

NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

IN RE: NATURAL ALTERNATIVES, LLC,
Appellant

2015-1911

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in Nos. 90/010,381,
90/011,454, 90/011,713.

Decided: August 31, 2016

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L.L.P., Baltimore, MD, argued for appellant. Also repre-
sented by GREGORY MILTON STONE.

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Patent and Trademark Office, Alexandria, VA, argued for
appellee Michelle K. Lee. Also represented by THOMAS W.
KRAUSE, SCOTT WEIDENFELLER, AMY J. NELSON.

Before NEWMAN, CLEVINGER, and O'MALLEY, *Circuit
Judges.*

O'MALLEY, *Circuit Judge.*

Natural Alternatives, LLC (“Natural”) appeals the judgment of the Patent Trial and Appeal Board (“the Board”) holding all claims of U.S. Patent No. 6,080,330 (“the ’330 patent”) invalid as obvious. For the reasons below, we *reverse*.

BACKGROUND

The ’330 patent is directed to the problem of deicing road surfaces using a natural product, desugared sugar beet molasses (“DSBM”).

The Patent in Suit

The claims of the ’330 patent recite a composition containing as a primary ingredient DSBM used for deicing and preventing ice formation on surfaces. As noted in the ’330 patent, “desugared molasses is considered a waste product,” and “[t]he price of desugared molasses is less than half of that of regular molasses. ’330 patent, col. 2, ll. 58-63. The inventors of the ’330 patent sought to repurpose this waste product as a natural alternative to the inorganic rock salts commonly used in deicing road surfaces. Claims 1 and 6 of the ’330 patent are representative, and are reproduced in full below:

1. A composition for deicing and inhibiting the formation of ice and snow on surfaces comprising
from 25-99% by volume of desugared sugar beet molasses having 60-75% suspended solids and
1-75% by volume of a component selected from the group consisting of sodium formate, calcium magnesium acetate, potassium acetate, ethylene glycol, di- ethylene glycol, magnesium chloride, calcium chloride, sodium chloride, potassium chloride and mixtures thereof.

Id. at col. 9, ll. 6-14.

6. A composition for deicing or inhibiting the formation of ice and snow on surfaces comprising

a mixture of

desugared sugar beet molasses and

rock salt

including from 8-10 gallons of desugared beet molasses per ton of rock salt.

Id. at col. 9, ll. 29-33.

The '330 patent's written description explains that the claimed composition has the advantages of being more environmentally friendly, less expensive, less corrosive, and more effective (achieving lower freezing temperatures) than prior art products, such as mixtures of inorganic salts. *Id.* at col. 3 l. 51-col. 4 l. 4. The written description also notes that the claimed composition does not have the offensive odor inherent in the organic fermentation products of certain other prior art products. *Id.* Natural markets the product claimed in the '330 patent under the trademark GEOMELT®.

Two key features of the '330 patent for purposes of the present appeal are the processes for manufacturing DSBM, and, relatedly, the low sugar content of DSBM. The '330 patent teaches two methods of manufacture, namely (a) a process known as the "Steffen" process, and (b) an older, multi-step process similar to a centrifuging process. This older process involves eight steps:

The older of two most widely used processes of removing sugar from sugar beets involves cleaning the beets and slicing them into thin chips. The sliced beets are then subject to a sugar extraction process whereby hot water is passed over the beets for approximately one (1) hour. This process removes most, but not all, of the sugar from the beets in the form of beet "juice." The beets are

then pressed in screw presses to remove the remaining sugar containing juice therefrom. The juice is then subjected to a process called carbonation, where small clumps of chalk are provided in the juice to filter out any nonsugars. The chalk is then filtered from the juice, which has evaporated to form a syrup. The syrup is then boiled until sugar crystals form therein. Once the crystals form, the resulting mixture is centrifuged to separate the crystals from the remaining liquor. The crystals become commercial grade sugar; the liquor is the desugared sugar beet molasses that forms the anti-freezing and deicing composition of the present invention.

