United States Court of Appeals for the Federal Circuit

IN RE: GREGORY A. BRANDT, JOHN B. LETTS, FIRESTONE BUILDING PRODUCTS COMPANY, LLC,

Appellants

2016-2601

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. 13/652,858.

Decided: March 27, 2018

ARTHUR M. REGINELLI, Renner, Kenner, Grieve, Bobak, Taylor & Weber, Akron, OH, argued for appellants. Also represented by LAURA J. GENTILCORE, RAY L. WEBER.

ROBERT MCBRIDE, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA, argued for appellee Andrei Iancu. Also represented by NATHAN K. KELLEY, MOLLY R. SILFEN, COKE MORGAN STEWART.

Before LOURIE, REYNA, and TARANTO, *Circuit Judges*.

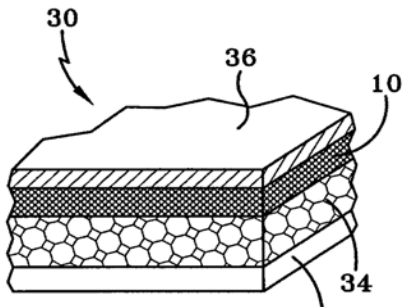
REYNA, *Circuit Judge*.

Gregory A. Brandt, John B. Letts, and Firestone Building Products Company LLC appeal from a decision by the Patent Trial and Appeal Board affirming an examiner's obviousness rejection of their patent application claims related to construction board for a covered roof. Because substantial evidence supports the Board's factual findings, and the Board did not err in its conclusion of obviousness, we affirm.

BACKGROUND

On October 16, 2012, inventors Brandt and Letts (together, "Brandt") filed Patent Application No. 13/652,858 ("'858 application") with the United States Patent Office. The '858 application relates to "high density polyurethane or polyisocyanurate construction boards, as well as their use in flat or low-slope roofing systems." J.A. 17. Following examination, only independent claims 1 and 3 remained in the '858 application. Those claims are directed to a covered roof and a method for applying covering to a roof, respectively. Both claims are at issue in this appeal.

Figure 2 of the '858 application depicts the covered roof:



FIG–2

J.A. 40. As shown in Figure 2, the covered roof consists of stratified layers comprising a roof deck 32, an insulation board 34, and a high-density coverboard 10. The '858

application explains that coverboards "add integrity to the roof." J.A. 18. When layered atop the insulation board, as in Figure 2, the coverboard can protect the insulation board which is "prone to denting or damage due to the fact that insulation boards are low density cellular materials." *Id.*

Representative claim 1 provides:

> 1. A covered roof comprising:
>
> (a) a roof deck;
>
> (b) an insulation board including a polyurethane, a polyisocyanurate, or a mix of polyurethane and polyisocyanurate cellular structure, and said insulation board having a density that is less than 2.5 pounds per cubic foot; and
>
> (c) a coverboard including a polyurethane, a polyisocyanurate, or a mix of polyurethane and polyisocyanurate cellular structure, *said coverboard having a density greater than 2.5 pounds per cubic foot and less than 6 pounds per cubic foot* and a first planar surface and a second planar surface, said first planar surface and second planar surface each having a facer positioned adjacent thereto.

J.A. 130 (emphasis added). The only limitation at issue in this appeal involves the density range of the coverboard emphasized above.

On March 14, 2013, the examiner issued a Final Office Action rejecting claims 1 and 3 under 35 U.S.C. § 103(a) over U.S. Patent Application Publication No. 2006/0096205 ("Griffin") in view of U.S. Patent Nos. 5,891,563 ("Letts") and 6,093,481 ("Lynn"). J.A. 91, 93. Griffin discloses a prefabricated roofing panel with a

coverboard having a polymer material core layer with a density "between 6 lbs/ft^3 and 25 lbs/ft^3 and preferably a density of at least 8 lbs/ft^3." J.A. 207. In addition, Griffin describes the high-density core layer as possibly "contain[ing] various powdered and liquid fillers, fiber reinforcements, fire-retardants, fungi growth-inhibiting agents, etc. to reduce the cost and/or modify the properties of the high-density core layer," including modifications that affect the "compressive strength, the flexibility, the friability, [and] the fire resistance of the core layer." J.A. 208. Lynn is directed to a method for manufacturing insulation board that involves employing rigid foam between laminate facing sheets. J.A. 222 col. 2 ll. 12–21. Lynn describes the rigid foam layer as a polymeric composition and lists as "suitable polymers," both polyurethane and polyisocyanurate. J.A. 224 col. 5 ll. 42–52. Once employed, this foam layer reaches a "desired bulk density which is generally between 0.5 and 10, and preferably between 1 and 5 pounds per cubic foot." *Id.* col. 5 ll. 61–65.

