

United States Court of Appeals for the Federal Circuit

03-1465

SCANNER TECHNOLOGIES CORPORATION,

Plaintiff-Appellant,

v.

ICOS VISION SYSTEMS CORPORATION N.V.,

Defendant-Appellee.

Jon L. Roberts, Roberts, Abokhair & Mardula, LLC, of Reston, Virginia, argued for plaintiff-appellant. With him on the brief were John F. Mardula and Shauna M. Wertheim.

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Appealed from: United States District Court for the Southern District of New York

Judge Denny Chin

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ICOS VISION SYSTEMS CORPORATION, N.V.,

Defendant-Appellee.

DECIDED: April 23, 2004

Before MICHEL, CLEVINGER, and SCHALL, Circuit Judges.

MICHEL, Circuit Judge.

Scanner Technologies Corporation (“Scanner”) appeals from an order granting summary judgment of non-infringement to ICOS Vision Systems Corporation, N.V. (“ICOS”) based on a finding that ICOS’s accused products did not literally infringe the claims of United States Patent Nos. 6,064,756 (“the ’756 patent”) and 6,064,757 (“the ’757 patent”) as construed, and did not infringe the asserted claims under the doctrine of equivalents. Scanner Techs. Corp. v. ICOS Vision Sys. Corp., N.V., No. 00 Civ. 4992 (S.D.N.Y. May 29, 2003) (Order Granting Summary Judgment). Because we find that the district court erred in its construction of the terms “an illumination apparatus” in the ’756 patent and “illuminating” in the ’757 patent, we vacate the grant of summary judgment and remand for further proceedings consistent with this opinion.

BACKGROUND

On July 7, 2000, Plaintiff-Appellant Scanner filed suit against Defendant-Appellee ICOS for infringement of two patents, the '756 patent and the '757 patent. These patents relate to technology and processes to inspect electronic components, including ball array devices, ball grid arrays, chip scale packages, and bump on wafers (collectively "BGAs"), which are used to conduct electrical impulses in electrical devices. Scanner charged ICOS with infringement of the patents-in-suit by offering for sale, selling and servicing its CyberSTEREO device.

BGAs are used in computer chips that can be found in various electronic devices. The BGAs are comprised of an array of balls on a plane or substrate that conduct electrical impulses. It is important that the solder balls are positioned precisely at the same height. Even a minute difference in height could render the BGA, and thus the device, useless. The patents-in-suit relate to devices and methods to inspect BGAs precisely and efficiently. The Abstract of the '756 patent reads:

A three dimensional inspection apparatus for ball array devices, where the ball array device is positioned in a fixed optical system. An illumination apparatus is positioned for illuminating the ball array device. A first camera is disposed in a fixed focus position relative to the ball array device for taking a first image of the ball array device to obtain a characteristic circular doughnut shape image from a ball. A second camera is disposed in a fixed focus position relative to the ball array device for taking a second image of the ball array device to obtain a top surface image of the ball. A processor applies triangulation calculations on related measurements of the first image and the second image to calculate a three dimensional position of the ball with reference to a pre-calculated calibration plane.

'756 patent, Abstract.

On January 10, 2002, the trial court issued a memorandum decision construing several relevant claim terms. Scanner Techs. Corp. v. ICOS Vision Sys. Corp., N.V., No. 00 Civ. 4992 (S.D.N.Y. Jan. 10, 2002) (Memorandum Decision). The district court construed, among others, the claim terms "an illumination apparatus" in claim 1 of the '756 patent and "illuminating" in claim 1 of the '757 patent. See id.; see also Scanner Techs. Corp. v. ICOS Vision Sys. Corp., N.V., No. 00 Civ. 4992 (S.D.N.Y. Mar. 12, 2002) (Order Denying Motion for Reconsideration).

Claim 1 of the '756 patents reads:

1. A three dimensional inspection apparatus for ball array devices having a plurality of balls, wherein the ball array device is positioned in a fixed optical system, the apparatus comprising:

- a) an illumination apparatus positioned for illuminating the ball array device;
- b) a first camera disposed in a fixed focus position relative to the ball array device for taking a first image of the ball array device to obtain a characteristic circular doughnut shape image from at least one ball;
- c) a second camera disposed in a fixed focus position relative to the ball array device for taking a second image of the ball array device to obtain a side view image of the at least one ball; and
- d) a processor, coupled to receive the first image and the second image, that applies triangulation calculations on related measurements of the first image and the second image to calculate a three dimensional position of the at least one ball with reference to a pre-calculated calibration plane.