'330 patent, col. 5 ll. 9-27. The '330 patent discloses that DSBM made using the Steffen process "exhibits slightly better anti-freezing and deicing properties" than DSBM made by the centrifugation process. The '330 patent nonetheless teaches that DSBMs made from both processes "will generally serve equally well" in the claimed composition and "the manner of producing the [DSBM] is not critical to the present invention." *Id.* at col. 5, ll. 37-44.

Procedural Background

Univar, a licensee of the '330 patent, filed three third party requests for reexamination of the '330 patent. The examiner found a substantial new question of patentability and proceeded to merge these three reexamination proceedings on November 8, 2011. The examiner held the challenged claims invalid as obvious in view of three primary prior art references: Polish Patent No. PL 164018 B1 to Zdzislaw, published Nov. 7, 1990 ("Zdzislaw"); U.S. Patent No. 5,639,319 to Daly ("Daly"); and a journal article titled "Winter is Hell," published July 1997 in Public Works ("Public Works").

On appeal to the Board, Natural argued that Zdzislaw taught a molasses composition containing “approximately 50% of sugar,” such that Zdzislaw’s beet molasses is not equivalent to the ’330 patent’s DSBM. The Board rejected Natural’s argument, finding that Zdzislaw disclosed a deicing composition having the relative amounts of DSBM and ethylene glycol recited in representative claim 1. The Board thus affirmed the examiner’s rejections of claims 1-23 and 25-55 of the ’330 patent as obvious in view of Zdzislaw and Daly, or in view of Zdzislaw, Daly, and Public Works. Joint Appendix (“J.A.”) 24.

The Board also affirmed the examiner’s rejection of representative claim 6 based on Public Works’ disclosure of mixing a beet molasses product with a salt-containing mix. The Board noted that Public Works disclosed deicing mixtures containing 8 gallons of a fermented beet molasses product per ton of salt containing mix (25% road salt and 75% crushed cinders). The Board also found that Public Works discloses a composition comprising “from 13% to 100% by volume DSBM and 0% to 87% by volume of rock salt, which overlapped the ranges of the DSBM and the second component as claimed.” J.A. 649.

Finally, the Board rejected Natural’s objective indicia of nonobviousness, holding that Natural failed to establish a nexus between the claimed invention and industry praise for GEOMELT®. The Board found that the prior art disclosed all the advantages of GEOMELT®’s composition, and that Natural therefore had failed to establish that GEOMELT® has an advantage over the prior art.

Natural moved for rehearing of the Board’s decision, but the Board denied Natural’s request. J.A. 36. Natural now appeals.

DISCUSSION

Natural argues that the Board impermissibly reconstructed the claimed invention of the ’330 patent from

multiple references, including Zdzislaw, Daly, and Public Works. Hindsight bias, Natural asserts, is evident in the Board's reliance on selective portions of each of these disparate references to find all of the limitations of the recited claims. The PTO responds that the Board's findings of fact are supported by substantial evidence, and the Board's conclusion of obviousness was not erroneous.

We discuss representative claims 1 and 6 of the '330 patent in turn.

Standard of Review

Obviousness is a question of law based on underlying facts. *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). The PTAB's legal conclusion of obviousness is reviewed *de novo*; its factual findings are reviewed for substantial evidence. *In re Cuozzo Speed Techs., LLC*, 793 F.3d at 1280.

Substantial evidence "means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938); *accord In re Morsa*, 713 F.3d 104, 109 (Fed. Cir. 2002).

Representative Claim 1

Natural contends that the Board and the examiner never established a *prima facie* case of obviousness because they improperly combined the Zdzislaw, Daly, and Public Works references without addressing the fundamental differences between those references and the challenged claims of the '330 patent. Natural further argues that, even if the examiner had established a *prima facie* case of obviousness, the Board's obviousness conclusion was infected by hindsight bias because the Board failed to consider the extensive objective indicia of nonobviousness in the record.

