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THE ON-SALE BAR TO PATENTABILITY: THE U.S. SUPREME COURT SHEDS SOME LIGHT

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I. Background

Promotion of inventorship and prompt disclosure of inventions for public benefit are central goals of the U.S. patent system. However, § 102(b) of the U.S. patent law contains four caveats that can bar the grant of a U.S. patent. n1 One bar to patentability which has generated confusion is the provision that eliminates the patent right if the claimed invention was "on-sale" in the United States for more than one year prior to the date of the patent application. n2 Although the rule sounds simple, the determination of a "sale" for purposes of the statute has been at the heart of case law since the first version of the provision was adopted by Congress in 1836. n3 Courts have discussed four policy reasons behind the on-sale bar to patentability: 1) not taking from the public what it has reasonably come to believe is freely available; n4 2) inducing prompt disclosure of inventions to the public; n5 3) preventing an inventor from using commercial exploitation to extend the statutory period of exclusive use; n6 and 4) allowing an inventor reasonable time to "fine-tune" the invention prior to seeking a patent. n7

One of the first cases to establish what constitutes a sale within the meaning of the statute was *McCreery Engineering Co. v. Massachusetts Fan Co.* n8 The *McCreery* court held that to trigger the on-sale bar, an invention had to be "a complete article of sale, not on paper, but in fact." n9 This requirement later became known as the "on-hand" doctrine. The standard allowed frequent interaction between the inventor and a potential buyer without triggering the statutory grace period. In 1961, a Delaware district court in *Philco Corp. v. Admiral Corp.* n10 used the on-sale bar to invalidate a patent relating to an ornamental design for television sets. n11 The patent holder displayed prototypes to a prospective buyer and accepted an order for a fixed quantity of units prior to the critical date. n12 The court applied the on-sale bar even though mass production of the designs

had not begun and the units were not physically accessible. n13 The Philco decision was the genesis of judicial discontent with McCreery's requirement that the invention be produced and on-hand to invoke the on-sale bar.

The Second Circuit adopted a different approach to the on-sale bar in 1975. n14 The court developed a three-part test which included the requirement that the invention be reduced to practice to trigger the on-sale bar. n15 The injection of a "reduction to practice" requirement n16 tightened the restriction on inventors' pre-critical date activities when compared to the McCreery "on-hand" doctrine. Nevertheless, inventors retained substantial dealmaking flexibility with buyers without the worry of invoking § 102(b).

The Federal Circuit discarded the Timely Products test in its 1987 UMC Electronics Co. v. United States decision. n17 The UMC court discussed two "critical considerations" to be used in determining whether an item was on-sale for patentability purposes. n18 These two considerations are: 1) whether there was a definite sale or offer to sell more than one year prior to the application date for the subject patent; and 2) whether the subject matter of the sale fully anticipates the invention or renders it obvious once added to the prior art. n19 The court expressly rejected the notion that a reduction to practice is required to trigger the bar and noted that it is a factor that should be considered in conjunction with the specific facts of a case. n20 Other relevant factors considered by courts during this period to decide an on-sale bar included the type of invention at issue, the nature of any commercial activity, the stage of the invention's development and evidence of experimental use as a defense. n21 This "totality of the circumstances" standard, n22 was the existing law for considering the on-sale bar of § 102(b) until the standard was changed in 1998 by the U.S. Supreme Court. n23

II. Current Discussion

The principles of the on-sale bar, developed over the past century, have been scrutinized in a number of recent cases. In the U.S. Supreme Court's Pfaff v. Wells Electronics, Inc. n24 decision the plaintiff brought a patent infringement suit against Wells Electronics relating to a socket entitled, "Mounting housing for leadless chip carrier." n25 The socket tests electronic chip carriers employed in circuit boards. The only issue addressed by the Supreme Court was whether a reduction to practice is required in order to trigger the on-sale bar of § 102(b). n26 The court affirmed the Federal Circuit's holding that Pfaff's invention was on-sale within the meaning of § 102(b) even though the invention was not reduced to practice. n27 The facts leading to the suit began in November 1980 when Texas Instruments ("TI") asked Pfaff to develop a device to mount and remove semiconductor chip carriers. n28 After meeting with TI officials, Pfaff developed detailed engineering drawings of his device and showed them to TI representatives. n29 On March 17, 1981, Pfaff received a verbal order for over 30,000 sockets, and TI followed-up with written confirmation of the order on April 8, 1981. n30 As was his normal practice, Pfaff did not build any prototype of the new device prior to the TI purchase order. n31 The order was ultimately filled in July 1981. n32

The patent application was filed on April 19, 1982, and the patent issued on January 1, 1985. Pfaff brought his infringement action against Wells Electronics in 1992. n33

The Federal Circuit reversed the district court's ruling that the on-sale bar did not apply because the invention had not been reduced to practice at the time the offer was made. n34 The district court had apparently disregarded UMC and employed the prior Timely Products standard. Relying on UMC, the Federal Circuit held that a reduction to practice is merely a consideration and not a requirement to trigger the statutory time period for the on-sale bar. n35

The Federal Circuit also dispelled the experimental-use defense, using Pfaff's own testimony that the agreement had been purely commercial and that he had felt like he had a "deal" with TI. n36

The Supreme Court noted in its own decision that the plain meaning of § 102(b) makes neither a direct nor an indirect reference to the requirement that an invention be reduced to practice to invoke the bar. n37 Relying on the late nineteenth-century decision of *Dolbear v. American Bell Telephone Co.*, n38 the Court specified that an invention need not be made, i.e. "embodied," to be patented. n39 Pfaff argued that the word "invention" should be construed to indicate a physical embodiment of the device. n40 He attempted to persuade the Court to return to the "reduction to practice" requirement in order to establish clear guidelines for determining the start of the one-year time period. n41 Although the Court affirmed the Federal Circuit's holding, it did not endorse the "totality of the circumstances" standard and acknowledged the criticism of the standard as vague. n42 The Supreme Court replaced the "totality of the circumstances" standard with a new test for determining whether an invention is on-sale under § 102(b). The Court established two conditions that must be satisfied to begin the one-year statutory period for the on-sale bar: 1) the invention must be the subject of a commercial offer for sale; and 2) the invention must be ready to be patented. n43 The court then stated that the second condition "may be satisfied in at least two ways": 1) by proof of a reduction to practice; or 2) by proof that the inventor developed drawings or other materials sufficient to permit one skilled in the art to practice the invention. n44