'756 patent, col. 18, ll. 34-53 (emphases and formatting added). Similarly, claim 1 of the '757 patent reads:

1. A three dimensional inspection process for ball array devices having a plurality of balls, wherein the ball array device is positioned in a fixed optical system, the process comprising the steps of:

- a) illuminating the ball array device;
- b) taking a first image of the ball array device with a first camera disposed in a fixed focus position relative to the ball array device to obtain a characteristic circular doughnut shape image from at least one ball;
- c) taking a second image of the ball array device with a second camera disposed in a fixed focus position relative to the ball array device to obtain a side view image of the at least one ball; and
- d) processing the first image and the second image using a triangulation method to calculate a three dimensional position of the at least one ball with reference to a pre-calculated calibration plane.

'757 patent, col. 18, ll. 34-49 (emphases and formatting added).

In its claim construction decision, the trial court construed “illumination source,” a phrase that does not appear in the patent, to be limited to “only one illumination source.” Memorandum Decision at 17. With regard to the '757 patent, the district court did not separately construe “illuminating,” instead

construing “illumination source” and “illuminating” together. *Id.* at 8, 17. Scanner sought reconsideration of the district court’s claim construction decision, noting that the ’756 patent does not claim an “illumination source,” but rather an “illumination apparatus.” Scanner also challenged the district court’s construction on the merits. In denying Scanner’s motion for reconsideration, the district court clarified that the distinction between “illumination apparatus” and “illumination source” was “not significant” for purposes of the decision, and that the claim language “apparatus” only “underscore[d] the correctness of the decision.” Order Denying Motion for Reconsideration at 1.

Prior to trial, the parties stipulated that, during the infringement period, ICOS sold inspection systems containing one or two illumination sources. [A291.] The parties executed a settlement agreement dismissing the single light source products from the case. The trial court entered an order of summary judgment of non-infringement for the two illumination source devices, based upon its claim construction decision. See Order Granting Summary Judgment. With regard to literal infringement, the trial court found that the ICOS products containing two illumination sources did not literally infringe the claims as construed. *Id.* Moreover, the trial court found that the ICOS products containing two illumination sources did not infringe the patents-in-suit under the doctrine of equivalents because “a product that uses one illumination source is significantly different than a device using two illumination sources.” *Id.* at 3.

Scanner timely appealed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

This opinion follows the court’s review of the record and consideration of the parties’ oral argument, heard on February 6, 2004.

I.

We review de novo a district court’s grant of summary judgment. Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309, 1315 (Fed. Cir. 1998). Summary judgment is appropriate if, drawing all factual inferences in favor of the non-movant, there is no genuine issue of material fact and the movant is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(c); Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986).

Analysis of infringement involves two steps. Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 988 (Fed. Cir. 1999). First, the trial court determines the scope and meaning of the asserted claims. Markman v. Westview Instruments, Inc., 517 U.S. 370, 372-74 (1996). The trial court's claim construction is an issue of law reviewed without deference. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). Second, the claims as construed by the court are compared to the allegedly infringing device. Johnson Worldwide, 175 F.3d at 988. We affirm a district court's grant of summary judgment of non-infringement only if, "after viewing the alleged facts in the light most favorable to the non-movant, there is no genuine issue whether the accused device is encompassed by the claims." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1304 (Fed. Cir. 1999).

On appeal, Scanner challenges the methodology employed by the district court in construing the terms "an illumination apparatus" and "illuminating," and its substantive constructions of those terms. Scanner further challenges the district court's entry of summary judgment of non-infringement as based upon erroneous claim constructions. We address these challenges below.

II.

We first address Scanner's argument that the district court only construed a term that does not appear in either the '756 or '757 patent, namely "illumination source." It is correct that the district court's claim construction order referred to an "illumination source," a term that does not appear in either patent's claims, and was thus imprecisely worded. Nevertheless, in its claim construction decision, the district court concluded that "[b]ecause the plain language sufficiently shows that the illumination apparatus is limited to one light source, the Court does not rely on extrinsic evidence in construing this term." Memorandum Decision at 10 (emphasis added). Moreover, in its order denying Scanner's motion for reconsideration, the district court acknowledged that "Scanner correctly points out that the memorandum decision refers to the term 'illumination source' when the reference should be to 'illumination apparatus' in the '756 patent and to the term 'illuminating' in the '757 patent," but went on to state that "[t]he distinction, however, is not significant for purposes of my decision." Order Denying

Motion for Reconsideration at 1. The district court also made clear that “[i]f anything, the fact that the actual reference is to ‘illumination apparatus’ underscores the correctness of the decision.” Id.