The PTO responds that the Board correctly rejected Natural's arguments on appeal and that the Board's factual findings regarding motivation to combine are due substantial deference. For the reasons below, we agree with Natural that the Board erred in concluding that the challenged claims of the '330 patent are invalid as obvious. Accordingly, we reverse the judgment of the Board.

Natural contends that Zdzislaw, the main reference relied on by the examiner and the Board, does not teach DSBM, which is expressly recited in the '330 claims as the primary starting ingredient for the claimed deicing composition. According to Natural, Zdzislaw instead teaches a beet molasses product that "contains approximately 50% of sugar." J.A. 52. Zdzislaw's molasses, Natural argues, is thus a far cry from the desugared beet molasses recited in the '330 patent. Natural emphasizes that the '330 patent teaches a process that "removes most, but not all, of the sugar from the beets in the form of beet 'juice.'" Appellant Reply Br. at 3 (quoting '330 patent at col. 3, ll. 51-57; col. 5, ll. 7-16).

In patent reexamination, it is the examiner's burden to demonstrate a *prima facie* case of obviousness. Even before Natural had any obligation to proffer any evidence supporting the validity of the '330 patent, the examiner was required to set forth sufficient facts supporting the examiner's position that the prior art disclosed the limitations of the '330 patent claims in a manner that renders the claimed invention obvious. *Kennametal, Inc. v. Ingersol Cutting Tool Co.*, 780 F.3d 1376, 1384 (Fed. Cir. 2015) (noting that the Patent Office "bears the initial burden of showing a *prima facie* case of obviousness"). Zdzislaw's teaching that the "[m]olasses contains approximately 50% of sugar" directly contradicts the '330 patent's teaching of a process that "removes most, but not all, of the sugar from the beets in the form of beet 'juice.'" *Compare* J.A. 52 (Zdzislaw) *with* '330 patent at col. 3, ll. 51-57; col. 5, ll. 7-16). Since DSBM is the primary ingredient of the

claimed invention, the discrepancy between the amount of sugar content of the beet molasses taught in Zdzislaw and the '330 patent warrants explanation.

The Board attempted to bridge the gap by citing the '330 patent's teachings that DSBM could be made through either of the two processes taught in the '330 patent: the newer "Steffen" process, or an older multi-step process. The Board concluded that the centrifuging method taught in the Zdzislaw reference must have produced DSBM, because the '330 patent taught that either of the two processes "serve equally well" for purposes of manufacturing DSBM. J.A. 13 (citing '330 patent, at col. 5, ll. 42-44). The PTO argues that the Board's finding that Zdzislaw teaches DSBM is thus supported by substantial evidence.

The Board's reasoning rests on the premise that Zdzislaw discloses a process for making DSBM that is equivalent to a process taught in the '330 patent. This reasoning, however, ignores the express teaching in Zdzislaw that the beet molasses product "contains approximately 50% of sugar." J.A. 52. Zdzislaw teaches making molasses in the traditional sugared form. Against this express teaching of the prior art, it was improper for the Board to assume, without citing evidence, that there is no material difference between the beet molasses taught in Zdzislaw, and the DSBM taught in the '330 patent or that the centrifuging process in the former must be the same as in the latter. *See Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) (requiring the consideration of "differences between the prior art and the claims at issue" in an obviousness analysis). We thus hold that substantial evidence does not support the Board's finding that Zdzislaw discloses DSBM.

Natural next notes that Daly, the second primary reference relied on by the Board, is in a different technological field than the claimed invention of the '330 patent. According to Natural, a skilled artisan would not have

found Daly to be reasonably pertinent to the problem of deicing road surfaces because Daly taught the use of DSBM as tire ballast, which serves the unrelated purpose of stabilizing and balancing tires.

The PTO responds that Daly is “reasonably pertinent” prior art because it is directed to the same problem of preventing freezing in the transportation industry, as recited in the ’330 patent. Daly provides a motivation to combine, according to the Board, because it teaches that DSBM is noncorrosive, environmentally friendly, and has a very low freezing point.

