

United States District Court,  
D. Massachusetts.

**James A. STORER and Refac International, Ltd,**  
Plaintiffs.

v.

**HAYES MICROCOMPUTER PRODUCTS, INC. and Zoom Telephonics, Inc,**  
Defendants.

No. Civ.A. 96-10602-WGY

**Jan. 23, 1998.**

Patentee brought action against modem manufacturers for infringement of patent for dynamically compressing and decompressing streams of electronic data. The District Court, 960 F.Supp. 498, granted summary judgment of noninfringement as to most patent claims. Patentee voluntarily dismissed its suit against one manufacturer, and remaining manufacturer filed motion for summary judgment of noninfringement as to remaining claims. The District Court, Young, D.J., held that patent claim could include manufacturer's modem.

Motion denied.

4,876,541. Cited.

Ronald J. Schutz, Kevin D. Conneely, Robins, Kaplan, Miller & Ciresi, Minneapolis, MN, John N. Love, Robins, Kaplan, Miller & Ciresi, Boston, MA, for Plaintiffs.

Bruce E. Falby, Hill & Barlow, Boston, MA, for Defendants.

### ***MEMORANDUM AND ORDER***

**YOUNG, District Judge.**

James A. Storer and REFAC International, Inc. (collectively "the plaintiffs") brought this patent infringement action against the defendants, Hayes Microcomputer Products, Inc., ("Hayes"), and Zoom Telephonics, Inc., ("Zoom"), alleging that Hayes and Zoom manufacture and sell modem devices under various trade names, all of which infringe on one or more claims of the plaintiffs' United States Patent No. 4,876,541 entitled "System for Dynamically Compressing and Decompressing Electronic Data" ("the Storer patent"). This Court has already granted summary judgment of non-infringement as to all of the patent claims except Claim 18 and its dependent Claim 54. *See* Storer v. Hayes Microcomputer Prods., Inc., 960 F.Supp. 498, 500-501 (D.Mass. March 25, 1997) (summary judgment on Claim 54 vacated upon reconsideration May 12, 1997). As to the remaining Claims 18 and 54, this Court denied summary judgment. Zoom now comes before this Court with a second motion for summary judgment of non-infringement on Claims 18 and 54. FN1 Because Zoom's position now turns upon a point that was not fully and precisely addressed by this Court's earlier Memorandum and Order, and in view of the Federal Circuit's recent opinion in *B. Braun Medical, Inc. v. Abbott Laboratories*, 124 F.3d 1419 (Fed.Cir.1997), this Court has conducted a thorough reconsideration of the issues Zoom raises.

FN1. The plaintiffs voluntarily dismissed their claims against Hayes on December 12, 1997.

## I. BACKGROUND

This Court, in its previous Memorandum & Order, set forth an extensive explanation of the Storer patent and a construction of its claims. *See* Storer, 960 F.Supp. at 501-14. Only a small portion of that discussion is relevant in the present context, and so only a brief review is necessary.

The Storer patent describes a "dynamic" dictionary method of data-compression that utilizes, *inter alia*, a novel update heuristic and a novel deletion method. In simplified terms, a modem utilizes this "dynamic" dictionary method in the process of compressing and decompressing data. Each dictionary entry consists of a string of data and a corresponding shorthand code, called a pointer. The dictionary allows the sending and receiving modems to recognize entire "strings" of data, rather than individual characters, and thus accelerates the exchange of information. This process is referred to as compression.

The dictionary is described as "dynamic" because each modem continuously alters, or "updates" its dictionary using a common algorithm, or "update heuristic". Claims 1-17, 19-53, and 55 all recite or pertain to a novel update heuristic known as the AP (All Prefixes) heuristic. Zoom's accused devices operate according to the international standard known as V.42 bis. For the purposes of ruling on summary judgment, the parties and this Court assume that V.42 bis uses an update algorithm known as a FC (First Character) heuristic. A separate algorithm, known as a "deletion method", is used to purge the dictionary of seldom used strings to make room for new entries. Only Claims 18 and 54 recite or pertain to the novel deletion method.

With regard to all claims except Claim 18 and its dependent Claim 54, this Court concluded in its earlier Memorandum & Order that there were no genuine issues of material fact, and granted summary judgment of non-infringement. *See* Storer, 960 F.Supp. at 511. With regard to Claims 18 and 54, this Court denied summary judgment on the grounds that: 1) there were genuine issues of material fact as to the defendants' infringement of the novel deletion method under the doctrine of equivalents; and 2) Claim 18's update heuristic limitation, which is broader than the limitations in the other independent Claims, also presented genuine issues of material fact as to the defendant's alleged infringement of that element of the Claim. *See* Storer, 960 F.Supp. at 514. Zoom bases the present motion for summary judgment solely on its arguments concerning the update heuristic limitation in Claim 18, and does not ask this Court to revisit its holding with respect to the deletion method.