Applying its two-pronged test, the Supreme Court concluded that both factors were satisfied. Pfaff's acceptance of TI's purchase order prior to April 19, 1981 constituted a commercial offer for sale. n45 In addition, Pfaff's drawings sufficiently disclosed the invention to allow someone skilled in the art to build an operable device. n46 Although the Supreme Court's rationale differed from that of the Federal Circuit, the Court reached the same conclusion of invalidity and affirmed the holding of the lower court. n47

In formulating its new test, the Supreme Court not only declined to reinstate the Timely Products standard but also departed from the underlying principles of the UMC "totality of the circumstances" approach. It is important to note that the second part of the Pfaff test explicitly laid to rest the notion, which the Federal Circuit addressed eleven years earlier in UMC, that a reduction to practice predicates a finding that an invention was on-sale. The Court was apparently trying to remedy some of the inherent flaws of the "totality of the circumstances" test. In the discussion of the underlying goals of the patent system, the Court considered the balance of both public interest and the interests of inventors and concluded that the resulting harm to the public from employing the Timely Products standard outweighed the benefit of certainty to inventors. n48

A month after the Supreme Court's Pfaff decision, the Federal Circuit applied the new test in *Weatherchem Corp. v. J.L. Clark, Inc.* n49 The patent at issue n50 concerned a condiment cap known as a "two-flap closure." n51 The cap contains small holes on one side and a single large opening on the other side to be used for spooning the contents of the container. n52 The inventor assigned the patent to Weatherchem Corp. n53 In a sequence of events similar to Pfaff, Weatherchem met with Durkee, the proposed buyer, in October 1984 to discuss plans for an improved multi-purpose cap with sprinkle and spoon flaps. A few days following their meeting, Weatherchem quoted prices to Durkee for the mold design of the cap and in November 1984, Durkee issued a purchase order for the design. n54 The parties exchanged various design modifications in the weeks that followed. n55 In February 1985, Durkee issued another purchase order for the mold based on detailed drawings produced by Weatherchem. n56 The purchase order stipulated that delivery of the mold would occur no later than June 14, 1985. n57 Durkee accepted the order on May 13, 1985 and ultimately delivered 990 samples of the cap in July. n58 A month later, Weatherchem quoted Durkee a price per thousand for an order of 500,000 caps although the two parties were still working on further modifications to the samples. n59 Durkee responded with a purchase order for 275,000 caps on September 3, 1985. n60 Weatherchem continued to work on the mold design until December 31, 1985 when the final design was completed. Mass production of the caps began three days later. n61

The patent application was filed on October 17, 1986, and the patent issued September 15, 1987. In 1996, Weatherchem brought a patent infringement suit against J.L. Clark in U.S. district court. n62 The district court, applying the UMC test, ruled that the Weatherchem patent was invalid because it was on-sale prior to the critical date. n63 The Federal Circuit affirmed the district court's finding of invalidity of the asserted claims. n64 However, the court's rationale centered entirely on the application of the Pfaff test n65 since the appeal arose on the heels of the Pfaff decision. The court found no error in the lower court ruling that Weatherchem made an actual sale to Durkee prior to the critical date. n66 Since neither the payment of money nor actual delivery of the patented device is a pre-requisite to finding an offer to sell, the Federal Circuit held that Weatherchem benefited from at least three commercial transactions prior to the October 17, 1985 cut-off date. n67 The court then considered the second prong of the Pfaff test and again found no error in the district court's conclusion that the caps sold prior to the critical date embodied all the limitations of the patent claims. n68 The Federal Circuit, citing the Supreme Court in Pfaff, held that the February 1985 drawings of the invention sufficiently indicate that the invention was ready to be patented because a person skilled in the art could use the drawings to "practice the invention." n69 The court characterized the modifications that occurred after the critical date as mere "fine-tuning" of features not claimed in the patent itself. n70 Finally, the 275,000-unit purchase order in September 1985 weighed against Weatherchem's case because the court viewed this as indicative of Durkee's confidence in a complete and operable product. n71

The Weatherchem court also addressed the experimental-use defense asserted by the inventor. The court found no error in the district court's ruling discounting the proposition that the purpose of the interaction between the parties prior to October 17, 1985 was for experimentation of the invention. n72 It is interesting to note that the approach taken by courts when analyzing an experimental-use defense is a modified "totality of the

circumstances" test. However, courts have not widely criticized this approach like they did with the overall "totality of the circumstances" standard for deciding the on-sale bar question. One explanation for this lack of criticism regarding the experimental-use defense may be that while the factors in the experimental-use analysis are somewhat subjective, they contain specific inquiries, as compared to the extremely broad "totality of the circumstances" approach. These specific inquiries aid inventors in the assessment of whether their activities run afoul of statutory provisions.

The Weatherchem case exemplifies the ease with which the Pfaff test may be applied. The previous standard required the district court to labor in its analysis by weighing various circumstances. n73 The Federal Circuit on the other hand, reached the same conclusion with noticeably more ease. n74 If the Pfaff test had been available to the district court, it is likely that the result would have been the same. While the Pfaff test provides definition to a previously blurred set of inquiries, it appears to be a tough standard for inventors to face, thus ensuring caution during their pre-filing activities -- at least by those with good patent counsel.

Since the Weatherchem ruling, more courts have used the Pfaff test to invalidate patents. STX, Inc. v. Brine, Inc., n75 is such a case. In this unfortunate case, a patent obtained after a total of eleven years was undone by careless behavior two days prior to the critical date. On September 20, 1985, inventors at STX filed a patent application for an improved lacrosse stick head. n76 The patent for a "lacrosse stick having open sidewall structure" n77 issued on October 22, 1996 after five continuation applications, n78 numerous rejections, responses, appeals and amendments. STX sued Brine and another defendant for infringement of its lacrosse head patent. n79 The defendants moved for summary judgment based on various claims, including that the patent was invalid because the lacrosse stick head had been on-sale in excess of one year prior to the filing of the application. n80

The facts in this case indicate that the head design was in full development in January of 1984 when the inventors met with outside parties to discuss the new open sidewall concept. n81 By June of the same year, STX produced a sales brochure that made reference to an "exciting new stick" for the upcoming season. Although they argued that the brochure was merely a marketing scheme, applicable to no specific lacrosse product, the judge remained unpersuaded and reasoned that even after giving STX all favorable inferences, this conclusion was factually irrational. n82 In the judge's final analysis, the brochure made no difference in the case because the actions of STX's lone full-time salesperson, Mr. Griebe, initiated the countdown of the one-year period. n83 On September 11, 1984, Griebe met with his superiors to discuss the pricing of the new sticks. A week later, the inventors received samples of the new head in what the judge called the "first squeezes" of the invention. n84 On that same day, Griebe wrote a purchase order for 112 sticks containing the new heads, which formalized a sale to a sporting goods company. The evidence introduced at trial showed that during the two-day period prior to the critical date, Griebe made sales pitches to this company, as well as other retailers. The judge found that the sample sticks delivered to the inventors contained all the embodiments of the patent claims. n85 These samples were later used in a national trade show in Chicago. A few days after the critical date, STX received 4,000 printed catalogs containing a full-page description of the new sticks as embodied in

the samples shown on September 18th. STX attempted to overcome this evidence by asserting that the purchase order represented the buyer's hope for a future product, n86 but the judge rejected the argument because the order was clearly for the purchase of the new sticks. n87

