the means to satisfy it. Monopoly in invention is predicated upon a creative production, upon something that had no prior existence. The perception of a need is not an act of the creative faculties—it is common property. No exclusive merit attaches to any one who merely recognizes that a long-felt want exists or who merely recognizes that that want should be satisfied. But one who conceives the means by which the need is satisfied exhibits at once the inventive or creative faculty. So while there is no express language in the statutes confining the sphere of invention to an exhibition of means, yet the term "invention" logically and inevitably excludes from its consideration any other construction.

This perception of a need, or the result or effect of the invention, is when claimed termed "functional," and as must be readily seen is beyond the pale of patentable protection.

As simple as this proposition, baldly stated, is, much difficulty has arisen, both in the courts and in the Office, in applying it. In its most elementary form, it is readily recognized, as when expressed participially, as for instance in the example given in *ex parte* Simonds (C. D., 1870, 23), for producing a certain change in the operation of a cutting press, or in *Sickles* vs. *The Falls Co.* (2 Fish., 202), for imparting a peculiar movement to parts of a machine. Not only do claims of this kind cover a mere result, but they are additionally defective in that one of the statutory classes of invention is not indicated from these terms, as from this language it is impossible to determine whether the invention relates to a machine or a process.

A very good example of a mechanical claim which was held to be defectively functional is treated in the case of *ex parte* Bullock, 127 O. G., 1580. The claim reads as follows:

> In a device of the class described, means for transferring clothes-carrying rods from one position and depositing them upon a suitable support, substantially as described.

Here is presented but a single element, defined by the term "means" followed by a statement of function. Not a single structural support for the statement of function is given, and the claim covers all possible means for effecting a desirable operation, no matter by what other means the same purpose may be accomplished, and in spite of how obvious the necessity for the need may be. Claims in this form are much more numerous than those given in the first example, but need occasion no greater difficulty in recognition or disposal.

A more difficult kind of determination is presented when the claim includes features other than and besides direct assertion of function. Such a claim, cited in *In re* Gardner, 140 O. G., 258, reads as follows:

> In combination in a vapor-register, a dial upon which are marked pressures and heat characteristics and a device for automatically indicating on said dial simultaneous pressures and heat characteristics.

While apparently this claim sets forth features in terms of means in addition to those purely asserting an effect, a closer examination of the claim will disclose that the actual invention is broadly and merely for a device for automatically indicating certain characteristics. Such a means limited only by a statement of its purpose would cover all apparatus for effecting that purpose, and on the ground that—

> One can not describe a machine which will perform a certain function and then claim the function itself and all other machines that may be invented by others to perform the same function—

the court held the claim invalid. From these considerations it may readily be seen why it is that this kind of claim is fundamentally defective. The courts have never permitted a monopoly in invention so broad as to exclude all other endeavors towards the same end, and have always been jealous to safeguard the public against the assertion of such an unnatural monopoly by consistently holding invalid patents for a principle of nature or for a function or result. These kinds of claims are also defective in view of section 4888, R. S., where it is provided that the invention must be particularly pointed out and distinctly claimed. It is clear that an invention which is set out without limitation or without a declaration of means to support its statement of function is not so explicitly stated as to conform to the spirit of this act.

FUNCTIONAL CLAIMS PARTIALLY RECITING STRUCTURE.

A claim which recites some structure or means in addition to function, but not enough to support the function, falls within the same application of this rule. They are invalid and should be rejected. See *Ex parte* Bitner, 140 O. G., 256. The determination of claims of this type requires the exercise of judgment and a comparison with the state of the art, similarly as in questions involving patentability, and can not be made from a mere inspection of their language. Greater latitude is permitted in primary inventions than in improvements, both in the expression of the invention and in the construction of the claims.

ADJUNCTIVE FUNCTIONAL EXPRESSIONS.

Claims particularly difficult of treatment are those containing adjunctive functional statements, such as the familiar "whereby" clauses. If these clauses are interpreted as entering into the combination and as words of limitation, the claims including them should be treated like those referred to in *Ex parte* Bitner, *supra*. It becomes then a matter of determining whether or not there is sufficient structural support for the statement of function. These claims are also objectionable on account of their ambiguity, as they can be construed to include or exclude the elements inferred from the "whereby" clause. See *Ex parte* Hoge, 173 O. G., 1081.

While frequently functional claims are indefinite because of the breadth of the functional expression, the objection of *indefiniteness* is a distinct ground of complaint. Such objection may be one of form, as explained in *Ex parte* Bitner, or may go to the merits, and constitute a reason for rejection, as in the case of *In re* Blackmore, 140 O. G., 1209. The tendency appears to be in the direction of making Section 4888 controlling in treating claims, and rejecting all claims which do not adequately, definitely, and clearly specify the invention.

PERMISSIBLE OR NECESSARY FUNCTIONAL EXPRESSIONS.

> It is well settled that where a claim distinctly specifies a certain structure which is adapted to perform a particular function there is no objection to setting it out in the claim. *Ex parte* Holder, 107 O. G., 833.

In fact, it is necessary on many occasions, to require the inclusion of expressions of function in order to make clear the co-operative relationship between the means stated, and a claim is frequently more definite and explicit when such functional explanations are included; always provided, of course, that the structure is distinctly specified.

While we have seen that statements of function in

claims are not only unobjectionable if used for explanatory purposes but are frequently desirable, yet for apparent reasons patentability can not be predicated upon such statements. So—

Where the claims in an application are drawn to cover a mechanical structure capable of performing several functions and the claims differ from each other only in the statements of function attributed to the device, *Held*, that the claims are substantial duplicates, for upon the elimination of the statements of function each claim would cover the same combination of elements. *Ex parte* Jacobson, 107-1378.

COMBINATION CLAIMS.

In discussing the question of functionality so far, we have been considering the legal effect of a claim when the actual invention is directed to an element, i. e., is addressed to a single statement of function or is expressed in terms of a single "means" or "mechanism" limited only by a statement of function. Such claims we have seen are fatally defective and are only saved by the courts by reading into them, and restricting the monopoly to, the specific means disclosed in the description. But where the real invention is a valid *combination*, any element or elements therein may be expressed in terms of "means" qualified only by a statement of function, or as a performance or mode of operation qualified the same way. There is an important distinction to be observed here, as claims for a combination are vitally different from those addressed to an element. A combination is primarily based upon a relationship subsisting between co-operating subsidiaries, and any language identifying the individual entities entering into the combination is adequate so long as the co-operative effect is clearly indicated. The vital defect in a functional claim is its breadth, but inasmuch as a patentable combination may be made up entirely of concededly old elements, the breadth in which any element may be set forth offers no objection. The courts and the office have uniformly

uphold claims of this character. As stated in Young *vs.* Eick, 113 O. G., 547:

> The use of the word "means" limited by a statement of function has long been recognized as the proper method of stating an element of a combination claim.

In Leeds & Catlin Co. *vs.* Victor Talking Machine Co., 140 O. G., 1089, the United States Supreme Court declared that a claim in which one of two elements read "a reproducing-stylus shaped for engagement with said record and free to be vibrated and propelled by the same," set forth a valid combination, although there is no question here of the functional character of the language used and of the defectiveness of any claim which was *wholly* confined to the one element thus expressed.

The same tribunal in the famous Paper Bag case (see 136 O. G., 1297), held valid a claim every element of which recited means in terms of function, because a "working relation" was expressed by the combination. So in *Morley Sewing Machine Co.* vs. *Lancaster*, 47 O. G., 267, where three functionally stated elements were set forth in broad combination, the claims were held valid by the court and dominated a considerably different device because the latter could only be operated through the performance of the claimed functions.

Claims of this character can not be treated without a close scrutiny of their intent and without a knowledge of the art. If the claim actually covers an exhausted combination, the broad assertion of function in any substituted means can not save it, of course, from the operation of the practice governed by *Ex parte* McNeill, 100 O. G., 1976—or if the claim, by divesting it of adjunctive and superfluous elements and language, becomes reduced to a naked assertion of function, it comes within the operation of the rule in *Ex parte* Bullock, 127 O. G., 1580, which states that:

> Where the claim is *not* for a combination of which the "means" for the purpose mentioned is an *element*, but is merely means for an element and covers all possible means for accomplishing a certain function regardless of structure. *Held*, that the claim is . . . functional.

PRODUCT CLAIMS.

Functional claims may be in the form of either apparatus or process and the test for determining whether a functionally stated element covers the whole invention or expresses a unit in a combination is the same for both classes of invention. But claims for a product are not generally deemed subject to the defect of functionality. A claim for "a process for hardening wrought iron," or for "a means of promoting combustion in a furnace," is evidently functional and invalid. But a claim for "ductile tungsten," or probably "tempered copper" or "pliable glass" appears to be valid as to form. Apparently, the rule that a claim can not be expressed in terms of an idea of public need, that there can not be a monopoly in an abstract result, does not extend to the classes of invention covered by articles of manufacture and compositions of matter. At any rate, I have not been able to find any decision denying the inventor of a new product protection as extensive as the breadth of any terms of novelty he can apply to it. A claim for a "saw with hardened teeth" has been upheld by the courts. But there is an idea of means involved here, even if the language may be interpreted as tantamount to an expression of a result desired. In its broadest aspect however, such as given in the illustration of "pliable glass," the assertion of end to the exclusion of means is just as insistent as in the case of the broadest functional process or mechanical examples. Possibly, if the question in this aspect is ever determined by the courts, or if we are able to find a court decision covering this point, we may be able to reconcile this apparent diversity in the practice.

PRODUCT CLAIMED BY ITS METHOD.

This type of claim, strictly speaking, does not come within the theme of this paper, but on account of a family resemblance to a certain kind of claim, hereinafter to be treated, a passing reference to it is thought pertinent.

With the exception of unusually rare instances, an article can not under our law, be claimed through its

method of manufacture. If novelty is thus established, the invention, if any, resides in the method and not in the article. The product is the result or function of the process, and the evident attempt is to broaden the monopoly and narrow the application of the art. The physical characteristics of the product not being named, the search is confined to a narrower class of inventions, although the field attempted to be occupied will be broadened by claiming the invention in a higher class. Like the corresponding type of claims, designated "function of the apparatus," claims of this kind are addressed to the wrong statutory class of invention; and if saved by the courts are restricted in scope.

"FUNCTION OF THE APPARATUS."

There is probably no term which has been so abused in patent practice or about which so much confusion exists as to its proper application than this. Its use has been condemned by several authorities, but inasmuch as it represents a doctrine which has formed the basis of many decisions in the courts and the Office, it is proper to consider it here.

A claim for the "function of an apparatus" is a claim for a mechanical invention in the guise of a process. It represents an attempt either to broaden out the invention or to extend the monopoly by a second patent. It differs from a functional claim in that it does not merely set forth the broad aim or effect wanted; it actually may specify the invention with all the particularity desired. But it asserts the wrong invention—it widens it out (by assigning it to the wrong class) to the extent that a process is broader than a machine.

Every machine and many articles of manufacture are capable of being specified in terms of mode of operation or manner of use. Thus, a pail is an open-topped receptacle having a cylindrically disposed wall and a plane bottom closure. Its normal function is to hold a liquid or some like material. It operates in doing so by surrounding the material with a cylindrical wall and bottom closure. This is an extreme example, but illustrates readily the principles involved. To claim the pail as a means of holding a liquid, or its use as a process

of holding a liquid, is to claim its function. To claim it as a process of supporting a material by surrounding it cylindrically and stopping it at its bottom is to claim the manner of use or operative effect of the pail. The language here alleges a process, but an inspection of the real invention shows that it is a mechanical device. If the pail were used to transfer material in some peculiar manner or to pour it in a unique way, the operation might then form the subject-matter of a legitimate process claim.

