



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/566,928	10/16/2017	Jason Richard Koller	PA24P0166WOAUS	9479
49458	7590	06/26/2020	EXAMINER	
DON W. BULSON (PARK) RENNER, OTTO, BOISSELLE & SKLAR, LLP 1621 EUCLID AVENUE / 19TH FLOOR CLEVELAND, OH 44115			HICKS, ANGELISA	
			ART UNIT	PAPER NUMBER
			3753	
			NOTIFICATION DATE	DELIVERY MODE
			06/26/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipdocket@rennerotto.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JASON RICHARD KOLLER

Appeal 2020-000061
Application 15/566,928
Technology Center 3600

Before BIBHU R. MOHANTY, AMEE A. SHAH, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

MOHANTY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1, 3, 4, 7–10, 12, 14–19, 25, 26, 29, and 31–33. We have jurisdiction under 35 U.S.C. § 6(b).

SUMMARY OF THE DECISION

We AFFIRM.

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 Parker-Hannifin Corporation. (Appeal Br. 2).

CLAIMED SUBJECT MATTER

The Appellant's claimed invention relates to fluid seals and a seal retainer with an axially facing concave surface for receiving a convex face of a sealing member (Spec., pages 1, 2). Claim 1, reproduced below, is representative of the subject matter on appeal.

1. An assembly for a hydraulic component, the assembly comprising: a seal retainer comprising:
 - a radially inward facing surface extending about a longitudinal axis and extending along the longitudinal axis;
 - an axially facing surface extending radially outward from the radially inward facing surface, the axially facing surface facing in a first direction along the longitudinal axis; and
 - an axially facing concave portion formed in the axially facing surface, the axially facing concave portion facing in the first direction and configured to receive a convex face of a sealing member, wherein the axially facing concave portion extends along a curved axis (B), the curved axis (B) being coaxial with the longitudinal axis and circumscribing the longitudinal axis;the assembly further comprising:
 - the sealing member, wherein the convex face is seated in the axially facing concave portion, and wherein the convex face forms an axial end of the sealing member;
 - wherein when the sealing member is pressurized, the sealing member is engaged with the axially facing surface of the seal retainer to prevent the sealing member from moving in a second direction opposite to the first direction;
 - radially outer and radially inner portions of the sealing member expand radially, relative to the longitudinal axis; and
 - the axially facing surface of the seal retainer partially limits the expansion to reduce stress of the sealing member and the axially facing surface of the seal retainer reinforces a curvature of the sealing member, thereby preventing flattening of the sealing member to improve sealing effectiveness of the sealing member;
 - wherein the convex face faces opposite the axially facing concave portion to allow the convex face and the axially facing concave portion to engage one another; and

wherein the convex face circumscribes the curved axis B with a radius less than a corresponding radius of the axially facing concave portion to allow the convex face to expand radially outward from the circular axis after abutting a portion of the axially facing surface that defines the axially facing concave portion.

THE REJECTIONS

The following rejections are before us for review:

1. Claims 1, 4, 10, 12, 14, 16–18, 25, 26, 29, and 31–33 are rejected under 35 U.S.C. § 103 as unpatentable over Smith (US 6,511,043 B2; issued Jan. 28, 2003) (“Smith”) and Mattina (US 2002/0074739 A1; published June 20, 2002).
2. Claims 3, 7, 15, and 19 are rejected under 35 U.S.C. § 103 as unpatentable over Smith, Mattina, and Smith (US 7,021,677 B2; issued Apr. 4, 2006) (“Smith ‘677”).
3. Claim 8 is rejected under 35 U.S.C. § 103 as unpatentable over Smith, Mattina, and Brown (GB 118927, issued Feb. 2, 1928).
4. Claim 9 is rejected under 35 U.S.C. § 103 as unpatentable over Smith, Mattina, and Duchrow US 4,699, 293; issued Oct. 13, 1987).

FINDINGS OF FACT

We have determined that the findings of fact in the Analysis section below are supported at least by a preponderance of the evidence².

² See *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Patent Office).

ANALYSIS

Rejection under 35 U.S.C. § 103

The Appellant argues that the rejection of claim 1 under 35 U.S.C. § 103 as unpatentable over Smith and Mattina is improper because: one of ordinary skill in the art would not be led to expect an alignment benefit by the combination; that Mattina would not lead one of ordinary skill in the art to use a concave lower facing surface in the proposed manner; and that the rationale for the combination is insufficient to support the obviousness rejection (App. Br. 12–19, Reply Br. 3–6).