Prior to addressing the on-sale issue, the judge rejected STX's contention that the phrase "improved handling and playing characteristics," in the introductory clause of the first claim of the patent was a limitation. n88 The judge held however, that even if it were a limitation, the patent would still be invalid for indefiniteness under § 112, P 2 of the patent statute. n89 In his on-sale bar analysis, the judge discussed the Pfaff and Weatherchem decisions and employed their rationale to the STX case. n90 Regarding the first prong of the Pfaff test, the judge concluded that the written purchase order constituted a commercial offer to sell on September 18th. n91 STX argued that the offer to sell was not possible since it was uncertain whether and when the new design would function as intended. n92 In response to this argument, the judge examined the long standing relationship between STX and the buyer and found that the buyer had previously purchased unseen products. n93

As in Pfaff, the plaintiff in this case argued that the invention had not been fully tested for durability. n94 However, the judge held that the improvement in handling and playing was not a claim limitation. n95 He also concluded that any lack of testing for durability could not overcome the on-sale bar. n96 Furthermore, there was no evidence that the sticks were in an experimental stage at the time of the offer. n97 Thus it appears that courts continue to reinforce the notion that only when durability is part of the patent claims, can a defense that the invention was not fully tested for durability prevail over an on-sale allegation.

In Cordant Technology, Inc. v. Alliant Techsystems, Inc., n98 another district court judge applied the Pfaff test to the detriment of the patent holder. The patent in this case n99 involved a method of insulating rocket motors with an asbestos-free material that still exhibited the desirable characteristics of asbestos, particularly the resistance to erosion under hostile operating conditions. n100 The facts of this case began to unfold in April 1978 when Cordant began a research and development process to find a suitable asbestos substitute. n101 In September 1978, the U.S. Air Force granted Cordant a contract to build "reduced smoke" rocket motors for air-to-air missiles. n102 The contract stipulated that Cordant would perform one-year accelerated aging studies on various components of the motors, including the insulation chosen in the design. n103 Cordant also provided extensive reports to the Air Force on the project, and any developments as they occurred. n104 In September 1979, Cordant proposed that its new asbestos-free insulation be substituted for the asbestos containing material included as part of the motor under development. n105 A short time later, Cordant performed successful static tests of the new insulation. n106 By February 1980, the motors built under the contract contained the new insulating material. At this time, the one-year accelerated aging process on the insulation began and effective May 29, 1980, both parties agreed that the new asbestos-free insulation would be used on the motors. n107 The following month, Cordant formally presented the status of the project to the Air Force and reported that the new insulation had been successfully tested. As a result, the project was approved for continuation. n108 In October 1980, Cordant received a separate order from another

branch of the Air Force for reduced smoke motors. n109 After submitting a proposal, Cordant entered into another contract with the Air Force on October 29, 1980, which required delivery of ten motors on November 21, 1980. n110 The motors were delivered a day early.

Cordant filed a patent application for the insulation on December 7, 1981. n111 During prosecution of the application, the patent examiner rejected the claims as a result of a French patent issued on December 10, 1980. n112 To overcome the rejection, Cordant antedated the cited reference by filing an affidavit that the invention had been reduced to practice upon successful completion of static tests in September 1979. n113 The reference was successfully antedated and the patent issued on January 8, 1985. n114 Cordant sued Alliant Techsystems for infringement of the method claims in the patent. The defendant responded by challenging the validity of the patent under § 102(b) on the grounds that the contracts with the Air Force were premature sales of the invention. n115

Based on the undisputed facts, the judge found that for the first prong of the Pfaff inquiry, n116 a definite sale or offer to sell occurred. The two contracts Cordant made with the Air Force prior to the critical date were deemed commercial sales of products manufactured with the patented process. n117 Specifically, Cordant completed its obligation under the second contract and delivered the ten motors prior to the critical date. The question before the judge regarding the second prong of the Pfaff test was whether Cordant reduced the invention to practice prior to the critical date. n118 On this point, the defendant pointed to the affidavit filed by the inventors during the prosecution of the patent application. n119 Alliant attempted to preclude Cordant from claiming the invention had not been reduced to practice prior to December 7, 1980 using the inventor's contradicting testimony before the U.S. Patent and Trademark Office to antedate the French patent. n120 Therefore, an inventor's statements while obtaining a patent can be used against the inventor to support an on-sale allegation.

Although the judge found that the affidavit claimed a reduction to practice date just after the critical date, n121 he held it against Cordant in deciding that the invention was reduced to practice prior to the critical date. n122 Cordant attempted to sidestep this pitfall by arguing that the inventor's admissions only applied to the compositional claims in the patent and not to the method claims. n123 The judge, however, was not persuaded because the inventor's affidavit failed to distinguish between the types of claims in the patent. n124 Ultimately, this argument failed because the judge noted that placing the end product of a patented process on sale prior to the critical date can rescind the right to patent the process. n125 With both prongs of Pfaff satisfied, the patent was invalidated.

Cordant raised the experimental-use defense on two grounds. First, the inherent risks and uncertainties of the development of the insulation at the time of the alleged sale rendered it experimental in nature. n126 Second, the one-year accelerated aging process constituted a durability test which was not completed until February 1981; therefore, the invention had not been fully tested prior to the critical date. n127 Clearly, Cordant was attempting to use the durability exception discussed in the Federal Circuit's opinion in Pfaff. n128 Relying on pre-Federal Circuit case law, Cordant attempted to argue that experimental use may extend beyond reduction to practice. n129 However, the judge cited recent cases from the Federal Circuit that held that experimentation ends upon reduction to practice. n130 Echoing the Federal Circuit in Pfaff, the judge in Cordant

noted that because durability was not an element of the invention, the failure to complete durability testing did not overcome a finding that the invention was on-sale. n131 Cordant asserted that durability was an inherent factor in the patent's preamble, but the judge found that the only implication in the preamble was that the composition must be operable in the intended environment. n132 Alliant pointed out that the aging tests required by the contract had to be performed regardless of the insulation used on the motors. n133 Therefore, these tests were not experimentation of the patent claims. n134 The Cordant decision provides a good review of the principles established in Pfaff and in prior cases deciding the on-sale bar question. The issues of what constitutes a sale, the impact of a reduction to practice in the context of Pfaff, the effect of prosecution history and the limitations of the durability/experimental-use defense are all addressed in this case.