A claim for the "function of the apparatus" is, then, one setting forth the operative effect or mode of operation of a machine in the language of a process when the actual and only invention present is a machine. Such claims are defective and should be rejected. *Ex parte* Simonds, 44 O. G., 445; Dederick *vs.* Cassell, 20 O. G., 1233; *In re* Weston, 94 O. G., 1786; and Expanded Metal cases, 143 O. G., 863. But the *modus operandi* of a machine may form the basis of an inventive process. There is no doubt that a claim for a mechanical process, even if best carried out by a machine, may be perfectly valid. See Paper Bag and Expanded Metal cases, already noted. So the form of the claim offers no ready solution determinative of this problem. It becomes solely a question of fact and a matter of judgment involving a knowledge of the art, *and resolves itself down to a simple determination whether there is an invention for a process present, or not.* The claim should be examined free from its relation to the particular mechanism disclosed and solely in accordance with the principles governing the determination of process inventions. "A process is a mode of treatment of certain materials to produce a given result." This is the classic definition uttered from the Supreme Court bench, and by it most process inventions may be classified. If the alleged method answers to this and other tests of the different definitions of a process—if, for example, a hammock is to be woven, or a blank shaped, or paper folded into bags—and the steps are detailed in terms of manipulative or equivalent operations, a true process results even if the same can be effected only by machinery. See Westinghouse *vs.* Boyden et al., 83 O. G., 1067.

But if the alleged method can not stand the test of the application of the definition, if it is dependent upon the operation of a specific machine, and an examination of the art and the disclosure show that the invention is actually for the machine, then the claim is invalid as for a "function of the apparatus."

DIVISION INVOLVING "FUNCTION OF THE APPARATUS" CLAIMS.

As stated in *Ex parte* Steinmetz, 117 O. G., 901:

> Division should not be required between claims to an apparatus and alleged process claims which cover the mere function or operation of the apparatus.

Apparently, we have here an exception to the general rule that division is a question paramount to that upon the merits of the individual claims. (See *Ex parte* Alminana, 100 O. G., 1331.) But a closer inspection reveals the fact that there is but one statutory class of invention set forth in cases of this kind, inasmuch, as, from a consideration of process claims of the character defined, we have seen that the actual invention behind their language must of necessity reside in the apparatus, and not, as alleged, in the process. As stated in the body of the decision in *Ex parte* Steinmetz, noted, "a machine and the mere function of the machine can hardly be said to constitute separate and independent things." The defective assertion of the invention becomes then matter for rejection and not a basis upon which to form an action to divide. This proper practice is set forth in *Ex parte* Frasch, 117 O. G., 1166, as follows:

> *Held*, that in many cases the question of division between process and apparatus claims will be simplified by consideration of the question whether the process claims cover the mere function or operation of the apparatus, and if they do cover the mere function or operation of the apparatus disclosed and claimed they should be rejected as not covering proper processes and division should not be required.

CONCLUDING REMARKS.

The tendency of the practice appears to be in the direction of simplicity, to give applicants a reasonable latitude of expression, and to free the consideration of the claims of undue technicalities. The instances where simple inventions are baldly claimed in terms of function are very rare. More and more does it appear to be the tendency to make Section 4888 of the Revised Statutes controlling as the test for judging the sufficiency with which the invention is claimed. Does the claim mark out the limits of the invention in plain and clear language, in language so definite that it can be understood, so explicit that its scope can be defined? If so, the invention is properly expressed in probably ninety-nine cases out of one hundred, and the state of the art does the rest. The same state of the art will undoubtedly dispose of the same proportion of claims suspected of being directed to the "function of the apparatus." It is only necessary in this instance to guard against issuing two patents, one on the apparatus and the other on the method, where the claims respectively differ only in the substitution of the word "means" for the word "method," for the courts will declare the later patent void for double patenting. See *In re* Creveling, 117 O. G., 1167.

Pertinent Decisions and Orders Relating to Some of the Rules of the Rules of Practice

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Pertinent Decisions and Orders Relating to Some of the Rules of the Rules of Practice.

This paper is intended to cover a few pertinent decisions and Commissioners' orders relating to certain of the Rules of Practice. I have by no means made an exhaustive search of all the decisions bearing on the rules to which I refer. My object is mainly to bring to your attention decisions that were rendered before Underwood's Digest was published, decisions and orders that bear on questions arising in the examination of applications for Letters Patent. Some of the rules were given their present form in view of these decisions. All the decisions and orders cited set forth what I consider good practice.

Rule 5. "An assignee of the entire interest of an invention is entitled to hold correspondence with the office to the exclusion of the inventor."

There is but one decision that bears on this rule to which I wish to call attention. namely, Ex parte Baker, Commissioner's MSS., vol. 41, 1889, page 289. In the Baker case the Examiner had required the power of attorney given by the inventor to be ratified by the assignee of the entire interest of the invention before the office would further recognize the attorney in the prosecution of the application. In considering this question on petition, Commissioner Mitchell said:

> "Unquestionably the assignee, under Rule 5, is entitled to hold correspondence with the office to the exclusion of the inventor, whenever he asserts that right; but the office ordinarily acts upon the presumption that the assignee of the whole interest will assert his right, unless he is willing to be represented by the attorney of the inventor. Until the assignee does assert this right it is the practice of the office, to be deviated from

only in exceptional cases, to recognize a correspondingly exclusive right on the part of the attorney for the inventor."

Rule 6. "When there has been an assignment of an undivided part of an invention, amendments and other actions requiring the signature of the inventor must also receive the written assent of the assignees."

In considering this rule I find that there are five instances in which amendments and other actions require the signature of the inventor and therefore the written assent of the assignee of an undivided part of an invention. They are concessions of priority, abandonment of an application, disclaimer to avoid an interference, application for reissue, and power of attorney.

Another feature worthy of consideration in connection with Rule 6 relates to an assignee of an undivided part of an invention within and throughout a specified part of the United States. This assignee is not such as would come under Rule 6, as was fully discussed in Ex parte Funston, C. D., 1889, page 223.

Funston was the assignee of an undivided part of the invention throughout a specified part of the United States in two applications of David Savage. Funston asked that he be allowed to join with Savage in the prosecution of the applications. It may be of interest to hear what Commissioner Mitchell said on this point:

"Considerable discussion has been indulged in as to what constitutes an assignee and the meaning of the word in the different rules, and Funston insists that he is such an assignee as could maintain suit for infringement of his patent right if a patent had been granted to Savage, and that consequently he should be allowed to prosecute jointly with Savage. Reflection upon this point in the case must make it clear that it would not be policy to allow any one but an assignee who is the owner of an undivided part of the entire invention to prosecute an application, owing to the great confusion that would necessarily result; for if it should be held that any assignee of the right to an undivided part of the invention within

and throughout some specified part of the United States could prosecute an application, where could the line ever be drawn with certainty. An inventor might assign an undivided half of his invention to a different person in each of the different States, each one of whom would be such an assignee as would, upon the construction put upon Rule 6 by Funston's attorneys, be entitled to prosecute an application. Such a state of affairs was not contemplated or intended to be brought about by the framers of Rule 6."

Rule 8. "A double correspondence with the inventor and an assignee, or with a principal and his attorney, or with two attorneys, can not generally be allowed."

I need take but a minute of your time to refer to but one decision in reference to this rule, namely, Ex parte Jewett, C. D., 1887, page 17. In this case two principal attorneys were appointed by the applicant, one resided in San Francisco, Cal., and the other in this city. The applicant failed to designate which one the office should hold correspondence with. In discussing this point, Commissioner Hall set forth the practice as follows:

> "Simply as a matter of practice, it would be well, undoubtedly, where, like the present case, one independent firm located in some other city and another independent firm located in this city are each and both nominated as principal attorneys, for the office, in the absence of any direction or indication of the intention or wishes of applicant or of the attorneys themselves, to conduct its correspondence with the resident firm."

Rule 14 relates primarily to information and advice to be given by the office in response to inquiries about subject-matter not pending before the office. However, the part that concerns us is found in the last three lines of paragraph 1, and is as follows:

> "nor can it act as an expounder of the patent law, nor as counsellor for individuals, except as to questions arising within the office."

This part of the rule has been construed as giving the Examiner ample authority to advise an applicant concerning questions of novelty which he has disclosed in his application but has failed to claim. I wish to quote briefly from two decisions to bring out what two Commissioners, for whose opinions I have the highest regard, considered good procedure under this part of Rule 14. The first one is Ex parte Donovan, C. D., 1888, page 100.

This case came before the Commissioner on petition from the action of the Examiner refusing to enter an amendment presenting a new claim which applicant contended that the Board of Examiners-in-Chief had recommended in their decision on an appeal. Commissioner Hall, in considering the refusal of the Examiner to enter the amendment, said:

> "The rules of the office . . . point out that at all times in the investigation of an application and in the progress of appeals it is the duty of each tribunal having jurisdiction of the case to see to it that the inventor shall secure a patent for whatever patentable matter may be shown in his application. As has been frequently stated by me in decisions, the office must put itself in the attitude of a friend and not of a litigant with the applicant, and see that he secures every right that belongs to him.
>
> "Now, unquestionably, if under Rules 68 and 139 it is the duty of the Examiners-in-Chief and the Commissioner to suggest and recommend in order that an applicant may receive letters patent for subject-matter not involved in the appeal, it must be the duty of the Primary Examiner in the examination of the case made by him to point out and recommend the same thing. I do not mean by this that it is the duty of the Examiner to become an agent or an attorney for the applicant, but I think in all cases when he is satisfied or believes that the application contains patentable matter which is not claimed, it is his duty to advise the applicant briefly and specifically, precisely as the Examiners-in-Chief and the Commissioner are authorized to do, as above stated."

The other decision is Ex parte Bailey, C. D., 1890, page 123, by Commissioner Mitchell, wherein the same point arose as in Ex parte Donovan. The Commissioner said:

> "As to the second point, the Examiner states that Rule 14 is distinct and reflects the settled practice in stating that the office can not act as counsellor for individuals. Rule 14 makes an exception 'as to questions arising within the office.' The cases are not relatively numerous in which unsought advice should be tendered, but where advice is asked there is no reason why it should not ordinarily be given. The correct practice is laid down by Commissioner Hall in Ex parte Donovan, C. D., 1888, 100, and I desire to emphatically express my concurrence in the views set forth in that case."

Rule 19. "Substitution or association can be made by an attorney upon the written authorization of his principal; but such authorization will not empower the second agent to appoint a third."

I wish briefly to refer to but one decision in connection with this rule, namely, Ex parte Ranks, C. D., 1887, page 7. In the Ranks case an associate attorney was appointed by the applicant without the consent of the principal attorney. In considering the appointment the Commissioner held that an associate attorney can not be nominated by an applicant without the consent of the principal attorney. If this were permitted it would probably result in confusion in the prosecution of the application. The regular course would be for the principal attorney to nominate his associate upon the written authorization of his client. The nomination of an associate attorney made by an applicant without the consent of the principal attorney can not be recognized or acted upon.

Rule 34. "The specification is a written description of the invention or discovery and the manner and process of making, constructing, compounding, and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art

or science to which the invention or discovery appertains, or with which it is most nearly connected, to make, construct, compound, and use the same."

The first decision to which I wish to call your attention is Ex parte Kerr, C. D., 1884, page 27. The case was before the Commissioner on petition to have the Examiner's objection that the specification was not full and sufficient withdrawn. The decision is interesting merely by reason of the Commissioner's interpretation of the meaning of the words "skilled in the art," which were as follows:

> "The solution of this question turns upon the interpretation which should be given the words 'persons skilled in the art.' By these words I do not think is meant persons who excel their fellows in particular arts or sciences in which they are skilled, but merely men who have ordinary or fair information in that particular line."