The examiner used Letts to show that composite boards comprising polyisocyanurate and polyurethane materials were known and used in the construction of covered roofs. J.A. 94. The examiner's application of Letts is not at issue in this appeal.

In rejecting the claims, the examiner found that Griffin's disclosure of a coverboard density range between 6 and 25 pounds per cubic foot abuts but "does not specifically disclose the density of the coverboard being less than 6 pounds per cubic foot." J.A. 94. The examiner determined that Griffin suggests that the fillers to the coverboard, such as fire-retardants, may causevariations in density by altering the coverboard's composition and compressive strength. *Id.* In addition, the examiner found that Lynn teaches a rigid foam made from polymeric material with a bulk density ranging between 1 and 5 pounds per cubic foot that does overlap with the density

range disclosed in the '858 application. *Id.* Based on the combined teachings of Griffin and Lynn, the examiner concluded that it would have been "an obvious design choice" for a skilled artisan to have a coverboard with a density of less than 6 pounds per cubic foot. *Id.*

Brandt appealed the examiner's rejection to the Patent Trial and Appeal Board ("Board"). In its appeal, Brandt amended claims 1 and 3 to remove limitations related to the insulation board and iso index. J.A. 107. In her answer, the examiner issued a new rejection under § 103(a) of claims 1 and 3 based on Griffin in view of Lynn. J.A. 141. Specifically, the examiner found that it would have been obvious to a skilled artisan to have "a cover board that had a density of less than 6 pounds per cubic feet as an obvious design choice and also due to margin of error by the slightest percentage." J.A. 142.

The Board affirmed the examiner's rejection. J.A. 2. The Board found that the claimed range for the coverboard in the '858 application of "less than 6 pounds per cubic foot" does not overlap with Griffin's disclosed range of between 6 and 25 pounds per cubic foot. J.A. 5. While not overlapping, based on the examiner's factual findings, the Board found that the difference in the ranges was "virtually negligible" and "could not be smaller." *Id.* Relying on *Haynes International, Inc. v. Jessop Steel Co.*, 8 F.3d 1573, 1577 n.3 (Fed. Cir. 1993), the Board thus determined that claims 1 and 3 were *prima facie* obvious based on the general rule that "when the difference between the claimed invention and the prior art is the range or value of a particular variable, then a ***prima facie*** rejection is properly established when the difference in the range or value is minor." *Id.* (citing *Titanium Metals Corp. of Am. v. Banner*, 778 F.2d 775, 783 (Fed. Cir. 1985)). The Board found that Brandt failed to rebut this *prima facie* rejection through argument or evidence of unexpected results or teaching away. J.A. 5–6. The Board also found that Brandt did not show that Griffin's

disclosed low-end range of 6 pounds per cubic foot would have any different properties from a coverboard with a lower density of 5.99 pounds per cubic foot. J.A. 6. After considering the evidence as a whole, the Board concluded that the examiner did not err in rejecting as obvious claims 1 and 3 of the '858 application. *Id.*

Brandt and the assignee of the '858 application, Firestone Building Products Company, LLC, appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

STANDARD OF REVIEW

We review Board decisions in accordance with the Administrative Procedure Act, 5 U.S.C. § 706(2) (2012). *Dickinson v. Zurko*, 527 U.S. 150, 152, 165 (1999). Under the APA, we review the Board's legal conclusions de novo and its factual findings for substantial evidence. *ACCO Brands Corp. v. Fellowes, Inc.*, 813 F.3d 1361, 1365 (Fed. Cir. 2016). Substantial evidence is "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *In re Gartside*, 203 F.3d 1305, 1312 (Fed. Cir. 2000) (quoting *Consol. Edison Co. of N.Y. v. NLRB*, 305 U.S. 197, 229 (1938)).

Obviousness is a question of law with underlying factual findings relating to the "scope and content of the prior art, differences between the prior art and the claims at issue, the level of ordinary skill in the pertinent art, and any objective indicia of non-obviousness." *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013); *see Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We review the Board's underlying factual findings for substantial evidence and its legal conclusion on obviousness de novo. *In re Mouttet*, 686 F.3d 1322, 1330–31 (Fed. Cir. 2012).

DISCUSSION

Appellants make two arguments on appeal. First, Appellants challenge the Board's finding of a *prima facie* case of obviousness based on Griffin's disclosed coverboard density range because that range does not facially overlap with the '858 application's claimed coverboard density range. Second, assuming the Board properly found a *prima facie* case, Appellants contend that the Board erred in finding that the prior art does not teach away from the claimed invention.