In *Alexey T. Zacharin v. United States*, n135 a judge for the U.S. Court of Claims recently invalidated a patent under the on-sale bar of § 102(b). The owner of a patent for "a collapsible decelerator for aerial bombs launched from a high velocity vehicle" n136 brought an infringement action against the U.S. Army. The inventor's device, is a particular type of a ram air decelerator ("RAD") which is a balloon-shaped fabric with one or more air inlets. n137 Its purpose is to abruptly stop a forward moving submunition so the submunition can descend upon its target. n138 In December 1978, the Army awarded a contract to Breed Corp. to assist in the development of an acceptable RAD device for its new program to develop a multi-purpose submunition. n139

The patent holder in this case was a civilian Army engineer assigned to develop a different part of the program. In addition to his assigned duties, however, he proceeded on his own time to design a homemade triangular shaped RAD ("T-RAD") on his wife's sewing machine. n140 On December 10, 1978, the inventor tested his T-RAD by positioning it outside the window of his car while driving at 80-mph. n141 The parties later agreed that the home made T-RAD contained all the limitations of the patent and the test was a sufficient reduction to practice. n142 In January 1980, a year after showing the invention to the Army, the inventor's T-RAD was selected as part of the Multi-Purpose Submunition Program. n143 On April 15, 1980, a second contract was awarded to Breed. n144 The contract required the fabrication of 6,000 T-RADs for the army's flight-testing. By July 1980, a total of 288 T-RADs were delivered to the Army for testing. n145 Although the T-RADs were in the testing, the test did not involve any of the specific patent features. n146 No changes to the T-RAD design or shape were recommended upon completion of the tests. n147 During the first four months of 1981, the inventor personally inspected and accepted the 6,000 T-RADs delivered by Breed under the second contract. In April 1981, a third contract was awarded to Breed to refine and finalize the submunition design, including the inventor's T-RAD. n148 The T-RADs delivered under this contract were for the purpose of testing by Breed or the Army. Full production quantities of the submunition package did not begin until a final contract was awarded to Breed in September 1982. n149

The Army's Patent Law Office filed a patent application on behalf of the inventor on September 24, 1981. n150 Prior to filing, the Patent Law Office initiated a Request for Determination of Rights n151 with the Army's Patent Law Division in the Judge Advocate General's Office. The Division decided that Zacharin owned the rights to the

invention but the government was entitled to a nonexclusive, irrevocable, royalty-free license to the patent. n152 On appeal, the Commissioner of Patents and Trademarks reversed and held that the government had no such right. n153 The inventor then sought private counsel to prosecute his application which lead to the issuance of the patent on January 21, 1986. n154

The government's primary defense against the patent infringement charge was a claim of invalidity under the § 102(b) on-sale bar. n155 The judge concluded that the first prong of the Pfaff test was met with the April 15, 1980 Breed contract that requested 6,000 units of the inventor's T-RAD device. n156 The fact that the party selling the invention is not the actual inventor or an assignee distinguishes this case from cases previously discussed in this article. A sale by a third party can qualify to bar patentability under § 102(b), and the fact that the inventor lacks control or knowledge of the sale is irrelevant to the inquiry. n157 As would be expected from a reading of the facts, the judge ruled that the second part of the Pfaff test was met as well. n158 The inventor's fate was sealed by his own admission following the December 10, 1978 test drive he took at 80-mph with the T-RAD strapped to the outside of his car. Since he had previously conceded that this test reduced the invention to practice and that his device contained all the limitations in the claims, the invention was deemed ready for patenting well before the critical date. Based on these findings, the patentee was forced to relinquish his patent rights. n159

The judge analyzed a potential experimental-use defense and devoted considerable analysis to this issue. n160 Although a reduction to practice ends any claim of experimental use, he considered the extensive testing done by the Army and Breed prior to the critical date. n161 Based on the nature of the testing following the initial deliveries by Breed, the judge found no evidence of any experimental use. n162 The tests were designed to verify both the operation of the entire submunition system and the suitability of the inventor's T-RAD device. n163 The judge noted that these are not characteristics of a bona-fide experimental use of an invention. n164 Specifically, the sale of an item not reduced to practice, which includes an element that is reduced to practice, does not deem the use of the element to be experimental. n165 Also, a test to determine the suitability of a device for a specific customer's unclaimed need is not an experimental use of the invention that will preclude the imposition of the on-sale bar. n166 In addition, the judge considered the fact that there was no secrecy agreement and that the inventor had no participation in the testing. n167 Finally, the judge noted that the Army's tests did not apply to the claimed features of the patent; thus the experimental-use defense was instantly foreclosed. n168 The inventor attempted a novel approach by arguing that the Federal Circuit case, which held experimentation ends with a reduction to practice, n169 should not apply to him because it was decided after his patent issued. n170 The judge pointed out that the patent in that case issued prior to the decision of the court, and if that patent owner was bound by the decision, then the patent owner in this case should also be bound. n171

In a final attempt to preserve his patent, the inventor in this case tried to use procedural and equitable means to prevent the government from challenging patent validity. Under the inventor's rationale, if the patent were invalid under § 102(b), the government should be estopped from asserting this defense because they failed to raise it

during the Determination of Rights hearing held prior to the issuance of the patent. n172 The argument invoked the doctrines of issue preclusion, n173 claim preclusion n174 and equitable estoppel. n175 The judge rejected the first two doctrines because the hearing and subsequent appeal were only for determining ownership of the invention and not for determining patentability. n176 Because the on-sale bar issue could not be litigated at the hearing, the government could not be precluded from raising the defense during the inventor's infringement suit. n177 The third doctrine was also inapplicable because the inventor was fully aware of the contracts with Breed. n178

Zacharin further substantiates both the effect and rationale of Pfaff. This case illustrates that the inventor can be powerless to prevent the sale of an invention once it is given to a third party, whether or not the invention is in a tangible form. Even if the invention had been stolen without his knowledge and sold prior to the critical date, the inventor in Zacharin would have lost his patent rights. Although seemingly unjust, the justifications for the on-sale bar warrant tolerance for results like these.

