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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ARMIN BUSEKROS, ROBERT PRZYBYL, and GREGORY JEUNET-MANCY

Appeal 2018-003091
Application 14/317,643
Technology Center 3700

Before STEFAN STAICOVICI, LEE L. STEPINA, and ARTHUR M. PESLAK, *Administrative Patent Judges*.

STAICOVICI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Armin Busekros et al. ("Appellants")[1] appeal under 35 U.S.C. § 134(a) from the Examiner's decision in the Final Office Action (dated Feb. 9, 2017, hereinafter "Final Act.") rejecting claims 1–3 and 5–13.[2] We have jurisdiction under 35 U.S.C. § 6(b).

SUMMARY OF DECISION

We AFFIRM.

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[1] Ansaldo Energia IP UK Limited is the applicant and is identified as the real party of interest in Appellants' Appeal Brief 2 (filed Aug. 7, 2017, hereinafter "Appeal Br.").

[2] Claim 4 is canceled. *See* Appellants' Amendment 6 (filed Dec. 5, 2016).

INVENTION

Appellants' invention relates to a pressure casing for a turbomachine having "two casing shells which are removably connected in a pressure-tight manner in a parting plane by means of a flange." Spec. 1, ll. 13–18.

Sole independent claim 1, reproduced below, is representative of the claimed subject matter:

> 1. A pressure casing of a turbomachine, comprising:
>
> at least two casing shells which are connected in a pressure-tight manner in a parting plane by a flange, the casing shells being pressed together with sealing effect in the parting plane in the region of the flange by at least one threaded bolt which extends through a through hole in the flange perpendicularly to the parting plane, and wherein the at least one threaded bolt is charged by a heat transfer medium, in that at least one of feed holes or outlet holes for the heat transfer medium are passed through the flange; and
>
> an annular space provided between the inner lateral surface of the through hole and a shaft of the threaded bolt, the annular space being sealed in a gas tight manner on its both longitudinal ends and this annular space is charged by the heat transfer medium.

REJECTIONS

I. The Examiner rejects claims 1–3, 5–7, and 9–11 under 35 U.S.C. § 103 as being unpatentable over Kunihiko (JP 59-079011 A, pub. May 8, 1984) and Seaton (US 7,641,240 B2, pub. Jan. 5, 2010).

II. The Examiner rejects claims 1–3, 5–8, and 10–13 under 35 U.S.C. § 103 as being unpatentable over Czachor et al. (US 6,352,404 B1, iss. Mar. 5, 2002, hereinafter "Czachor") and Seaton.

ANALYSIS

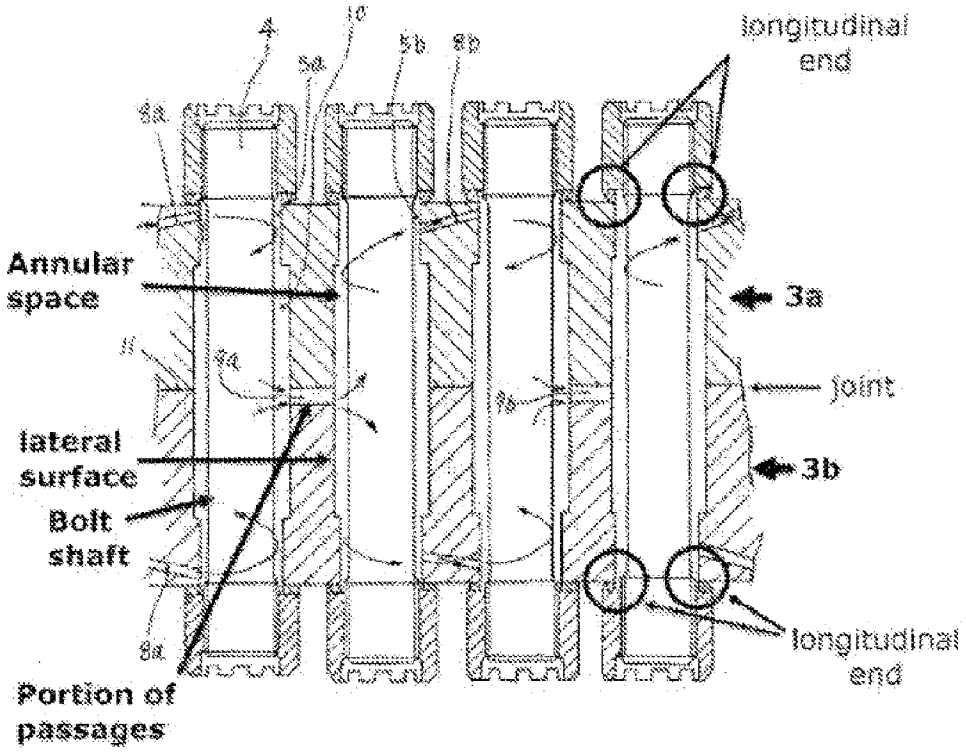
Rejection I

Appellants have not presented arguments for the patentability of claims 2, 3, 5–7, and 9–11 apart from claim 1. *See* Appeal Br. 6–7. Therefore, in accordance with 37 C.F.R. § 41.37(c)(1)(iv), we select claim 1 as the representative claim to decide the appeal, with claims 2, 3, 5–7, and 9–11 standing or falling with claim 1.

