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See Fed. Rule of Appellate Procedure 32.1 generally governing citation of judicial decisions issued on or after Jan. 1, 2007. See also U.S.Ct. of App. Fed. Cir. Rule 32.1.

United States Court of Appeals,  
Federal Circuit.  
PLAS-PAK INDUSTRIES, INC., Appellant,  
v.  
SULZER MIXPAC AG, Appellee.

No. 2014-1447.

Jan. 27, 2015.

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Reexamination No. 95/001,656.

[Andrew C. Ryan](#), Cantor Colburn LLP, of Hartford, CT, argued for the appellant.

[Matthew S. Dicke](#), K & L Gates LLP, of Chicago, IL, argued for the appellee. With him on the brief were [Thomas C. Basso](#), [Alan L. Barry](#), and [Suzanne E. Konrad](#). Of counsel on the brief was [Michael T. Murphy](#), of Washington, DC.

Before [LOURIE](#), [MOORE](#), and [REYNA](#), Circuit Judges.

[LOURIE](#), Circuit Judge.

\*1 Plas-Pak Industries, Inc. (“Plas-Pak”) appeals from the *inter partes* reexamination decision of the United States Patent and Trademark Office (“USPTO”) Patent Trial and Appeal Board (“the

Board”) affirming the examiner's decision not to reject claims 1–15 of U.S. Patent 7,815,384 (“the ‘384 patent”) as obvious under 35 U.S.C. § 103 (2006).<sup>FN1</sup> See *Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, No. 2013007786, 2014 WL 203101 (P.T.A.B. Jan. 17, 2014) (“*Opinion*”). Because the Board did not err in holding that claims 1–15 would not have been obvious, we affirm.

FN1. Because the application of the ‘384 patent was filed before March 16, 2013, the pre-Leahy-Smith America Invents Act version of § 103 applies. See Pub L. No. 112–29, 125 Stat. 284 (2011); 35 U.S.C. § 103 (2006).

## BACKGROUND

Sulzer Mixpac AG (“Sulzer”) owns the ‘384 patent, which is directed to a device and methods for mixing and dispensing multi-component paints. ‘384 patent col. 1 ll. 20–22. Independent claim 1 reads as follows:

1. A device for applying a coating, comprising:

at least two cylindrical cartridges,

a static mixing nozzle in fluid communication with the cartridges,

a spray tip, in fluid communication with the nozzle,

a first flexible hose is disposed between and in fluid communication with the nozzle and the spray tip, and

a second hose, in fluid communication with the spray tip, for supplying atomization air to the

spray tip.

*Id.* col. 11 ll. 20–28. Independent claims 7 and 10 relate to methods for applying a coating using the device described in claim 1. *See id.* col. 12 ll. 1–11, 19–29.

In June 2011, Plas–Pak filed a request for *inter partes* reexamination of claims 1–15 of the '384 patent, which the USPTO granted. The examiner initially issued a Non-final Office Action in which he adopted Plas–Pak's proposed rejections under § 103 based on combinations of references involving U.S. Patent 4,745,011 of Fukuta ("Fukuta"), but declined to adopt Plas–Pak's proposed rejections based on combinations of references involving U.S. Patent 6,241,125 of Jacobsen ("Jacobsen"). After additional briefing by the parties, however, the examiner issued a Right of Appeal Notice in which he withdrew the previously adopted Fukuta-based rejections, maintained his refusal to adopt the Jacobsen-based rejections, and determined that claims 1–15 of the '384 patent would not have been obvious. Plas–Pak appealed to the Board.

On appeal, the Board affirmed the examiner's decision not to reject claims 1–15 as obvious. *Opinion* at \*10–11. The Board first found that Fukuta discloses pumps, check valves, stop valves, and escape valves that are essential to Fukuta's "principle of operation," *i.e.*, "prevent[ing] backflow even when the propensity for backflow occurs repeatedly and at high velocity." *Id.* at \*5. In light of that finding, the Board rejected Plas–Pak's argument that it would have been obvious to replace Fukuta's pumps and valves with the cylindrical cartridges and mixing gun of U.S. Patent 3,989,228 of Morris ("Morris"). *Id.* at \*4. The Board reasoned that "Fukuta is directed to th[e] very 'manner in which the backflow of the mixture is prevented' (*i.e.*, by using check valves, stop valves, and escape valves). Hence the modification suggested by [Plas–Pak] ... would impact this functionality in a fundamental way so as to change the manner in which

the apparatus of Fukuta functions." *Id.* at \*5. Because the combination of Fukuta and Morris would require "substantial reconstruction" and "affect[ ] the principle of operation" disclosed in Fukuta, the Board held that the claims of the '384 patent would not have been obvious over Fukuta in view of Morris. *Id.* at \*7.