So is there any good news for inventors? Following these unhappy endings for patent owners, a patent owner won a small victory in Articulate Systems, Inc., v. Apple Computer, Inc. n179 A United States Magistrate Judge denied defendant Apple Computer's motion for summary judgment after Apple alleged that Articulate's patented invention had been on-sale in excess of one year prior to the critical date. n180 Articulate brought an action against Apple Computer for patent infringement of its voice recognition software. n181 Apple defended by filings several motions for summary judgment, including one that invoked the on-sale bar. The only determination in the proceeding was whether there were any genuine issues of material fact in the plaintiff's pleadings. n182 Apple introduced evidence of several demonstrations of the software made by Articulate to potential purchasers. The demonstrations prompted follow-up letters by the potential purchasers stating intent to buy the product. This was hauntingly reminiscent of Mr. Griebe's sales pitches in STX. Furthermore, the evidence contained an unsigned software license agreement between Articulate Systems and another party. Articulate did not deny that the demonstrations occurred but claimed that there were no offers to sell the software. n183 As part of its case, Apple also pointed to Articulate's trademark application for the software which contained a "use in commerce" date that antedated the critical date. n184

Despite this seemingly suspicious evidence, the judge ruled that a reasonable trier of fact could find that no sale had taken place. n185 The judge noted that the licensing or sale of the rights to an invention will not trigger the statutory time period for the on-sale bar. n186 He also held that the date on the trademark application was insufficient for the purposes of summary judgment to overcome testimony by Articulate's CEO that expressly denied any offers to sell. n187 The judge found conflicting testimony which presented a genuine issue of material fact. n188 The victory for the patent owner is small because the judge's ruling sends the case to trial where the Pfaff analysis will be applied. n189 The final outcome of this case should be interesting given the evidence presented, the potential issues raised at trial, and the line of precedent cases.

III. Future

The application of the on-sale bar to patentability has undergone a significant metamorphosis over the 163 years of the provision's existence. Nevertheless, the underlying premise of § 102(b), the protection of the public, remains the same. Prior to the Pfaff decision, the on-sale issue generated confusion and uncertainty in patent law that likely kept many inventors awake at night, concerned about whether seemingly innocent acts committed years ago would come back to haunt them in a courtroom. The "totality of the circumstances" standard was an attempt to ensure equity among the vast and sometimes complex disciplines that seek patent protection. However, as many cases were decided, the inherent weakness of this standard required a fresh look at the on-sale bar.

The Supreme Court's decision in Pfaff is welcomed relief after years of confusion over a statutory provision with the potential for significant ramifications to technological advancements. The on-sale bar is a powerful weapon that can suddenly strip a patent owner of his or her rights and potentially negate years of hard work and financial investment. The court's enunciation of a new test represents the fresh look that inventors, patent practitioners and judges were seeking to help establish a consistent and predictable line of precedent. The decisions since Pfaff and those yet to come will surely help clarify what pre-critical date activities will not be tolerated. The cases discussed above, where the courts decided against the patent owners, share a common thread of consistency that was not as evident under the prior standard. These cases also illustrate the range of activities that can be used against patent owners when the on-sale bar is invoked. Of course, the new standard is young and future case law will test the bounds of the Supreme Court's test. Although Pfaff reduced the uncertainty of the prior standards, it can hardly be said that the test is crystal clear. Situations will undoubtedly arise in which a court will struggle to apply Pfaff, but few legal doctrines, if any, work well in all cases. Pfaff did not, for example, further define what constitutes a "sale" within the meaning of § 102(b). This issue has always been a "gray" area in patent law, and Pfaff did not provide any additional guidance. Also, was there an underlying implication that there may be other ways to satisfy the second prong of the on-sale inquiry when the Supreme Court stated that there are at least two ways? While patent litigators and judges will continue to wrestle with the implications of § 102(b) the new test is a much-needed step in the right direction.

Critics of Pfaff will likely contend that the standard is too harsh for inventors. With the exception of Articulate Systems, which is still pending a final judgment, all the cases discussed after Pfaff resulted in the invalidation of the patent. To date, the search for court decisions that have used Pfaff to render a final judgment in favor of the patent owner has been fruitless. Although Pfaff is the strictest on-sale standard ever imposed by a court and will probably continue to bring about the demise of more patents, it is important to consider the purpose of the statute. Three of the four underlying policy reasons for the provision relate to the protection of the public. This apparent imbalance is more easily understood when another consideration is taken into account; inventors can, in most cases, avoid the Pfaff sword by filing promptly. This is, of course an objective of the on-sale bar. If bona fide experimentation is required, inventors must proceed carefully and document their experiments to avail themselves of the experimental-use exception. In the end, the patent owners who lost these cases were their own worst enemies.

n1 35 U.S.C. § 102 (1994) (stating in pertinent part: "A person shall be entitled to a patent unless . . . (b) the invention was patented or described in a printed publication in this or in a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or . . .")

n2 See generally RONALD B. HILDRETH, PATENT LAW: A PRACTITIONER'S GUIDE 57 (2d ed. 1993) (summarizing the statutory bars to patentability under § 102(b)).

n3 See Patent Act of 1836, ch. 357, 5 Stat. 117, 119 (current version at 35 U.S.C. § 102(b) (1994)), reprinted in 9 DONALD S. CHISUM, CHISUM ON PATENTS app. 11, at 11-3 (1998); see also John F. Sweeney and Charles H. Sanders, The On-Sale Bar to Patentability: Understanding the Doctrine's Past, Present and Future, in PLI's Fourth Annual Institute for Intellectual Property Law 157, 161 (PLI Patents, Copyrights, Trademarks and Literary Property Course Handbook Series No. 532, 1998) (providing an in-depth analysis of the history, evolution and current state of the on-sale bar).

n4 See *General Elec. Co. v. United States*, 654 F.2d 55, 61, 211 U.S.P.Q. (BNA) 867, 873 (Ct. Cl. 1981).

n5 See *id.*

n6 See *id.*

n7 See *id.*

n8 195 F. 498 (1st Cir. 1912).

n9 *Id.* at 502.

n10 199 F. Supp. 797, 131 U.S.P.Q. (BNA) 413 (D. Del. 1961).

n11 See *id.* at 799-800, 131 U.S.P.Q. at 416-17.

n12 See *id.* at 814, 131 U.S.P.Q. at 428.

n13 See *id.* at 817-18, 131 U.S.P.Q. at 430.

n14 See *Timely Prods. Corp. v. Arron*, 523 F.2d 288, 187 U.S.P.Q. (BNA) 257 (2d Cir. 1975) (adopting the "reduction to practice" requirement used by the Seventh Circuit two years earlier in *Dart Industries, Inc. v. E.I. Du Pont De Nemours & Co.*, 489 F.2d 1359, 1365, 179 U.S.P.Q. (BNA) 392, 396 (7th Cir. 1973)).