The “analogous arts test” governs the question of whether a skilled artisan would have looked to an unrelated prior art reference. Under this test, “a reference is either in the field of the applicant’s endeavor or is reasonably pertinent to the problem of which the inventor was concerned in order to rely on [that] reference as a basis for rejection.” *In re Kahn*, 441 F.3d 977, 986-87 (Fed. Cir. 2006) (quoted with approval in *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007)). Daly teaches the use of DSBM in “a wheel having a pneumatic tire filled with liquid molasses as ballast.” J.A. 47. While Daly recites several of the same advantages of DSBM taught in the ’330 patent, the Board ignored the fact that Daly and the ’330 patent are directed to substantially different problems. Again, it was the burden of the examiner, not Natural, to set forth a *prima facie* case explaining why a person of ordinary skill in the art would have been motivated to combine references in disparate technological fields. To satisfy this burden, the Board must explain why a person of ordinary skill in the art would have found the prior art to be “reasonably pertinent to the problem of which the inventor was concerned.” *Kahn*, 441 F.3d at 986-87. Here, the examiner and the Board both sought to rely on Daly without explaining how the objective of balancing and stabilizing tires using tire ballast would be

reasonably pertinent to the objective of deicing and preventing ice formation on road surfaces.

The PTO, in an attempt to salvage the Board's decision, argues that both Daly and the '330 patent are in the same general field, namely, the transportation industry. Our decision in *In re Clay*, 966 F.2d 656 (Fed. Cir. 1992) informs our analysis of whether two references in the same general industry are reasonably pertinent. In *Clay*, we held that the prior art reference "cannot be considered to be within Clay's field of endeavor merely because both relate to the petroleum industry." *Id.* at 659. Instead, the prior art was not reasonably pertinent to the claimed invention because one taught the use of a gel in "unconfined and irregular volumes," whereas the other taught the use of the gel in a static, regular container. The claimed invention in *Clay* related to storage of oil, whereas the prior art related to extraction of oil. Under such disparate conditions, the prior art could not be considered within the same field of invention. *Clay* is directly applicable to the present case, where Daly teaches the use of DSBM as ballast for the purpose of balancing tires. The '330 patent teaches, in contrast, DSBM as part of a mixture to deice road surfaces. By failing to address this difference in the objectives of the prior art and the claimed invention, the examiner failed to set forth a *prima facie* case for motivation to combine. The Board accordingly erred in adopting the examiner's analysis. We must therefore reverse the Board's judgment that the challenged claims are invalid as obvious.

Upon showing that the Board failed to establish a *prima facie* case of obviousness, Natural had no obligation to present any affirmative arguments or evidence of nonobviousness. Natural nonetheless argued in the alternative that even if the Board had established a *prima facie* case of obviousness, the Board erred in failing to consider the extensive objective indicia of nonobviousness regarding the '330 patent. In response, the PTO

argues that the Board properly discounted Natural's proffered evidence of objective indicia because Natural failed to demonstrate a nexus between such objective indicia and the innovative features of the '330 patent.

Objective indicia of nonobviousness serve precisely to "guard against slipping into use of hindsight." *Graham*, 383 U.S. at 36. Because such objective indicia help anchor abstract analyses of obviousness to actual evidence of the claimed invention's benefits over the prior art, this evidence "must always when present be considered en route to a determination of obviousness." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983). Objective indicia of nonobviousness is particularly useful where, as here, the examiner alleges that an ordinarily skilled artisan would have been motivated to combine prior art references across disparate fields. In this case, our observation that the Board failed to establish a *prima facie* case of obviousness is further supported by Natural's objective evidence of nonobviousness, including industry praise, commercial success, and licensing. J.A. 946-57, 1115-68. A review of the objective indicia confirms that the Board's obviousness conclusion is contradicted by un rebutted, real world evidence of nonobviousness. Natural's evidence included several letters from various municipalities approving the purchase of GEOMELT® and extolling the advantages of GEOMELT® over traditional rock salt. *See* J.A. 946-57. The evidence further encompasses no less than fourteen declarations from customers of GEOMELT®, and the declarations of two licensees of GEOMELT®. *See* J.A. 1115-68. These declarations attest to the many benefits of DSBM in lowering the freezing point of the deicing mixture, reducing corrosiveness, protecting the environment, and reducing overall cost of deicing road surfaces. *See id.*

