United States District Court,
N.D. California.

DIGITAL BIOMETRICS, INC,
Plaintiff.
v.
IDENTIX, INC. and Randall C. Fowler,
Defendants.

No. C 95-01808 CW

Dec. 16, 1996.

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ORDER GRANTING INDENTIX'S MOTION FOR PARTIAL SUMMARY JUDGMENT AND DENYING DBI'S MOTION FOR PARTIAL SUMMARY JUDGMENT

WILKEN**, District Judge.**

Plaintiff Digital Biometrics, Inc. ("DBI") is the owner of U.S. Patent No. 4,933,976 (" '976 patent") which describes a system for generating rolled fingerprint images using optical equipment and a microprocessor-based computing system. By this action, DBI seeks damages and injunctive relief for alleged infringement of the '976 patent by two products of Defendant Identix, Inc. ("Identix"), the TP-900 and TP-600 devices. The Court previously heard summary judgment motions with respect to claim construction and infringement by the TP-600 device, and issued an Order dated August 22, 1996 finding that the TP-600 device does not infringe the patent. Presently before the Court are DBI's and Identix's cross-motions for partial summary judgment regarding infringement by the TP-900 device. These motions were heard on December 6, 1996. Having considered all of the papers filed by the parties and oral argument on the motion, the Court GRANTS Identix's motion and DENIES DBI's motion.

BACKGROUND

A. The '976 Patent

The '976 patent describes a system for generating rolled fingerprint images without applying ink to fingertips by using optical equipment and a microprocessor-based computing system. The instant motions

relate to claims 1 and 16 of the patent. Claim 1 provides as follows:

1. A method for generating data characteristic of a rolled fingerprint image, including:

[a] providing an optical device having a finger receiving surface;

[b] rolling a finger across the finger receiving surface of the optical device and propagating fingerprint images of finger portions in contact with the surface from the device;

[c] imaging the finger receiving surface of the optical device and generating digital data representative of fingerprint images propagated therefrom;

[d] storing arrays of digital data characteristic of adjacent and overlapping fingerprint images of portions of the finger as the finger is rolled across the finger receiving surface of the optical device; and

[e] generating a composite array of digital data characteristic of a rolled fingerprint image as a mathematical function of overlapping image data from a plurality of arrays and characteristic of the overlapping portions of the fingerprint images.

Patent 9 :43-62. FN1 Claim 16 provides:

FN1. A copy of the '976 patent is attached to Exhibit A of the Declaration of Philip P. Casper. In citations of the form "Patent A:B," "A" refers of a patent column, and "B" refers to a line in that column.

16. A method for generating data characteristic of a rolled fingerprint image, including:
[a] generating arrays of slice data characteristic of adjacent and overlapping two-dimensional slices of the fingerprint image; and

[b] generating a composite array of data characteristic of the rolled fingerprint image as a mathematical function of overlapping slice data from a plurality of overlapping slices.

Patent 11 :47-55.
The instant motions focus on the storing and generating steps of claim 1 (elements [d] and [e]) and the two steps of claim 16 (elements [a] and [b]). In its August 22, 1996 Order, the Court considered the claim construction of these elements, and held the following:

Under the Court's construction, for an accused device to infringe the '976 patent under claims 1 or 16, that device must create in memory several two-dimensional arrays representative of portions of the finger in contact with the platen at particular points in time. These arrays must contain digital data and some of the data must be redundant in that it must consist of a value for a location on the surface of the finger that is also represented in another matrix. From these separate arrays, a composite array must be generated that represents the rolled fingerprint image, an image that never appears on the platen in its entirety and thus is not contained in any of the image arrays.

Order, p. 14, lns. 2-13. The Court specifically held that the TP-600 device did not literally infringe the '976 patent. Id. at 17-20. The Court also held that there is no infringement under the doctrine of equivalents

because the TP-600 device does not generate intermediate arrays of data and use them to create a composite array.

B. The TP-900 Device

The TP-900 fingerprint capture device has a flat platen over which a finger is rolled. As the finger is rolled across the platen, the platen is imaged by four discrete capture subsystems, each of which operate in substantially the same manner as does the TP-600.

The operation of the TP-600 is discussed in detail in the August 22nd Order, and will not be repeated here. Id. at 14-17. The Court held that the TP-600 does not infringe on the '976 patent. Id. at 21.

As discussed in more detail below, the TP-900 operates essentially as four TP-600 devices working together. Each TP-600 generates a quadrant portion of the rolled fingerprint image, and then these four quadrant images are blended together to create the final, rolled fingerprint image.

Each of the four capture subsystems in the TP-900, each of which is substantially similar to the TP-600 device, captures an image slightly larger than a quadrant portion of the platen surface. As with the TP-600, each capture subsystem performs a "min" function on multiple frames taken by each charge coupled device ("CCD") to continually update a composite image for each camera.

