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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN A. EIHUSEN, NORMAN LYNN NEWHOUSE, and
NICHOLAS NOEL KLEINSCHMIT

Appeal 2014-008776¹
Application 13/147,624²
Technology Center 3700

Before TARA L. HUTCHINGS, AMEE A. SHAH, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

HUTCHINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner’s final rejection of claims 1, 2, 4, 5, 7, and 9–13. We have jurisdiction under 35 U.S.C. § 6(b).

¹ Our decision references Appellants’ Appeal Brief (“App. Br.,” filed May 27, 2014), Reply Brief (“Reply Br.,” filed July 22, 2014), and Substitute Specification (“Spec.,” filed Aug. 3, 2011), and the Examiner’s Answer (“Ans.,” mailed June 12, 2014) and Final Office Action (“Final Act.,” mailed Nov. 26, 2013).

² Appellants identify Hexagon Technology AS, a subsidiary of Hexagon Composites ASA, as the real party in interest. App. Br. 1.

We REVERSE.

CLAIMED INVENTION

Appellants' claimed invention relates to a pressure vessel for containing a variety of fluids under pressure. Spec. ¶ 2.

Claims 1 and 7 are the independent claims on appeal. Claims 1 and 7, reproduced below, are illustrative:

1. A pressure vessel having a first end with a first boss and the vessel having a cylindrical portion, the vessel comprising:

a liner;

a composite shell disposed over the liner;

a first longitudinal vent disposed between the liner and the composite shell, the first longitudinal vent comprising an elongated vent defining element, the first longitudinal vent extending at least from the cylindrical portion to the first boss; and

a tape disposed between the vent defining element and the composite shell.

7. A pressure vessel having a first end with a first boss and having a second end with a second boss, the vessel having a cylindrical portion, the vessel comprising:

a liner;

a composite shell disposed over the liner;

a plurality of first longitudinal vents disposed between the liner and the composite shell, each first longitudinal vent comprising a first elongated vent defining element, each first longitudinal vent extending at least from the cylindrical portion to the first boss; and

a plurality of second longitudinal vents disposed between the liner and the composite shell, each second longitudinal vent comprising a second elongated vent defining element, each second longitudinal vent extending at least from the cylindrical portion to the second boss;

wherein each of the plurality of first longitudinal vents is circumferentially offset around the cylindrical portion of the vessel from each of the plurality of second longitudinal vents.

REJECTIONS

Claim 1 is rejected under 35 U.S.C. § 103(a) as unpatentable over Duvall (US 5,476,189, iss. Dec. 19, 1995), Brupbacher (US 6,648,167 B1, iss. Nov. 18, 2003), and Walker (US 4,241,843, iss. Dec. 30, 1980).

Claims 2, 9, and 10 are rejected under 35 U.S.C. § 103(a) as unpatentable over Duvall, Brupbacher, Walker, and Schlag (US 2009/0057319 A1, pub. Mar. 5, 2009).

Claim 4 is rejected under 35 U.S.C. § 103(a) as unpatentable over Duvall, Brupbacher, Walker, and Clausen (US 4,107,372, iss. Aug. 15, 1978).

Claim 5 is rejected under 35 U.S.C. § 103(a) as unpatentable over Duvall, Brupbacher, Walker, and Hirata (US 5,901,379, iss. May 11, 1999).

Claim 7 is rejected under 35 U.S.C. § 103(a) as unpatentable over Duvall and Brupbacher.

Claims 11–13 are rejected under 35 U.S.C. § 103(a) as unpatentable over Duvall, Brupbacher, and Schlag.

ANALYSIS

Independent Claim 1, and Dependent Claims 2, 9, and 10

We are persuaded by Appellants' argument that the Examiner has not provided articulated reasoning with rational underpinnings for modifying Duvall and Brupbacher with Walker to arrive at the claimed invention without impermissible hindsight. *See* App. Br. 8–15; *see also* Reply Br. 8–15.

In rejecting claim 1 under 35 U.S.C. § 103(a), the Examiner relies on Duvall for disclosing a pressure vessel having a liner and a composite shell disposed over the liner. Final Act. 2–3 (citing Duvall, Figs. 1, 2, col. 3, ll. 16–18). The Examiner finds that Duvall does not disclose a first longitudinal vent, as called for in claim 1, and relies on Brupbacher to cure the deficiency. *Id.* at 3–4 (citing Brupbacher, Figs. 1, 3, 4; col. 2, l. 65–col. 3, l. 2; col. 7, ll. 15–48). The Examiner acknowledges that the combination of Duvall and Brupbacher does not teach “a tape disposed between the vent defining element and a composite shell,” as recited in claim 1, and relies on Walker to cure the deficiency. *Id.* at 4–5.

