United States District Court,
W.D. New York.

XEROX CORP,
Plaintiff.
v.
3COM CORPORATION, U.S. Robotics Corporation, U.S. Robotics Access Corp., and Palm Computing, Inc,
Defendants.

No. 97-CV-6182T (F)

June 6, 2000.

DECISION and ORDER

MICHAEL A. TELESCA**, District Judge.**

INTRODUCTION

Plaintiff, Xerox Corp. ("Xerox"), alleges that the defendants willfully infringed and continue to infringe on Xerox's patent identified as U.S. Patent No. 5,596,656 ("the '56 patent"). The plaintiff moves for partial summary judgment arguing that the accused product infringes the patent as a matter of law. The defendants cross-move for summary judgment of non-infringement. Plaintiff also moves to amend the complaint which defendants do not oppose.

For the reasons set forth below, the plaintiff's motion for partial summary judgment is denied, the defendants' cross-motion for summary judgment is granted, all other pending motions are denied as moot, and the case is dismissed in its entirety.

BACKGROUND

Xerox is the owner of the '656 patent entitled "Unistrokes for Computerized Interpretation of Handwriting," which was issued on January 21, 1997. The invention involves a system of text-entry using single-stroke symbols for computerized recognition of handwritten text. David Goldberg, a Xerox employee in the Palo Alto Research Center ("PARC"), invented a system of single-stroke symbols for use in conjunction with a computer which utilizes a stylo for text input rather than a keyboard. In general, most pen-based computers use handprint recognition, which results in high error rates due to the inability of the computer to correctly interpret input of Roman alphabet characters primarily due to the similarity between letters and the user's handwriting sloppiness. The Goldberg invention results in less errors because the computer can easily interpret the specialized single-stroke symbols and does so immediately upon pen-lift.

Plaintiff commenced this action on April 28, 1997, claiming that the defendants willfully infringed and are infringing on the '656 patent by making, using and selling the invention. The accused product is the

"PalmPilot" line of hand-held computers, which are manufactured and sold by the defendants (hereinafter collectively "Palm"), and which allegedly use the Unistrokes technology in their "Graffiti" software. Defendants have asserted various affirmative defenses, including invalidity and unenforceability of the '656 patent, as well as non-infringement.

By Decision and Order dated September 29, 1998, this court denied the defendants' motion for summary judgment and granted the plaintiff's cross-motion for partial summary judgment, finding that the patent-in-suit is not invalid for prior public use. After this court's decision was rendered, defendants filed a request for re-examination of the patent in litigation by the Patent and Trademark Office ("PTO"). On January 14, 1999, the PTO granted 3Com's request for re-examination of Xerox's '656 patent. After an initial office action by the PTO which found all of the claims to be invalid, this court imposed a stay of proceedings in this litigation. The PTO subsequently concluded its re-examination, confirming all 16 claims of the patent-in-suit. This court then lifted the stay and the parties filed the instant motions for summary judgment relating to infringement, as well as five other motions for summary judgment relating to validity of the '656 patent. Xerox has also filed an unopposed motion to amend the complaint to add Palm, Inc. as a party defendant.

The issue currently before the court is whether or not the defendants' Palm Pilot, using the Graffiti software, infringes on the claims of the '656 Unistrokes patent as a matter of law.

DISCUSSION

Summary Judgment Standard

"Summary judgment is as appropriate in a patent case as it is in any other case." Desper Products, Inc. v. O Sound Labs, Inc., 157 F.3d 1325, 1332 (Fed.Cir.1998). Summary judgment is proper when "there is no genuine issue as to any material fact and ... the moving party is entitled to judgment as a matter of law." Fed.R.Civ.P. 56(c). To this end, courts must draw all reasonable inferences in favor of the non-movant. *See, generally,* Anderson v.. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986).

