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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GARY M. MCBRIEN

Appeal 2019-004005
Application 14/812,758
Technology Center 3700

Before MICHAEL J. FITZPATRICK, RICHARD H. MARSCHALL, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–20, which constitute all the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Hamilton Sundstrand Corporation. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The invention relates to dual mode fuel pumps for aircraft. Spec.
¶¶ 1–2. Claims 1, 10, and 18 are independent. Claim 1, reproduced below,
is illustrative of the claimed subject matter:

1. A system to provide a pressurized fluid, comprising:
 - a pump having a pump inlet and a pump outlet, the pump to provide a fluid flow;
 - a bypass path to direct the fluid flow from the pump outlet to the pump inlet;
 - a load path having a load path pressure, the load path including a fluid accumulator to accumulate a fluid volume and at least one load device;
 - a bypass regulator valve in exclusive fluid communication with the pump outlet, the bypass path, and the load path, the bypass regulator valve comprising a body, an inlet side of the body, an outlet side of the body opposite the inlet side and a sidewall of the body extending between the inlet and outlet sides and being disposed immediately adjacent to the pump outlet such that the bypass path and the load path directly emerge from the sidewall and the outlet side, respectively; and
 - a controller to direct the fluid flow to the load path in response to the load path pressure being less than a low load path threshold pressure via the bypass regulator valve and to direct the fluid flow to the bypass path in response to the load path pressure being greater than a high load path threshold pressure via the bypass regulator valve.

Appeal Br. 14 (Claims App.).

REJECTIONS

1. Claims 1–7, 9–15, 17, 18, and 20 are rejected under 35 U.S.C. § 103 as unpatentable over Baker,² Yuan,³ and Terada.⁴ Final Act. 6.
2. Claims 8, 16, and 19 are rejected under 35 U.S.C. § 103 as unpatentable over Baker, Yuan, Terada, and Thompson.⁵ Final Act. 15.

OPINION

All of the independent claims require a bypass regulator valve “in exclusive fluid communication with the pump outlet.” *See* Appeal Br. 14–16 (Claims App.). The Examiner relies on similar findings for this limitation in all three claims. *See* Final Act. 7, 10, 14.

In the rejection of claim 1, the Examiner finds that Baker discloses a pump with an inlet and outlet, a load device, and a bypass valve. Final Act. 6. The Examiner further finds that Yuan discloses a fluid accumulator, and determines that it would have been obvious to modify the load path of Baker with Yuan’s accumulator “for the purpose of reducing pressure ripples during pump power fluctuation.” *Id.* at 7. As to the claimed “bypass regulator valve in exclusive fluid communication with the pump outlet,” the Examiner finds that Terada discloses this limitation because it teaches a bypass valve having an inlet, outlet, and sidewall “immediately downstream of a pump (20) outlet (via 11).” *Id.* The Examiner determines that “it would

² US 20150020884 A1, published Jan. 22, 2015 (“Baker”).

³ US 2012/0093968 A1, published Apr. 19, 2012 (“Yuan”).

⁴ US 8,434,508 B2, issued May 7, 2013 (“Terada”).

⁵ US 6,412,476 B1, issued July 2, 2002 (“Thompson”).

have been obvious to modify Baker/Yuan with a means for physically abutting the bypass regulator valve with the pump outlet, and the bypass path and the load path directly, physically emerging from the bypass regulator valve . . . to provide a known structural means to physically couple the bypass valve to the pump and load path, as necessitated by Baker/Yuan.” *Id.*

Appellant argues that Terada’s “relief valve 1 does not provide for exclusive fluid communication with Terada’s pump 20 as in the claimed invention” because “some quantity of fluid is always flown toward the engine parts.” Appeal Br. 8. More specifically, Appellant argues that “we can assume that at least some, non-zero quantity of the fluid or oil arriving at the flow splitter proceeds to the engine parts in the embodiments of FIGS. 1 and 2.” *Id.* at 9. According to Appellant, “any such flows of fluid between the pump 20 and the engine parts negates any possibility of Terada’s disclosure including a bypass regulator valve that is in exclusive fluid communication with the pump outlet.” *Id.* at 10. Appellant contends that the Examiner improperly interprets Terada’s pressure relief valve to include passage 10, and that because passage 10 “is not dependent upon the operation of the relief valve 1,” the logical conclusion is that the relief valve 1 cannot be defined to include passage 10. *Id.* at 10–11.