The PTO's singular response to Natural's evidence of objective indicia is that Natural failed to demonstrate a nexus between the asserted objective indicia and the

specific advantages of the claimed invention over the prior art. Appellee Br. at 36-37 (citing *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995)). The PTO correctly notes that “[i]f commercial success is due to an element in the prior art, no nexus exists.” *Tokai Corp. v. Easton Enterprises, Inc.*, 632 F.3d 1358, 1369 (Fed. Cir. 2011). Here, the PTO does not dispute that GEOMELT® is an embodiment of the claimed invention. Appellee Br. at 36-37. The PTO’s arguments on the lack of a nexus thus rise and fall with its arguments that the claimed invention has no advantages over the prior art. As discussed above, however, the prior art merely taught the use of molasses in general, not DSBM in particular, to deice road surfaces. The PTO does not address the fact that DSBM was previously considered a waste product, but can now be used in a deicing mixture with great efficacy, low environmental impact, and high cost effectiveness. Thus, we reject the Board’s conclusions regarding lack of nexus, and we conclude that the unrebutted objective indicia in the record confirm that the claimed invention would not have been obvious.

Representative Claim 6

We next address the Board’s conclusion that representative claim 6 of the ’330 patent would have been obvious to an ordinarily skilled artisan at the time of the invention. The primary difference between claim 6 and claim 1 of the ’330 patent is that claim 6 recites a deicing composition comprising DSBM and rock salt, “including from 8-10 gallons of [DSBM] per ton of rock salt.” To find this limitation disclosed, the Board relied on a combination of *Zdzislaw*, *Daly*, and *Public Works*. As we have already discussed *Zdzislaw* and *Daly* above, we focus here on the *Public Works* reference.

Public Works teaches the use of ICE BAN, a “fermentation and distillation” product. J.A. 56. The ’330 patent, in contrast, expressly teaches the manufacture of DSBM

as a byproduct from the production of commercial grade sugar. J.A. 4. The '330 patent specifically disparages Public Works and teaches that Public Works' disclosed that fermentation products have various disadvantages compared to DSBM. Specifically, the '330 patent notes that fermentation products "are often biologically reactive," yielding "strong odors and foam." J.A. 35. Where "used on roadways in residential neighborhoods, this unpleasant and unsightly mess may be tracked into garages and homes making these compositions totally unacceptable for use." *Id.* The Board failed to address these differences between the fermentation product of Public Works and the DSBM taught in the '330 patent.

The Board also concluded without evidence that a person of ordinary skill in the art would have "optimized" the amounts of DSBM and road salt to achieve the claimed invention. The Board asserted that such optimization would have been obvious from the teaching in Zdzislaw that the freezing temperature, viscosity, and effectiveness of the molasses composition can be modified by adjusting the relative amounts of the constituent components in the mixture. The Board, however, never made any findings regarding the level of skill of an ordinarily skilled artisan in the field. And as noted above, Zdzislaw taught the use of sugared beet molasses, not DSBM. This difference is critical since DSBM is the primary ingredient in the claimed invention of the '330 patent. The Board could not simply assume, without explanation, that Zdzislaw was directed to the same composition. Thus, the Board erred in concluding that an ordinarily skilled artisan would have modified Public Works in view of Zdzislaw and Daly to achieve the claimed invention of the '330 patent. We therefore reverse the Board's judgment of obviousness regarding representative claim 6.

CONCLUSION

As discussed above, the Board erred in finding the challenged claims of the '330 patent invalid as obvious. Accordingly, we reverse the judgment of the Board.

REVERSED**COSTS**

No costs.