The Examiner finds that Kunihiko discloses most of the limitations of claim 1, including, *inter alia*, an annular space, located between an inner surface of through hole 5a and a shaft of threaded bolt 4, that is charged by a fluid (steam) heat transfer medium. *See* Final Act. 4–5 (citing Abstract). The Examiner further relies on Seaton to disclose that the annular space is sealed in a gas tight manner at both longitudinal ends. In the Advisory Action Before the Filing of an Appeal Brief (dated May 4, 2017, hereinafter "Advisory Act."), the Examiner explains that Seaton "explicitly teaches the principle [of] sealing the annular space between flanges around and this structure wants to retain the gas in the annular pipe." Advisory Act. 2.

Appellants argue that Seaton uses bolts 13, 14 to seal a joint between flanges 11, 12, but does not disclose sealing both longitudinal ends of an annular space located between an inner surface of a through hole and the shaft of a threaded bolt in a gas tight manner. Appeal Br. 7. According to Appellants, "[t]he longitudinal ends of the annular space [in Seaton] are not sealed." *Id.*

In response, the Examiner provides an annotated copy of Kunihiko's Figure 5, reproduced below:



Annotated Figure 5 of Kunihiko shows a cross sectional view of a cooling part having horizontal flanges denoted by the Examiner as 3a and 3b, and showing an annular space having longitudinal ends. *See* Examiner's Answer 4 (dated Nov. 30, 2017, hereinafter "Ans.").

The Examiner takes the position that the structure in Kunihiko "interposed between opposite ends of bolt (4) and flanges (3a/3b) are suggestive of seals such as a washer or gasket." Ans. 2–3; *see also* Examiner's encircled structure in annotated Figure 5 of Kunihiko. The Examiner explains that because the intent of Kunihiko "is to heat or cool all of the bolts along the entire length of the passage . . . there is no reason to conclude that . . . the longitudinal ends of the bolts are not sealed." Ans. 4.

The Examiner further notes, however, that instead of relying on Kunihiko alone, Seaton is cited for the general teaching that "it is known to

be desirable to seal the joint to preclude the escape of steam." *Id.* at 9. As such, according to the Examiner, "one of ordinary skill in the art would recognize that this principle applies to any joints of a passage carrying steam or any other fluid" and, moreover, "would fairly suggest that when flanges are tighten[ed] by bolts, all joints formed between the flanges as well as between the flanges and bolts should be sealed . . . [to] resist leakage (where such joints form a part of a passage)." *Id.* The Examiner concludes that "Seaton has been included to provide evidence that it is well known that it is desirable to seal the joints of a passage carrying a fluid." *Id.* at 11.

Appellants reply that the Examiner appears to improperly rely on a theory of inherency, but provides "no reason why the feature of the annular space being sealed in a gas tight manner on both its longitudinal ends is necessarily present in . . . Kunihiko." Reply Brief 3 (filed Jan. 30, 2018, hereinafter "Reply Br."). Appellants assert that the drawings of Kunihiko do not support the Examiner's position, and Kunihiko does not disclose that the annular space is sealed in a gas tight manner on both its longitudinal ends. *Id.* at 4. According to Appellants, Kunihiko's lack of disclosure of "intentional leakage . . . does not support a prima facie case of obviousness." *Id.* Appellants conclude that because Kunihiko does not disclose sealed ends and because Seaton only discloses a sealed flange, "independent claim 1 is distinguishable over the cited references." *Id.* at 5.

The lack of an express disclosure of a particular claim element does not defeat a rejection under 35 U.S.C. § 103(a), and such a requirement would essentially defeat the purpose of 35 U.S.C. § 103(a). We must attribute skill to the hypothetical person described in 35 U.S.C. § 103(a). *In re Sovish,* 769 F.2d 738, 742 (Fed. Cir. 1985). Here, given that Figure 5 of

Kunihiko shows an element having a different shading than that of the bolt head and the flanges 3a, 3b, and moreover, is located between the head of bolt 4 and the flange (longitudinal end), we agree with the Examiner that a skilled artisan would have readily understood that Kunihiko suggests a seal at the longitudinal ends. *See* Ans. 3–4. We, thus, agree with the Examiner's finding that the structures in Kunihiko "interposed between opposite ends of bolt (4) and flanges (3a/3b) are suggestive of seals." *Id.* at 2.