In response, the Examiner construes the “bypass regulator valve in exclusive fluid communication with a pump outlet” limitation “to only require a direct, exclusive communication between the pump outlet and an inlet of the bypass regulator valve in the same manner as the applicant’s FIG. 1.” Ans. 19. The Examiner finds that both Terada and the Specification disclose the valve “as the first and only fluid destination

directly downstream of the pump outlet.” *Id.* With that construction in mind, the Examiner finds that it does not matter that Terada’s relief valve 1 does not affect the fluid path through passage 10. *Id.*

In its Reply, Appellant argues that while it may be true that “Terada’s bypass regulator is the first fluid destination that is disposed directly downstream of the pump outlet,” Terada’s bypass regulator is not in “exclusive communication with the pump outlet” because it is not the only fluid destination downstream of the pump. Reply Br. 1. Instead, according to Appellant, Terada allows fluid to flow from the pump outlet to the engine parts via path 10. *Id.* at 1–2.

We agree with Appellant that the Examiner erred in finding that Terada discloses a “bypass regulator valve in exclusive fluid communication with the pump outlet.” First, we disagree with the Examiner’s construction of the limitation to the extent that it merely requires a valve location directly downstream of the pump outlet. Ans. 19. Instead, we view the proper construction of “exclusive communication with the pump outlet” to require a bypass regulator valve as the only destination in communication with the pump outlet. This construction finds support in the ordinary meaning of “exclusive” and the Specification, which discloses bypass regulator valve 118 as the only structure connected to pump outlet 115. *See* Spec. Fig. 1. The Specification also indicates that “bypass regulator valve 118 can direct the fluid flow from the pump outlet 115 to either the bypass path 119 or the load path 121”—i.e., fluid cannot flow directly from pump outlet 115 to either bypass path 119 or load path 121 without first passing through valve 118. *Id.* ¶ 14.

Second, we disagree with the Examiner's finding that Terada's relief valve includes Terada's path 10, such that the inlet to the valve is located to the right side of path 10. Final Act. 7; *see also* Terada Fig. 1. Terada does not describe the structure defining its passage 10 as part of its relief valve 1. Instead, Terada describes its relief valve 1 as "controlling pressure within a fluid supplying passage 10 through which fluid (e.g., oil) is supplied to an engine." Terada, 2:66–3:1. Terada also describes fluid passage 10 as the means for conveying fluid to the engine parts, and the relief valve 1 having various structures all located "in the fluid supplying passage 10." *Id.* at 3:2–9. Further, Terada describes the "first port 11 by which the fluid enters the relief valve," which is in the bottom middle of fluid passage 10, not to the right of the passage 10 as the Examiner found. *Id.* at 3:15–16, Fig. 1. Because Terada's passage 10 is not part of its valve 1, passage 10 provides some fluid flow directly to the engine parts downstream of passage 10 without passing through valve 1, as Appellant alleges. *See* Appeal Br. 8–10. Accordingly, the outlet of Terada's pump 20 is in direct fluid communication with valve 1 as well as engine parts downstream of valve 1, such that Terada fails to disclose valve 1 in exclusive communication with the outlet to pump 20.

Based on the foregoing, we do not sustain the rejections of independent claims 1, 10, or 18, which all include the same "exclusive fluid communication" requirement. *See* Appeal Br. 7, 15–16 (Claims App.). The Examiner's rejections of the dependent claims do not rely on additional prior art in a manner that remedies the deficiencies noted above. *See* Final Act. 8–9, 11–12, 14–15. Accordingly, we do not sustain the rejection of

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dependent claims 2–9, 11–17, and 19–20 for the same reasons discussed above with respect to the independent claims.

DECISION

We reverse the Examiner’s rejections of claims 1–20.

DECISION SUMMARY

| Claims Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed |
|------------------------|--------------------|-------------------------------|-----------------|-----------------------|
| 1–7, 9–15, 17, 18, 20 | 103 | Baker, Yuan, Terada | | 1–7, 9–15, 17, 18, 20 |
| 8, 16, 19 | 103 | Baker, Yuan, Terada, Thompson | | 8, 16, 19 |
| Overall Outcome | | | | 1–20 |

REVERSED