n15 See *Timely Prods.*, 523 F.2d at 302, 187 U.S.P.Q. at 266. The Timely Products test required that: 1) the complete invention was either embodied in or obvious in view of what was offered for sale; 2) the invention was both working and marketable, i.e., it was not only conceived but reduced to practice; and 3) the sale had a profit motive and was not experimental in nature. See *id.*

n16 *Id.*; see also *UMC Elecs. Co. v. United States*, 816 F.2d 647, 652, 2 U.S.P.Q.2d (BNA) 1465, 1468 (Fed. Cir. 1987) (Reduction to practice is achieved when the invention exists in a physical embodiment containing all the limitations of the claim.).

n17 *UMC*, 816 F.2d at 655-56, 2 U.S.P.Q.2d at 1469.

n18 *Id. at 656, 2 U.S.P.Q.2d at 1472.*

n19 See *id. at 656, 2 U.S.P.Q.2d at 1469.* Many courts have applied these two elements as the UMC "test," however a careful reading of the opinion indicates that the court was merely identifying two important factors to be considered among the "totality of the circumstances." *Id. at 663, 2 U.S.P.Q.2d at 1477.*

n20 See *id.*

n21 See *Western Marine Elecs., Inc. v. Furuno Elec. Co., 764 F.2d 840, 845, 226 U.S.P.Q. (BNA) 334, 337 (Fed Cir. 1985)* (naming factors to be considered in an on-sale bar inquiry). The "experimental-use" defense is available to patent owners in a public-use or on-sale allegation. The defense exempts a patent owner from these statutory bars if the owner can show that the alleged public use or sale prior to the critical date was primarily for experimental purposes. The defense, however, is more commonly used for allegations of public-use rather than on-sale. See generally *Koch v. Quaker Oats Co. 681 F.2d 649, 653, 215 U.S.P.Q. (BNA) 200, 204 (9th Cir. 1982).* The U.S. Supreme Court established the experimental-use defense in 1877. See generally *City of Elizabeth v. Pavement Co., 97 U.S. 126, 135 (1877).* Factors to be considered when deciding an experimental-use defense include the length of the claimed experiment in relation to similar devices, the number of claimed experiments conducted, whether any payments were made for use, whether any secrecy agreements existed, whether test records were maintained and the amount of control the inventor retained over the alleged experimentation. See *TP Lab. Inc. v. Professional Positioners, Inc. 724 F.2d 965, 971-72, 220 U.S.P.Q. (BNA) 577, 581-82 (Fed. Cir. 1984).*

n22 Other cases have refined the "totality of the circumstances" standard. See, e.g., *Seal-Flex, Inc. v. Athletic Track & Court Constr., 98 F.3d 1318, 1322-24, 40 U.S.P.Q.2d 9 (BNA) 1450, 1453 (Fed. Cir. 1996)* (limiting UMC by holding that a reduction to practice is required to trigger the on-sale bar when durability is a claimed feature of the invention); *Robotic Vision Sys. v. View Eng., 112 F.3d 1163, 1167, 42 U.S.P.Q.2d (BNA) 1619, 1623 (Fed. Cir. 1997)* (broadening UMC by holding that items not claimed in the invention can be included in the "totality of the circumstances" standard).

n23 *Pfaff v. Wells Elecs, Inc., 119 S. Ct. 304, 48 U.S.P.Q.2d (BNA) 1641 (1998).*

n24 *Id.*

n25 U.S. Patent No. 4,491,377 issued to Pfaff (Jan. 1, 1985).

n26 See *Pfaff, 119 S. Ct. at 307, 48 U.S.P.Q.2d at 1642-43.*

n27 See *id. at 312, 48 U.S.P.Q.2d at 1645.*

n28 See *id. at 307, 48 U.S.P.Q.2d at 1642-43.*

n29 See *id.*

n30 See *id.*

n31 See *id.*

n32 See *id.*

n33 See *Pfaff v. Wells Elecs., Inc.*, No. 3:91-CV-1542-H (N.D. Tex. June 2, 1992), noted in *Pfaff v. Wells Elecs., Inc.*, 124 F.3d 1429, 1431, 43 U.S.P.Q.2d (BNA) 1928, 1929 (Fed. Cir. 1997), aff'd, 119 S. Ct. 304, 48 U.S.P.Q.2d (BNA) 1641 (1998).

n34 See *Pfaff*, 124 F.3d at 1433, 43 U.S.P.Q.2d at 1931.

n35 See id.

n36 See id.

n37 See *Pfaff*, 119 S. Ct. at 308-09, 48 U.S.P.Q.2d at 1644 (noting that the only reference to "reduction to practice" in the patent statute is in 35 U.S.C. § 102(g) and relates to an interference action to establish priority of invention). For a discussion of interference proceedings, see generally HILDRETH, supra note 2, at 103.

n38 126 U.S. 1 (1888).

n39 Id. at 309, 48 U.S.P.Q.2d at 1644.

n40 See id. at 310, 48 U.S.P.Q.2d at 1646. At the appellate level, *Pfaff* also argued that the sockets were incomplete prior to the critical date because they had not undergone a required 72,000-cycle test. In rejecting the argument, the court noted that this was merely a "fatigue" test and not a "functionality" test. The Federal Circuit held that if durability is not part of the patent claims, the lack of durability testing cannot negate a finding that the invention was complete at the time of the alleged sale. See *Pfaff v. Wells Elecs. Inc.*, 124 F.3d at 1435, 43 U.S.P.Q.2d at 1933. Therefore, inventors who claim durability in their patents may be able to use the experimental-use defense. See text and cases cited supra note 21. Note that 35 U.S.C. defines "invention" as follows: "When used in this title unless the context otherwise indicates (a) The term "invention" means invention or discovery" 35 U.S.C. § 100 (1994).

n41 *Pfaff*, 119 S. Ct. at 310, 48 U.S.P.Q.2d at 1646. The "totality of the circumstances" standard has been criticized for being too ambiguous for inventors and causing uncertainty in judicial review. Alan H. MacPherson & Clark S. Stone, *The On-Sale Bar: Evolution and Application to Pfaff v. Wells Electronics*, in 1 PLI's Fourth Annual Institute for Intellectual Property Law 195, 206-207 (PLI Patents, Copyrights, Trademarks and Literary Property Course Handbook Series No. 532, 1998).

n42 *Pfaff*, 119 S. Ct. at 311 n.11, 48 U.S.P.Q.2d at 1646.

n43 See id. at 311-12, 48 U.S.P.Q.2d at 1646-47.

n44 Id. at 312, 48 U.S.P.Q.2d at 1647.

n45 See id.

n46 See id.