A. Literal Infringement

Literal infringement of a patent claim exists when every limitation recited in the claim is found in the accused device, i.e. when the properly construed claims "read on" the accused device exactly. Amhil Enterprises Ltd. v. Wawa, Inc., 81 F.3d 1554, 1562 (Fed.Cir.1996). The determination of whether an accused product literally infringes on a patent claim involves a familiar two-step inquiry. First, the court must construe the patent's claims to determine their scope and meaning. Desper Prods., Inc. v. Osound Labs., 157 F.3d 1325, 1332 (Fed.Cir.1998). Claim construction is a question of law for the court to decide. Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). Second, the court must compare the accused product to the properly construed claims to determine whether or not it infringes the claims literally or under the doctrine of equivalents. Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1575 (Fed Cir.1995). The determination of infringement is a question of fact. *Id.*

There can be no infringement as a matter of law if a single element or limitation of the claim is absent in the accused product. *Id*. Thus, summary judgment is appropriate when the court determines that no reasonable jury could find that every element and limitation recited in a properly construed claim either is or is not found in an accused product. *Id.;* Bai v. L & L Wings, Inc., 160 F.3d 1350, 1353 (Fed.Cir.1998). Where the relevant operation of the accused product is not disputed, the infringement inquiry generally collapses into the claim construction inquiry, which is a matter of law amenable to summary judgment.

Desper, 157 F.3d at 1332-33; K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1362 (Fed.Cir.1999).

1. Claim Construction

Construction of patent claims, including terms of art within the claim, is within the exclusive province of the court and must be decided as a matter of law. Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996). In determining the proper construction of a claim, the court has numerous sources that it may properly utilize for guidance, including the patent claims themselves, the patent specification, and the prosecution history of the patent. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed.Cir.1996).

The beginning point of any claim construction analysis is the words of the patent claims themselves. The court must look to the claims, both asserted and non-asserted, to define the scope of the patented invention. Vitronics, 90 F.3d 1576, 1582. Generally, words in a claim must be given their ordinary and customary meaning, unless the patentee has chosen to otherwise clearly define the terms in the patent specification or file history. K-2 Corp. v. Salomon S.A., 191 F.3d 1356 (Fed.Cir.1999).

Moreover, "it is always necessary to review the [patent] specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." *Id*. In fact, the specification "is always highly relevant to the claim construction analysis [and][u]sually, it is dispositive; it is the single best guide to the meaning of a disputed term." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996).

Finally, the court should also consider the prosecution history of the patent, if it has been put into evidence. The file history contains the record of all proceedings before the PTO and "is often of critical significance in determining the meaning of the claims." *Id*. The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution. Southwall Tech., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed.Cir.1995).

Where the intrinsic evidence does not resolve any ambiguity in a disputed claim term, the court may turn to extrinsic evidence to assist with claim construction. Vitronics, 90 F.3d at 1583. Extrinsic evidence includes expert testimony, affidavits of experts or attorneys, inventor testimony, dictionaries, and technical treatises or articles. Id. at 1584. However, extrinsic evidence may only be used to help the court come to the proper understanding of the claims; it may never be used to vary or contradict the claim language, nor the import of other parts of the specification. *Id*.

In this case, the parties do not point to any specific words in the '656 patent's claims which the parties believe are ambiguous. Rather, the parties simply urge different interpretations of the general limitations found in the patent. Palm argues that the prosecution history (both originally and upon re-examination) shows that, in order to obtain its patent, Xerox agreed to substantial limitations on the '656 patent claims to distinguish Unistrokes from the crowded field of prior art in computerized handwriting interpretation. Palm asserts that the four independent claims of the patent-in-suit, 1, 10, 12, and 16, all include the same four limitations, even though worded slightly differently in each claim: (1) entirely single stroke symbols; (2) graphical separation of symbols; (3) definitive recognition of symbols; and (4) spatial independence.

Xerox argues that Palm reads the patent too narrowly and that only two fundamental elements are required for infringement: (1) unistroke symbols, and (2) symbol independent delimiting. Xerox points out that, upon

reexamination of the '656 patent, Xerox and the PTO claims examiner agreed that (1) only claims 10 and 11 require an entire alphabet of unistroke symbols, while claims 1-9 and 12-16 do not; (2) "unistroke symbols" are not necessarily exact replicas of the specific symbols shown in Figure 2 of the patent, or even the set of shapes shown in Figure 1; and (3) "unistroke symbols" refer to single stroke symbols which are sufficiently well separated from each other graphically so that definitive recognition can occur immediately upon pen-up (i.e. "symbol independent delimiting"). Xerox argues that Graffiti employs both of these unique elements of the Unistrokes technology (unistroke symbols and symbol independent delimiting) and, therefore, literally infringes on the ' 656 patent.

a. Definition of "Unistroke Symbols"

i. Symbols Comprised of Entirely Single "Unistrokes"