Four of the five independent Claims in the Storer patent (the four as to which summary judgment of non-infringement has already been granted) recite an "update means" for adding N new entries to the dictionary by concatenating the last current match with all of the non-empty prefixes of the current match. FN2 The specification refers to this novel update means as the AP (All Prefixes) heuristic. The fifth independent Claim, Claim 18, speaks more broadly of "update means" for 1) "updating said dictionary means" and 2) "concatenating the last matched string with the currently matched string." FN3

FN2. Independent Claims 1, 19, 35, and 55 of the Storer patent use nearly identical language to describe the update heuristic. Claim 1 is representative:

First update means for adding N new strings of data characters to said first dictionary means for each current match, wherein N equals the number of characters in said current match, said N new strings comprising the last current match concatenated with each non-empty prefix of said current match.

FN3. Claim 18 recites, in relevant part:

Update means for updating said dictionary means in said encoder module and said decoder module so that said plurality of strings stored therein contain strings of characters frequently present in said stream of characters, and for concatenating the last matched string with the currently matched string.

The plaintiffs contend that this element of Claim 18 is sufficiently broad to create a genuine issue of material fact as to infringement, despite this Court's determination that Zoom does not infringe, either literally or under the doctrine of equivalents, on the novel AP heuristic. Zoom argues that, under the law governing means-plus-function claims, this Court construed Claim 18's update heuristic limitation too broadly, and that a proper construction would preclude a finding of infringement.

## II. RELEVANT LEGAL STANDARDS

[1] [2] The construction of patent claims is matter of law for the court to determine. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed.Cir.1995) (en banc), *aff'd* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). When a claim merely recites a "means" for performing some function, without also reciting a definite structure in support of that function, the claim is subject to the requirements of 35 U.S.C. s. 112, para. 6. FN4 *See Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 532 (Fed.Cir.1996). Such a claim must not be construed to cover every conceivable means for performing the recited function, but rather must be "limited to only those means that are 'equivalent' to the actual means shown in the patent specification." *Warner-Jenkinson Co. v. Hilton Davis Chem.*, ---U.S. ----, ----, 117 S.Ct. 1040, 1048, 137 L.Ed.2d 146 (1997).

FN4. An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

[3] Literal infringement on a means-plus-function claim is determined in the customary way, except that "an accused device must (1) perform the identical function recited in the means limitation and (2) perform that function using the identical structure disclosed in the specification or an equivalent structure." *Carroll Touch, Inc. v. Electro Mechanical Sys., Inc.*, 15 F.3d 1573, 1578 (Fed.Cir.1993).

[4] The Federal Circuit's recent opinion in *B. Braun Medical* has made it plain that "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." 124 F.3d at 1424. In other words, an applicant using "means-plus-function" language in a patent claim must still adequately disclose what is meant by that language and "particularly point out and distinctly claim" the invention. 35 U.S.C. s. 112, para. 2. *See In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed.Cir.1994) (en banc).

The question before this Court is whether the specification of the Storer patent discloses some structure upon which Zoom may infringe; and whether intrinsic evidence within the patent clearly links or associates that structure with the function recited in Claim 18.

## III. ANALYSIS

Claim 18 of the Storer patent contains the following language relevant to the disputed element:

Update means for updating said dictionary means in said encoder module and said decoder module so that said plurality of strings stored therein contain strings of characters frequently present in said stream of characters, and for concatenating the last matched string with the currently matched string.

The Court must attempt to locate structure in the specification that updates the dictionary so that it contains frequently used strings and also concatenates the last match with the current match.

There is no question but that the specification discloses such a structure. The specification discloses a number of practical update techniques that were well known in the prior art at the time the Storer patent was awarded. Among these techniques is one contained in a 1985 Storer article entitled "Textual Substitution Techniques for Data Compression." The specification further discloses:

In this known Storer technique, an encoder and decoder are provided, each having a fixed, finite amount of memory. This memory, also referred to as a "dictionary", is adapted to contain a finite number of entries. Each entry has a unique pointer associated therewith. The dictionaries at the encoder and decoder may be initialized at the beginning of time to contain identical information. The encoder then repeats forever the following steps:

- (1) find the longest string of characters in the input stream that matches an entry in the encoder dictionary;
- (2) transmit the pointer associated with the entry with which the match is made; and
- (3) update the dictionary;
  - (a) if the dictionary is full then delete one of its entries;
  - (b) add the current match.

Similarly, the decoder repeats forever the following steps:

- (1) receive the pointer transmitted by the encoder and look up in the decoder dictionary the entry associated with the pointer;
- (2) output the entry associated with the pointer; and
- (3) update the dictionary
  - (a) if the dictionary is full then delete one of its entries;
  - (b) add the current match.

The cited passage from the specification particularly identifies a means of performing the functions recited in the update means element of Claim 18. The encoder and decoder both explicitly "update the dictionary"; both also "add the current match." Thus both the updating and concatenating functions are supported.