The next point I wish to refer to in considering Rule 34 is, in my opinion, an important one; that is, the description of constructions in specifications that are not shown on the drawing. In my experience as an assistant Examiner I found that in at least 50 per cent of the applications I examined, the specifications thereof described modifications not illustrated on the drawings. Since examinations are made mostly by "an inspection of the drawings," applicants should be required to illustrate on the drawings all modifications described in the specification or cancel the description thereof. This practice is fully warranted and clearly set forth in Ex parte Witty and Caffrey, C. D., 1884, page 26, in which Commissioner Butterworth said:

> "Whether a particular modification described in the application is simply a mechanical equivalent it may sometimes be difficult to determine. Counsel is aware that examinations are conducted, in the main, by an inspection of the drawings. It is, therefore, not only proper, but necessary, that each drawing shall disclose as fully as possible the invention, and also the substantial

> modifications thereof, in order that two patents may not be issued for the same thing, thus doing injustice to the public and to the patentees."

Another point in connection with Rule 34 may be briefly referred to by reference to two decisions wherein a reference in the specification to a co-pending application for a full disclosure of the construction was held not to be sufficient.

The first of these decisions is Ex parte Borgfeldt, C. D., 1889, page 199. The drawings in the Borgfeldt application disclosed a machine and the claims covered a process. The description was not sufficient to give a clear understanding of the machine. Applicant undertook to overcome an objection to this effect by a reference in the specification to a co-pending application which fully described the machine. Commissioner Mitchell, in commenting on this point, said:

> "The Examiner is correct in holding that a reference to a contemporaneously-pending application for a fuller description is not permissible. It can not be assumed that the application referred to will mature into a patent."

The second decision is Ex parte Chadwick, C. D., 1891, page 169. The Chadwick application was for an improvement on a machine disclosed in a pending application filed by another inventor. Reference was made in the Chadwick application to the co-pending application for a full disclosure of certain parts of the machine. On this point Commissioner Mitchell said:

> "Descriptions contained in pending applications are not portions of the prior art. Such applications may become abandoned by failure to prosecute, they may become forfeited by reason of nonpayment of final fee, or for other reasons they may never mature into a patent. The office can not act upon the assumption that applications will necessarily mature into patents, and Rule 36 is not satisfied by a reference to pending

> applications for the parts which 'necessarily co-operate with' the specific improvement for which a patent is asked."

Another point of interest which may be briefly referred to in connection with Rule 34 is the practice laid down in Ex parte Lewis and Unger, C. D., 1903, page 303. Lewis and Unger filed two applications, as joint inventors, and prosecuted claims in both to final rejection. On appeal to the Board of Examiners-in-Chief the Examiner was reversed as to certain claims in both applications and the board recommended that all the patentable claims should be embodied in one of the applications, which recommendation was complied with and the Examiner passed the application to issue. The applicants then filed a new application containing the allowed claims, but did not make a reference therein to the prior applications. The next day applicants abandoned the prior applications. The Examiner required applicants to insert a reference in the specification of the new application identifying the prior applications. On petition from this requirement Commissioner Allen said:

> "It is clear from the letter of abandonment . . . that the applicants intend to retain all benefits which may result to them from their prior applications; but they apparently wish to conceal that matter from the public until it becomes necessary to use it. In other words, the result is that after the patent is issued they may use the applications for their own benefit if the occasion required; but the public is deprived of the right of using whatever there may be in the record of those applications to the prejudice of the rights of the patentees. The public will furthermore be deceived and misled as to the record date to which the patentees are entitled."
>
> "When the patent is granted, all proceedings leading to its grant should be public property. The rule of secrecy no longer applies to those proceedings."

The Commissioner in the following paragraph set forth and instituted the practice as follows:

> "It is held that the present application should not be allowed without a reference to the prior applications and that there should be indorsed upon the file wrapper a statement that it is a continuation of those applications. This indorsement should take the place of that usually indorsed upon divisional applications."

In Ex parte Taylor, Jr., C. D., 1905, page 45, the circumstances were a little different from those in Ex parte Lewis and Unger. The Taylor application was allowed and forfeited and a new application was filed for the same construction, presenting the sole claim of the forfeited application. The Commissioner held that the new application was a continuation of the first application and that the new application should contain a notice of the first application, for the reasons set forth in Ex parte Lewis and Unger.

Another decision bearing on this point is Ex parte Kruse, C. D., 1910, page 119. In the Kruse application a part of the disclosure was for the same subject-matter as the disclosure in a previous application to the same inventor. The Commissioner in this case held that a subsequent application is a continuation of a prior application, when the two have common subject-matter as in this case.

Commissioner Moore found that attorneys were somewhat careless in amending cases in accordance with the practice laid down in the last three above referred to decisions. Frequently applications were found to be otherwise in condition for issue and the requirement of the insertion of a reference in the specification identifying the parent application or the application of which the present application is a continuation had not been complied with. Consequently another action on the part of the office insisting on the requirement of the insertion of the reference in the specification was necessary. So in order to facilitate the work of the office, the Commissioner, on October 10, 1912, issued Order No. 2010,

which sets forth the practice to be followed in cases of this character, and is as follows:

> "When an application is filed which in the opinion of the Examiner is a division of, a continuation of, or a substitute for a previously filed application but which contains no reference to such prior application, the Examiner will require applicant to insert the proper reference to the prior application in the specification. If, when the case is otherwise in condition for allowance, this requirement has not been complied with nor shown to have been improperly made, the proper reference to the prior application will be made by an Examiner's amendment, and the application passed to issue forthwith."

This order was modified by Commissioner Ewing September 19, 1913, by Order No. 2071, which is as follows:

> "When an application is filed which in the opinion of the Examiner is a continuation of or a substitute for a previously filed application, the Examiner will not require applicant to insert a reference to the prior application in the specification, it being regarded as sufficient if this reference appears somewhere in the record of the application. The Examiner will make the appropriate entry upon the face of the file wrapper. The heading of the printed patent will conform to this entry."

There are many contingencies sure to arise under this order that have not been settled by any decision as yet published. For example, suppose an applicant files a patent application containing two inventions, he then divides and files a second application containing one of the inventions plus new matter, should any entry thereof be made on the file wrapper of the parent application? The second application being only a continuation in part of the parent application.

Just one more reference involving Rule 34, which relates to the filing of substitute specifications. The

practice relative thereto is found in Ex parte Orewiler, C. D., 1911, page 100. This case came before the Commissioner on petition from the action of the Examiner in refusing to enter and consider a substitute specification. In declining to grant the petition, Acting Commissioner Billings said:

> "There is a grave objection to the filing of substitute specifications in that such action requires the office not only to examine the substitute specification to determine whether it is in proper form and meets the requirements of the law, but also to carefully compare the same with the original disclosure in order to determine whether new matter has been inserted therein."

One can hardly fail to realize what a saving of labor this practice establishes, especially when you take into consideration heavy machine cases.

Rule 37. "The specification must conclude with a specific and distinct claim or claims of the part, improvement, or combination which the applicant regards as his invention or discovery."

A paper of considerable length could be written relative to this rule by reason of the many decisions of the Commissioners. However, I shall refer only to one question which I have found frequently arises in the examination of applications, and that is the use of alternative phrases or terms in claims.

One or two of the Commissioners' decisions seem to warrant the use of alternative terms when the terms are equivalents. However, the majority of the decisions discourage their use. It seems to me to be good practice not to allow alternative terms in claims at all, for if the terms are equivalents only one is necessary and if they are not equivalents they render the claim indefinite. If this practice is followed there would be no possibility of the question of indefiniteness arising in any litigation in which the patent may become involved. In connection with this subject I wish to call attention to four decisions, which seem to me to warrant the practice herein stated.

In Ex parte Holden, C. D., 1903, page 442, the words

"rods or wires" were used in claim 2 to designate certain parts of the apparatus. Commissioner Allen said:

> "The applicant does not disclose two structures to one of which he applies the term 'wires' and to the other the term 'rods,' but applies both terms to the same structure. The apparent alternativeness is one of language merely and not of structure. If both of these terms describe the structure correctly, there is no reason for objecting to the phraseology 'wires or rods.' "

While the alternative phrase used was held to be permissible, the decision warrants the practice above indicated. For if the "alternativeness" is one of "language merely" then either one of the words used is sufficient to give applicant full protection and all possibility of criticism is avoided.

In Ex parte Cook, C. D., 1890, page 81, the applicant used in the claims the expressions "brush or equivalent cleaning device" and "brushes or equivalent cleaning devices." In discussing this point Commissioner Mitchell said:

> "In his first four claims applicant does not employ comprehensive designating language applicable alike to all the forms of the device. If the applicant can devise some one form of expression which comprehends the patentable novelty which is common to all of the forms and styles shown and described, he is clearly entitled to employ that expression to cover the generic invention, and also to claim specifically whichever of the specific forms he may elect to cover and protect. An inventor is always entitled to equivalents—that is to say, to devices which operate in substantially the same way to accomplish substantially the same result in a combination. In the present case if the applicant desires nothing more than the benefit of the law of equivalents, the expression 'or equivalent cleaning device' is surplusage. If he desires some advantage beyond that which the law of equivalents gives him, he is seeking more than can properly be accorded to him."

In Ex parte Caldwell and Barr, C. D., 1906, page 58, petition was taken to the Commissioner from the Examiner's objection that the terms "a mixing compartment containing a quantity of coke or the like," in claim 2, and "a casing containing a mass of coke, brick, or the like," in claim 3, were indefinite. In denying the petition Commissioner Allen said:

> "It is always objectionable to use in the claims words of description which are alternative in form, and this is true even where it appears from consideration of the whole case that the words are not intended to convey alternative or inconsistent ideas. Where possible, some terms of description should be used which are generic."

In Ex parte Phillips, C. D., 1908, page 195, the phrase "asbestos or its equivalent" was used in the claim. Acting Commissioner Billings, in criticising the phrase, said:

> "The objection to the use of the expression 'or its equivalent' is believed to have been properly made. It is objectionable to use terms which are alternative in form, and where possible some terms of description should be used which are generic."

Rule 40. "The specification must be signed by the inventor or by his executor or administrator. . . . Full names must be given."

It is only necessary to dwell on this rule for a minute as the practice is laid down and well defined in Ex parte Gentry, Commissioner's Order No. 600; Ex parte Clark, C. D., 1906, page 339, and Commissioner's Order No. 2018.

In Ex parte Gentry, C. D., 1888, page 115, the Examiner had objected to the applicant's signature to the specification which was signed "N. Kate Gentry" as being incomplete. In affirming the action of the Examiner, Commissioner Hall said:

> "The law knows but one Christian name. The middle names are mere matter of ornament or of social distinction, and it is well settled that an omission of the middle name, or of the initial of the middle name, is wholly immaterial."

In order to make the practice, as laid down in Ex parte Gentry, uniform, Commissioner Mitchell, on June 4, 1890, issued Order No. 600, which is as follows:

> "When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name is the one originally given by him."

In Ex parte Clark it was held that when different forms of applicant's name appeared in the preamble and signature to the specification, one of them a corruption or nickname, an affidavit should be furnished setting forth applicant's correct name. If the incorrect form is in the preamble, correction should be made by amendment.

In order to avoid unnecessary delay in passing applications to issue, Commissioner Moore, on November 11, 1912, issued the following order:

> "Order No. 2018. Supplementing Order No. 600. In applications otherwise ready for allowance, where the first name of the applicant is disclosed in the record but does not appear in the preamble to the specification, the Primary Examiner will insert first Christian name of the applicant by amendment to the preamble, on form No. 2254."