Palm argues that each and every alphabetical symbol must be created by a single, unbroken stroke in order to be a "unistrokes" alphabet. The Graffiti alphabet uses various symbols, including the "X" and several accented letters, which clearly require two separate strokes to form the symbol. Thus, Palm argues that Graffiti is not a "unistrokes" alphabet. Xerox argues that the Graffiti "X" is actually a "unistrokes" symbol which requires two separate strokes to form. They also argue that Graffiti does have an operation mode which includes a symbol for "X" that is formed with only one pen stroke. Finally, Xerox argues that only claims 10 and 11 require an entire alphabet of individual unistroke symbols, while claims 1-9 and 12-16 require that only some, not all, of the symbols be unistrokes.

During the re-examination proceedings before the PTO, the patent examiner noted in his May 24, 1999 Interview Summary that "[a]pplicant's representatives also clarified that the claimed invention does require all hand-written unistroke symbols to be a single stroke. Although multi-stroke symbols as entered, for example, using a "soft-key" arrangement are not excluded, the claimed unistroke recognition method/system pertains to symbols consisting of only a single stroke." (May 24, 1999 PTO Interview Summary, p. 3). The patent specification specifically defines the term "unistroke" as "a single, unbroken stroke". ('656 Patent, col. 2, line 46).

I find that the definition of "unistroke symbols" does not require an entire alphabet of single-stroke symbols. Rather, as Xerox argues, only claims 10 and 11 require an entire alphabet. However, as the PTO Examiner recognized, Xerox's claimed recognition method/system pertains only to symbols consisting of a single stroke-i.e. "unistroke" symbols.

ii. Graphical Separation

Palm argues that the '656 claims do not cover a symbol set where there is a substantial graphical overlap between any pair of the symbols-i.e. where two symbols share similar x, y graphical coordinates and, therefore, can be easily mis-interpreted by the computer due to handwriting sloppiness. Palm argues that Graffiti's Roman alphabetical-like symbols are not well "graphically separated" because some symbols (like "O" and "Q" or "R" and "B") are so similar. They share nearly identical x-y coordinates with only minor variations when graphed by the computer.

Xerox argues that graphical separation of symbols is not a limitation of the ' 656 patent's claims. This interpretation is inconsistent with the patent's specification and with the prosecution history. The specification of the patent clearly indicates that graphical separation of symbols is a defining characteristic of "unistroke symbols".

In the "Summary of the Invention," the patentee notes that "[t]o relax the graphical constraints on the precision of the handwriting that is required for accurate computerized interpretation of handwritten text, the text is written in accordance with this invention using symbols that are exceptionally well separated from each other graphically." ('656 Patent, col. 2, lines 35-39).

In the "Background of the Invention" section, the inventor recognizes that "the characters of ordinary Roman alphabets are not reliably distinguishable from each other in the face of rapid or otherwise sloppy writing.... Accordingly, it will be evident that the performance of the interpreted text entry system could be improved if all text was entered using characters that are well separated from each other in 'sloppiness space.' " ('656 Patent, col. 1, lines 54-64). He went on to explain that

[t]his sloppiness space notion can best be understood by recognizing that each alphanumeric symbol is defined by some number of features (say, d features). Thus, each symbol normally resides at a unique point in a d-dimensional space which is referred to herein as 'sloppiness space.' From this it follows that the amount of overlap, if any, that occurs in the positioning within this d-dimensional space of the normal variants of the symbols of a given alphabet determines how well separated those symbols are in sloppiness space. If there is little, if any overlap between the variants of different symbols, the symbols are 'well separated from each other in sloppiness space.'

('656 Patent, col. 1, line 65-col. 2, line 9). Finally, in the "Conclusion" portion of the specification, the patentee notes that "the unistroke symbols are readily discriminable from each other, even when imperfectly formed." ('656 Patent, col. 6, lines 57-58).

Furthermore, during the original prosecution of the '656 patent, Xerox distinguished the Whitaker prior art from Unistrokes on the basis of "graphical separation," arguing that the Whitaker symbols were not well separated graphically (pointing to the Whitaker symbols for "7" and "15"), noting that "there is substantial overlap between the graphical specifications for certain of. the symbols". (Xerox January 23, 1996 Information Disclosure Statement, p. 3, para. 2).