n47 See id.

n48 See id. at 310-11, 48 U.S.P.Q.2d at 1646.

n49 163 F.3d 1326, 49 U.S.P.Q.2d (BNA) 1001 (Fed. Cir. 1998).

n50 U.S. Patent No. 4,693,399 issued to Hickman (Sept. 15, 1987).

n51 *Weatherchem Corp. v. J.L. Clark, Inc.*, 937 F. Supp. 1262, 1267 (N.D. Ohio 1996), aff'd in part, modified in part, vacated in part, 163 F.3d 1326, 49 U.S.P.Q.2d (BNA) 1001 (Fed. Cir. 1998).

n52 See id.

n53 See id. at 1267-68.

n54 See id. at 1271.

n55 See id.

n56 See id.

n57 See id.

n58 See id. at 1272.

n59 See id.

n60 See id.

n61 See id.

n62 See id. at 1262.

n63 See id. at 1277.

n64 See *Weatherchem Corp. v. J.L. Clark, Inc.*, 163 F.3d 1326, 1336-37, 49 U.S.P.Q.2d 1001, 1009-10 (Fed. Cir. 1998).

n65 See id. at 1333, 49 U.S.P.Q.2d at 1006.

n66 See id. at 1334, 49 U.S.P.Q.2d at 1007.

n67 See id. at 1333, 49 U.S.P.Q.2d at 1007.

n68 See id. at 1333-34, 49 U.S.P.Q.2d 1007.

n69 Id. at 1333, 49 U.S.P.Q.2d at 1007.

n70 Id. at 1334, 49 U.S.P.Q.2d at 1007.

n71 See id., 49 U.S.P.Q.2d at 1007.

n72 See id., 49 U.S.P.Q.2d at 1007.

n73 See *Weatherchem Corp. v. J.L. Clark*, 937 F. Supp. 1262, 1274-77 (N.D. Ohio 1996).

n74 See *Weatherchem*, 163 F.3d at 1332-34, 49 U.S.P.Q.2d at 1005-07. Although it should not be surprising that the opinion of an appellate court reviewing a lower court's decision for clear error would be shorter than the lower court's opinion, a reading of both court decisions clearly demonstrates how the Pfaff test makes the on-sale inquiry simpler and more certain.

n75 37 F. Supp. 2d 740, 50 U.S.P.Q.2d (BNA) 1236 (D. Md. 1999).

n76 See id. at 746, 50 U.S.P.Q.2d at 1239.

n77 U.S. Patent No. 5,566,947 issued to Tucker (Oct. 22, 1996).

n78 See 35 U.S.C. § 120 (1994). For more information on continuation applications also see HILDRETH, *supra* note 2, at 43.

n79 See *STX*, 37 F. Supp. 2d at 744, 50 U.S.P.Q.2d at 1238.

n80 See *id.*

n81 See *id.* at 756, 50 U.S.P.Q.2d at 1238.

n82 See *id.* at 756 n.3, 50 U.S.P.Q.2d at 1248 n.3.

n83 See *id.* at 761, 50 U.S.P.Q.2d at 1248.

n84 *Id.* at 756-57, 50 U.S.P.Q.2d at 1248.

n85 See *id.* at 761, 50 U.S.P.Q.2d at 1252-53.

n86 See *id.* at 762-63, 50 U.S.P.Q.2d at 1248.

n87 See *id.* at 764, 50 U.S.P.Q.2d at 1250.

n88 See *id.* at 753, 50 U.S.P.Q.2d at 1251.

n89 See *id.* at 756, 50 U.S.P.Q.2d at 1247. A patent specification must "contain a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art . . . to make and use the same . . ." 35 U.S.C. § 112, P 1 (1994).

n90 *STX*, 37 F. Supp. 2d at 759-64, 50 U.S.P.Q.2d at 1249-53.

n91 See *id.* at 760, 50 U.S.P.Q.2d at 1251.

n92 See *id.* at 760, 50 U.S.P.Q.2d at 1252.

n93 See *id.* at 758-60, 50 U.S.P.Q.2d at 1250.

n94 *Id.* at 760, 50 U.S.P.Q.2d at 1252-53.

n95 See *id.* at 762, 50 U.S.P.Q.2d at 1252.

n96 See *id.* at 760-61, 50 U.S.P.Q.2d at 1253.

n97 See *id.* at 761, 50 U.S.P.Q.2d at 1253.

n98 45 F. Supp. 2d 398 (D. Del. 1999).

n99 U.S. Patent No. 4,492,779 issued to Junior (Jan. 8, 1985).

n100 See *Cordant*, 45 F. Supp. 2d at 402.

n101 See *id.* at 403.

n102 *Id.*

n103 See *id.* at 403-04.

n104 See *id.*

n105 See *id.* at 404.

n106 According to sample data in the patent disclosure, the static test "accurately simulates the intended environment of the rocket motor case insulation-heat, pressure,

turbulence and suspended aluminum oxide droplets." U.S. Patent No. 4,492,779 issued to Junior (Jan. 8, 1985).

n107 See *Cordant*, 45 F. Supp. 2d at 404.

n108 See *id.* at 404.

n109 See *id.* at 405.

n110 See *id.*

n111 See *id.* at 405.

n112 See *id.* at 404.

n113 For a discussion of the antedating process see HILDRETH, *supra* note 2, at 71.

n114 See *Cordant*, 45 F. Supp. 2d at 401.

n115 See *id.* at 407.

n116 See *id.* at 406-07.

n117 See *id.* at 407.

n118 See *id.*

n119 See *id.*

n120 See *id.* at 408. This is similar to the doctrine of file wrapper estoppel (also called prosecution history estoppel) which prevents a patentee from recapturing a claim during an infringement action that was surrendered during prosecution of the patent application. See generally HILDRETH, *supra* note 2, at 133.

n121 See *Cordant*, 45 F. Supp. 2d at 408.

n122 See *id.* at 410.

n123 See *id.* at 408.

n124 See *id.* at 407.

n125 See *id.* (citing *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1148, 219 U.S.P.Q. (BNA) 13, 16 (Fed. Cir. 1983)).

n126 See *id.* at 409.

n127 See *id.* at 410.

n128 See *Pfaff v. Wells Elecs., Inc.*, 124 F.3d 1429, 1435, 43 U.S.P.Q.2d (BNA) 1928, 1933 (Fed. Cir. 1997), *aff'd*, 119 S. Ct. 304, 48 U.S.P.Q.2d (BNA) 1641 (1998).

n129 See *Cordant*, 45 F. Supp. 2d at 411 n.11, (citing *Atlas v. Eastern Airlines, Inc.*, 311 F.2d 156, 162, 136 U.S.P.Q. (BNA) 4, 6-7 (1st Cir. 1962)).

