United States Court of Appeals for the Federal Circuit

00-1353, -1380

DATASTRIP (IOM) LIMITED and
DATASTRIP INTERNATIONAL LIMITED,

Plaintiffs-Appellants,

v.

SYMBOL TECHNOLOGIES, INC.,

Defendant/Cross-Appellant,

and

THE TRACKER CORPORATION OF AMERICA,

Defendant.

DECIDED: July 2, 2001

Before MICHEL, SCHALL, and DYK, Circuit Judges.

SCHALL, Circuit Judge.

DECISION

Datastrip (IOM) Limited and Datastrip International Limited (collectively, "Datastrip") sued Symbol Technologies, Inc. ("Symbol") and the Tracker Corporation of America ("Tracker") in the United States District Court for the District of Delaware alleging literal infringement of United States Patent No. 4,782,221 (the " '221 patent"). The '221 patent claims a printed data strip that contains information encoded in bit areas. A jury trial was held on the issues of infringement and validity, at the end of which, the jury found the '221 patent not infringed and not invalid. Datastrip moved for a judgment as a matter of law ("JMOL"), arguing that Symbol literally infringed and induced infringement of claim 1 of the '221 patent. The district court denied Datastrip's motion. Datastrip (IOM) Ltd. v. Symbol Techs., Inc., No. 97-70-JJF (D. Del. Mar. 31, 2000). Datastrip appeals this denial. For its part, Symbol conditionally cross-appeals certain aspects of the district court's claim construction, arguing that under the correct claim construction it does not literally infringe as a matter of law. Since claim 1 requires the described data strip encode information in its bit areas through the use of presence/absence encoding and substantial evidence indicated that Symbol's code uses variable width encoding, we affirm.

DISCUSSION

I.

The '221 patent is directed toward a printed data strip that contains encoded information that can be decoded by an optical scanner. The claimed invention has "a series of contiguous and parallel 'data lines' which are preferably read in sequence and each of which is made up of a series of areas of predetermined size and uniform height and width, called 'bit areas'. The bit areas are either printed or blank and so, by the presence or absence of printing, provide bits of information." '221 patent, col. 1, ll. 37-43. The "principal portion" of the claimed data strip "consists of an information portion . . . made up of a series of parallel and contiguous data lines of . . . uniform length. Id. at col. 1, ll. 58-60. The presence of multiple data lines in parallel creates a two-dimensional code, with information encoded in bit areas along multiple lines. Each line contains the same number of bit areas, with the bit areas being contiguous and the same height and width. Id. at col. 1, ll. 60-63. Bit areas are preferably read sequentially along each data line and sequentially from data line to data line. Id. at col. 1, l. 66 - col. 2, l. 13. The patent also describes a horizontal synchronization section and vertical synchronization section preceding the information portion of the data strip. Id. at col. 2, ll. 23-25. These two sections help to align the data strip's optical scanner and provide the scanner with information on the height and width of the bit areas. Id. at col. 2, ll. 23-33.

The preferred embodiment describes a data strip that is printed on paper or another substrate. Id. at col. 2, ll. 58-65. The data strip of the preferred embodiment encodes information in "dibits" by using two adjacent bit areas. Id. at col. 3, ll. 55-56. Dibits encode information by the

presence or absence of printing in the two bit areas. Id. at col. 3, ll. 54-63. For example, a binary 0 is encoded by a printed bit area followed by a blank bit area and a binary 1 is encoded by a blank bit area followed by a printed bit area. Id. Symbol presented testimony at trial that dibit encoding employs the concept of presence/absence encoding because the specific location of a printed or blank bit area, with each bit area being the same size, encodes the data.

The claim at issue, claim 1, reads as follows:

> A data strip containing a plurality of encoded data bits for scanning by an optical scanner, said strip including
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> a paper-like substrate,
>
> a plurality of aligned, contiguous, parallel data lines, each said line being formed of contiguous bit areas, information being encoded [sic] in said bit areas by the presence or absence of printing thereon, and said bit areas being of uniform and predetermined height and width, the height thereof defining the width of said data line, said data lines running transversely of the longitudinal direction of said data strip, and
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> said plurality of data lines together defining an encoded data portion of said data strip, said data lines being an integrated whole, with said data lines being so interrelated that the totality of information carried within said data portion in said data strip is sequential from each said data line.

Id. at col. 7, ll. 18-36.