During the re-examination proceedings before the PTO, Xerox also clarified that one of the features of "Unistrokes" is that "unistroke symbols are single stroke symbols (representing alphanumeric characters or specified functions) that are sufficiently well separated from each other graphically so that definitive recognition can occur after each such symbol is written, e.g. immediately upon pen-up, without requiring the system to wait for possible additional strokes." (Patent Owner's Summary of May 24, 1999 Personal Interview with Examiners, p. 2).

Moreover, although not a part of the '656 patent prosecution history, it is interesting to note that PTO Examiner Larry Prikockis, the same PTO Patent Examiner who allowed the '656 patent to come out of re-examination, on the same day, reviewed Palm's application for a patent on Graffiti and specifically distinguished the '656 patent, stating that

[i]t is agreed that Goldberg [the '656 patent] teaches and claims a set of input symbols that are graphically well separated, and teaches away from a set of input symbols based substantially on the Roman alphabet which are not graphically well separated from each other.

(November 18, 1999 Graffiti PTO Examiner's Interview Summary).

Even in the context of this litigation, Xerox has acknowledged that some "graphical separation" is a defining element of "unistroke symbols". For instance, Thomas Webster, the Xerox patent attorney who prosecuted the '656 patent, testified during his deposition, that three or four elements went into defining a "unistroke symbol":

it's a symbol; secondly, that it's a unistroke; thirdly, that it's designed for entering text into a computer for handwriting recognition; and fourthly, **the different ones of these symbols differ sufficiently graphically from each other that they can be recognized as soon as the symbol is completed....**

(Deposition Transcript of Thomas Webster March 30, 1999 Deposition, p. 14) (emphasis supplied).

Thus, I find that the definition of "unistroke symbols" includes a "graphical separation" limitation such that symbols must be well separated from each other graphically so that unambiguous recognition of symbols can occur immediately upon completion of the symbol, even when imperfectly formed.

iii. Definitive Recognition of Unistroke Symbols

Palm argues that the definition of "unistroke symbols" requires that the computer recognize a symbol definitively and finally as soon as the user lifts his or her pen. Palm argues that Graffiti does not employ "definitive recognition" because Graffiti only *tentatively* recognizes certain symbols immediately upon pen lift, but must wait to see whether the user will add an additional stroke to change the meaning of the symbol before definitive recognition can occur. In other words, a Graffiti user can add a subsequent stroke to a Graffiti symbol and change the computer's interpretation of the symbol. For example, the Graffiti user can make a stroke for the symbol for "A", lift the stylo, then add a second stroke which changes the "A" symbol to an "M" symbol, and the computer will correctly *change* its recognition of the A to an M. Palm argues that, in Unistrokes, the computer recognizes and interprets a symbol immediately upon pen lift and the symbol cannot subsequently be changed or modified by the addition of another stroke.

Xerox argues that Palm's interpretation of "definitive recognition" as requiring final, unalterable recognition upon pen-lift is based upon faulty claim construction. Xerox argues that in the context of "unistroke symbols" being defined as "sufficiently well separated from each other graphically so that definitive recognition can occur after each such symbol is written, e.g. immediately upon pen-up," that the term "definitive recognition" requires only that each symbol can be "unambiguously differentiated" from the other input symbols in the system. Xerox points to the patent specification, which teaches that a unistroke symbol may be used for control functions (such as mode shifts) ('656 Patent, col. 3, lines 40-63). Thus, Xerox argues, the claim term "unistroke symbols" permits, but does not require, the system to reach a final, unalterable recognition after pen lift.

Xerox's proposed interpretation of "definitive recognition" is inconsistent with the interpretation it urged during the prosecution history. During the re-examination proceedings before the PTO, Xerox clarified that one of the features of "Unistrokes" is that "unistroke symbols are single stroke symbols (representing alphanumeric characters or specified functions) that are sufficiently well separated from each other graphically **so that definitive recognition can occur after each such symbol is written, e.g. immediately upon pen-up, without requiring the system to wait for possible additional strokes.**" (Patent Owner's Summary of May 24, 1999 Personal Interview with Examiners, p. 2) (emphasis supplied).