Though we agree with Scanner that it is improper for a district court to construe terms that do not appear in the patent claims, we do not agree that the trial court in the present case construed only the term “illumination source.” Rather, a careful review of the district court’s claim construction and reconsideration decisions shows that the court used inconsistent wording in referencing its claim construction. However, because the district court made clear that it did in fact construe the claims terms at issue, namely “an illumination apparatus” and “illuminating,” we find any error in the district court’s use of the phrase “illumination source” to be harmless.[1]

We also reject Scanner’s argument that the district court failed to take into account the fact that claim 1 of the ’756 patent is an apparatus claim, while claim 1 of the ’757 patent is a method claim. Indeed, the district court demonstrated that it appreciated the difference between the apparatus and method claims during oral argument, when it noted, “there certainly is a difference between the phrase ‘illumination apparatus’ and the word ‘illuminating.’” The fact that the district court construed both terms together in no way establishes that the district court failed to appreciate the distinction between the apparatus and method claims. Indeed, we find that the limitations “an illumination source” and “illuminating” may properly be construed together because they refer to corresponding portions of the apparatus and steps of the method. The concurrent treatment of these terms is particularly appropriate where the parties themselves referred to the terms “an illumination apparatus” and “illuminating” concomitantly.[2]

III.

The language of the claim defines the boundary of its scope. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1324 (Fed. Cir. 2002). Accordingly, “the claim construction inquiry . . . begins and ends in all cases with the actual words of the claim.” Id. (quoting Renishaw plc v. Marposs Societa’ per Azioni, 158 F.3d 1243, 1248 (Fed. Cir. 1998)). Claim terms must be construed as they would be understood by a person of ordinary skill in the art to which the invention pertains. Specialty Composites

v. Cabot Corp., 845 F.2d 981, 986 (Fed. Cir. 1988). “The words used in the claim[] are interpreted in light of the intrinsic evidence of record, including the written description, the drawings, and the prosecution history, if in evidence.” Teleflex, 299 F.3d at 1324.

“This court has repeatedly emphasized that an indefinite article ‘a’ or ‘an’ in patent parlance carries the meaning of ‘one or more’ in open-ended claims containing the transitional phrase ‘comprising.’ Unless the claim is specific as to the number of elements, the article ‘a’ receives a singular interpretation only in rare circumstances when the patentee evinces a clear intent to so limit the article.” KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed. Cir. 2000) (citations omitted).

Here, we agree with Scanner that the district court erred in limiting “an illumination apparatus,” and thus “illuminating,” to an apparatus containing only a single illumination source. We hold that “an illumination apparatus” is properly construed to encompass one or more illumination sources because the patentee has not evinced a clear intent to limit the article “an” to a single illumination source in either the claims or specification of the ’756 patent.

To the extent ICOS argues, and the district court found, that Insituform Technologies, Inc. v. Cat Contracting, Inc., 99 F.3d 1098 (Fed. Cir. 1996), and North American Vaccine, Inc. v. American Cyanamid Co., 7 F.3d 1571 (Fed. Cir. 1993), require a construction of the disputed claim term as limited to a single illumination source, we disagree.

Unlike the present case, Insituform dealt with claim language and a specification that strongly suggested that the claim language “a cup” was meant to encompass only one cup. There, the asserted claim repeatedly described a single cup, using the term “the cup” and describing a process in terms of a single cup. Insituform, 99 F.3d at 1105-06. The claim at issue in Insituform also used the phrase “region of vacuum application” in a “manner indicating that only one such region exists at any given time” and was thus “inconsistent with the use of more than one cup at any given time, as each cup creates its own associated region of vacuum application.” Id. Moreover, the court in Insituform found that “neither the specification nor the drawings discloses the use of more than one cup,” and in fact repeatedly described or depicted “the cup.” Id. Thus, the court in Insituform found that the claims were

properly limited to a single cup. Id.

Here, we discern no intent on the part of the patentees to limit the term “an illumination apparatus” to a single illumination source in either the claim language or the specification. Though ICOS argues, and we acknowledge, that claim 1 of the ’756 patent and the specification call out other limitations with multiple components, e.g., “first camera” to take “a first image” and “second camera” to take “a second image,” we do not agree that the failure to specifically refer to a “first illumination apparatus” and a “second illumination apparatus” evinces a clear intent on the part of the patentee that the term be limited to a single illumination source. Indeed, the very use of the article “an” indicates, at least presumptively, that the patentees intended the claim language “an illumination apparatus” to mean one or more illumination sources, and thus to cover implicitly “a first illumination apparatus” and subsequent “illumination apparatuses” where they exist. To limit the claim term “an illumination apparatus” to one illumination source, we require much stronger evidence of the patentees’ intent than strained extrapolation from the language employed by the patentees in other claim limitations. Barring some evidence that the patentees intended to limit the claims to a single illumination source, evidence we do not find in the claim language, their use of the term “an” is consistent with multiple illumination sources.[3]

Turning to the specification, we find no evidence of a clear intent on the part of the patentees to limit the claim language at issue to a single illumination source. Even where the specification refers to “a light source,” there is no indication that the patentee intended to limit the claims to the single light source. At best, the specification is inconclusive on the issue of one versus multiple light sources. ICOS argues that the specification references and depictions of multiple mirrors or prisms for shaping the course of the light, and the failure to depict multiple illumination sources, suggest that only a single illumination source is covered by the claimed invention. We disagree. Though the specification does disclose multiple mirrors and prisms, it does not describe or depict any illumination source. The closest the specification comes to describing or depicting the number of illumination sources is the reference to the “design of the lighting.” And although this language is certainly not conclusive, we find that it at least suggests that multiple lighting sources may be arranged in a particular “design.”