For each CCD in the TP-900, the composite image, which contains data representative of a portion of a rolled fingerprint, is stored in memory. These images are adjacent and overlapping. To form the final composite of a fully rolled fingerprint image, the four stored image portions from the four capture subsystems are combined.

In its first commercial embodiment, the TP-900 bisected the overlapping regions, discarding the overlapping data, and butting the image portions together. In the second commercial embodiment, the TP-900 used a mathematical function to blend the images at their edges and smooth small discontinuities in ridge edges at the boundaries of the quadrants. The third commercial embodiment is substantially the same as the second, with the addition of a real-time preview feature that operates in a fashion similar to the first TP-900.

DISCUSSION

DBI contends that the TP-900 infringes claims 1 and 16 of the '976 patent because, among other things, (1) each of the capture subsystems creates an array that is representative of an adjacent and overlapping portion, or two-dimensional slice, of a fingerprint image, and (2) because these partial fingerprint images are then blended together. FN2 Identix contends that there is no infringement because the image array stored in each capture subsystem is a composite array representative of a rolled fingerprint image that never appears on the platen in its entirety, and therefore is not representative of portions of the finger in contact with the platen at any particular point in time.

FN2. DBI also argues that the Court misconstrued claim 16 in its August 22nd Order regarding the storage requirement. This argument is in effect a motion for reconsideration. However, DBI has moved for leave to file a motion for reconsideration, and after careful consideration, the Court denies this motion by separate order filed today.

The Court must construe the meaning of the term "fingerprint image" as opposed to the term "rolled fingerprint image." The Court must then apply this claim construction to determine whether the TP-900 infringes the claims.

A. Claim Construction

To interpret the claims of the '976 patent, the Court must consider three sources: the claims, the specification, and the prosecution history. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995) (citations omitted), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The Court may also consider extrinsic evidence to assist it in its construction of the patent. Id. at 981. Claims are not to be construed in light of the accused device. Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 1580 (Fed.Cir.1991); SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1120 (Fed.Cir.1985) (*en banc*). Regarding use of the specification in particular, the Federal Circuit recently observed:

Claims must be read in view of the specification, of which they are a part. The specification contains a written description of the invention that must enable one of ordinary skill in the art to make and use the invention. For claim construction purposes, the description may act as a sort of dictionary, which explains the invention and may define terms used in the claims.

Markman, 52 F.3d at 979 (citations omitted). Thus, where the specification defines terms in the claims, resort to those definitions in construing the claims does not impermissibly read limitations from the specification into the claims. *See* Southwall Technologies, Inc. v. Cardinal I.G. Co., 54 F.3d 1570, 1578 (Fed.Cir.), *cert. denied,* 516 U.S. 987, 116 S.Ct. 515, 133 L.Ed.2d 424 (1995). Claims, however, are not limited to the preferred embodiment described in the specification. The law "does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention." SRI Int'l, 775 F.2d at 1121.

In addition to reference to the specification and prosecution history, interpretation of a disputed claim term also requires reference to the other claims. Southwall Technologies, 54 F.3d at 1579. This fact mandates that the term be interpreted consistently in all claims. *Id.* Therefore, "arguments made during the prosecution history regarding the meaning of a claim term are relevant to the interpretation of the term in every claim of the patent absent a clear indication to the contrary." *Id.*

Ordinarily the language of one claim should not be interpreted so as to make another claim, such as a claim dependent on the first claim, identical in scope. However, "the doctrine of claim differentiation does not allow unrestrained expansion of claims beyond the description of the invention in the specification, and explanations and representations made to the PTO (Patent and Trademark Office) in order to obtain allowance of the claims ... Whether or not claims differ from each other, one can not interpret a claim to be broader than what is contained in the specification and claims as filed." Tandon Corp. v. United States ITC, 831 F.2d 1017, 1024, 1028 (Fed.Cir.1987).

Claim element 1(d) requires that the method store arrays of digital data characteristic of adjacent and overlapping fingerprint images of portions of the finger as the finger is rolled across the platen. Claim element 16(a) requires that the method generate arrays of slice data characteristic of adjacent and overlapping two-dimensional slices of the fingerprint image.

DBI contends that these elements merely require that the stored array contain data representative or

"characteristic" of fingerprint images. According to DBI, the claim does not state a requirement that the stored intermediate images be images that had been on the platen in their entirety.

Identix contends that an array characteristic of a "fingerprint image" is different from an array characteristic of a "rolled fingerprint image." According to Identix, arrays of fingerprint images must be limited to arrays representative of the finger portions in contact with the platen at a given time, to distinguish them from the composite array of a rolled fingerprint image, which is an image that never appears on the platen in its entirety. FN3

FN3. The parties also disagree on the definition of the term "slice data," and whether a general distinction DBI made in its amendment regarding active areas applies to every claim. Because the Court finds the construction of the terms arrays "characteristic of ... fingerprint image(s)" dispositive, the Court need not address the parties' other arguments.