In fact, Xerox distinguished the prior-art Sklarew patent on a similar basis during re-examination of the '656 patent. Xerox distinguished the Sklarew system on the basis that it was designed to accommodate multi-stroke symbols as well as single stroke symbols and, therefore, did not implement the '656's claimed combination of unistroke symbols and symbol independent delimiting. The Sklarew method of computerized handwriting recognition requires the computer to wait approximately .5 seconds after a stroke has been entered to recognize the stroke as a character in order to allow the user sufficient time to add an additional stroke to complete the symbol if necessary. The PTO agreed with Xerox, finding that "[w]hile the prior art such as the Sklarew patent (U.S. 4,972,496) distinguishes *strokes* by a symbol independent delimiter (pen up/pen down transition), the prior art is typically designed to accommodate multi-stroke characters as well, so this operation does not equate to a *symbol* delimiter." (PTO Notice of Intent to Issue Reexamination Certificate, p. 2-3).

Moreover, while not a part of the '656 prosecution history, it is again interesting to note the comments of PTO Examiner Larry Prikockis (who conducted the '656 re-examination) with regard to distinguishing the '656 prior art during a PTO review of Graffiti:

Goldberg (the '656 patent) teaches and claims a system that always reaches a final recognition upon pen-up after each stroke (i.e. every symbol is finally recognized upon pen-up and none can be modified by subsequent strokes), as opposed to [the] claimed invention [Graffiti], Sklarew, and other prior art of record where some strokes initially recognized as one character may be modified by subsequent (i.e."post-character") strokes.... Examiner and applicant's representatives also agreed that Goldberg teaches away from a system or process of interpretation of handwritten text that is capable of changing the result of a recognition based on a previous stroke to a different recognized character based on a subsequent stroke (as distinguished from simple editing).

(November 18, 1999 Graffiti PTO Examiner's Interview Summary).

I find that the definition of "unistroke symbols" requires definitive recognition of a symbol immediately upon delimitation-e.g. immediately upon pen lift. I further find that "definitive recognition" does not simply refer to "unambiguous differentiation," but rather requires that the computer be capable of making a final, unalterable interpretation (recognition) of the symbol immediately upon delimitation (e.g. pen lift) without requiring the system to wait for possible additional strokes.

b. "Heads Up"/"Eyes Free" Writing; "Symbol Independent Delimiting" with "Spatial Independence of Symbols"

Palm argues that Unistrokes' "spatial independence" limitation requires that symbols be recognized no matter where they are written on the writing surface or in relation to each other, enabling "heads up" writing. Palm asserts that Graffiti is not "heads up" because the exact same symbol will be interpreted differently depending on where it is written on the writing surface. Symbols must be written on the left side of the writing surface to be recognized as letters. The exact same symbols written on the right side of the writing surface will be recognized as numbers. Defendants have obtained a patent on this split-screen technology.

Xerox argues that this spatial independence feature of Unistrokes is not a separate limitation on any of the patent's claims, but rather is part of the claimed delimiting operation, such that all that is required by the '656 patent is that the delimiting operation must *distinguish* unistroke symbols from each other "totally

independent of and without reference to their spatial relationship with respect to each other". Thus, Xerox argues that the defendants' addition of separate writing areas "has nothing to do with" pen-up delimiting. However, Xerox's proffered interpretation is broader than the patent language and the prosecution history will allow.

The language of all four of the independent claims of the '656 patent requires that the unistroke symbols be distinguished "from each other totally independent[ly] of [and] without reference to the spatial relationship with respect to one another." ('656 Patent, Col. 7, lines 18-21; *see also* Col. 8, lines 45-48; Col. 9, lines 3-6; and Col. 10, lines 17-20).

The prosecution history provides some meaningful guidance as to the intended meaning of this "spatial independence" requirement. Upon re-examination of the '656 patent, the PTO patent examiner noted that one of the "crucial features" of the invention is that "**Unistroke recognition is spatially independent;** i.e. the **symbols can be written in any location,** even on top of each other, and still be properly distinguished." (May 24, 1999 Examiner's Interview Summary, p. 2)(emphasis supplied). Xerox's summary of the May 24, 1999 PTO interview clarified that the "features" of the "Unistrokes" invention include "... delimiting of unistroke symbols is spatially independent, i.e., a unistroke symbol can be written without reference to where a previous unistroke symbol was written (in a preferred embodiment, symbols can be written on top of one another), and still be properly **distinguished and recognized;**" (Xerox's May 24, 1999 Interview Summary, p. 2) (emphasis supplied).

