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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* CAROLA DIEBOLD and ANDREAS APPERGER

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Appeal 2017-011794  
Application 14/086,904  
Technology Center 3700

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Before NINA L. MEDLOCK, BART A. GERSTENBLITH, and  
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

GERSTENBLITH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner’s decision to reject claims 1, 3–6, 8–18, and 20–23. We have jurisdiction under 35 U.S.C. § 6(b).

The invention relates to an adjusting device for a hydraulic axial piston machine, in which “[t]he control piston is configured with a differential face which is loaded by the system pressure and is formed by two sections of the control piston with different diameters . . . .” Spec. 1, 4.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42 (2012). Appellant identifies Robert Bosch GmbH as the real party in interest. Appeal Br. 2.

*Claimed Subject Matter*

Claims 1, 12, and 15 are the independent claims on appeal. Claim 1 is illustrative and reproduced below:

1. An adjusting device for a hydraulic machine, comprising:  
a control valve having a control piston configured to be adjusted out of a basic position counter to the force of at least one control spring;

an actuating piston delimiting an actuating space configured to be connected to a control oil source or a control oil drain via the control valve, the control piston of the control valve being configured with a differential face acted on directly by a system pressure of the control oil source and being arranged approximately coaxially with respect to the actuating piston; and

a spring arrangement having at least one spring, the spring arrangement being configured to load the control piston in the opposite direction to the control spring, and to feed back a position of the actuating piston to the control piston as a feedback force,

wherein the action of the system pressure on the differential face of the control piston generates a resultant pressure force on the control piston in the same direction as the load from the spring arrangement.

Appeal Br. 19 (Claims App'x).

*Rejections<sup>2</sup>*

I. Claims 22 and 23 are rejected under 35 U.S.C. § 112(b) as indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention.

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<sup>2</sup> The Examiner initially rejected several claims under 35 U.S.C. § 112(a) (Final Act. 3 (mailed Nov. 1, 2016)), but withdrew the rejections in the Answer (Ans. 18).

II. Claims 1, 4–6, and 12–14 are rejected under 35 U.S.C. § 102(b) as anticipated by Liesener (US 4,379,389, issued Apr. 12, 1983) (“Liesener”).

III. Claim 3 is rejected under 35 U.S.C. § 103(a) as patentable over Liesener;

IV. Claims 8–11, 15–18, 20, and 21 are rejected under 35 U.S.C. § 103(a) as unpatentable over Liesener and Smith (US 6,684,636 B2, issued Feb. 3, 2004) (“Smith”);

V. Claim 22 is rejected under 35 U.S.C. § 103(a) as unpatentable over Liesener and Lemmen et al. (US 6,725,658 B1, issued Apr. 27, 2004) (“Lemmen”); and

VI. Claim 23 is rejected under 35 U.S.C. § 103(a) as unpatentable over Liesener, Smith, and Lemmen.

#### *Summary of Decision*

We AFFIRM–IN–PART.

#### ANALYSIS

##### *Rejection I – Claims 22 and 23 under § 112(b)*

The Examiner rejects claims 22 and 23 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention. Final Act. 3–4. In particular, the Examiner finds the phrases “the second spring” (in claim 22) and “the other spring” (in claim 23) indefinite because the claims are not clear as to which spring they recite. *Id.* at 4. The Examiner explains that “[f]or examination purposes[,] ‘the second spring’ will read as ‘a second spring’” and “‘the other spring’ will read as ‘a second spring.’” *Id.*

Appellant expressly states that this rejection is not appealed. Appeal Br. 11.

Accordingly, we summarily affirm the rejection. In addressing the obviousness rejections of claims 22 and 23 below, we adopt the Examiner's expressed understanding of "the second spring" (in claim 22) as "a second spring" and "the other spring" (in claim 23) as "a second spring." *See* Final Act. 4 (discussing these terms).