Datastrip alleged that a code designed by Symbol, known as the PDF417, literally infringed claim 1 of the '221 patent. The PDF417, like the invention of the '221 patent, contains multiple contiguous and parallel data lines. However, in the PDF417, in each data line, information is encoded in the same manner information is encoded in a bar code, by variable width encoding. A bar code encodes a piece of information by comparing the width of a pre-defined number of printed and blank areas over a pre-defined overall width. Bar codes, and the PDF417, are scalable because they can be enlarged or reduced in size without changing the encoded information because information is encoded by the relative width of the printed and blank areas, not the absolute size of these areas.

The district court first held a Markman hearing to construe disputed elements in claim 1 of the '221 patent. The court construed the term "encoding" to not require dibit encoding, but it did not determine whether claim 1 was limited to presence/absence encoding. The parties then tried the issues of infringement and validity to the jury; at the close of evidence, Datastrip moved for a JMOL on the issues of infringement, inducement of infringement, and invalidity. The district court reserved judgment on all JMOL motions and allowed the case to be submitted to the jury. The jury found that Symbol did not literally infringe, or induce infringement of, claim 1 of the '221 patent. It also found that claim 1 of the '221 patent was not anticipated and was supported by the '221 patent's written description. Datastrip renewed its request for a JMOL that claim 1 of the '221 patent was infringed by Symbol, and in the alternative, moved for a new trial.

The court denied Datastrip's motion, concluding that there was substantial evidence that the

PDF417 code does not have information "encoded in said bit areas by the presence or absence of printing thereon," as required by claim 1 of the '221 patent. Datastrip, slip op. at 8. The court cited, as substantial evidence, testimony that indicated that the PDF417 used variable width encoding instead of the claimed presence/absence encoding. Id. at 9-10. The court also declined to grant Datastrip's request for new trial, finding that the verdict was not against the clear weight of the evidence. Id. at 13-15.

II.

"We review a trial court's decision on a motion for judgment as a matter of law following a jury verdict by reapplying its own standard of review. Therefore, for [Datastrip] to prevail on appeal it must prove that the jury's factual findings were not supported by substantial evidence or that the facts were not sufficient to support the conclusions necessarily drawn by the jury on the way to its verdict." Tec Air, Inc. v. Denso Mfg. Mich. Inc., 192 F.3d 1353, 1357, 52 USPQ2d 1294, 1296 (Fed. Cir. 1999); see also Fed. R. Civ. P. 50(a)(1). To determine whether Datastrip met this standard, "we must consider the evidence of record in the light most favorable to [Symbol], drawing all reasonable inferences in its favor, without disturbing the jury's credibility determinations or substituting our resolutions of conflicting evidence for those of the jury." Tec Air, 192 F.3d at 1357-58, 52 USPQ2d at 1296. A finding of infringement involves a two step analysis. First, the claim must be construed to determine its meaning. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976, 34 USPQ2d 1321, 1326 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370, 38 USPQ2d 1461 (1996). Claim construction is a question of law that we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 USPQ2d 1169, 1174 (Fed. Cir. 1998) (en banc). The second step is to compare the construed claim to the device that allegedly infringes. Markman, 52 F.3d at 976, 34 USPQ2d at 1326. Literal infringement is a question of fact. Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1247, 54 USPQ2d 1711, 1714 (Fed. Cir. 2000). In order to prove literal infringement, Datastrip needed to establish, by a preponderance of the evidence, that Symbol's PDF417 contained each limitation of claim 1 of the '221 patent. See id., 54 USPQ2d at 1715.

With regard to the claim 1's limitation that the information be encoded "in said bit areas by the presence or absence of printing," Datastrip argues that this phrase, properly construed, only requires that the bit areas that are used to encode information be printed or not. Datastrip contends that claim 1 is not limited to matrix codes as Symbol contends, but also covers variable width codes because variable width codes, like bar codes and the PDF417, still encode information by "the presence or absence of printing" at the bit area (module) level, which is all that is required by claim 1 of the '221 patent. Datastrip also argues that someone skilled in the art at the time claim 1 was filed considered presence/absence encoding to simply mean printing was used to define a bit area, not that a matrix code was being used. Datastrip therefore concludes that any testimony indicating that the PDF417 does not use presence/absence encoding is premised on a faulty claim construction.