The '656 patent specification also provides some guidance as to the meaning of "spatial independence". In the "Field of the Invention" section, the patentee notes that "[t]his invention ... [is] especially well-suited for "eyes-free" (e.g. "heads up") applications and for other applications where it is inconvenient or impractical to spatially distinguish between successive, manually entered alphanumeric characters." ('656 Patent, Col. 1, lines 8-14). The "Detailed Description of the Preferred Embodiments" also notes that "unistroke symbols may be written one on top of another because they are interpreted in the order in which they are written and they are unambiguously differentiated from each other by being different strokes." ('656 Patent, Col. 6, lines 16-20).

Furthermore, in order to distinguish the prior art during the original patent prosecution, Xerox argued that Unistrokes, was different from the prior-art Whitaker system because some of the Whitaker symbols differ only in their positioning within the so-called "character space," pointing specifically to the Whitaker symbols for "2" and "8". (Xerox January 23, 1996 Information Disclosure Statement, p. 3, para. 2). In Whitaker, the symbol for "2" and "8" is the same, but must be written in different areas of the "character space" in order to be recognized correctly. The symbol must be written in the northeast quadrant to be recognized as a "2", or written in the southwest quadrant to be recognized as an "8". Xerox argued that "symbols appear to be delimited by Whitaker based on their spatial relationship to each other, rather than by a user controlled predetermined, *symbol independent,* delimiting operation. (Xerox January 23, 1996 Information Disclosure Statement, p. 3, para. 2)(emphasis in original). Xerox's arguments to the PTO in 1996 in order to obtain its patent are inconsistent with the interpretation Xerox now urges.

I find that "spatial independence" is a limitation on all four of the '656 patent's independent claims. I further find that "spatial independence" requires the invention to be capable of properly distinguishing and recognizing symbols without reference to where a previous symbol was written on the writing surface.

2. Do the '656 Claims Read on the Accused Product?

Applying the properly-construed patent claims to the accused device, I find that PalmPilot's Graffiti program does not infringe literally on the '656 claims.

First, the Graffiti symbols are not sufficiently 'graphically separated' from each other to be "unistroke symbols"-a requirement of all four of the patent-in-suit's independent claims. At least two sets of Graffiti symbols, the symbols for "O" and "Q" and the symbols for "B" and "R", are extremely similar graphically. These Graffiti symbols are certainly less graphically separated than the Whitaker symbols for "7" and "15" which Xerox distinguished during patent prosecution in order to overcome the prior art. Graffiti's symbols, therefore, do not fall within the definition of "unistroke symbols" because they are not sufficiently well separated from each other graphically to allow unambiguous recognition immediately upon completion of the symbol, even when imperfectly formed.

Secondly, Graffiti does not allow for "definitive recognition" of symbols immediately upon pen lift by the user. Graffiti only *tentatively* recognizes certain strokes upon pen lift. The Graffiti user can then add another stroke to change the symbol, similar to the prior art Sklarew method, which was distinguished by Xerox during the re-examination proceedings. Thus, the Graffiti system requires the computer to wait for possible additional strokes in order to finally and correctly recognize certain symbols, such as the symbols for accented letters or the symbols for the letters a, e, i, o, and u.

Finally, Graffiti does not employ "spatial independence"-a requirement of all four of the patent's independent claims-since the same Graffiti symbol will be recognized differently by the computer based upon its spatial placement on the writing surface. For example, a user cannot write the Graffiti symbols for "Y2K" without respect to their spatial placement and still have the computer correctly interpret the symbols. The user must write the symbol for "Y" on the left side of the writing surface, the symbol for "2" on the right side of the writing surface, and the symbol for "K" on the left side of the writing surface in order to generate the correct recognition of the symbols. This spatial separation requirement does not allow for "spatial independence", since the symbols cannot be written without regard to their spatial relationship to one another (e.g. they cannot be written on top of each other, nor right next to each other-they must be separated in spatial relationship to one another to be correctly recognized by the computer).

Accordingly, I find that Graffiti does not literally infringe on any of the ' 656 patent's claims.