In contrast, the Examiner has determined that the rejection of record is proper (Final Action 2–5; Ans. 3–5). The Examiner has determined that it would have been obvious to modify the axially facing surface of Smith to have an axially facing concave portion as taught by Mattina in order to ensure that the seal is aligned and improve its functionality (Final Act. 3).

We agree with the Examiner’s findings set forth in the Final Rejection at pages 2–5 and the determination that the cited combination of references would have been obvious. The Appellant in the Appeal Brief at pages 12–19 has not argued that elements from the combination are missing, only that the combination is improper for the reasons outlined above. Smith in Figure 1 shows a seal combination in which there is an axially facing surface (19) and axially facing member (26). Mattina discloses a upper female end ring 24 that receives a center ring 22 that is substantially V-shaped and fits in its recess. Here, it would have been obvious to one of ordinary skill to have seen the benefit in modifying the axially facing surface of Smith to include an axially facing concave portion as disclosed by Mattina to ensure

that the seal was better aligned and improve its sealing function.

Accordingly, this rejection of claim 1 is sustained.

With regard to claim 26, the Appellant argues that the claim limitation for a specific “depth D of the axially facing concave portion, along the longitudinal axis, is between 10% and 25% of a radius of the axially facing concave portion relative to the curved axis B” is not suggested by the combination as the modification is for seal fatigue purposes rather than alignment (App. Br. 21, 22). In contrast, the Examiner has determined that optimum or working ranges involve only routine skill in the art and that the specific range has not been shown to be of importance (Final Act. 9, Ans. 4). We agree with the Examiner. Here, the cited claimed ranges could be determined based on the desired depth of sealing fit between the components and involve only routine skill in the art. In *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), the Court stated that when considering obviousness that “the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” 550 U.S. at 418. Accordingly, this rejection is sustained.

In claim 29, the claim recites that the “radius of the axially facing concave portion may be between about 3% and about 10% larger than a radius of the sealing member relative to the curved axis to allow the sealing member to expand radially outward relative to the curved axis”. The Appellant makes similar arguments regarding the specific range claimed here to those made in regard to claim 26 discussed above (App. Br. 23, 24). We agree with the Examiner’s determination in the Final Action at page 9

that the optimum or workable ranges here claimed here involve only routine skill in the art. Accordingly this rejection is sustained.

The Appellant argues that the rejection of claim 32 is improper because the prior art does not disclose that the sealing member is “metal” (App. Br. 24, 25, Reply Br. 5). In contrast, the Examiner has determined that Smith discloses a metal sealing member at col. 3, lines 6-7 (Final Act. 10). We agree with the Examiner. Here, the use of a metal seal in the combination as disclosed by Smith would have been readily understood by one of ordinary skill in the art to provide a more durable seal components if desired. Accordingly, the rejection is sustained.

The Appellant argues with regard to claim 7 that claim requires that the “axially facing concave portion has C-shape cross-section facing the curved axis” and that the rejection fails to provide a rationale for such a modification (Ans. 25, 26). In contrast, the Examiner has determined that Smith ‘677 teaches an axially facing concave portion, that Mattina has a C-shaped cross-section facing the curved axis in Smith (Final Act. 11). The Examiner further has determined that the shape of the seal whether “U”, “C”, or and “O” could be readily determined by one of ordinary skill in the art.

We agree with the Examiner. Here, in the cited combination one of ordinary skill in the art would recognize that the shape of the curved portion could be readily varied based on the desired sealing level desired in the combination. Smith does disclose using a “U-shaped” seal as well. Accordingly, the rejection of claim 7 is sustained.

The Appellant has presented similar arguments for the remaining claims and the rejection of the claims is sustained for the same reasons given above.

CONCLUSIONS OF LAW

We conclude that the Appellant has not shown that the Examiner erred in rejecting the claims under 35 U.S.C. § 103 as listed in the Rejections section above.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 4, 10, 12, 14, 16–18, 25, 26, 29, 31–33	103	Smith, Mattina	1, 4, 10, 12, 14, 16–18, 25, 26, 29, 31–33	
3, 7, 15, 19	103	Smith, Mattina, Smith	3, 7, 15, 19	
8	103	Smith, Mattina, Brown	8	
9	103	Smith, Mattina, Duchrow	9	
Overall Outcome			1, 3, 4, 7–10, 12, 14–19, 25, 26, 29, 31–33	

Appeal 2020-000061
Application 15/566,928

TIME PERIOD FOR RESPONSE

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