*Rejection II – Claims 1, 4–6, and 12–14 under § 102(b)*

The Examiner finds that Liesener discloses each and every limitation of claims 1, 4–6, and 12–14. Final Act. 4–9. In particular, the Examiner finds that Liesener discloses a control piston "configured with a differential face (Part 72) acted on directly by a system pressure of the control oil source (Figure 3 shows [passage] 33 providing oil to [passage] 4<sup>[3]</sup> therefore a pressure [P<sub>A</sub>] will act directly onto [land] 72 in an upward direction)." *Id.* at 5. Additionally, the Examiner finds Liesener discloses "wherein the action of the system pressure on the differential face of the control piston generates a resultant pressure force on the control piston in the same direction as the load from the spring arrangement." *Id.* (citing Liesener, 6:60–64). The Examiner further finds Liesener "details an upward movement of the spool; wherein 33 provides oil to 64 therefore a pressure P<sub>A</sub> will act onto 72 in an upward direction which is the same direction as the spring arrangement 63/63a per Column 5 Lines 45–56 with P<sub>A</sub> being created from P<sub>D</sub> in Column 3 Lines 11–14." *Id.* at 5–6.

Appellant, relying on a dictionary definition from Merriam-Webster, asserts "'differential' in the context of this Application [means] . . . 'relating

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<sup>3</sup> Based on the context above, and because Liesener does not use a reference numeral 4, we understand the Examiner to have intended to refer to passage 64.

to quantitative differences (as of motion or pressure).” Appeal Br. 12. Appellant explains, in the context of the Specification, “differential face 48 results from the asymmetric configuration of the radial step 46 relative to a remainder of the control piston 44.” *Id.* Thus, Appellant contends “differential face is a surface configured such that ‘the action of the system pressure on the differential face of the control piston generates a resultant pressure force on the control piston.’” *Id.*

Appellant asserts “land 72 of Liesener is not and cannot be configured to generate a resultant force due to the action of any pressure.” *Id.* at 13.

Appellant contends

[t]his is because the land 72 is not an element used to control the motion position of the spool 71, but rather is a blocking element that, due to the position of the spool 71, moves between “a blocking position preventing communication of passage 33 with passage 64” and a position “[t]o open communication of passage 33 with passage 64.”

*Id.* Accordingly, Appellant argues Liesener’s land 72 “does not define a differential face, and cannot be used to generate a resultant pressure force on a control piston” and, therefore, does not anticipate claim 1. *Id.* at 14.

In the Answer, the Examiner states “[t]he broadest reasonable interpretation [of ‘differential face’] allow[s] for a face where a pressure differential is present.” Ans. 21. The Examiner points to Liesener’s land 72, stating that “[t]he face of land 72 . . . will function as the claimed differential face due to a pressure differential face being present on either side of land 72.” *Id.* The Examiner identifies  $P_A$  as a system pressure that “must act on the face of land 72.” *Id.* at 20.

Appellant responds that neither  $P_A$  nor  $P_D$  can create a resultant force on Liesener's control piston because the forces on either side of land 72 cancel each other out. Reply Br. 3.

Independent claims 1 and 12 are each directed to an adjusting device for a hydraulic machine, comprising, *inter alia*, a "control piston . . . with a *differential face* acted on directly by a system pressure of the control oil source." Appeal Br. 19, 21 (emphasis added). Appellant's and the Examiner's definitions of "differential" are consistent, in that each requires a quantitative difference in pressure. *Compare* Appeal Br. 12, *with* Ans. 21. Thus, at a minimum, a "differential face" is a face (or surface) where a pressure differential is present.<sup>4</sup> Accordingly, we focus on whether the Examiner has sufficiently established that Liesener's land 72 is a face (or surface) where a pressure differential is present.