The Court agrees with Identix that the arrays characteristic of a fingerprint image must be representative of the portion of the finger in contact with the platen at a given time. In its August 22nd Order, the Court held that the intermediate arrays of element 1(d) must be two-dimensional arrays representative of portions of the finger in contact with the platen at particular points in time. While the Court stated that these intermediate arrays are intended to represent only a portion of the complete rolled fingerprint image, it further clarified that the arrays are intended to represent "fingerprint images of portions of the finger" or "two-dimensional slices of the fingerprint image." August 22nd Order at 10, 13.

Additionally, the language of the claims distinguishes between arrays characteristic of a "fingerprint image" and arrays characteristic of a "rolled fingerprint image." In element 1(b), the described method propagates "fingerprint images of finger portions in contact with the [finger receiving] surface from the device." Element 1(c) describes generating "digital data representative of fingerprint images propagated" from the finger receiving surface, and element 1(d) describes storing arrays of digital data characteristic of these images. Finally, element 1(e) describes generating a composite array "characteristic of a rolled fingerprint image as a mathematical function of overlapping image data from a plurality of arrays." Thus, the claim differentiates between a "fingerprint image" and a "rolled fingerprint image," and provides that the array of digital data characteristic of a fingerprint image is an array characteristic of the finger portion in contact with the surface of the device.

Claim 16 similarly distinguishes between arrays characteristic of a fingerprint image and arrays characteristic of a rolled fingerprint image. Element 16(a) describes generating arrays of slice data characteristic of "two-dimensional slices of the fingerprint image," while element 16(b) describes generating a composite array "characteristic of the rolled fingerprint image ... from a plurality of overlapping slices." Again, the claim differentiates between a slice of a fingerprint image,'and a rolled fingerprint image made from those slices.

The specification also supports this construction of "fingerprint image." The specification discusses the fingerprint image as "the fingerprint image of the portion of the finger in contact with the surface." Patent 3 :38-39. It states that "fingerprint images from portions of a finger rolled across a finger prism are imaged" and "digitized." Patent 2 :62-64. "Arrays of digital data representative of the fingerprint images" are then processed to "produce a composite array of digital data characteristic of the rolled fingerprint image." Patent 2 :65-3:1.

Finally, the prosecution history supports the view that the array characteristic of the fingerprint image is limited to data characteristic of the portion of the finger in contact with the surface of the platen at a particular time. Claim 5 (then claim 8) requires the step of "storing a first array of data characteristic of a fingerprint image of a first finger portion." In its amendment, DBI states that data in this element is "derived directly from the image." Amendment p. 15. This suggests that the array only contains data from any one particular fingerprint image.

The findings in the August 22nd Order, the claim language, the specification, and the prosecution history support the conclusion that the array of data characteristic of a fingerprint image, such as that claimed in elements 1(d) and 16(a), must be characteristic of the portion of the finger in contact with the surface of the platen at a particular point in time. These arrays must be used to generate the composite array of the rolled fingerprint image. The rolled fingerprint image is different from the fingerprint image in that it is an image that never appears on the platen in its entirety and thus is not contained in any of the fingerprint image arrays.

B. Literal Infringement

The issue here is whether the stored arrays in each of the capture subsystems in the TP-900 are arrays "characteristic of ... fingerprint images of portions of the finger," as claimed in element 1(d), or characteristic of "two-dimensional slices of the fingerprint image," as claimed in element 16(a).

According to the claim construction reached above, the arrays claimed in elements 1(d) or 16(a) must be characteristic of that portion of the finger in contact with the surface of the platen at a particular point in time. These arrays must then be used to generate the final composite array that is characteristic of the rolled fingerprint image.

In the TP-900, each capture subsystem performs a "min" function on multiple frames taken by each CCD to update continually a composite image for each camera. Specifically, each capture subsystem "stores, in one memory array, digital data that represents the darker of every pixel that has been fed in from the CCD camera." Deposition of Daniel F. Masse, p. 63, lns. 21-24. The stored images are then blended to generate the final rolled fingerprint image.

It is critical that in the TP-900, the stored image that is used in the blending or final generating step is a composite image of what is seen by each camera over a period of time. While each capture subsystem does initially store an array characteristic of a fingerprint image as defined above, this image is continually updated with data from subsequent images in a manner held by the Court in the August 22nd Order not to infringe the '976 patent. The final stored image that is used in the blending process is a composite image of that portion of the rolled fingerprint image covered by each camera. It is not characteristic of a portion of the finger in contact with the platen at a particular time, but rather a composite of the portions of the finger in contact with the platen at various times. Because these arrays are representative of composite images that never appear at a particular point in time on the platen, there is no literal infringement.