[5] The only question remaining is whether the "specification or prosecution history clearly links or associates" the 1985 Storer structure with the functions recited in Claim 18. *B. Braun Medical*, 124 F.3d at 1424. If so, a genuine issue of literal infringement unquestionably arises. Indeed, this Court has already noted that both parties use the description in the passage when explaining the FC heuristic, and that the structure described by the 1985 Storer article enables the FC heuristic. *See Storer*, 960 F.Supp. at 507. Because this evidence would support a finding of infringement, if Claim 18 includes the 1985 Storer structure, Zoom cannot prevail on its summary judgment motion.

Zoom insists that there is no linkage or association because the structure in question appears only in a discussion of prior art and not in the detailed description of the invention itself. Indeed, the specification

explicitly distinguishes the novel AP heuristic from earlier prior art references. Zoom argues, citing *Sofamor Danek Group, Inc. v. DePuy-Motech, Inc.*, 74 F.3d 1216 (Fed.Cir.1996), that if the specification discloses a structure and points out advantages of that structure over the prior art, then the prior art cannot correspond to a means-plus-function claim element.

Zoom's arguments misapprehend both the linkage requirement and the gravamen of Claim 18. Not only is it possible for a prior art reference in the specification to supply the missing structure in a means-plus-function claim, but Claim 18 recites an update means that is entirely distinct from the AP heuristic that the specification distinguishes from prior art.

[6] As a preliminary matter, it is well established that prior art references can serve as elements in a patent claim. *See, e.g.*, *Intel Corp. v. United States Int'l Trade Commission*, 946 F.2d 821, 842 (Fed.Cir.1991) ("Claims limitations may, and often do, read on the prior art, particularly in combination patents."); *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1575 (Fed.Cir.1987) ("Virtually all inventions are necessarily combinations of old elements."); *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1566 (Fed.Cir.1983) (same).

Moreover, *Sofamor* supplies no reason to suppose that the rule should be any different when construing means-plus-function claim elements. In that case, the means-plus-function element being construed was the novel element in a combination claim. The patent specification described the corresponding structure as an improvement over disclosed prior art. The court held that the disclosed prior art could not correspond to the means-plus-function element, not because the prior art structure was inadequately associated or linked to the claim element, but because the applicant had expressly disclaimed its novelty.

In contrast, the present dispute involves a non-novel claim element. The update means element of Claim 18, unlike the narrower update means elements in the other independent Claims, does not supply the novel element in the combination. Indeed, many of the other elements of Claim 18 incorporate prior art as well. The specification does plainly assert novelty in the deletion means. It is the combination that the patent claims and protects from infringement, not the individual elements.

Zoom argues that, even if the 1985 Storer structure could perform the functions recited in Claim 18's update means element, the specification so clearly and unambiguously identifies the AP heuristic with the claimed invention that a person of ordinary skill in the art would conclude it was the only structure claimed. This Court disagrees. The AP heuristic is unambiguously linked to Claims containing the "N new strings" limitation, because the specification describes the AP heuristic using the same language. However, because Claim 18 does not contain the "new strings" language, the link to Claim 18 is not so clear and unambiguous as Zoom insists.

[7] Indeed, a comparison of the update means elements in Claim 18 and the other independent Claims reveals completely different language. Different usages in different claims are presumed to have different meanings. *Tandon Corp. v. United States Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed.Cir.1987). The most natural interpretation of Claim 18's update means element is that it corresponds to a structure other than the AP heuristic. A person having ordinary skill in the art would have no trouble recognizing the 1985 Storer technique as one such corresponding structure.

The conclusion that the 1985 Storer structure is clearly associated or linked to the update means element of Claim 18 is fully consistent with the teaching of *B. Braun*. The court in that case concluded that a valve seat structure in a medical device was not linked clearly to the claim element in question because, in contrast to the explicit association between a traverse cross bar structure and the recited function, the valve seat was disclosed only in a diagram, which gave no definite indication that the valve seat was capable of performing the recited function. *See B. Braun*, 124 F.3d at 1424-25. The court properly rejected an attempt to assign the recited function to two different parts of the apparatus when the specification disclosed only one as

performing the function.

In this case, the 1985 Storer structure is thoroughly disclosed in the written specification, which plainly indicates that the structure performs the recited functions. A careful examination of the patent reveals that the 1985 Storer structure corresponds to the function recited in the update means element of Claim 18.

#### **IV. CONCLUSION**

This Court concludes that the structure disclosed in the patent specification in the form of the 1985 Storer technique is clearly associated or linked to the updating and concatenating functions recited in the update means element of Claim 18. The 1985 Storer technique therefore corresponds to the recited means of that element under 35 U.S.C. s. 122, para. 6. This Court also holds, based on this claim construction, that there is a genuine issue of material fact as to Zoom's infringement of Claim 18. Therefore, after careful re-evaluation of the arguments presented and the applicable legal standards, Zoom's motion for summary judgment of non-infringement as to Claim 18 and its dependent Claim 54 is DENIED.

SO ORDERED.

D.Mass., 1998.

Storer v. Hayes Microcomputer Products, Inc.

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