Furthermore, an artisan must be presumed to know something about the art apart from what the references disclose. *See In re Jacoby*, 309 F.2d 513, 516 (CCPA 1962). In this case, given that the flow of fluid through cooling holes 8a and 8b of Kunihiko's Figure 5 is shown as directed towards the longitudinal ends and then towards the parting plane of flanges 3a, 3b suggests to the skilled artisan that the fluid does not escape therefrom, but rather, flows from a first bolt annular space to a second bolt annular space through passages 9a, 9b in the flange (*see* Kunihiko, Fig. 5). We further note that the Examiner does not rely solely on Kunihiko to disclose sealing the longitudinal ends of the annular space, but also relies on Seaton for the general teaching that a fluid passage should be sealed. *See* Ans. 9; *see also* Advisory Act. 2. As such, in light of Kunihiko's fluid flow path and Seaton's disclosure of sealing a fluid passage, the Examiner is on solid footing to assert that in Kunihiko "all joints formed between the flanges as well as between the flanges and bolts should be sealed . . . [to] resist leakage." Ans. 9. We, thus, agree with the Examiner that "the person of ordinary skill in the art would have understood it would be more desirable to have the annular space be sealed in a gas tight manner on the longitudinal ends rather than leak." *Id.* at 10.

Lastly, we note that when an improvement is technology-independent and the combination of references results in a product or process that is more desirable, an implicit motivation to combine exists even absent any hint of suggestion in the references themselves. "In such situations, the proper question is whether the ordinary artisan possesses knowledge and skills rendering him capable of combining the prior art references." *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006). Here, a person of ordinary skill in the art would readily appreciate that the benefits gained by providing a fluid passage seal, as taught by Seaton, would also be achieved in the annular space of Kunihiko's bolts 4, especially in light of Kunihiko's fluid flow path and Seaton's disclosure that a seal provides the benefit of preventing steam leakage. Appellants do not provide evidence to persuasively show that the modification of Kunihiko to provide a seal at the longitudinal ends of the annular space would have been beyond the technical grasp of a person of ordinary skill in the art.

In conclusion, for the foregoing reasons, we sustain the rejection of claim 1 as unpatentable over Kunihiko and Seaton. Claims 2, 3, 5–7, and 9–11 fall with claim 1.

Rejection II

We agree with the Examiner that Czachor discloses pressure casing 10 including, *inter alia*, casing shells 12, 14 connected in a pressure-tight manner using flanges 24, 28 and threaded bolt 30 that is charged by a heat transfer fluid medium flowing in the annular space located between the shaft of bolt 30 and the lateral surface of the hole. Final Act. 10–11 (citing

Czachor, col. 2, l. 65–col. 3, l. 7, col. 3, ll. 22–29, Fig. 3). The Examiner is also correct that as the heat transfer fluid medium flows through axial passage 50 of channel 48 formed in at least one of mating surfaces 42, 46 of flanges 28, 24 it also flows through the annular spaces located between the shaft of various bolts and the lateral surface of respective holes. *Id.* at 11 (citing Czachor, col. 3, ll. 22–29, Fig. 2). As such, a skilled artisan would readily appreciate that given that the flow of heat transfer fluid medium occurs along passage 50, via radial channels 52, 54, the fluid does not escape (leaks) from the annular spaces located between the shaft of bolts 30 and the lateral surface of respective holes. *See* Ans. 7.

Furthermore, as discussed above, the Examiner relies on Seaton for the general teaching that a fluid passage should be sealed. *See* Final Act. 11–12, Ans. 9; *see also* Advisory Act. 2. As such, in light of Czachor's fluid flow path and Seaton's disclosure of sealing a fluid passage, the Examiner is on solid footing to assert that in Czachor "all joints formed between the flanges as well as between the flanges and bolts should be sealed . . . [to] resist leakage." Ans. 9. We, thus, agree with the Examiner that "the person of ordinary skill in the art would have understood it would be more desirable to have the annular space be sealed in a gas tight manner on the longitudinal ends rather than leak." *Id.* at 10.

Appellants submit the same contentions of error discussed *supra*. *See* Appeal Br. 6–7; Reply Br. 2–5. However, we are not persuaded for the same reasons discussed above in Rejection I and with respect to the Examiner's combination of Czachor and Seaton. Accordingly, for the foregoing reasons, we also sustain the rejection of claims 1–3, 5–8, and 10–13 under 35 U.S.C. § 103 as unpatentable over Czachor and Seaton.

DECISION

The Examiner's decision to reject claims 1–3 and 5–13 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED