

NOTE: This disposition is nonprecedential.

**United States Court of Appeals  
for the Federal Circuit**

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**COLLABO INNOVATIONS, INC.,**  
*Appellant*

v.

**SONY CORPORATION,**  
*Appellee*

**ANDREI IANCU, UNDER SECRETARY OF  
COMMERCE FOR INTELLECTUAL PROPERTY  
AND DIRECTOR OF THE UNITED STATES  
PATENT AND TRADEMARK OFFICE,**  
*Intervenor*

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2018-1311

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Appeal from the United States Patent and Trademark  
Office, Patent Trial and Appeal Board in No. IPR2016-  
00941.

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Decided: August 5, 2019

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DANIEL FLETCHER OLEJKO, Bragalone Conroy PC, Dal-  
las, TX, argued for appellant. Also represented by PATRICK  
J. CONROY, MONTE BOND, TERRY SAAD.

MATTHEW A. SMITH, Smith Baluch LLP, Menlo Park, CA, argued for appellee. Also represented by ANDREW BALUCH, Washington, DC; ZHUANJIA GU, JACOB ZWEIG, Turner Boyd LLP, Redwood City, CA.

KATHERINE TWOMEY ALLEN, Appellate Staff, Civil Division, United States Department of Justice, Washington, DC, argued for intervenor. Also represented by MARK R. FREEMAN, SCOTT R. MCINTOSH, JOSEPH H. HUNT; THOMAS W. KRAUSE, JOSEPH MATAL, FARHEENA YASMEEN RASHEED, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA.

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Before TARANTO, BRYSON, and STOLL, *Circuit Judges*.

STOLL, *Circuit Judge*.

After construing the phrases “secured . . . via an adhesive” and “wider area,” the Patent Trial and Appeal Board held all challenged claims of Collabo Innovations, Inc.’s U.S. Patent No. 5,952,714 unpatentable in an inter partes review. We agree with the Board’s constructions, determine substantial evidence supports its findings regarding the prior art, and hold Collabo’s other arguments unpersuasive. Accordingly, we affirm.

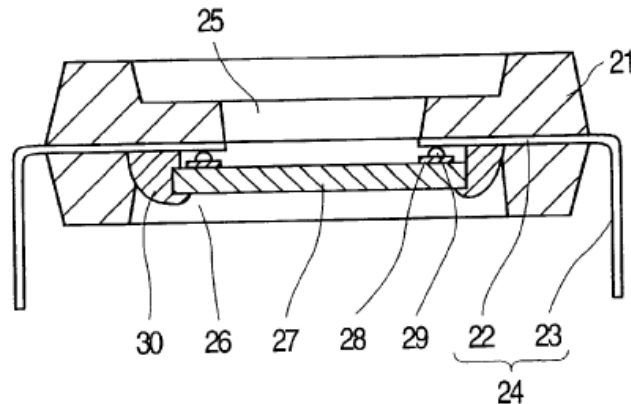
## BACKGROUND

### I

The ’714 patent “aims to provide a solid-state image sensing apparatus mountable to a video camera of high quality picture, which not only can reproduce vivid colors and fine pictures but also can be manufactured at a low cost.” ’714 patent col. 2 ll. 19–22. As shown in Figure 2, below, the disclosed chip package (21) for use in that apparatus has two openings (25 and 26). *Id.* at col. 4 ll. 53–59. Opening 25, through which light reaches the image-

sensing CCD chip 27, is smaller than the chip, and opening 26 is larger than the chip. *Id.*

**FIG. 2**



The patent explains that the larger size of opening 26 allows chip 27 to be inserted into the package 21 through opening 26, positioned, and then fixed in place. *See id.* at col. 5 ll. 9–22.

The patent claims both an apparatus and a method of manufacture. On appeal, Collabo focuses its arguments on claim 1, which reads:

1. A solid-state image sensing apparatus comprising:
  - a package having a through hole therein, openings on both end faces thereof, and different opening areas of said openings,
  - a lead frame comprising inner leads and outer leads, said lead frame being sealed in said package, and
  - a solid-state image sensing device mounted in said package by being inserted from an inlet of said

opening which has a *wider area*, and thereby sealing said through hole, said solid-state image sensing device being *secured to said package via an adhesive*.

*Id.* at col. 9 ll. 20–30 (emphases added to indicate disputed claim terms).

## II

Sony Corp. petitioned for IPR of the '714 patent. Each of its proposed grounds of unpatentability relied on either Yoshino<sup>1</sup> or Wakabayashi<sup>2</sup> for disclosing the limitations recited in claim 1. Collabo responded to these grounds by urging the Board to construe “secured . . . via an adhesive” as limited to gluing, which Collabo contended distinguished both references. J.A. 494. Collabo further argued that neither reference disclosed the claimed “wider area.” J.A. 500, 527.

Following a hearing, the Board issued a final written decision. It disagreed with Collabo’s proposed construction of “secured . . . via an adhesive,” finding that the term was plainly broader than “gluing.” *Sony Corp. v. Collabo Innovations, Inc.*, No. IPR2016-00941, 2017 WL 4418283, at \*4–7 (P.T.A.B. Oct. 3, 2017). And though no party had expressly proposed a construction of “wider area,” the Board recognized that the parties debated the meaning of that phrase. The Board construed it according to its plain and ordinary meaning, holding that “the opening ‘area’ is

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<sup>1</sup> JP Pat. App. Pub. No. S61-131690, T. Yoshino et al. (June 19, 1986). We cite the English translation provided at J.A. 281–83.

<sup>2</sup> JP Pat. App. Pub. No. H07-45803, T. Wakabayashi et al. (Feb. 14, 1995). We cite the English translation provided at J.A. 284–86. Though Collabo refers to this reference as Takashi, *see, e.g.*, Appellant’s Br. 19 & n.2, we maintain the Board’s naming convention here.

‘wider’ where the image sensor is inserted.” *Id.* at \*12. The Board then analyzed each of Sony’s grounds of unpatentability and determined Sony had shown the claims unpatentable by a preponderance of the evidence. Collabo appeals. We have jurisdiction. 28 U.S.C. § 1295(a)(4)(A); *see also* 35 U.S.C. § 319.

## DISCUSSION

On appeal, Collabo challenges the Board’s constructions of “secured . . . via an adhesive” and “wider area.” It further argues that even under the Board’s constructions, substantial evidence does not support the finding that Yoshino and Wakabayashi disclose the claimed “wider area.” And it disputes the constitutionality of IPR as applied to patents issued prior to the Leahy-Smith America Invents Act, Pub. L. 112-29, 125 Stat. 284 (2011). We address each argument in turn.

### I

We first address Collabo’s argument that the Board erred in construing the phrases “secured . . . via an adhesive” and “wider area.” We review the Board’s ultimate claim constructions de novo, *In re Man Mach. Interface Techs. LLC*, 822 F.3d 1282, 1285 (Fed. Cir. 2016), and we review any subsidiary factual findings involving extrinsic evidence for substantial evidence, *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). Because the ’714 patent has expired, the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) applies. *See In re Rambus Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012) (“[T]he Board’s review of the claims of an expired patent is similar to that of a district court’s review.”).

### A

The Board rejected Collabo’s argument that the phrase “secured . . . via an adhesive” is limited to gluing and concluded that the plain meaning of the phrase includes other

types of adhesive, such as injection molding. We agree. The plain claim language uses “adhesive,” not the narrower term “glue” or “gluing.” And though the specification does describe gluing, it is axiomatic that patent claims are not construed “as being limited to [an] embodiment.” *Phillips*, 415 F.3d at 1323. Neither the specification nor the prosecution history states that only gluing may be used, that glue should be preferred over other methods, or even that other methods would not work as well as glue. Though Collabo amended the claims to recite the “adhesive” limitations during prosecution to distinguish art allegedly using “a reflow solder process,” J.A. 686, Collabo did not clearly and unequivocally limit its claims to gluing, *see Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016) (explaining that disclaimer “requir[es] clear and unequivocal evidence that the claimed invention . . . does not include a particular feature”).

Extrinsic evidence further supports the Board’s construction. Dictionaries define “adhesive” as “[t]ending to adhere,” without reference to gluing. J.A. 466. A patent issued to Collabo’s expert describes epoxy and thermoplastic resins as “adhesives.” J.A. 968–69 at col. 4 ll. 46–48, col. 5 ll. 7–21. And Collabo’s expert admitted during deposition that the term “adhesive” encompasses more than merely gluing. *See* J.A. 808–09 (admitting “thermosetting resins were known as structural adhesives” and that “epoxy resins can be used as an adhesive”).

On appeal, Collabo argues that it disclaimed the prior art’s “imprecise” techniques of adhesion, but neither the claims, the specification, nor the prosecution history require any particular level of precision. Collabo further argues that the Board erred by first looking to the extrinsic evidence and particularly dictionary definitions. Oral Arg. at 6:33–46, <http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2018-1311.mp3>. But this argument is similarly unpersuasive. The Board merely noted the existence of dictionary definitions suggesting the ordinary meaning

of “adhesive.” The Board’s approach is not inconsistent with our precedent. As we have explained, the Board “may look to extrinsic evidence so long as the extrinsic evidence does not contradict the meaning otherwise apparent from the intrinsic record.” *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008); *see also Comaper Corp. v. Antec, Inc.*, 596 F.3d 1343, 1348 (Fed. Cir. 2010) (approving of “consult[ing] a general dictionary definition of [a] word for guidance” in determining ordinary meaning); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1325 (Fed. Cir. 2008) (“[O]ur decisions, including *Philips*, 415 F.3d at 1322, do not preclude the use of general dictionary definitions as an aid to claim construction.”).

## B

Collabo also disputes the Board’s construction of “wider area,” as recited by claim 1. As a threshold issue, Collabo argues that the Board erred by construing this phrase because neither party asked it to do so. Collabo argues that the Board’s choice to construe the term in the final written decision deprived it of fair notice and opportunity to present arguments. We disagree. Collabo itself placed the meaning of “wider area” at issue. It argued that the asserted prior art references did not disclose the “wider area” limitation because they failed to show or describe the relative areas—both length and width—of their openings. *See, e.g.*, J.A. 502–08, 527–30. In response, Sony argued the opposite, asserting that the plain meaning of “wider” invokes only the “width” dimension while noting that Collabo had made an “implicit construction” argument. J.A. 742–43, 754–55. That Collabo did not expressly describe its argument as claim construction does not preclude the Board from construing “wider area” to resolve the parties’ dispute, particularly because both Sony and the Board recognized that Collabo was implicitly construing the phrase and because the Board discussed Collabo’s claim construction position at the hearing. *See, e.g.*, J.A. 742, 1038–40. In these circumstances, we conclude that Collabo had an adequate

opportunity to present its position, and due process is satisfied. *See AC Techs. S.A. v. Amazon.com, Inc.*, 912 F.3d 1358, 1365 (Fed. Cir. 2019) (finding no due process violation where party had “adequate notice of the issues the Board w[ould] decide as well as an opportunity to be heard on those issues”).

We further agree with the Board that the plain and ordinary meaning of “wider area” requires only “that the opening ‘area’ is ‘wider’ where the image sensor is inserted.” *Sony*, 2017 WL 4418283, at \*12. The plain claim language supports the Board’s construction—“wider” inherently suggests the width dimension. Although the specification elsewhere discusses “smaller” and “larger” areas when comparing the entire opening area, *see, e.g.*, ’714 patent col. 2 ll. 36–38 (“the opening area is smaller than the entire area of CCD chip”), col. 7 ll. 46–52 (“a third opening 53 having the larger opening area than that of the opening 52”), claim 1 uses “wider” rather than one of these broader terms, further suggesting that the claim is comparing only the width dimension of the openings. The prosecution history contains no contrary statements.

Collabo nonetheless urges us to hold that “wider” means “larger,” arguing that the specification uses “wider” to “mean[] greater or larger.” Appellant’s Br. 53. The intrinsic record undermines Collabo’s position. The specification uses *both* “wider” and “larger,” as discussed. And Collabo used “larger” rather than “wider” in other claims. *See, e.g.*, ’714 patent col. 10 ll. 6–22 (reciting “larger of two openings”).<sup>3</sup>

## II

We next address Collabo’s assertion that even under the Board’s constructions, the Board erred by finding that

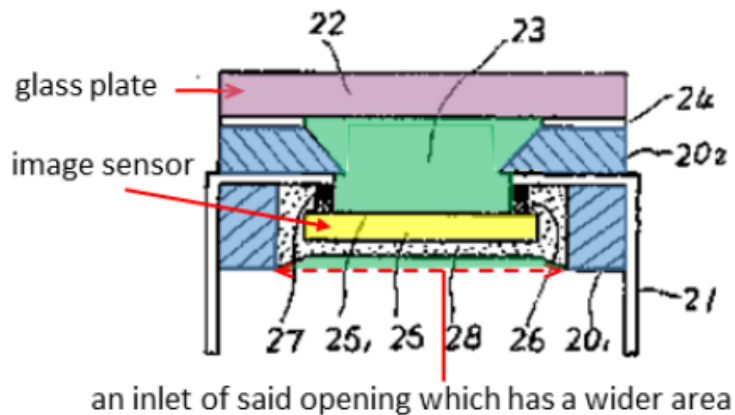
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<sup>3</sup> Collabo does not separately argue these claims on appeal.



the prior art discloses a “wider area.” We review this finding, a question of fact, for substantial evidence. See *Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1375 (Fed. Cir. 2018); *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1361 (Fed. Cir. 2012). Substantial evidence is “such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *Biestek v. Berryhill*, 139 S. Ct. 1148, 1154 (2019) (quoting *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938)).

Substantial evidence supports the Board’s finding that Yoshino discloses the recited “wider area.” Yoshino’s Figure 1, reproduced below with Sony’s annotations, shows the tapered upper opening 23 and the alleged “wider” lower opening, marked by the red dotted line:

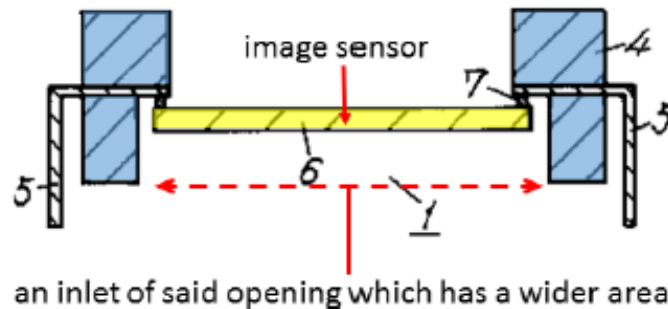


J.A. 199. The Board was called to decide whether the lower opening highlighted in red is wider than the narrowest point of the tapered opening 23. See Oral Arg. at 11:19–52 (“[W]e’re looking at that narrowest part . . .”), 16:35–45 (“[T]he relevant opening is at the bottom . . . of the anvil.”). Yoshino itself discloses that the chip 25 “is placed” after “glass plate (22) is hermetically secured . . . so as to cover the tapered opening (23).” J.A. 282. It follows that the lower opening is at least as wide as the chip, to permit insertion. Yoshino explains that the chip sits against a lip

formed by bonding pads (26) at the interior edge (20<sub>2</sub>) of the packaging. *Id.* As the Board found, Sony’s contention that the upper opening is narrower than the lower opening—at least by the width of the bonding pads—is thus “consistent with the geometry necessary to seal the image sensor into the package.” *Sony*, 2017 WL 4418283, at \*12; *see also* J.A. 197–98 (providing expert testimony that one of ordinary skill would understand the lower opening to be wider based on Yoshino’s assembly process).