Where an open “comprising” claim includes the article “a” or “an,” and the specification is at best inconclusive on the patentee’s intent to limit that article to a single element or step, we do not find a “clear intent” to so limit the claims. Both the specification and claims in this case are far short of those in Insituform.

In addition, the district court relied upon, and ICOS cites, North American Vaccine in support of limiting the claims to a single illumination source. In North American Vaccine, the court acknowledged that “it is generally accepted in patent parlance that ‘a’ can mean one or more,” but found that in that case, there was no indication in the patent specification that the patentees intended “a terminal portion” to include one or more terminal portions and that the specification repeatedly spoke of “a linkage, not multiple linkages.” 7 F.3d at 1575-76. Accordingly, the court construed the article “a” in the singular.

We find North American Vaccine to be inapposite. There, unlike the present case, the disputed claim did not include the open transitional phrase “comprising.” The use of the transitional phrase “comprising” itself indicates that the elements or steps following the transition may be supplemented by additional elements or steps and still fall within the scope of the claim. See, e.g., AFG Indus. Inc. v. Cardinal IG Co., Inc., 239 F.3d 1239, 1244-45 (Fed. Cir. 2001) (“When a claim uses an ‘open’ transition phrase, its scope may cover devices that employ additional, unrecited elements. We have consistently held that the word ‘comprising’ is an open transition phrase.” (citations omitted)). Indeed, it is the very use of the transition “comprising” in conjunction with the article “a” or “an” that creates the presumption that the article is construed to mean one or more elements or steps, unless there is evidence of a clear intent to limit the claims. Unlike North American Vaccine, the use of “comprising” in claim 1 of the ’756 and ’757 patents itself establishes a presumption that those claims are “open,” and North American Vaccine is not relevant to the present case on that ground alone.

In view of the above, we find that the patentees have not evinced a clear intent to limit the disputed claims to apparatuses or methods with a single illumination source. Unlike the cases relied upon by ICOS and the district court, neither the claims nor the specification in the present instance indicate any such intent on the part of the patentees. Accordingly, we give the article “an” its ordinary

meaning of “one or more” and hold that the ’756 and ’757 patents encompass apparatuses and methods using one or more illumination sources.[4]

CONCLUSION

We hold that the claim terms “an illumination apparatus” and “illuminating” in the ’756 and ’757 patents respectively encompass one or more illumination sources. Because the district court’s entry of summary judgment of non-infringement was premised upon an incorrect construction of these terms, the order granting summary judgment is

VACATED AND REMANDED.

COSTS

Each party shall bear its own costs.

[1] The difference between “illumination apparatus” and “illumination source” is surely not so great. Scanner’s own Memorandum on Interpretation of the Asserted Claims to be Determined From the Markman Hearing [A326-364] argued that an illumination apparatus is “a source of illumination” and that illuminating “indicates that there is a source of illumination.”

[2] For purposes of this opinion, we too treat “an illumination apparatus” and “illuminating” together. Thus, to the extent “an illumination apparatus” is construed to include one or more illumination sources, the step of “illuminating” in the ’757 patent may be performed by one or more illumination sources. Similarly, if “an illumination apparatus” is found to be limited to a single illumination source, the “illuminating” step may be performed with only one illumination source.

[3] We also disagree with ICOS’s assertion that dependent claim 11 of the ’756 patent requires a narrow reading of “an illumination apparatus.” Claim 11 claims, “[t]he three dimensional inspection apparatus of claim 1 wherein the illumination apparatus further comprises a diffuser.” ’756

patent, col. 19, ll. 17-18 [A69]. Though this claim does suggest that there is one illumination source, “the illumination source,” it does not suggest or require that every embodiment of the claimed inventions be limited to a single illumination source. We do not find the language of dependent claim 11 to be sufficient to “evince a clear intent” that “an illumination apparatus” must in every embodiment be limited to a single illumination source.

[4] Scanner also relies upon the prosecution history and expert testimony to support its argument that the claims should be construed to encompass one or more illumination sources. Naturally, ICOS disputes the import and interpretation of the prosecution history and presents its own expert testimony. Because we find this evidence to be inconclusive, and because we find the claim language and specification to strongly support a broad construction of the disputed language, we do not further address the prosecution history or expert testimony cited by the parties.