C. Doctrine of Equivalents

DBI argues that a question of fact exists regarding whether the alleged analog arrays of data characteristic of adjacent and overlapping fingerprint images that are stored in each of the capture subsystems are equivalent to the stored digital arrays in claim 1(d) or the arrays in claim 16(a). Identix contends that the

Court has already decided this issue against DBI as a matter of law, and that DBI has failed to meet its burden to present evidence of infringement under the doctrine of equivalents.

The doctrine of prosecution history estoppel precludes a patent owner from obtaining under the doctrine of equivalents claim coverage that would resurrect subject matter surrendered during prosecution of the patent. Southwall Technologies, 54 F.3d at 1581; Hoganas AB v. Dresser Indus., Inc., 9 F.3d 948, 951-52 (Fed.Cir.1993). Estoppel can arise either from amending or distinguishing a claim to overcome a prior art reference. *Hoganas,* 9 F.3d 951-53. "Unmistakable assertions made by the applicant to the Patent and Trademark Office (PTO) in support of patentability ... may operate to preclude the patentee from asserting equivalency between a limitation of the claim and a substituted structure or process step." Texas Instruments, Inc. v. United States ITC, 988 F.2d 1165, 1174 (Fed.Cir.1993) (citations omitted). Furthermore, an argument made regarding a term in one claim may create an estoppel which applies to that term in other claims. Southwall Technologies, 54 F.3d at 1584.

In the August 22nd Order, the Court rejected DBI's arguments regarding infringement by the TP-600 device under the doctrine of equivalents, stating:

DBI overcame the rejection of its patent by emphasizing that its invention, unlike the Rull patent, requires the step of generating adjacent and overlapping arrays of data, and then generating a composite image as a mathematical function of the stored overlapping data. *See* Amendment at 15-17. Because the TP-600 does not generate intermediate arrays of data and use them to create a composite array, there can be no infringement under the doctrine of equivalents.

August 22nd Order p. 21. While the Court did not explicitly comment on the analog output of the CCD imager in its doctrine of equivalents analysis, it explicitly rejected this argument in its literal infringement analysis. Additionally, it did state that the TP-600 "does not generate intermediate arrays of data." Finally, if the Court were to accept DBI's argument that the analog signal emitted by the CCD imager is an equivalent of the intermediate arrays, the function of generating or storing arrays of data susceptible to mathematical manipulation and characteristic of adjacent and overlapping fingerprint images, a function used by DBI to distinguish its invention from the Rull patent, would be entirely removed from the patent. Such a result is precluded by prosecution history estoppel, and thus, there is no infringement under the doctrine of equivalents. *See* Hoganas, 9 F.3d at 951-53.

DBI also argues that a question of fact exists as to whether the storage of the four arrays of fingerprint data in the TP-900 is equivalent to the stored arrays in the claims. During the patent prosecution, DBI stated that the arrays of data characteristic of a fingerprint image of a first finger portion contain data "derived directly from the image." Amendment at 15.FN4 Because an argument made regarding a term in one claim may create an estoppel which applies to that term in other claims, *see Southwall Technologies,* 54 F.2d at 1584, the Court holds that this limitation applies to all intermediate arrays that are characteristic of a fingerprint image. Thus, an intermediate array that does not derive directly from the image cannot be found to infringe the patent under the doctrine of equivalents. Because the stored images from the TP-900 are not directly derived from the fingerprint image, but rather are the composite of several frames, there is no infringement under the doctrine of equivalents.

FN4. A copy of the Amendment is attached as Exhibit B of the Declaration of Philip P. Caspers.

Because the Court finds DBI's arguments for infringement under the doctrine of equivalents unpersuasive, the Court need not reach Identix's alternative argument against application of the doctrine of equivalents regarding active areas.

CONCLUSION

For the foregoing reasons, Identix's motion for partial summary judgment is GRANTED. DBI's motion is DENIED. Because this resolves the entire case, judgment shall enter for Identix. Identix shall recover its costs from DBI.

IT IS SO ORDERED.

JUDGMENT

This action came on for hearing before the Court, the Honorable Claudia Wilken, United States District Judge, presiding, and the issues having been duly heard and the Court having duly rendered its decision as set forth in its Order Granting Identix's Motion for Partial Summary Judgment and Denying DBI's Motion for Partial Summary Judgment,

IT IS HEREBY ORDERED AND ADJUDGED:

That Plaintiff Digital Biometrics, Inc., take nothing, that the action be dismissed on the merits, and that Defendant Identix recover of Plaintiff its costs of action.

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