Yoshino and other record evidence further suggest a technical benefit from using an upper opening that is narrower than the chip, and thus also narrower than the lower opening. Yoshino states that the upper opening should be set to “at least cover the effective photosensitive section” of the chip. J.A. 282. It explains that using the tapered shape to control the light shining onto the chip through the upper opening “prevent[s] unnecessary light from being reflected and intruding inside to adversely affect the photoelectric properties” of the CCD chip. J.A. 281; *see also* J.A. 405–06 (showing chip geometry with “effective pixel region” in center of chip and describing methods of “preventing the [chip] from receiving any unwanted or stray light” outside of this area), 906 (describing problem of extra light interfering with chip function); Oral Arg. at 30:03–43 (“[W]e’re talking about light here, getting only on the photosensitive elements of the chip and not others.”).

Similar structural characteristics provide substantial support for the Board’s finding that Wakabayashi discloses a lower opening that is wider than the upper opening. Wakabayashi’s Figure 1, again as annotated by Sony, illustrates the upper and lower openings:



J.A. 263. Like Yoshino, Wakabayashi describes that the chip (6) sits against a lip formed by bumps (7) within the package (4). J.A. 285. And like Yoshino, Wakabayashi explains the desirability of shaping the upper opening “to form desirable shapes” for “the optical characteristics” of the chip. *Id.*; see also Oral Arg. at 30:03–43.

Collabo argues that the Board erred by relying on the figures reproduced above, citing cases for the general proposition that patent figures are not assumed to be drawn to scale. See Appellant’s Br. 55–61. For example, Collabo cites *Hockerson-Halberstadt, Inc. v. Avia Group International, Inc.*, 222 F.3d 951 (Fed. Cir. 2000), for the proposition that “patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.” *Id.* at 956. But the cases cited by Collabo are inapplicable—the references are not “completely silent” on the relative dimensions of the openings. Contrary to Collabo’s assertion, the Board’s findings have support beyond the figures alone, and substantial evidence supports the Board’s conclusions.

### III

Finally, we address Collabo’s challenge to IPR as applied to patents issued prior to passage of the America Invents Act, which created these proceedings. Collabo avers,

correctly, that the Supreme Court did not address the constitutionality of such IPR proceedings in *Oil States Energy Services, LLC v. Greene's Energy Group, LLC*, 138 S. Ct. 1365 (2018). It asks us to hold that IPR is either unlawful or is a taking that entitles it to compensation under the Fifth Amendment.

This court, however, recently considered these issues in *Celgene Corp. v. Peter*, No. 18-1167, slip op. at 26–36 (Fed. Cir. July 30, 2019). Our decision there forecloses Collabo's argument. When the *Celgene* patent issued, it was already subject to both judicial and administrative validity challenges. *Id.* at 35–36. We acknowledged that IPR differs from both district court proceedings and prior administrative validity proceedings, but we held that the variations from the administrative validity review mechanisms in place upon patent issuance are not so significant as to render IPR unconstitutional or effectuate a taking. *Id.*; *see also id.* at 27 & n.13 (affirming that our prior decisions ruling that retroactive application of reexamination does not violate the Fifth Amendment, the Seventh Amendment, or Article III “control the outcome” of similar challenges to IPR).

Like the patent at issue in *Celgene*, when the '714 patent issued, patent owners already expected that their patents could be challenged in district court and “[f]or forty years” had expected that “the [Patent Office] could reconsider the validity of issued patents on particular grounds, applying a preponderance of the evidence standard.” *Id.* at 35–36. Accordingly, application of IPR to Collabo's patent, on grounds that were available for Patent Office reconsideration when the patent was issued and under the same burden of proof, does not create a constitutional issue, and we reject Collabo's constitutional challenge.

CONCLUSION

We have reviewed the parties' remaining arguments and find them unpersuasive. Accordingly, we affirm the Board.

**AFFIRMED**

COSTS

Costs to appellee.