A. *Prima Facie* Obviousness

Patent examination usually involves a negotiation between the Patent Office and an applicant about the metes and bounds of a potential property right. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc) ("[T]he prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation."). During the course of examination, the examiner issues initial rejections for application claims it considers unpatentable, and the applicant in turn may try to traverse those rejections through, *inter alia*, legal argument, evidence, and claim amendments. 35 U.S.C. § 132(a); 37 C.F.R. § 1.111. Upon review of the applicant's reply to the rejections, if the examiner finds the claims satisfy the conditions of patentability, the examiner issues a Notice of Allowance. 35 U.S.C. § 131; 37 C.F.R. § 1.311. If not, the examiner issues a Final Office Action rejecting the claims for a second time, or the examiner can alternatively reconsider the application before final action. 35 U.S.C. § 134; 37 C.F.R. §§ 1.112, 1.113. As is the case here, if the examiner issues a Final Office Action, the applicant can appeal those twice-rejected claims to the Board, or alternatively seek continued examination. *Id.*; 37 C.F.R. § 1.114. If the applicant timely requests continued examination, the above process is repeated.

Given the back-and-forth nature of examination, it is important for the examiner to have a few procedural tools to aid her efforts to issue as patents only those claims that meet the requirements of the Patent Act—the fundamental obligation of the Patent Office. 35 U.S.C. § 2 ("The United States Patent and Trademark Office . . . shall be responsible for the granting and issuing of patents."); *id.* § 131 ("The Director shall cause an examination to be made of the application and the alleged new invention; and if on such examination it appears that the applicant is entitled to a patent under the law, the Director shall issue a patent therefor."). One of these procedural tools is the *prima facie* case, an evidentiary burden-shifting device available to the examiner in the initial stage of examination. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). An examiner can find a *prima facie* case of unpatentability upon initial review of the prior art or on any other statutory condition of patentability. *In re Oetiker*, 977 F.2d at 1445. If the examiner establishes a *prima facie* case, the burden shifts to the applicant to come forward with rebuttal evidence or argument. *Id.*; *see Mouttet*, 686 F.3d at 1330. The examiner then considers the evidence as a whole before reaching a conclusion on the claims' patentability under 35 U.S.C. § 103(a). *Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1357 (Fed. Cir. 2013) ("Whether before the Board or a court, this court has emphasized that consideration of the objective indicia is *part of* the whole obviousness analysis, not just an afterthought."); *In re Huai-Hung Kao*, 639 F.3d 1057, 1066 (Fed. Cir. 2011). This burden-shifting framework makes sense during patent examination because an examiner typically has no knowledge of objective considerations, and those considerations "may not be available until years after an application is filed." *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1080 n.7 (Fed. Cir. 2012).

Appellants argue that the Board erred by applying a *per se* rule that whenever the differences between a prior art reference's disclosed range and the application's claimed range are close, a *prima facie* case of obviousness is established. Appellants' Br. 11. We find no such error. The Board did not apply a *per se* rule. Rather, it grounded a *prima facie* obviousness conclusion on the facts before it. The Board specifically agreed with the examiner's factual finding that the difference between the claimed range and prior art range was "virtually negligible." J.A. 5. This finding accounted for manufacturing tolerance levels because "precise results are not always achieved and tolerance levels are usually taken into account." J.A. 143. The Griffin reference recognizes that the composition and compressive strength of the coverboard may vary through the addition of fillers during manufacturing. J.A. 208. This is a simple case in the predictable arts that does not require expertise to find that the claimed range of "less than 6 pounds per cubic feet" and the prior art range of "between 6lbs/ft^3 and 25lbs/ft^3" are so mathematically close that the examiner properly rejected the claims as *prima facie* obvious. *See In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003) (recognizing "that a *prima facie* case of obviousness exists when the claimed range and the prior art range do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties" (citing *Titanium Metals*, 778 F.2d at 783)); *cf. Phillips*, 415 F.3d at 1314 (recognizing that the "ordinary meaning of claim language as understood by a person of ordinary skill in the art may be readily apparent even to lay judges . . .").

Based on the facts of this case, it is not surprising that Appellants do not contest the factual closeness of the two ranges. To the contrary, Appellants repeatedly conceded before this court and the Board that there is nothing of record to support finding a meaningful differ-

ence between the claimed range and the range disclosed in Griffin. Oral Arg. 4:37–4:53, http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2016-2601.mp3; J.A. 177. Appellants also conceded that the Board correctly found that the difference between the two ranges is "virtually negligible." Oral Arg. 1:39–2:04. Indeed, the insignificance of the range difference between the claims and prior art can be gleaned from the '858 application itself, which discloses embodiments of coverboards having a density of greater than 2.5 and less than 20 pounds per cubic foot. J.A. 22, 30. We note that Brandt did not submit any evidence of unexpected results or criticality for the Board to consider. Appellants' Br. 20. Taking these concessions together, Appellants all but admit that the examiner properly rejected Brandt's application claims based on the lack of difference between the prior art and the claimed invention under *Graham v. John Deere Co.*, 383 U.S. at 17.