Rule 42 relates to applications presenting claims for separate and independent inventions. It involves the very interesting question of division and affords subject-matter on which a book could be written. As my time limit will not admit of an extended consideration of any one question owing to the scope of the matter I have undertaken to cover, I shall refer to one line of practice only which may properly fall under this rule, and that is the practice which relates to genus and species claims.

The practice relating to genus and species claims was clearly laid down for the first time in Ex parte R. N. Eagle, C. D., 1870, page 137, and has been the settled practice from that date to the present day. It may be of interest to note that the practice relating to genus and species claims is the only practice with which I am familiar that has stood undisturbed for so long a time.

In Ex parte Eagle, the subject-matter of the specification was a tin blacking box, having resting on the top of the blacking, to act as a follower, a foraminous plate, there being several forms of the plate shown and described. The four claims of the application were broad enough to cover all the forms; in other words, they were generic to all the figures of the drawing. The Examiner required the applicant to limit his application to a single species. In considering this requirement, Commissioner Fisher said:

> "The applicant describes a new genus, to wit, a box provided with a follower. He may fairly describe several species of the genus, and may take any claim that is generic in its character and included them all. In addition to this, as the genus can only be illustrated by at least one of the species, he may select one of the embodiments of his invention for specific claims; but he can not found one claim on one species, and a second on another, and a third on another, and so on."

If any one desires to go further into this question attention is called to the decision of Acting Commissioner Doolittle in Ex parte Howland, C. D., 1877, page 120, and that of Commissioner Paine in Ex parte Heaton, C. D., 1879, page 95, both of which affirmed the practice laid down by Commissioner Fisher.

Rule 46 relates to the oath to an application. This rule brings to our attention our old friend Ex parte Brauna, C. D., 1901, page 232. The question in this case, you will doubtless recall, was whether the time intervening between the date of executing the oath and the date of filing the application complete was reasonable. The time intervening was thirty-one days, which the Commissioner held to be unnecessarily long and insisted

upon the requirement of a new oath. To have proper "force and value" when questions of public use and sale, publications, and prior patents are concerned the application should be filed immediately after the execution of the oath.

In determining what is a reasonable time, Commissioner Allen, in Ex parte Brama, set forth as a general rule the following:

> "As a general rule it may be stated that the requirement for an additional oath should be made where the delay was longer than three weeks in addition to the time which may naturally be expected to be required in transmitting the papers by mail to this office."

Ex parte Brama does not apply in divisional applications because the divisional application is in effect a part and continuation of the parent application. Ex parte Davison, C. D., 1912, page 94.

Rule 48 requires a supplemental oath when a claim is presented for matter "originally shown or described but not substantially embraced in the statement of invention or claim originally presented."

The main reason I have for considering Rule 48 is the frequent misunderstanding of the function of the rule. I have found in several instances attorneys who professed to believe that new matter could be introduced into an application when supported by a supplemental oath, and I have known assistant examiners who were of the same opinion.

New matter can not be introduced into an application properly under any circumstances. The sole purpose of a supplemental oath is clearly stated in Rule 48, and it can be used only to support . . . "Matter originally shown or described but not substantially embraced in the statement of invention or claim originally presented."

This point was clearly set forth by Commissioner Mitchell in Steward *vs.* Ellis *vs.* Lee *vs.* Howe, C. D., 1889, page 243, as follows:

> "The office of a supplemental oath, as set forth in Rule 48, is to justify the introduction by amend-

ment of a claim not substantially embraced in the statement of invention or claim originally presented. Rule 48 affords no justification for the introduction of matter by way of amendment which is not substantially described or disclosed in the application, whether with or without a supplemental oath. To so construe Rule 48, as to warrant the introduction of what is commonly known as 'new matter' would be to ascribe to it a function utterly without warrant of law."

Just one more decision in connection with this rule and that relates to the form of a supplemental oath. In Ex parte Cook, C. D., 1892, page 232, the Examiner evidently judging from the character of his action was of the opinion that the forms given in the Rules of Practice were mandatory. Here is what Commissioner Mitchell said in considering that point:

"It is not necessary that a supplemental oath filed under Rule 48 of the Rules of Practice specify the serial number and date of filing of the application to which it refers if the proposed amendment is otherwise properly identified. The forms given in the Rules of Practice are suggestive and not mandatory."

Rule 50. "The drawing may be signed by the inventor or the inventor's name may be signed thereon by the attorney, and must be attested by two witnesses."

In Ex parte Kyle, C. D., 1890, page 84, the question between the Examiner and the attorneys was whether the two witnesses on the drawing attested the drawing or the signature to the drawing. The attorneys insisted the witnesses attested the drawing, while the Examiner maintained they attested the signature to the drawing and therefore the member of a firm of attorneys who personally signed the drawings was not a competent witness. In commenting on this point Commissioner Mitchell said:

"I have been at considerable pains to investigate the question under consideration and have been unable to find a single authority in support

> of any other view than that the witnesses attest the signature. Under such circumstances I do not feel authorized to sustain the other view of the construction of the statute, although I quite agree with the eminent authority referred to that the grammatical construction of its language would seem to indicate that the witnesses attest the instrument rather than the signature. . . . I am therefore compelled to sustain the Examiner and deny the petition."

One more reference in connection with this rule. Commissioner Simonds in Ex parte Krause, C. D., 1891, page 164, in reference to the signature to the drawing, said:

> "Section 4889, Revised Statutes, requires the drawings to be signed. Stamped signatures, as used in this case, are not sufficient."

Rule 52 also relates to the drawings and sets forth for the most part details governing the making of Patent Office drawings and in the main concerns the Draftsman's Division only. However, there are two sections thereof which interest us and may be briefly considered; namely, sections 6 and 9.

Section 6 has to do with reference characters on drawings and in connection with this section I wish to call your attention to Ex parte Cook, C. D., 1890, page 81. In this case four different forms of the invention were disclosed on the drawing and each of the forms was designated by the same reference letter. The Examiner objected to the use of the same letter to designate the four forms disclosed on the ground that they were modifications and therefore different structures, and consequently the use of the same letter to indicate the various structures rendered the disclosure confusing. In considering this point, Commissioner Mitchell very clearly and concisely suggested the practice as follows:

> "In the present case four different forms of cleaner are shown, the first form being a bristle-faced brush, as shown in Figs. 1, 2, 3, and 7; the second form being composed of a backing of

wood and a facing of chamois skin, as shown in Fig. 5; the third being composed of a backing of wood faced with India-rubber, as shown in Fig. 6, and the fourth being composed of a stick wrapped with cloth, as shown in Fig. 8. Each of these four different forms of cleaner is designated by the same reference letter F. These parts, though described as equivalent devices, are nevertheless different parts within the meaning of Rule 52, and they clearly come within the prohibition of the rule, which says that the same character must never be used to designate different parts."

"The question immediately under consideration is solved by the language of the present rule. Formerly the rule simply provided that if the same part of the invention appeared in more than one figure it should always be represented by the same letter. As the rule now reads, a prohibitory clause is added, providing that the same character must never be used to designate different parts. The same parts only can be designated by the same character, but *nullum simile est idem*. If alternative constructions or modifications are shown, a permissible method is to employ the same letter with an appended figure or exponent—as A, A^1, A^2, A^3,—thereby at once conforming to the rule and at the same time suggesting the presence of similarity and the absence of sameness."

Section 9 prohibits advertisements of any description on the drawings. It is so clear as to need no comment and I only desire to refer to a letter of the Commissioner to the Chief Draftsman on October 5, 1885, which defines the meaning of the word "advertisement" as used in this section. The letter in substance is as follows:

> The word "advertisement" applies to anything known as such or anything that favors any particular person, place or country. Fictitious names may be used as John Doe and names, etc., that do not favor any particular person, place or country.

Rule 75 relates to affidavits for the purpose of overcoming references. My remarks are confined to the part of the rule concerning domestic patents. In this connection I wish to briefly refer to two decisions to bring out what an affidavit under this rule should set forth.

The first one is Ex parte Saunders, C. D., 1883, page 23. On this point Commissioner Marble said:

> "If the applicant rests his claim of invention upon drawings or devices made by him, he should produce such drawings or machines or furnish copies or representations of the same, in order that the office may judge whether he in fact made the invention claimed in his application."

Commissioner Mitchell in Ex parte Donovan, C. D., 1890, page 109, set forth this point clearly as follows:

> "If the applicant made sketches, he should so state, and produce and describe them; if the sketches were made and lost, and their contents are remembered, they should be reproduced and furnished in place of the originals. The same course should be pursued if the disclosure was by means of models. If neither sketches nor models are relied upon, but it is claimed that verbal disclosures, sufficiently clear to indicate definite conception of the invention, were made, the witness should state as nearly as possible the language used in imparting knowledge of the invention to others. By whatever means the applicant claims to have disclosed the invention he must so present those means to the Examiner as to enable him to determine whether or not the invention was present in the disclosure. The mere statement of the applicant that he disclosed the invention is of no avail, either to constitute evidence of disclosure or to impart sufficiency to a statement of facts in themselves inadequate."

The practice was held to be in such cases that where the Examiner believed the affidavit to be insufficient he should reject the claims involved on that ground.

You will note that the rule distinctly provides that an affidavit applies only in the case of a "domestic patent which substantially shows or describes but does not claim the rejected invention." If the rejected invention is claimed in the patent the applicant should make the claim or claims of the patent that clearly read on applicant's construction, so that the question of priority of invention may be determined by an interference proceeding. The practice in this particular was definitely stated in Ex parte Card and Card, C. D., 1904, page 383.

In this decision the Commissioner held that the Examiner was correct in suggesting certain claims of the patent to the applicants for the purpose of interference. Also that the Examiner was right in informing the applicants that unless they made the claims, certain claims in applicants' application which the patentee could make, or which read on the construction disclosed in the patent, would be rejected on the patent. Furthermore, the Examiner rightly fixed a time limit within which the applicants should make the claims suggested.

Invention and Patentability

UNDER THE PATENT STATUTES AS APPLIED TO SO-CALLED PRINTED MATTER AND METHODS OR SYSTEMS OF DOING BUSINESS.

A paper read October 22, 1914, before the Examining Corps of the United States Patent Office

BY

JOHN F. MACNAB,
Principal Examiner, Division Five,
U. S. Patent Office.

WASHINGTON, D. C.
1914.

THE LAW REPORTER PRINTING COMPANY, WASHINGTON, D. C.

Invention and Patentability Under the Patent Statutes as Applied to So-called Printed Matter and Methods or Systems of Doing Business.

By
JOHN F. MACNAB,
Principal Examiner, Division 5,
United States Patent Office.

There are certain classes of invention which by their nature have presented a question of patentability under the Statute. The class of printed matter is one of these.

As this class of inventions is included very largely in the class of Bookbinding, No. 11, which is now classified in Division 5, questions relating thereto are constantly arising before us in that division for consideration in various and unexpected forms.

The sub-classes embracing most of the so-called printed matter are: Leaves, Leaves and Covers, Books and Covers, Tickets, Indexing, Bank Notes, Checks and Bonds, Postal and Internal Revenue Stamps, Writing Tablets and Writing Tablets, Manifolding.