Symbol responds by arguing that claim 1 is directed to a specific type of encoding, presence/absence encoding, which is distinct from variable width encoding used by bar codes and the PDF417. Symbol notes that claim 1 specifically recites that information is "encoded by the presence or absence of printing," not by the variable width of the printing. Symbol also notes that the '221 patent expressly distinguishes the claimed invention from bar codes, which use variable width encoding. Symbol then argues that substantial evidence was presented to the jury that indicated there were fundamental differences between presence/absence encoding, which is used in matrix codes, and variable width encoding, which is used in bar

codes and the PDF417.

Claim 1 of the '221 patent requires that the "information be[] encoded in said bit areas by the presence or absence of printing." '221 patent, col. 7, ll. 24-25. Contrary to Datastrip's arguments, this phrase limits claim 1 to presence/absence encoding, such as matrix coding, as opposed to variable width encoding, such as bar coding. When construing a patent claim, we first look to the intrinsic evidence of record: the claim, the specification, and the prosecution history. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582-83, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996). Claim 1 requires that the information be "encoded in said bit areas by the presence or absence of printing." '221 patent, col. 7, ll. 24-25 (emphasis added). The claim language requires the information in the data strip be encoded by using the presence or absence of printing in the bit areas. The plain language of the claim requires the usage of presence/absence encoding.

The specification supports the claim's plain language. First, the specification's only discussion of variable width encoding is in the BACKGROUND OF THE INVENTION section, where it is discussing the prior art. The patent explains that "[p]rior printed systems include bar codes which are a series of parallel printed lines so spaced and dimensioned as to convey information when scanned . . . ." '221 patent, col. 1, ll. 17-20. The specification contrasts the bar code prior art with the claimed invention, indicating that the invention provides bits of information by the "presence or absence of printing." Id. at col. 1, ll. 24-46. Second, the encoding method used in the preferred embodiment, dibit encoding, is presence/absence encoding. As the patent explains, a dibit conveys information by the presence or absence of printing in two adjacent bit areas. Id. at col. 3, ll. 54-63. Like any other presence/absence encoding, such as a matrix coding, dibit encoding uses the location of printed and blank areas within the data strip to encode information, i.e., whether the printed or blank bit area is before or after another printed or blank bit area.

Datastrip correctly asserts that the phrase "presence or absence of printing" must be construed to mean what the phrase meant to someone skilled in the art at the time the '221 patent was filed. See Cybor, 138 F.3d at 1456, 46 USPQ2d at 1174. Based on the evidence of record, we conclude, as a matter of claim construction, that to those skilled in the art at the time of the patent's filing, the phrase "presence or absence of printing" did not include variable width encoding.

In light of the proper meaning of claim 1, which requires presence/absence encoding as opposed to variable width encoding, Symbol presented substantial evidence that the PDF417 did not infringe. Symbol presented evidence to the jury that presence/absence encoding was the opposite of the variable width encoding that was used in bar codes and the PDF417. Symbol's expert, Richard Braveman, testified that the PDF417 used variable width encoding and that variable width encoding is "totally different" than the concept of presence/absence encoding described in claim 1 of the '221 patent. Mr. Braveman stated that, while presence/absence encoding relies on the specific location of print or absence of print to encode data, variable width encoding relies on the relative widths of the print or absence of print to encode data. Based on a proper claim construction and the evidence presented at trial, a reasonable jury could conclude that the PDF417 did not meet one of the limitations of claim 1 of the '221 patent, and therefore did not infringe.

For the foregoing reasons, we uphold the jury's verdict of no literal infringement or infringement by inducement by Symbol of claim 1 of the '221 patent.

Each party shall bear its own costs.

FOOTNOTES:

[1] At the conclusion of the presentation of evidence, Tracker moved for a JMOL that Datastrip did not oppose. Judgment was therefore entered in favor of Tracker; Datastrip does not appeal that judgment.

[2] A code that uses presence/absence encoding can also be called a "matrix code." A matrix code is a two-dimensional code that uses the position of printed and blank areas within the matrix to encode information, with each printed or blank area being the same size. In a matrix code, the data is coded by the position of a printed or blank bit area.

[3] Since substantial evidence supports the jury's verdict of no literal infringement, substantial evidence must support the jury's verdict of no infringement by inducement, since a finding of direct infringement is a prerequisite to a finding of inducement, Carborundum Co. v. Molten Metal Equipment Innovations, Inc., 72 F.3d 872, 876 n.4, 37 USPQ2d 1169, 1171 n.4 (Fed. Cir. 1995).

In addition, since we conclude that substantial evidence supports the jury's verdict of no infringement, we do not need to address Symbol's conditional cross-appeal challenging certain aspects of the district court's construction of claim 1 of the '221 patent.