The Examiner focuses entirely on Liesener's pressure  $P_A$ , identifying it as the system pressure that acts on land 72. As discussed above, Appellant contests that a pressure difference exists, and points to the lack of an explicit disclosure in Liesener of a resultant force on land 72 as evidence in support of this position. Appellant also points to Liesener's description of the operation of its device, particularly the use of land 72 to block passage access rather than to create a resultant force to move spool 71. Based on the

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<sup>4</sup> We need not decide whether "differential face" should be construed more narrowly as proposed by Appellant, *see* Appeal Br. 12 (construing "differential face" as meaning "a surface configured such that 'the action of the system pressure on the differential face of the control piston generates a resultant pressure force on the control piston'"), because even under the broader interpretation proposed by the Examiner, we find the Examiner's analysis deficient, as explained above.

evidence before us, we find that the Examiner has not established sufficiently that Liesener's land 72 discloses or teaches the recited differential face. In particular, missing from the Examiner's findings is any identification of a pressure *difference* in Liesener. Additionally, Liesener's description is more consistent with Appellant's argument in that Liesener does not disclose that  $P_A$  creates a resultant force that acts upon land 72 and Liesener's operation does not rely upon  $P_A$  to create a force to act upon land 72 to move spool 71. Rather, Liesener discloses that the position of spool 71 is based on pressure control signal  $P_C$  and the opposed modulating force of spring 63. Liesener, 5:6–17; *see also id.* at 5:57–65 (describing the movement of spool 71).

Accordingly, on the present record before us, we find that the Examiner has not shown that Liesener discloses the “differential face” recited in independent claims 1 and 12, and claims 4–6, 13, and 14 based on their dependency from claim 1 or 12. Thus, we do not sustain Rejection II.

*Rejections III and V – Claims 3 and 22 under § 103(a)*

Claims 3 and 22 depend from claim 1. Appeal Br. 19, 24. The rejections of these dependent claims do not rely upon a secondary reference as teaching the differential face recited in claim 1 and do not modify Liesener's disclosure to result in a differential face. Final Act. 9, 15–17. Appellant's arguments and the Examiner's responses directed to these claims rely entirely on the positions set forth above regarding claim 1. *See* Appeal Br. 15 (claim 3), 17 (claim 22); Ans. 22 (claim 3), 23 (claim 22).

Accordingly, we do not sustain Rejections II and V for the same reasons discussed above regarding claim 1.

*Rejections IV and VI – Claims 8–11, 15–18, 20, 21, and 23 under § 103(a)*

Claims 8–11 depend from claim 1; claims 16–18, 20, 21, and 23 depend from independent claim 15. Appeal Br. (Claims App’x). Claim 15 is similar to claim 1 and is directed to an adjusting device for a hydraulic machine, comprising a control piston “with a differential face acted on directly by a system pressure of the control oil source.” *Id.* at 23. The rejections of each of these claims do not rely upon a secondary reference as teaching the differential face recited in the claims and do not modify Liesener’s disclosure to result in a differential face. Final Act. 9–19. Appellant’s arguments and the Examiner’s responses directed to these claims rely on substantially the same positions set forth above regarding claim 1. *See, e.g.*, Appeal Br. 16 (discussing claim 15 and referring to arguments directed to claim 1); Ans. 22 (referring to the Examiner’s response to Appellant’s arguments directed to claim 1 while responding to Appellant’s arguments regarding claim 15).

Accordingly, we do not sustain Rejections IV and VI for the same reasons discussed above regarding claim 1.

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed
22, 23	§ 112(b)	22, 23	
1, 4–6, 12–14	§ 102(b) Liesener		1, 4–6, 12–14
3	§ 103 Liesener		3
8–11, 15–18, 20, 21	§ 103 Liesener, Smith		8–11, 15–18, 20, 21

<b>Claims Rejected</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
22	§ 103 Liesener, Lemmen		22
23	§ 103 Liesener, Smith, Lemmen		23
<b>Overall Outcome</b>		22, 23	1, 3–6, 8–18, 20, 21

### DECISION

We summarily AFFIRM the rejection of claims 22 and 23 under 35 U.S.C. § 112(b).

We REVERSE the rejections of claims 1, 3–6, 8–18, and 20–23 under 35 U.S.C. §§ 102(b) and 103.

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

### AFFIRMED-IN-PART