Without going far into the distinction between copyrights and patents in this art, it may be stated that prior to the year 1879, many copyrights were taken out on printed matter subjects, such as blank books and leaves therefor, ruled in different ways forming rows and columns, headings therefor, spaces for totals, items of special kinds for bookkeeping adapted for different kinds of business or purposes of various natures, which in the cases of Baker *vs.* Seldon, U. S. Supreme Court, 1880, C. D., 422, and others of like import, the United States Supreme Court held were not properly the subject of

copyrights and could not be protected under the copyright laws. In the case of Baker *vs.* Seldon, Justice Bradley delivering the opinion of the court, said:

> "The description of an art in a book entitled to the benefit of copyright lays no foundation for an exclusive claim to the art itself. The description alone can be protected by copyright. The art can only be secured, if it can be secured at all, by letters patent.
>
> "A work on the subject of bookkeeping, explanatory either of old systems or of an entirely new system, considered as a book conveying information on the subject and containing detailed explanations of the art, is the subject of copyright, but the use of the peculiar systems of bookkeeping described can not be protected thereby. . . .
>
> "The conclusion to which we have come is, that blank account books are not the subject of copyright; and that the mere copyright of Seldon's book did not confer upon him the exclusive right to make and use account books ruled and arranged as designated by him and described and illustrated in said book."

Very many cases are presented to the Patent Office for patent protection, which, prior to the decisions referred to would no doubt have been sent to the Library of Congress for copyright.

The office and the courts of the country have had difficulty in determining to which statutory class such patents belong.

In the case of Munson *vs.* City of New York, 1888, C. D., 253, the patentee claimed—

> 1st. "The preserving, filing, and verifying of bonds and coupons, certificates and all similar documents by the means and in the manner substantially as herein set forth."
>
> 2d. "The book or register constructed and used as and for the purposes set forth."

Mr. Justice Gray of the United States Supreme Court delivered the opinion of the court, and in it, said:

> "If upon the face of the specification this could be considered as an art, machine, manufacture, or composition of matter within the meaning of the patent laws (upon which we express no opinion), etc."

indicating that the United States Supreme Court did not attempt to classify the invention then before it.

The court in the case of the Cincinnati Traction Co. *vs.* Pope, hereinafter referred to, said:

> "We think the device (the street car transfer) should be classed as an article and thus a 'manufacture' within the Statute."

In still other cases where the claims were for means, tickets, receipts, etc., the courts have explicitly stated that they did not decide whether the invention was an improvement in an art or one for a machine.

In examining an application in this art as in all others—

> "The office should not overlook the fact that it must be shown that invention was exercised in producing the article or machine, and that it is not every person who has made a new or useful thing who is entitled to a patent. It is not sufficient that an applicant shall have made a new article or machine; but he must have made an *invention or discovery*. It must be the result of the exercise of the inventive faculty, not simply of the mechanical faculty." *Ex parte* Devin, 450 O. G., 709; 1888 C. D., 70.

It will be apparent that very many of the alleged inventions do not measure up to the tests and requisites of invention as defined in the patent statutes, rules, and decisions and as applied in the United States Patent Office. Many of these cases involve subject-matter new and useful and exhibit a high degree of mere ingenuity, but not patentable invention, and in the opinion of

many attorneys as expressed to the writer of this paper, are entitled to some sort of protection, as much at least, if not more, than it was supposed they used to derive under the copyright law. I personally am inclined to agree with them to some extent, if a provision of law might be enacted without injury to the present patent system which would give this protection and at the same time would not take from the public any rights which it now enjoys, and would not limit the exercise of his craft and skill and trade by the worker in these lines. It is difficult, however, to see how this can be accomplished, and unless it is, it is clear no protection under our theory of patent protection or monopoly on this class of cases can be obtained.

Printed matter, which it may be said is merely paper or other suitable substance bearing lines and indicia on it produced by printing or writing, does not, of course, of itself do work or of itself change the physical condition of any material object, but it is still very useful and necessary in carrying on the great work and activities of the world in many ways, especially in carrying on business.

METHODS AND SYSTEMS OF DOING BUSINESS.

Methods of bookkeeping, systems of transacting business, recording, tabulating, and the like are not regarded by the office of the courts as inventions nor subjects for letters patents, as indicated by Ex parte Abraham, 1869 C. D., 59; Ex parte Berolzheimer, 1870 C. D., 33; Ex parte Bierce, 1877 C. D., 47; Ex parte Meeser, 123 O. G., 655, and others for the reason that they produce no physical results proceeding directly from their operation.

Robinson on Patents, 1890 edition, Vol. 1, page 249, defines an "art" as follows:

> "But though an art embraces so wide a field of inventive skill, it includes only such operations as are capable of producing physical effects. Every invention, when applied according to the design of its inventor, must accomplish some change in the character or condition of material objects."

The settled and accepted definition of the term "art" is to be found in United States Supreme Court decisions—Corning *vs.* Burden, 15 Howard, 252; Tilghman *vs.* Proctor, 102 U. S., 707; Cochran *vs.* Diener, 94 U. S., 780; Risdon *vs.* Medart, 71 O. G., 751; Boyden *vs.* Westinghouse, 83 O. G., 1067, and Expanded Metal Co. *vs.* Bradford, 137 Fed., 870; but it may well be questioned whether the United States Supreme Court has ever stated the entire range of meaning belonging to the term "art." It may be questioned whether claim 5 of the Bell patent sustained by the United States Supreme Court covered a process such as clearly defined in the above decisions. Was there a change "effected in the nature of any substance by the art set forth in the claim? It is certainly difficult to show that any change in the *nature* of the impulse took place during transmission or reproduction. (Knight's Patent Office Manual.)

It may, however, be stated that whether or not in the future any definition of an art including a *method, process,* or *system* of doing business which is patentable may be laid down, it has not yet been done by any competent authority and as stated by Examiner-in-Chief Hodges, in *Ex parte* Abraham, 1869 C. D., "it is contrary to the spirit of the patent law as construed by the office for many years to grant patents for methods or analogous systems of bookkeeping," etc.

ARTICLE OR MANUFACTURE.

Inventions of this type are of several kinds. There are those involving merely a piece of paper sometimes having tabs, ruptured fibres, etc., provided with written or printed lines and indicia upon one or both surfaces; those which include the above elements and weakened tearing lines wholly or partially across them and those embracing a plurality of the above pieces of paper in various alleged combinations.

In determining patentability of the invention *claimed as an article or manufacture*, it was held by Commissioner

Marble in *Ex parte* Lee, 1880 C. D., 174, in which the invention claimed was as follows:

> Claim 1. "The combination of two stubs or counterparts with the contract ticket substantially as described."
>
> Claim 2. "The arrangement of the two stubs relatively to the coupons and the list of terminal stations in the manner and for the purpose specified."

That—

> "The patentable features of a railway or other ticket like those of any other substantive thing must depend upon peculiarities of mechanical construction."
>
> "The printed matter upon a ticket is nothing more than an arbitrary direction as to how such ticket is to be used, and can have no bearing upon the patentability of the ticket itself."

The Hawes patent No. 63,889, for a hotel register, in which the claim read as follows was held valid:

> "A hotel register book with the margin of its leaves occupied by advertisements, substantially as described." Hawes *vs.* Washburne et al., 50 O. G., 491.

In Library Bureau *vs.* Macy, 148 F. R., 380, in discussing patents Nos. 623,857 and 624,597, the court held that the arrangement of color signals was not invention but that the system of tabs upon the cards did involve invention.

In the case of Mitchell *vs.* International Tailoring Co., 170 F. R., 91, the claim, which specifically describes the article, reads as follows, and was sustained by the court:

> "1. The herein described advertising device comprising a card-board sheet of substantially commercial letter paper form and size, scored transversely to form upper and lower flaps to fold upon the intermediate portion, the entire inner side of said sheet being adapted to bear a

printed letter with proper letterhead upon the upper flap portion and a signature at the bottom, one of said flap portions comprising a gift to be detached from the remainder, and means for sealing the free edges of the sheet, when folded for mailing, substantially as described."

The court said:

"The folded sheet seems to me to involve no invention, but the making of one of the folds a gift likely to preserve the name and address of the sender may do so. While the patent certainly seems very obvious, I can not say, because of facts within common knowledge, that it is void on its face for lack of novelty or invention."

The infringement of the Gellenbeck patent, No. 482,899, was the basis of the suit in the Benjamin Menu Card Co. *vs.* Rand, McNally Co. et al., 210 F. R., 285.

Claim 1 of the patent read as follows:

"The combination, with a menu card, of two or more checks detachably secured thereto, two of said checks being designated, respectively, as 'guest's check,' and as 'cook's check,' so as to make the remainder incomplete as a bill of fare, and hence useless for another guest."

This invention was intended primarily for use on dining cars.

In this case, the United States Circuit Court which rendered the decision affirming the validity of the patent discussed it as follows:

"The defense urges:

"That it is not a patentable invention within the intent of the patent law, it being only for a piece of cardboard paper, with printed matter or composition on both sides thereof, and divided on one side by perforated lines and employed in a system of doing business."

The court said:

"If there is invention in it, I find no ground for objection that the elements or ingredients here

employed are not themselves of patentable nature. The fact that the structure may be of cardboard with printed matter upon it does not exclude the device from patentability according to the practice of the Patent Office, as shown by the numerous patents introduced for the defense of anticipation; and the patentability of devices of like quality has been repeatedly recognized in decisions. Citing Waring *vs.* Johnson (C. C.), 6 Fed., 500; Thomson *vs.* Citizens' National Bank, 53 Fed. R., 250, etc."

It is asserted that the patent is void because "each of its claims is for the combination of a whole with one or more divisible parts thereof." This objection is that the invention is claimed as a "combination."

In Robinson on Patents, 155, this definition of a combination is given:

> "When the elements are so united that by their reciprocal influence upon each other, or their joint action on their common object, they perform additional functions and accomplish additional results, the union is a true combination."

Whether this term combination was aptly given to this union of bill of fare and meal checks, or whether the invention should have been denominated "an article" as suggested by the learned experts for the defense, is not essential in view of what is actually shown. Cardboard or paper have long been used for coupon tickets of various kinds, for various uses, perforated upon the desired lines for separation, with printed matter arranged upon opposite sides as required. Printed bills of fare and printed meal checks are old. Nothing new can be claimed in either of these simple elements, *but there may be invention in the thought* to bring together the bill of fare, with its three courses, and the three required meal checks, so that they shall co-operate for a common object and enlist the passenger (involuntarily) in the work of detection or avoidance of fraud.

The *use here employed does not seem so clearly analogous to that of the prior devices*, nor is the want of invention so

apparent that the prima facie force of the patent should be destroyed, especially in view of the utility and extended use shown in this record.

One of the most interesting cases in this art is the recent one of the Cincinnati Traction Co. *vs.* Pope, decided by the Circuit Court of Appeals for the Sixth Circuit, 210 F. R., 443, before Knappen and Denison, Circuit Judges, and Sater, District Judge. Claim 8 of the Pope patent upon which suit was brought, clearly discloses the subject-matter of the invention and reads as follows:

> "8. A transfer ticket comprising a body portion and a coupon and further provided with conventional indications to constitute a complete transfer ticket for one part of the day when said body portion is used separately and a complete transfer ticket for another part of the day when said body portion and coupon are used together."

The court said:

> (1) "The patent is assailed as relating merely to 'a method of transacting business, a form of contract, a mode of procedure, a rule of conduct, a principle or idea, or a permissive function, predicated upon *a thing involving no structural law*;" and counsel say that the ticket in question 'has *no physical characteristics* which enable it to be distinguished from any other transfer ticket or from any other printed slip of paper.' If this criticism is well taken, the subject-matter is not within the patent statute."
>
> (2) "But while the case is perhaps near the border line, we think the device should be classed *as an article* to be used in a method of doing business, and thus a "manufacture" within the statute."

Broadly stated:

> "The term 'manufacture,' as used in the patent law, has a very comprehensive sense, embracing whatever is made by the art or industry of man, not being a machine, a composition of matter, or a design."

"The device of the patent *clearly involves physical structure.*"

"The presence of conventional indications and legends does not rob the structure of patentability. In more than one of the cases cited, the structure sustained as patentable bore conventional indications and information."

"It may well be, *that given the idea* of the Pope patent, the expected skill of the printer or street car man would have been sufficient to determine the arrangement of printed text, and even the form of legend, etc. We think, however, the device of the structure of the Pope transfer must be held to involve invention."

In the Rand, McNally Co. *vs.* Exchange Scrip Book Co. case, 187 Fed. R., 984, which involved the patentability of a ticket resembling an ordinary mileage ticket except that the indicia on the coupons indicated money value instead of miles, the court in holding the patent valid said:

"There is no ground, under the circumstances, for saying that the *concept* is necessarily obvious. It is equally probable that it was this new *concept* that made the wider use of interchangeable tickets commercially obvious."

"Nor do we think that this patented concept is nothing more than a business method. Its use *is a part of a business method. The ticket patented* is *not* a method at all, but a physical tangible facility without which the method would have been impracticable and with which it is practicable. And this is the status of thousands of like facilities that, once designed and put into use, have become the first of a new business method; and patents on such facilities have been sustained."

This patent was sustained by the court.

This case was later reopened for consideration of new

evidence submitted by the defence and remanded to the lower court; before trial however a compromise was reached and the case settled.

The above cases pertaining to the printed matter art without question show that inventions in this art may be included under the patent statute and that valid patents may be obtained therefor and that patentability must depend on the exercise of the inventive faculty, that the claims must be drawn to structure and the usual tests applicable to mechanical structure patents must be applied to determine the question of patentability.

FORMAL OBJECTIONS TO APPLICATIONS FOR PATENTS

A paper read October 22, 1914, before the Examining Corps of the United States Patent Office

BY

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THE LAW REPORTER PRINTING COMPANY, WASHINGTON, D. C.

Formal Objections.

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Rule 34 following the Statute §4888 requires that the specification of an application for a patent shall be "in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains . . . to make, construct, compound and use the same," and the statute further requires that the applicant shall particularly point out and claim his invention. So the law requires that 300 or 400 of us perform continually the unwelcome task of censors. Obviously much the greater part of the work must be done by the assistant examiners, for the primary Examiner will rarely have occasion to act on questions of censorship unless they have been raised by an assistant. The assistants are left mainly to their own judgment in the matter, with little test of their judgment either by entrance or promotion examinations and with few decisions to promote uniformity and team-work. And so men are found taking almost every attitude from an easy-going ignoring of the Statute to that of the unnamed Examiner, who tradition says, wanted a case to be not only in good English, but in elegant English.

Let us consider from three points of view this duty of criticism, censorship, blue-penciling, revision, objection, playing schoolmaster, assisting applicants, or whatever one likes to call it.

1. What is involved in it.
2. How it may best be carried out.
3. What light do the decisions throw on our daily problems.

Start with the law of 1790, which states the purpose of the specification to be "to the end that the public may have the full benefit thereof after the expiration of the patent term." This makes clear the purpose to grant the patent, not in the inventor's interest, but for the public good, and because there is some new knowledge offered to the public. If this knowledge is offered in a foreign language, or in Miltonian English, or in a verbose, ungrammatical, incomplete or inaccurate way, its availability to the public is diminished or destroyed. So one of the duties of the Examiner is to look out for the public interest; and if the good-natured decision is quoted to him, "the largest latitude should be given to the applicant," he may make the very obvious reply—"the man who writes a passage can not judge whether it is clear so well as the man who reads it." A writer does not always know what his words will mean to another man, and they may not convey his real intent. In New York State, a century ago a deed conveying land had to be submitted to a magistrate for him to append a certificate to the effect "I have examined the above deed, and do approve it for record." An odious censorship some might say, but it probably ensured a valid deed, and defined the right of the grantee and those holding under him. Our responsibility is quite similar, but a thousand people may be interested in each application that leaves our hands for the Issue Division. Not one in a hundred of the patented cases ever reaches the courts, but every patent is read by many people whose time is wasted if we have passed a description which is not clear, concise, and exact.

In trying to find the limits of necessary or allowable criticism one limit is easily fixed—the standard of specification writing must not be set too high to be reached by thousands of inventors or their attorneys with a little help, and by hundreds of Examiners who have specialized in lines other than English prose composition.

It is clearly within proper limits to object to incorrect, ambiguous or misleading words, terms, or phrases; and where an art has recognized technical terms their use

should be required. There is no better brief characterization of a science than—a body of systematic knowledge having an accurate nomenclature; and any man responsible for using or for permitting the use with a broader or different meaning of terms having an established specific technical meaning in an art, shows a lack of the scientific spirit.

The limits are not so well defined regarding criticisms for clerical errors and lack of clearness; short-hand and rapid typewriting are responsible for many slips that any applicant would want to correct; rapid dictation produces wonderful, long passages whose beginning is forgotten before the period is reached; these of course should be broken up; sentences are sometimes incomplete and grammatical errors occur; proper punctuation, paragraphing, and hyphens to make compound words are often needed, for they are great aids to clearness. Although the Government Printing Office has published a seventy-page book of rules for the printing of patent specifications which prescribes minutely punctuation, paragraphing, abbreviations, and the spelling of hundreds of words, this editorial revision is not supposed to change the sense of a passage, and many sorts of errors can never be corrected by it.

Robinson says (II, p. 77):

> The description ought to be confined to three points: Attributes, Manner of Making, Mode of Use. Whatever matters of narration or assertion pass beyond these limits are surplusage and are at least unnecessary and objectionable. It is sufficient for persons skilled in the art, when construed as a whole. Description of each one of its three subjects-matter must be correct, complete, and intelligible (page 87). Description may not be intelligible, either because of its undue brevity or its excessive prolixity or the strangeness of its words or the confused arrangement of its sentences (page 91). If experiment or inventive skill on the part of the user is necessary the description is fatally ambiguous.

In view of the constant argument that the courts have sustained objectionable claims Commissioner Marble's statement must be remembered:

> "The fact that the courts will sustain patents in order to protect the rights of parties or that patents have been improperly issued, furnishes no Rule of action for this Office." 20 O. G., 1893.

But the courts do not always overlook defects; one judge says:

> "A very large part of the record consists of arguments in the form of depositions upon the true construction of Root's specification, and its sufficiency. They are able arguments; but a few lines of specification would have been worth them all." Root *vs.* Lamb, C. D., 1881, p. 191.

Examine now the various parts of the specification.

The drawings may be criticized, first as to their sufficiency; the rules are explicit that they shall illustrate every feature claimed, and a decision requires that modifications or features described must be shown; on the other hand, the filing of an excessive number of sheets is an imposition on the applicant and the office. On the drawings, it is in accordance with the best practice to have the section lines numbered to agree with the figures; to have numerals used instead of letters where there are many of them, and to have them begin above the highest figure number; to have them come in strict order in the description and consecutively except for a break where the description passes from one part of a machine to another. Where letters are preferred, to avoid confusion there should not be used both capitals and small forms of c, o, v, x, y, z, and others that are nearly alike, and in musical cases, A to G should not be used for reference characters. Sometimes the characters are so irregular that a new specification and changes on the drawing are necessary: In one case having a very inconvenient though systematic notation, the Examiner was directed by the Commissioner to write the attorney

that any future cases with such notation would be returned.

Where a machine is at all complicated it is sometimes very helpful to have a diagrammatic figure, and arrows to show the directions of motion, and words defining parts or their location; often it is almost essential to have the work shown in its relation to the machine. In electrical cases, care should be taken to have as few crosses of conductors as possible; the distinction between branch-circuits and their common part should be clear; and the diagrams should not be mixed up with structure; a large share of the drawings of electrical musical instruments are defective in these respects when filed. Any unusual or striking feature on the drawing should be fully described.

A short title is required by the statute, though the word "short" is omitted in the Rules. Commissioner Simonds decision in *Ex parte* Nikola (C. D., 1891, p. 215), sustained the Examiner in objecting to an inaccurate title. The title should indicate the art, and preferably be rather specific; where there is a suitable trade name or office sub-class name it should be used. Any one who has ever tried to use the court set of patents furnished to various cities knows that the present annual indexes are almost worthless, since so large a proportion of the titles are unsuitable for indexing. For many years the Examiner was allowed to give an appropriate title when sending a case to issue, but this is no longer permitted.

The statement of invention should naturally give the reader a hint as to the special feature or improvement to be considered; it should show him in which direction to look. But very often it is a mass of verbiage without a single clear or useful idea—a bungling attempt to comply with the unfortunately worded requirement to state the "object and nature of the invention."

Where the description is long or complicated there should be at the beginning of each paragraph, a reference to the necessary figures; sometimes it is desirable to divide the matter into sections with center or side headings. It is generally clearer to have a straight-forward description of one form of the machine and its operation,

to be followed by the modifications and the enlarging clauses; for it is annoying to find such clauses scattered in every paragraph.

It may be worth while to note some common more or less objectionable expressions:

"Associated" is indefinite and applies to articles on a shelf as well as to parts in a machine.

"Correlated" would probably be unintelligible to the skilled workman by whose intelligence we are taught to test the disclosure.

"Cam" for a wedge; "plane" in which a solid body lies or moves; "series" for two; "a number," when more than one is meant; "lever" for arm; "tension" for pressure or stress; "interlocking" for locking; "perpendicular" for vertical; "in unison" for simultaneously; "circuit" for a wire or part of a circuit; "between each;" "to progress" something; "to engage" x with y; "invention contemplates," although contemplation is the act of a mind. "Acceleration" is rarely used with its definite physical meaning.

The human body furnishes to the hard-pressed writer several more or less apt terms, as arm, finger, ear, nose, foot, etc.; but the recent discovery of a nose on a heel would startle an anatomist.

In the claims of course greater precision is needed and one must often object to such words as "designed," since it refers to a mental act, not to structure; "suitable," which is superfluous, for no one wants an unsuitable feature; "and" is often confusing, especially before "which" and before successive elements of a claim except the last one; "permit" is generally indefinite, for everything permits which does not prevent; "horizontal" is usually an idle limitation while "horizontally arranged" is often prolix and uncertain. "Member" or "portion" or "element" after a noun, as "cam" should usually be canceled, for it suggests only a fraction of the cam; "actuating means for the shaft" is ambiguous; "said" following "the" is, as Rogers (p. 96) says, generally unnecessary or tautological. Distributive words like "each," "corresponding," "respectively,"

are very often used indefinitely or ungrammatically. Time-clauses beginning "when" or "during" are often no more structural limitations than "'when the clock strikes ten" would be.

In recent patents are to be found "material distance," "apportionate," "in combination with x of y," I claim "to x, y, z," etc.

The word "adapted" covers more loose thinking and makes more trouble than any other word, though occasionally it is the best word for the place; where the parts are actually in combination it is mere surplusage to say they are adapted to join in combination; in such cases, the participial form is better than the infinitive—as "engaging," rather than "adapted to engage;" in Brown *vs.* Deere (61 F. R., 972), the Circuit Court of Appeals in holding a claim invalid, said "adapted to co-operate with" certain parts named was not synonymous with "combined with."

Preambles to claims beginning "in a machine," give much trouble. Commissioner Duell said in *Ex parte* Casler (1899):

> "Under the court decisions the introductory phrase is not an element of the combination and does not limit the claim to such apparatus."

Commissioner Allen held in *Ex parte* Gally (1908), that after the phrase "in a mechanism for moving self-playing music sheets" was prefixed, the claim was still for a mechanical movement and not for a combination of elements in a musical instrument. Yet neither Commissioner changed the example in the Rule-book, in which three out the four claims have the clause "in" etc. Probably a quarter of the claims printed in the Gazette, have the superfluous or deceptive phrase.

The use of singulars and plurals is often inconsistent either grammatically or logically; if one claims a plurality of X's and a Y co-operating with each X, whereas there is an equal plurality of Y's, then the claim is wrong and misleading and all the X's except one are idle elements.

Since a claim is not a complete sentence but is the object of the verb "claim," confusion sometimes arises where participles are used; thus "in a machine having

X, Y, Z, etc.," it is grammatically uncertain whether Y and Z are objects of the nearer verb "having" or the remoter one "claim." Such a claim may be treated as only a preamble; a recent Gazette has three patents with such claims which escaped attention.

The use of "means" defined by a function is too well established to need discussion even if the "means" includes several parts; but it may be noted that the recent decision in Lacroix *vs.* Tyberg, which restated this doctrine, was not due to any incorrect ruling of an Examiner. This doctrine however would not justify claiming a means serving two functions, where there are two devices and not a single unitary one; for instance, means for steering an auto and lighting the road.

It seems surprisingly difficult for some men to see the difference between a broad claim and a nebulous one; often a claim may be made clear and allowable by merely canceling an obscure clause, either functional or structural, even though it is thereby broadened.

The requirement that an applicant shall "distinctly claim . . . his invention" is glaringly violated constantly, first by prolix claims to which the Iagan decision (162 O. G., 538), applies; and second by an excessive number of claims; Commissioners and Judges have condemned such cases, but the only method of treating them furnished by Rules or decisions is by rejection under conditions that are so laborious as practically to leave the applicant full license to confuse the public. The words of Senator Christiancy some years ago apply here:

> "The very frequency of the abuse takes away the Commissioner's power of correcting it, and the greater the necessity for the correction becomes, the less is his power of correction."

A scale of fees graduated somewhat in proportion to the expense thrown on the Office and the difficulties put in the way of the public may be needed to reduce the evil.

When the Examiner has gone through the case, and noted all the objectionable passages, he has to decide which of them should be formally objected to and how the matter is to be put up to the applicant; at this point

personal equation and acquaintance with the attorneys count perhaps for more than anywhere else in office work; there are attorneys who welcome any assistance in putting a case in better shape and the briefest suggestion is enough; there are others who will respond only to a formal often-repeated requirement; who seem to care more for their words than for the protection secured; such men abuse the favor offered by Rule 64. Between these two classes are many who take the easiest way, and respond promptly to the objections. It is not a pleasant thing for anybody concerned to have a long letter full of criticisms in the file; sometimes this may be avoided by an oral suggestion that the case with Examiner's pencilings be looked over in the attorney's room; or by some general statement in a letter; e. g., this case needs thorough revision to correct obvious clerical errors and unusual terms.

One applicant's attitude of antagonism was changed on receipt of a letter directed by the Primary Examiner reading "the proposed changes were thought to be in applicant's interest, but as the Examiner will not have to defend the case in court, he need not insist on the objections."

It seems unnecessary in the first letter to make the objections in the way of a formal requirement; the phrase "should be changed" or "the following change is suggested" is perhaps more likely to bring the desired correction than "it is required;" further, a page may be clearer at 10 o'clock than at 4, and it is much easier to waive such an objection on a change of view or for reasons shown, or when the case is otherwise ready for issue; the second action will be soon enough to make a positive requirement. Other common forms of objections are: "the usual name for this part is," "preferably it should be called," "authority should be cited for this use of the word," "the word is not found in the dictionary," "the theory is believed to be unsound; certainly, it is not proved and it is unnecessary;" "this word is inapt or ambiguous or misleading throughout the case," "this passage is repetitious or obscure or does not assist in the disclosure of the invention or seems to be inconsistent

with another or with the drawing;" "the case will be improved by canceling or changing" so and so.

In a case badly presented it may be well for the Examiner to write compactly his understanding of the construction or operation and call on applicant to make substantially that statement, if it is correct. Where there is uncertainty as to an amended passage it is best to call for a statement of how the passage should read. It will often be necessary to call on applicant to identify some elements of a claim by reference characters in a letter (not in the claim).

In a long claim covering several groups of elements it is often helpful to separate the groups by semicolons or to indicate the groups by (a) (b) (c), etc. Where one finds difficulty in describing a structure correctly in broad terms it may be suggested to him to draw a very accurate specific claim and then broaden it element by element.

Some of the familiar decisions may be recalled here, such as:

> The preamble is not a limitation; an applicant may select his terms; a description of the operation should be added; the philosophy of an operation is not necessary; laudatory or derogatory statements, advertising, and theoretical matter, the history of the art, a catalogue of examples, the principles of law, unnecessary description and illustration and a statement of invention which is only a restatement of the claim, are all to be canceled. Parts referred to in the claim should be positively claimed. No ambiguous or useless word or phrase ought ever to be allowed in a claim.

The following words or expressions have been permitted by decisions:

> "Preferably" (inserted by amendment); "Make and break a toggle;" "Filament;" "Outlet," but not "opening;" "Stretcher;" "Means for marking," used of a stencil; "V-shaped;" "Longitudinally convexly curved;" "Or the like" in the preamble and "differential gear" in the claims.

In the MS. decisions of the last twelve or fifteen months the following are found:

One, requiring a sheet of drawing to be canceled and two, overruling the requirement;
Two, refusing entry of a substitute specification.
A requirement to limit number of sheets of drawings was overruled.

"While the Examiner has probably unnecessarily scolded the applicant, he has not gone beyond the bounds of propriety sufficiently to warrant the unusual action of canceling the paragraph objected to, and the petition must therefore be denied."

"The objections which the Examiner has taken to the specification . . . seem to me to be well taken excepting" certain of them.

"Claim 6 should have been rejected on the ground that the structure specified therein was not properly shown or the claim properly illustrated or the obscure feature properly described."

"This case has been pending a long time, and it would be to the interest of the public to pass it to issue."

"The Examiner wrote a letter making certain objections which on examination are found to be crude, to lack elucidation and to be at least partially erroneous." . . . "The office actions have not come up to the standard in these respects."

"The balls seem to be sufficiently positively included in claim 2, to warrant the allowance of this claim in its present condition and the petition is granted."

"There is no provision in the Rules for a request that the Examiner state why x and y are the same; applicant should point out wherein his claim avoids the reference instead of asking such questions."

"Applicant's specification is verbose and many of the phrases used by him are unintelligible, being apparently coined by applicant. . . . Examiner objected to specification as verbose and

containing inapt words and phrases and required that it should be rewritten in condensed form, and with the use of terms common in the art to which it appertains. . . . The specification should be couched in ordinary language and coined terms should not be used where it is possible to define the invention in ordinary language. Such terms as those only render the specification confused and indefinite."

October 22, 1914.

Composition of Matter

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BY

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THE LAW REPORTER PRINTING COMPANY, WASHINGTON, D. C.

Composition of Matter.

By
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One of the four classes of inventions named in the Statutes as the subject of patent protection is Composition of Matter. There is no restriction in this country as to the nature of the compositions which may be patented except that they must be new, useful and the result of invention.

Many other countries have restrictions as to the compositions which may be patented. The principal substances which are refused patent protection by them are foods, beverages, medicines or pharmaceutical preparations and the product of a chemical process. Austria, Germany, Japan, Russia and Switzerland will not grant patents on foods, medicines or chemical products though processes of making them may be patented except in Switzerland and as to medicines, in Austria. Denmark will not patent medicines or articles of food or processes of making articles of food. Sweden will grant patents on processes of making foods or medicines, but not on the product. France, Italy, Spain, Peru and Venezuela refuse patents on medicines and pharmaceutical preparations of all kinds. Portugal will not patent chemical or pharmaceutical products. Great Britain and her colonies grant patents on all the classes of compositions that are patentable in this country.

No good reason is seen why a meritorious foodstuff or chemical product should not be given patent protection, but it seems proper that medicinal preparations should be denied this protection on the ground of public policy, for the reason that the granting of patents upon such mixtures enables unscrupulous makers of such compositions to impose upon the credulous and ignorant by representing that the medicine has been endorsed by

the Government as is evidenced by the fact that a patent has been granted upon it.

Robinson defines a composition of matter as being "an instrument formed by the intermixture of two or more ingredients and possessing properties which belong to none of these ingredients in their separate state." Lane *vs.* Levi, 104 O. G., defines a patentable composition of matter as one that is produced by the intermixture of two or more specific ingredients and possessing properties pertaining to none of those ingredients separately, thereby accomplishing a new and useful result. These definitions are not to be construed as meaning that the product must have no properties in common with its ingredients but that the intermixture must develop a property or one or more properties which the ingredients individually do not possess. Lane *vs.* Levi is not quite accurate in stating that a new result must be accomplished. The result may be old if the means is new.

According to Walker the phrase "'Composition of Matter,' as used in the Statutes, covers all compositions of two or more substances. It includes, therefore, all composite articles, whether they be the result of chemical union or of mechanical mixture and whether they be fluids, powders or solids. To be the subject of a patent a composition of matter must . . . be able to endure the relevant tests of invention, novelty and utility."

Chemical compounds will be considered as coming under compositions of matter in this paper, though they are very often referred to as articles of manufacture in the patents. The fact that in chemical compounds the component elements will combine only according to certain definite laws as to proportion, which is not true of non-chemical compositions, is no good reason for excluding them. They certainly are not simple substances and they meet the definition and tests of a composition as laid down by Robinson and the courts.

The intermixture of the ingredients in making a composition may be by mechanical or chemical operations or a combination of both. The result of the operation may be a mixture which can be separated into its constituent ingredients by purely mechanical means. Thus a mixture of iron filings and sulphur is an example of a

composition in which the iron and sulphur may be detected in the mixture with a microscope and the iron may be removed from the sulphur by means of a magnet. Or if some or all of the ingredients have chemically combined, the new substance resulting can be analyzed only by the joint use of mechanical and chemical means or only by chemical means depending upon the extent of the chemical combination between the ingredients. For example, if the iron filings and sulphur be mixed in the proportion of seven iron and four sulphur and heated, the ingredients will react and the compound iron sulphide will result whose properties are entirely different from its elements and whose constituent elements can not be detected by mechanical means but only by chemical analysis. The properties of the new product may be novel, never before having been possessed by any substance, or they may be old in themselves but new as to that particular association of ingredients and amount to an old result produced by a new means.

In chemical compositions the ingredients, while capable of independent existence, so far lose their identity and individuality when combined as to be no longer capable of being distinguished in the combination. Their mode of operation to produce the composition is also undiscernible. This may be true also in some compositions which are not composed of chemically combined ingredients. Opposed to this class of compositions are those in which the individuality of the ingredients is not wholly obscured and the method by which each ingredient performs its office in the combination is discernible. Between these two extreme classes there are compositions in which the individuality and mode of operation of some of the ingredients may be discernible while that of others may not be. In some compositions it is very difficult to determine whether ingredients have combined chemically or whether they are merely mechanically associated.

Alloys perhaps furnish the simplest and best example of the various kinds of compositions since they may vary all the way from true chemical compounds through mixtures of chemically combined metals with solutions of one metal in another in varying proportions, solutions

of metals in each other, mixtures of metals and solutions of metals, to mechanical mixtures of metals. Thus tin and copper will alloy in all proportions, but certain definite proportions of them form alloys having the characteristics of true chemical compounds. Other alloys of them apparently are solutions of one in another, also containing some of the true chemically combined metal. Lead and copper on the other hand will not combine with or dissolve in each other and their alloys are mechanical mixtures and difficult to make homogeneous owing to the tendency of the lead to segregate to the bottom of the ingot on cooling. Also the lead can be separated from the copper by heating to above the melting point of lead but lower than that of copper. Copper and tin can not be thus separated.

The invention in a composition of matter "is a substance possessing certain properties and formed by uniting certain other substances in a peculiar manner. Its identity depends upon the identity of its constituent elements, identity of their co-operative law and upon the identity of the properties exhibited in the composition as a whole. In this respect it resembles a true combination, and like other combinations its identity is lost by the removal or substantial change of any of its elements or by the introduction of a new ingredient which calls into activity some elemental force hitherto absent or inoperative, or by the union of its present elements under a new co-operative law." (Robinson Article 301.) In support of the above Robinson cites decisions to the effect that where one composition of matter contains ingredients not present nor represented by equivalents in the other the two are essentially different. But that the absence of an immaterial ingredient from one which is included in the other does not make the two distinct. That though substances contained in two compositions may be different in themselves, yet if they serve the same purpose the compositions may be patentably the same. That a composition composed of certain ingredients of a certain quality intermixed in a specified manner and possessing certain properties is not identical with a composition formed of the same ingredients without reference to quality or mode of intermixture and possessing different properties.

The fact that a composition contains an ingredient not contained in another does not necessarily mean that it is not an infringement of the second if the new ingredient does not change the essential properties of the composition. "There may be infringements of a combination patent by adding an element or an ingredient to obtain the same result or substantially the same, but not by leaving out an ingredient or an element of the combination and not substituting an equivalent." Standard Paint Co. *vs.* Bird, 175 F. R., 346.

A composition of matter though regarded as a combination is governed by rules peculiar to itself. Elements of a mechanical combination are identical or equivalents only when in their individual character they are the same operative means, not merely furnishing to the combination the same subordinate function but performing this by the same mode of operation. In the mechanical combinations the individuality of the constituent parts is not obscured and the mode of operation of each part is discernible. The identity of such a combination is determined by the identity of the individual parts of which it is made up, the identity of the way in which the parts co-operate and the identity of the resultant qualities inhering in the combination as a whole. In a composition of matter such a test is not always possible. In some mechanical compositions in which the identity and individuality of the ingredients is not wholly obscured the method in which each ingredient performs its part in the combination is discernible. In such a composition the tests of identity are the same as in other mechanical combinations, not only the means must be identical but the manner in which it co-operates with the other elements must be the same. A good example of a composition in which the mode of operation of the ingredients is discernible is one from the very active art of mixtures for automatically closing punctures in pneumatic tires, called "tire healers." A typical composition of this kind consists of asbestos fibre, whiting, flour, glucose, water and salt. In such a composition the office of the asbestos fibre is to form a network of fibres in the puncture when forced into it by the escaping air. This network traps and holds the fine particles of

whiting, which are insoluble and also the finer particles of flour thus closing up the openings in the fibre mass. The flour and water and the glucose form a glutinous vehicle for the asbestos and whiting. The salt acts both as a preservative and to lower the freezing point of the mixture. In such a mixture cotton or wood fibre will be the equivalent of asbestos, magnesia, cement, silica, and finely divided insoluble solids generally the equivalent of whiting, starch will be the equivalent of flour and alcohol will be the equivalent of salt.

In other mechanical and in all chemical compositions however, the individuality of the ingredients is lost and though it may be known that each ingredient affects the properties of the compound, the operative law by which it produces its effect may be entirely indiscernible. In such cases the rule that elements are to be regarded as the same only when they serve the same purpose in the combination and operate in the same way to effect this purpose, is both useless and unreasonable. To quote from Robinson:

> "The law requires no further certainty than science can afford, and when no evidence of the identity of two ingredients can be obtained except that they perform the same function in the composition, this evidence is accepted as sufficient and the ingredients are held to be the same. The doctrine of equivalents in reference to compositions of matter thus differs according to the nature of the composition and the state of the scientific knowledge. In compositions where the mode in which the indivdual ingredients furnish to the composition the required elemental force is ascertainable, equivalence is determined by the rule that governs other combinations; otherwise the rule follows that applied to simple arts and instruments and all ingredients are equivalents which at the date of the patent were known as possessing properties that in the given composition make them interchangeable."

The limitation of equivalents to substances known at the date of the patent is not according to the later de-

cisions. In addition to known substances the judge stated in Read, Haliday & Sons *vs.* Schuelze-Berge, 78 F. R., 493, that:

> "In the light of the later decisions on the subject I think the law must be that where the new ingredient is such as would have been known to or employed by the ordinary skilled practical chemist or is such as would naturally have developed in the growth of the art, and the substitution thereof involves no alteration or new operation or result, it is covered by the patent provided the specifications and claims are sufficiently broad to include it. If, on the other hand, the development of the new ingredient required the exercise of the creative or inventive faculty, and certainly if its introduction causes some novelty in function or result, it would not be an equivalent."

In Bridgeport Wood Finish Co. *vs.* Hooper, 20 O. G., 156, it was held that:

> "In a wood filler composition silicious marl is not the equivalent of pulverized quartz inasmuch as, though they both consist of oxide of silicon, they are physically and practically different for the purpose of wood filling because the former consists of rounded water worn grains while the powdered quartz consists of angular sharp-edged fragments."

This is an example of a case where the mode in which the ingredients act is ascertainable. In Hoskins Manufacturing Co. *vs.* General Electric Co., F. R., 212, 422, a resistance element composed of an alloy of nickel 65 per cent, chromium 12 per cent, iron 15 per cent, and manganese 8 per cent, was held to be an infringement of a resistance element composed of alloy of nickel and chromium upon the theory that the addition of the iron and manganese did not materially change the alloy as a resistance element and therefore was considered to be the same as the latter. In other words, chromium, iron and manganese were held to be the equivalent of chromium in so far as the properties of the alloy when used

for resistance elements are concerned. The iron and manganese changed the alloy as to other properties, however, and considered as compositions of matter the nickel-chromium-iron-manganese alloy is not the same composition of matter as the alloy of nickel and chromium and it is not understood that the court so held. The question before the court related to an article of manufacture, a resistance element, rather than the question of whether the alloy itself, aside from any special application of it, was infringed. The alloy *per se* clearly was not infringed and if it had been used by the defendants, not for making resistance elements, but for making cutting instruments, for example, for which it is adapted, there is no doubt whatever in my mind that the court would have ruled that there was no infringement of the patent. In a case recently decided by Judge Hough, not yet reported (Friebacher *vs.* Roessler & Hasslacher Chemical Co.), it was held that a pyrophoric alloy composed of cerium and magnesium and treated with hydrogen infringed a claim reading "A pyrophoric alloy containing cerium alloyed with iron substantially as and for the purpose specified." This was held to be a pioneer invention and the manganese and hydrogen were held to be the equivalents of iron. Apparently the court has held in this case that *any* metal which when alloyed with cerium will produce a pyrophoric alloy, is an equivalent of iron. The last two cases cited are examples of equivalency being determined by result in the final product where the mode in which the elements operate to produce the result is undiscernible.

The same diversity of rule obtains in determining the identity of the co-operative laws of ingredients as in determining identity of ingredients. If the mode of action of the ingredients is discernible, then the co-operative law is perceptible and should be considered in determining identity of compositions. But if the identity of the ingredients is lost and their mode of action to produce their effects in the composition can not be determined, nothing is then known as to their co-operative law, and it must be regarded as the same in every grouping of the same ingredients which produces the same result.

Briefly, then, the logical way of comparing two compositions to see whether they are patentably the same is to compare first their characteristic properties. If these are different the two compositions are, of course, different, but if they are the same then the identity of the constituent elements must be considered. When the character of the composition is such that the mode of action of each ingredient is discernible, then the elements of each are identical only when their mode of action and effect are both the same. But in compositions in which the mode of action of the ingredients is not discernible the elements are considered to be identical if known as being interchangeable without affecting the essential properties of the complete composition. If the ingredients and the properties of the final composition are the same it is safe to assume that the compositions are identical without inquiring into the nature of the reactions between the ingredients, though Robinson states that differences in mode of mixing, or proportions of the same ingredients, or different reactions though producing the same result may possibly produce patentably different compositions though it is improbable. He cites no specific example of two such compositions, and his contention appears to be more hypothetical than practical. Robinson here is inconsistent with the statement he makes in Article 197 "that the artificial combination of ingredients into a substance which exists in nature is simply a new process for the production of that substance, not the creation of a new substance, and in such cases the process and not the substance is the patentable invention." It is improbable that the method followed by man in making the substance is precisely that by which it was formed in nature.

In its essentials a specification of a composition case does not differ from that of any other class of invention. Rule 35 states that the specification must set forth the precise invention for which a patent is solicited and explain the principle thereof and the best mode in which applicant has contemplated applying that principle in such manner as to distinguish it from other inventions. A composition presents three essential subjects for description, the ingredients, the manner of combining them

and the properties and nature of the resulting product. Each of the ingredients should be described in such manner that those skilled in the art may know exactly what is meant to be included. A great many applications that come before me are defective in this particular, owing to the use of indefinite and inaccurate terms in defining ingredients. This results in many cases from the loose use of chemical terms, such, for example, as using the word "soda" when referring to a salt or compound of sodium other than sodium carbonate, and it is difficult or impossible to tell from the context what particular compound is meant. When chemical substances are referred to the safest rule is to designate them by their correct chemical names instead of their old or colloquial names. If thus defined or designated, or the formula stated no question can thereafter arise as to what is meant. If a term has a definite accepted meaning in an art, though not strictly accurate, that is sufficient, since all that is required is that the substance be defined so that there is no question as to what is meant. Loose, indefinite terms are quite frequent in applications for paint compositions in such terms as "varnish," "drier," "Japan," etc., and in alloy cases in such terms as "brass," "bronze," "white metal," to designate ingredients. When it is taken into consideration that there are many kinds of varnishes, Japans, and driers and of brasses, bronzes, and white metals, differing in composition and many of them in a great degree, it is seen that such terms do not meet the requirement of the rules as to definite disclosure. It would be possible to make up a composition having the ingredients named in such a description and in the same proportions, and yet the resulting composition would differ materially from that which the applicant had in mind, because his varnish, Japan or drier, or his brass, bronze or white metal was different from the ones used by the other. Such a description is bad also because it does not disclose the invention sufficiently to enable the Examiner to make intelligent search on the case, since there may be a reference containing all the primary ingredients of the composition of the application, defined by their proper names without any statement as to whether some of them when mixed

will form a varnish, for example, and yet it could not be known that it was a reference because the specification as drawn did not indicate the composition of the particular varnish, which applicant was using and had in mind. In the absence of precise information the best the Examiner can do is to consider that any substance known under the names referred to comes within the scope of the invention and act accordingly. The proper way to specify the real ingredients in the case using brass, for example, is to state the composition of the brass, or to indicate how much copper and zinc are added in the form of a brass.

As another example I have a case pending before me now in which one of the ingredients is "Terra Alba." Terra Alba by one authority is a fine white clay known as pipe clay, by another authority it is defined as finely pulverized gypsum. These are two quite different substances and I do not know and can not tell from the case which one the applicant means. Such a description is defective.

Another frequent source of trouble is the use of trade names of products, the composition of which is not known and which may be secret preparations. Thus "Three-in-One" oil is a secret preparation and it is impossible for the Examiner to determine whether a composition is novel or not in which this is included as an ingredient. There is another objection to the designation of ingredients by trade names. One of the reasons why inventors are given the exclusive right to make, use and sell the product of their inventive skill is the benefit that accrues to the public by the publication of the invention. In order to fulfill this obligation in return for his patent the patentee must fully disclose the invention to the public. The designation of ingredients by trade names, the composition of the ingredient being unknown or indefinite, does not necessarily comply with this obligation, since the manufacturers may cease to manufacture it, or vary its composition and yet continue to sell it under the same name. These changes may be such that the substance will no longer perform the same function in the composition as did the substance of the same name used by the inventor when he made his