B. Infringement Under the Doctrine of Equivalents

Once the court has determined that the accused device does not literally infringe on the patent-in-suit's claims, the next step in the inquiry is determining whether the accused product infringes under the doctrine of equivalents. *See* Amhil Enterprises Ltd. v. Wawa, Inc., 81 F.3d 1554, 1563 (Fed.Cir.1996) ["After deciding that there was no literal infringement of the ' 244 patent, the district court correctly went on to decide whether there was infringement under the doctrine of equivalents."] Under this doctrine, a product or process that does not literally infringe upon the express terms of a patent may nonetheless be found to infringe if there is "equivalence" between the elements of the accused product and the claimed elements of the patented invention. Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co., 520 U.S. 17, 21 (1997). Equivalence may be found where the differences between the accused device and the claimed invention are "insubstantial". Desper Prods., Inc. v. OSound Labs, Inc., 157 F.3d 1325 (Fed.Cir.1998).

However, a valid defense to the doctrine of equivalents is "prosecution history estoppel", which provides that a patentee may not use the doctrine of equivalents to recover subject matter that was surrendered during

the patent prosecution in order to obtain the patent. K-2 Corp. v. Salomon S.A., 191 F.3d 1356 (Fed.Cir.1999); Loral Fairchild Corp. v. Sony Corp., 181 F.3d 1313, 1322 (Fed.Cir.1999) ["The touchstone of prosecution history estoppel is that a patentee is unable to reclaim through the doctrine of equivalents what was surrendered or disclaimed in order to obtain the patent."] The Supreme Court has confirmed that prosecution estoppel continues to be a valid defense to infringement under the doctrine of equivalents. Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co., 520 U.S. 17, 40 (1997)["Prosecution history estoppel continues to be available as a defense to infringement ..."].

Prosecution history estoppel applies not only to matter surrendered as a result of amendments to overcome patentability rejections, but also to arguments made by a patentee to secure allowance of a claim. *See* Wang Labs., Inc. v. Mitsubishi Elec. Inc., 103 F.3d 1571, 1578 (Fed.Cir.1997). The scope and application of prosecution history estoppel is a legal question to be determined by the court. Loral Fairchild Corp. v. Sony Corp., 181 F.3d 1313, 1323 (Fed.Cir.1999); Desper Prods., Inc. v.. OSOUND Labs. Inc., 157 F.3d 1325, 1338 (Fed.Cir.1998).

As discussed fully *supra,* during prosecution of the '656 patent (originally and upon re-examination), Xerox distinguished certain prior art in order to obtain its patent. Xerox distinguished the Whitaker prior art on the basis of, *inter alia,* lack of graphical separation of the symbols. As noted above, several sets of the Graffiti symbols are at least as poorly graphically separated as the Whitaker symbols which Xerox distinguished. Furthermore, Xerox distinguished the Sklarew prior art on the basis of stroke grouping and the fact that Sklarew allowed for multiple-stroke symbols as well as single-stroke symbols. Likewise, Graffiti allows for multiple-stroke symbols as well as single-stroke symbols. Graffiti is capable of changing the recognition of a previously-written symbol by the addition of a subsequent stroke. This is precisely the subject-matter which Xerox surrendered during prosecution history by arguing that the unique combination of single-stroke symbols and symbol independent delimiting distinguished Unistrokes from Sklarew. Finally, Xerox distinguished the Whitaker prior art on the basis of lack of "spatial independence" of symbols. Again, as discussed above, the accused device does not allow for "spatial independence" of symbols. Like Whitaker, the Graffiti symbols will be interpreted differently by the computer based upon where they are written on the writing surface (and, thus, in relation to the placement of other symbols). In Graffiti, symbols are not properly recognized unless written in the correct area of the writing surface (letters on the left, numbers on the right).

Accordingly, I find as a matter of law that prosecution history estoppel precludes Xerox from asserting infringement under the doctrine of equivalents. In order to secure allowance of the '656 patent claims, Xerox surrendered subject-matter which it cannot now recapture. The accused product does not infringe literally or under the doctrine of equivalents. Defendants' cross-motion for summary judgment of non-infringement is granted.

CONCLUSION

For the aforestated reasons, plaintiff's motion for partial summary judgment is denied, defendants' cross-motion for summary judgment of non-infringement is granted, all other pending motions are denied as moot, and the case is dismissed in its entirety.

ALL OF THE ABOVE IS SO ORDERED.

W.D.N.Y.,2000.

Xerox Corp. v. 3Com Corp.

Produced by Sans Paper, LLC.