Walker relates to welding a multi-piece metallic tank without damaging the lining material. Walker, col. 1, ll. 6–9. Walker describes, with reference to Figure 1, assembling the metallic tank by placing a one-piece inner plastic tank 10 inside vertically divided foam insulating halves 12b and 12c. *Id.* at col. 3, ll. 26–28. This assembly is placed into a lower half portion 14a of the metallic tank. *Id.* Each of foam insulating halves 12b, 12c includes notch 12a, and a high temperature silicon rubber shield 18 is placed into notch 12a and fastened. *Id.* col. 3, ll. 33–35. Upper half portion 14b of the metallic tank is fitted over the assembly, and the assembly is welded at the junction of the lower tank portion 14a and upper tank portion 14b. Heat shield 18 insulates foam insulating halves 12b and 12c from heat damage during welding. *Id.* at col. 3, ll. 36–42.

The Examiner finds that Walker’s heat shield constitutes the claimed tape, as recited in claim 1. Final Act. 4–5. And the Examiner reasons that

[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify the pressure vessel of Duvall et al., in view of Brupbacher et al., to teach a tape

disposed between a liner and outer shell, as taught by Walker et al., because including the tape would allow for both strengthening of the pressure vessel and holding the spacers of Duvall et al., in view of Brupbacher et al., in place which would keep them from moving around when liquid flows through.

Id. at 5. But it is unclear how, and the Examiner does not adequately explain how, one of ordinary skill in the art would be motivated to modify the Duvall/Brupbacher pressure vessel to include “a tape disposed between the vent defining element and the composite shell,” as recited in claim 1, based on Walker’s disclosure of a high-temperature silicon rubber shield to protect foam from heat damage during a welding process.

As such, we do not sustain the Examiner’s rejection of claim 1 under 35 U.S.C. § 103(a). For the same reasons, we also do not sustain the rejection of claims 2, 9, and 10, which depend therefrom.

Dependent Claims 4 and 5

Claims 4 and 5 each depend from claim 1. The Examiner’s rejections of these dependent claims do not cure the deficiency in the Examiner’s rejection of claim 1. Therefore, we do not sustain the Examiner’s rejections of claims 4 and 5 under 35 U.S.C. § 103(a) for the same reasons set forth above with respect to claim 1.

Independent Claim 7

We are persuaded by Appellants’ argument that the Examiner erred in rejecting independent claim 7 under 35 U.S.C. § 103(a) because the combination of Duvall and Brupbacher does not disclose or suggest “each of the plurality of first longitudinal vents is circumferentially offset around the cylindrical portion of the vessel from each of the plurality of second longitudinal vents,” as recited in claim 7. *See* App. Br. 16–18; *see also* Reply Br. 16–18. The Examiner acknowledges that the combination of

Duvall and Brupbacher does not describe the argued limitation. Final Act. 10. But the Examiner posits that it would have been obvious to modify Duvall and Brupbacher to arrive at the claimed invention, because the modification involves only routine skill in the art. *Id.* (citing *In re Japikse*, 181 F.2d 1019 (CCPA 1950)).

There are cases where minor changes in the location and/or orientation of elements to arrive at the claimed invention may be an obvious matter of design choice. *See, e.g., KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007) (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious”) (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)); *In re Japikse*, 181 F.2d at 1031 (the Board did not err in holding “there would be no invention in shifting the starting switch disclosed by Cannon to a different position since the operation of the device would not thereby be modified.”) However, simply stating that parts could be rearranged, without more, is insufficient to support a conclusion of obviousness. Instead, there must be articulated reasoning with rational underpinning to support the legal conclusion of obviousness. *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

In view of the foregoing, we do not sustain the Examiner’s rejection of independent claim 7 under 35 U.S.C. § 103(a).

Dependent Claims 11–13

Claims 11–13 depend, directly or indirectly, from independent claim 7. The Examiner’s rejection of these dependent claims does not cure the deficiency in the Examiner’s rejection of claim 7. Therefore, we do not

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sustain the Examiner's rejection of claims 11–13 under 35 U.S.C. § 103(a) for the same reasons set forth above with respect to claim 7.

DECISION

The Examiner's rejections of claims 1, 2, 4, 5, 7, and 9–13 under 35 U.S.C. § 103(a) are reversed.

REVERSED