\*2 The Board then found that Jacobsen discloses a device that dispenses fluid materials into a surface crack so as to minimize leakage, "but does not disclose dispensing of fluid by spraying or that a spray nozzle would attain this objective." *Id.* at \*8. In light of that finding, the Board rejected Plas–Pak's argument that combining the mixing gun of Jacobsen with the spray nozzle of U.S. Patent Publication 2002/0170982 A1 of Hunter ("Hunter") would have been "nothing more than predictable variation of prior art elements according to their established function[s]." *Id.* The Board reasoned that modifying Jacobsen to include Hunter's spray nozzle, as Plas–Pak suggested, would undermine "the specific function of dispensing fluid materials directly into surface cracks to minimize leakage" and "render Jacobsen unsuitable for [that] intended purpose." *Id.* The Board thus held that the claims of the '384 patent would not have been obvious over Jacobsen in view of Hunter. *Id.* at \*10.

Plas–Pak timely appealed, and we have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

## DISCUSSION

Our review of a Board decision is limited. *In re Baxter Int'l, Inc.* 678 F.3d 1357, 1361 (Fed.Cir.2012). We review the Board's legal determinations *de novo*, *In re Elsner*, 381 F.3d 1125, 1127 (Fed.Cir.2004), but we review the Board's factual findings underlying those determinations for substantial evidence, *In re Gartside*, 203 F.3d 1305, 1316 (Fed.Cir.2000). A finding is supported by substantial evidence if a reasonable mind might accept the evidence to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229, 59 S.Ct. 206, 83 L.Ed. 126 (1938).

“[O]bviousness is a question of law based on several underlying factual findings,” *In re Baxter*, 678 F.3d at 1361, including what a reference teaches, *Rapoport v. Dement*, 254 F.3d 1053, 1060–61 (Fed.Cir.2001), and whether proposed modifications would change a reference's “principle of operation,” see *In re Mouttet*, 686 F.3d 1322, 1332 (Fed.Cir.2012) (finding “the Board's determination that eliminating the optical components of Falk would not destroy its principle of operation to be supported by substantial evidence”). Where “a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield predictable results.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007). However, combinations that change the “basic principles under which the [prior art] was designed to operate,” *In re Ratti*, 46 C.C.P.A. 976, 270 F.2d 810, 813 (CCPA 1959), or that render the prior art “inoperable for its intended purpose,” *In re Gordon*, 733 F.2d 900, 902 (Fed.Cir.1984), may fail to support a conclusion of obviousness.

A.

Plas-Pak primarily argues that the Board erred by limiting Fukuta's “principle of operation” to its contribution to the art, *i.e.*, the addition of stop valves to prevent backflow. According to Plas-Pak, the Board should have instead broadly defined Fukuta's “principle of operation” as the “movement of two separate reactive components brought together at a mixer and dispensed through a dispenser.” Appellant's Br. 29. Then, Plas-Pak contends, adding Morris' cylindrical cartridges and mixing gun would have been nothing more than a simple substitution to effectuate the same end goal of dispensing multi-component fluids, thus failing to alter Fukuta's “principle of operation.” Simply combining components with well-known functions to achieve predictable results, Plas-Pak contends, would have rendered claims 1–15 obvious.

\*3 Sulzer responds that the Board correctly found that Fukuta's “principle of operation” “is entirely directed to a method of coating a two-component mixture using a system of pumps and valves to prevent backflow.” Appellee's Br. 21. Relying on a reference's contribution to the art to understand its “principle of operation” is not error, Sulzer contends, and Fukuta undoubtedly touts the necessary addition of stop valves to combat the prior art's well-established backflow problem. Thus, Sulzer argues, replacing the pumps and valves as Plas-Pak suggests would “change the way the components of Fukuta are supplied and dispensed” by removing the very system “Fukuta teaches [as] achieving its goal of preventing backflow.” *Id.* at 23. Because combining Fukuta and Morris would fundamentally alter Fukuta's “principle of operation,” Sulzer maintains that the combination would not have supported a conclusion of obviousness.

We agree with Sulzer that the Board's definition of Fukuta's “principle of operation” and the Board's finding that combining Fukuta and Morris would fundamentally alter that “principle of operation” are supported by substantial evidence. As the Board noted, Fukuta is expressly “directed to [the] very ‘manner in which the backflow of the mixture is prevented.’” *Opinion* at \*5. Indeed, Fukuta is rife with statements defining “the invention” as adding stop valves to prevent backflow. See, e.g., Fukuta col. 1 ll. 46–51 (“[T]he inventors of the present invention have proposed placing stop valves disposed between the junction and the check valve in addition to the construction of the conventional two-component mixing type coating apparatus described above.”); *id.* col. 2 ll. 19–23 (noting that “the present invention [ ] is characterized ... by closing the stop valves when the spraying operation of the gun is stopped”); *id.* col. 3 ll. 56–58 (“The two-component mixing type coating method of the present invention uses the stop valves as a backflow prevention means ...”). “The manner in which the two-component mixing apparatus of Fukuta prevents backflow is unique in its implementation,”