n130 See *id.* at 411 n.11 (citing *RCA Corp. v. Data Gen. Corp.*, 887 F.2d 1056, 1061, 12 U.S.P.Q.2d (BNA) 1449, 1453 (Fed. Cir. 1989)).

n131 *Id.* at 411 (citing *Pfaff v. Wells Elecs., Inc.*, 124 F.3d 1429, 1435, 43 U.S.P.Q.2d (BNA) 1928, 1933 (Fed. Cir. 1997)).

n132 See *id.* at 411 n.12.

n133 See *id.* at 411.

n134 See *id.*

n135 *43 Fed. Cl. 185, 51 U.S.P.Q.2d (BNA) 1493 (Ct. Cl. 1999).*

n136 U.S. Patent No. 4,565,341 issued to Zacharin (Jan. 21, 1986).

n137 See *Zacharin, 43 Fed. Cl. at 188, 51 U.S.P.Q.2d at 1493.*

n138 See *id.*

n139 See *id. at 188-89, 51 U.S.P.Q.2d at 1493.*

n140 See *id. at 189, 51 U.S.P.Q.2d at 1493.*

n141 See *id.*

n142 See *id. at 188, 51 U.S.P.Q.2d at 1493.*

n143 See *id.*

n144 See *id.*

n145 See *id.*

n146 See *id. at 190, 51 U.S.P.Q.2d at 1493.*

n147 See *id.*

n148 See *id.*

n149 See *id.*

n150 See *id.*

n151 Pursuant to Exec. Order No. 10096, *15 Fed. Reg. 389 (1950)*, reprinted in 35 U.S.C.

§ 266 (1994) repealed by Act of July 24, 1965, Pub. L. No. 89-83, § 8, 79 Stat. 261. Section four of the Executive Order states in pertinent part: "The Chairman [now Secretary of Commerce] is authorized and directed: . . . (d) To determine with finality any controversies or disputes between any Government agency and its employees, to the extent submitted by any party to the dispute, concerning the ownership of inventions made by such employees or rights therein;"

n152 See *Zacharin, 43 Fed. Cl. at 190, 51 U.S.P.Q.2d at 1493.*

n153 See *id.*

n154 See *id.*

n155 See *id. at 191, 51 U.S.P.Q.2d at 1493.*

n156 See *id. at 193, 51 U.S.P.Q.2d at 1493.*

n157 See *In re Caveney, 761 F.2d 671, 675-76, 226 U.S.P.Q. (BNA) 1, 2 (Fed. Cir. 1985)* (discussing a sale of an invention by a third party).

n158 See *Zacharin, 43 Fed. Cl. at 193, 51 U.S.P.Q.2d at 1493.*

n159 See id.

n160 See id.

n161 See id.

n162 See id.

n163 See id.

n164 See *id.* at 194, 51 U.S.P.Q.2d at 1493.

n165 See *id.* at 193 (citing *RCA Corp. v. Data Gen. Corp.*, 887 F.2d 1056, 1061, 12 U.S.P.Q.2d (BNA) 1449, 1453 (Fed. Cir. 1989)).

n166 See *id.* (citing *LaBounty Mfg. Inc. v. United States Int'l. Trade Comm'n.*, 958 F.2d 1066, 1074, 22 U.S.P.Q.2d (BNA) 1025, 1031 (Fed. Cir. 1992)).

n167 See *id.* at 194, 51 U.S.P.Q.2d at 1493.

n168 See *id.* at 192, 51 U.S.P.Q.2d at 1493.

n169 See *RCA Corp. v. Data Gen. Corp.*, 887 F.2d 1056, 1061, 12 U.S.P.Q.2d (BNA) 1449, 1453 (Fed. Cir. 1989) (discussing that experimentation ends when an invention is reduced to practice).

n170 See *Zacharin*, 43 Fed. Cl. at 193 n.2, 51 U.S.P.Q.2d at 1493 n.2.

n171 See *id.*

n172 See *id.* at 194-96, 51 U.S.P.Q.2d at 1493.

n173 See *id.* at 194, 51 U.S.P.Q.2d 1493. When issue preclusion applies, once a judgment is rendered on the merits of a case, a party is precluded from raising issues in a subsequent litigation that were already decided in the prior proceeding. See *id.* (citing *In re Freeman*, 30 F.3d 1459, 1465, 31 U.S.P.Q.2d (BNA) 1444, 1448 (Fed. Cir. 1994)).

n174 See *id.* at 195, 51 U.S.P.Q.2d at 1493. When claim preclusion applies, a final judgment on the merits precludes a subsequent action involving the same claim or a part of the same claim, including issues and defenses that were available in the prior proceeding but were not raised. See *id.* (citing *Brown v. Felsen*, 442 U.S. 127, 131 (1979)).

n175 See *id.* at 196, 51 U.S.P.Q.2d at 1493. Equitable estoppel precludes one party from asserting a claim or defense against a second party when four conditions are met:

1) the party to be estopped knew the pertinent facts; 2) the party to be estopped intended to induce reliance by the second party; 3) the second party was ignorant of the pertinent facts; and 4) the second party did in fact rely on the first party to their detriment. See *id.* (citing *Rel-Reeves, Inc. v. United States*, 534 F.2d 274, 296-97, 186 U.S.P.Q. (BNA) 21, 39 (Ct. Cl. 1976)).

n176 See *id.* at 196, 51 U.S.P.Q.2d at 1493.

n177 See *id.* at 194-96, 51 U.S.P.Q.2d at 1493.

n178 See *id.* at 197, 51 U.S.P.Q.2d at 1493.

n179 53 *F. Supp. 2d* 62 (*D. Mass. 1999*).

n180 See *id. at* 77.

n181 U.S. Patent No. 5,377,303 issued to Firman (Dec. 27, 1994).

n182 See *Articulate*, 53 *F. Supp. 2d at* 65 (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 251-52 (1986)).

n183 See *id. at* 68.

n184 *Id. at* 71. Subject to certain exceptions, an applicant for federal registration of a trademark with the U.S. Patent and Trademark Office must provide a first "use in commerce" date. 15 U.S.C. § 1051 (1994).

n185 See *Articulate*, 53 *F. Supp. 2d at* 73.

n186 See *id. at* 70 n.5 (citing *Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1216-17, 48 U.S.P.Q.2d (BNA) 1010, 1019 (*Fed. Cir. 1998*)).

n187 See *id. at* 74.

n188 See *id. at* 68.

n189 The Federal Circuit heard arguments in this case on Nov. 2, 1999.