Appellants posit that an examiner can only find a *prima facie* case of obviousness if there is an overlap between the claimed range and prior art range, relying on our nonprecedential decision in *In re Patel*, 566 F. App'x 1005 (Fed. Cir. 2014). Appellants' Br. 16. We disagree. In *Patel*, the claims at issue were directed to a nonwoven fabric comprised of polymer blends. 566 F. App'x at 1007. The claims recited a first polymer blend to make up "from 26 weight percent to 80 weight percent" of the nonwoven material, and the prior art disclosed a range for the first polymer blend of 0.5 to 25 weight percent. *Id.* We vacated the Board's finding of a *prima facie* case based solely on the closeness of the prior art reference's disclosed range because "the ranges d[id] not overlap and the prior art d[id] not teach that a broader range would be appropriate." *Id.* at 1009. *Patel* recognized, however, that *prima facie* rejections may be appropriate "where there is a teaching in the prior art that the end points of the prior art range are approximate, or can be flexibly applied." *Id.*

at 1010. *Patel* thus highlights what may be required to find a sufficiently minor difference between a facially non-overlapping claimed range and a prior art range such that an examiner could *prima facie* reject claims. *See Haynes*, 8 F.3d at 1577 n.3. The nonbinding holding in *Patel*, however, does not stand for the proposition advanced by Appellants that a claimed range and prior art range must overlap for an examiner to find a *prima facie* case.

Here, because the claimed range and the prior art range abut one another, and Appellants conceded as fact that there is no meaningful distinction between the two ranges, substantial evidence supports the Board's finding that the difference in coverboard density ranges "could not be smaller." J.A. 5. And because Appellants did not overcome the Board's rejection based on the *prima facie* case with persuasive argument and/or evidence, we therefore conclude that in this case the Board did not err by affirming the examiner's obviousness rejection. *See Titanium Metals*, 778 F.2d at 783 (stating a prima facie case of obviousness can be found where the ranges "are so close that prima facie one skilled in the art would have expected them to have the same properties"); *In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996); *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990); *In re Aller*, 220 F.2d 454, 456 (CCPA 1955).

B. Teaching Away

If a person of ordinary skill in the art reviewing a prior art reference would be discouraged from pursuing the claimed solution because the reference "suggests that the developments flowing from its disclosures are unlikely to produce the objective of the applicant's invention," the reference is said to "teach away." *Syntex (U.S.A.) LLC v. Apotex, Inc.*, 407 F.3d 1371, 1380 (Fed. Cir. 2005) (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)). A prior art reference evidences teaching away if it "criticize[s], discredit[s], or otherwise discourage[s] the solution

claimed." *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004).

Appellants argue that in finding Griffin does not teach away from the '858 application claims, the Board improperly required a showing of criticality of the difference between a coverboard with a density of 6 pounds per cubic foot and one with a lower density of 5.99 pounds per cubic foot. Appellants' Br. 19–20. Appellants' theory of teaching away is based on a "logical inference" that a coverboard and insulation board would not have the same density. Appellants' Br. 20. Specifically, Appellants contend that because Griffin discloses an insulation board with a density of less than 6 pounds per cubic foot, to protect the insulation board from damage, the coverboard must be denser than 6 pounds per cubic foot. *Id.* Appellants thus assert that Griffin teaches away from making a coverboard with a density of less than 6 pounds per cubic foot. *Id.*

Appellants view Griffin too narrowly. Griffin only suggests that a denser coverboard can serve to protect a less dense insulation board. The '858 application takes the same approach as Griffin by claiming an insulation board with a density of less than 2.5 pounds per cubic foot and a coverboard with a density of greater than 2.5 pounds per cubic foot. J.A. 130. Griffin thus encourages the approach taken by Brandt in the '858 application.

As the Board concluded, we find that Appellants' teaching away argument boils down to an assertion that there is some criticality to having a coverboard density of greater than 6 pounds per cubic foot. But Appellants failed to introduce any evidence to support that argument. J.A. 6 ("Appellants point to no evidence in the record suggesting that one of ordinary skill in the art would have expected a coverboard with a density of 5.99 lbs/ft^3 to have different properties than a coverboard with density of 6.00 lbs/ft^3."). We therefore agree with the Board that

Appellants failed to show that Griffin "criticize[s], discredit[s], or otherwise discourage[s] the solution claimed." *In re Fulton*, 391 F.3d at 1201.

CONCLUSION

Based on Appellants' many concessions that there is no meaningful difference between the prior art's disclosed range and the claimed range, the Board did not err in affirming the examiner's obviousness rejection of these abutting ranges in this simple case. The Board's factual findings, including those on teaching away, underlying its obviousness analysis are supported by substantial evidence. We therefore affirm.

AFFIRMED

COSTS

No costs.