*Opinion* at \*6, and the Board correctly limited Fukuta's "principle of operation" to that specific functionality. Therefore, replacing the valves and pumps of Fukuta's system with the cylindrical cartridges and mixing gun of Morris, which fail to achieve comparable backflow prevention, *see id.* ("[The] embodiments of Morris do not disclose the functions of check valves 4a, 4b, the stop valves 51, 5b, or the escape valve 6 disclosed in Fukuta ...."), fundamentally alters Fukuta's "principle of operation." Such a change in a reference's "principle of operation" is unlikely to motivate a person of ordinary skill to pursue a combination with that reference. *In re Mouttet*, 686 F.3d 1322; *In re Ratti*, 46 C.C.P.A. 976, 270 F.2d 810. Accordingly, the Board did not err in concluding that claims 1–15 would not have been obvious over Fukuta in view of Morris.<sup>FN2</sup>

FN2. Plas–Pak raised the same arguments with respect to the combination of Fukuta and U.S. Patent 5,033,650 of Colin, which the Board rejected. *Opinion* at \*7–8. We therefore affirm the Board's findings on that issue as well.

#### B.

\*4 Plas–Pak alternatively argues that the Board incorrectly limited Jacobsen's "intended purpose" to filling surface cracks. According to Plas–Pak, a person of ordinary skill would have understood that the "piston-driven cartridges, static mixing nozzle, and flexible hose of Jacobsen would have applications beyond filling cracks." Appellant's Br. 58. Thus, Plas–Pak contends, Jacobsen should instead be understood as "a dispensing kit suited in alternate manners of connection for conveying multiple components of a reactive material before being discharged where and when needed." *Id.* at 20, 270 F.2d 810. Adding Hunter's spray nozzle would not undermine that broader "intended purpose," Plas–Pak adds, and therefore the combination is a predictable variation of prior art elements that would have rendered claims 1–15 of the '384 patent obvious.

Sulzer responds that the Board's definition of Jacobsen's "intended purpose" is supported by substantial evidence. According to Sulzer, Jacobsen expressly describes the invention, and not just a specific embodiment, as " 'relate[d] to devices usable for dispensing fluid material(s) via conventional dispensing outlet nozzle(s) directly into a surface crack of a structure.' " Appellee's Br. 38 (quoting Jacobsen col. 1 ll. 13–16). Moreover, Sulzer continues, Jacobsen teaches that its "primary goal is to minimize or avoid leakage." *Id.* at 41, 270 F.2d 810. Adding a spray nozzle as Plas–Pak suggests would necessarily undermine that express goal: "[a]s such, one of ordinary skill in the art would have no reason to substitute the controlled dispensing nozzle of Jacobsen with the spray nozzle of Hunter." *Id.* Thus, Sulzer argues, the combination does not support a conclusion of obviousness.

We agree with Sulzer that the Board's definition of Jacobsen's "intended purpose" and the Board's finding that adding Hunter's spray nozzle would render Jacobsen "inoperable for its intended purpose" are supported by substantial evidence. As the Board noted, Jacobsen's dispensing system has the very "specific function of dispensing fluid materials directly into surface [ ] cracks to minimize leakage." *Opinion* at \*8. Indeed, Jacobsen repeatedly recites that limited purpose. *See, e.g.*, Jacobsen col. 1 ll. 13–16 ("This invention relates to devices usable for dispensing fluid material(s) via conventional dispensing outlet nozzle(s) directly into a surface crack of a structure ...."); *id.* col. 1 ll. 63–65 ("The material dispensing tube is then seated against the inlet tube bore end to funnel the discharged material directly into the underlying crack."); *id.* col. 2 ll. 40–45 ("This invention relates to devices for establishing leakproof seated connections ... used in dispensing fluid material from cartridges, for directing such fluid into cracks in an underlying structure."). And Jacobsen does not teach how a spray nozzle might accomplish the "intended purpose" of "dispensing fluid materials directly into cracks."

*Opinion* at \*8. Therefore, as the Board found, modifying Jacobsen to accommodate the spray nozzle of Hunter would render Jacobsen “inoperable for its intended purpose,” and a person of ordinary skill would thus not have been motivated to pursue the combination. *In re Gordon*, 733 F.2d 900; *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374 (Fed.Cir.2007). Accordingly, the Board did not err in concluding that claims 1–15 would not have been obvious over Jacobsen in view of Hunter.

#### CONCLUSION

\*5 We have considered the remaining arguments and find them unpersuasive. Because the Board did not err in finding that the prior art combinations would either alter Fukuta's “principle of operation” or render Jacobsen “inoperable for its intended purpose,” we affirm the Board's decision to decline to make the proposed obviousness rejections of claims 1–15 of the '384 patent.

#### AFFIRMED.

C.A.Fed.,2015.

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--- Fed.Appx. ----, 2015 WL 328222 (C.A.Fed.)

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