

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte ADAM N. POPE

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Appeal No. 1999-0644  
Application No. 08/459,460

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ON BRIEF

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Before McQUADE, CRAWFORD, and BAHR, Administrative Patent Judges.  
BAHR, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 2 and 4 through 12. Claims 13-24, the only other claims remaining in this application, have been indicated allowable by the examiner (Paper No. 12). An amendment (Paper No. 11) to the

claims filed September 15, 1997, after the final rejection, has been entered.<sup>1</sup> However, the subsequent proposed amendment filed October 2, 1997 (Paper No. 14) has not been entered.

### BACKGROUND

The appellant's invention relates to seals for rotating shafts to restrict fluid flow between rotating and stationary members and, more particularly, to a face seal which deliberately induces turbulent flow along the seal gap (appellant's specification, page 1). An understanding of the invention can be derived from a reading of exemplary claims 5 and 12, which are reproduced in the opinion section of this decision.

The following rejection is before us for review.

Claims 2 and 4 through 12 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.<sup>2</sup>

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<sup>1</sup> The examiner indicated in the advisory action mailed September 23, 1997 (Paper No. 12) that the rejection of claims 2 and 4-24 under 35 U.S.C. § 112, second paragraph, set forth in the final rejection (Paper No. 10) has been overcome by that amendment.

<sup>2</sup> Although the appellant's brief (page 2) cites enablement under the first paragraph of 35 U.S.C. § 112 as an additional issue in this appeal, the examiner has only rejected the claims under the first paragraph of 35 U.S.C. § 112 as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention (final rejection, page 2, and answer, page 3).

Reference is made to the main and reply briefs (Papers No. 18 and 22, respectively) and the final rejection and answer (Papers No. 10 and 21, respectively) for the positions of the appellant and the examiner with regard to the merits of this rejection.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification, including the original claims as well as the amended claims, to the declaration submitted with the reply brief and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we have decided to sustain the examiner's rejection.

The two independent claims 5 and 12 read as follows:<sup>3</sup>

5. A fluid seal assembly comprising a rotatable shaft having a radially extending runner with a radially extending runner surface thereon,

a housing receiving said shaft and having walls thereon defining a pressure chamber therein,

a seal ring having a pair of opposed radial surfaces thereon, said ring receiving said shaft in the opening thereof and mounted in said housing in axial floating relationship with said runner surface,

one of said seal ring radial surfaces being exposed during operation of said assembly to the pressure in said chamber, the other of said seal ring radial surfaces confronting said runner surface and being spaced therefrom when said chamber is pressurized to form a seal gap therebetween,

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<sup>3</sup> The italicized language was first introduced into the claims in the amendment filed April 9, 1997 (Paper No. 7).

said other of said seal ring surfaces having one extremity thereof exposed to said pressure chamber and the other extremity exposed to a relatively low pressure region in said housing,

*at least one of said confronting surfaces being shaped to provide radial convergence of said seal gap* in the radial direction from said one extremity toward said other extremity and forming only a single sealing dam therein adjacent said other extremity,

said last mentioned surface being shaped to provide said convergence of said at least 1 milli-inch in height toward the other of said confronting surfaces with the widest portion of said seal gap being adjacent said one extremity to deliberately create turbulent flow of fluid in said seal gap,

and, when said chamber is pressurized, the spacing at the narrowest height of said seal gap is deliberately greater than the spacing that would exist for laminar flow along said seal gap,

and additional sealing means interacting between said seal ring and said housing to prevent flow from said pressure chamber to said low pressure region except along said seal gap.

12. A hydrostatic face seal assembly used to restrict the flow of fluid from a relatively higher pressure region in a housing to a relatively lower pressure region in the housing at a juncture of a stationary housing member and a rotating shaft member rotating about its axis,

said shaft having a radially extending annular seal runner having a radially extending sealing surface thereon,

said runner mounted for rotation therewith,

said assembly comprising:

(a) a face seal ring member mounted around said shaft and having a radially extending primary annular sealing face surface positioned for movement axially relative to said shaft and toward and away from said seal runner surface

and forming a seal gap therebetween to break down the pressure radially across the seal ring member,

said seal ring member sealing face surface having an inner and an outer edge thereon, one of said inner and outer edges of said sealing face surface being exposed to the higher pressure region in said housing and the other of said inner and outer edges of said sealing face surface being exposed to the lower pressure region,

*(b) at least one of said sealing face surface and said seal runner surface being formed to converge toward the other along the gap in the direction from said one edge of said sealing face surface toward said other edge thereof to provide a converging flow path in said seal gap in the radial direction from said one edge toward said other edge, and forming only a single sealing dam in said seal gap,*

said one converging surface being intentionally formed with a geometry that converges sufficiently to deliberately create turbulent fluid flow and to have a Reynolds number in excess of 1800 within and along said seal gap, whereby a larger clearance between said sealing face surface and said seal runner surface is thus created than would exist for laminar flow along said seal gap.

The basis of the examiner's rejection is that the subject matter of the italicized portions of claims 5 and 12 as reproduced above is not supported by the appellant's original disclosure in compliance with the written description requirement of the first paragraph of 35 U.S.C.

§ 112. We initially observe that the description requirement found in the first paragraph of 35 U.S.C. § 112 is separate from the enablement requirement of that provision. See Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1560-64, 19 USPQ2d 1111, 1114-17 (Fed. Cir. 1991) and In re Barker, 559 F.2d 588, 591, 194 USPQ 470, 472 (CCPA 1977), cert. denied, 434 U.S.

1238 (1978). With respect to the description requirement, the court in Vas-Cath, Inc. v. Mahurkar 935 F.2d at 1563-64, 19 USPQ2d at 1117 stated:

35 U.S.C. § 112, first paragraph, requires a "written description of the invention" which is separate and distinct from the enablement requirement. The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession **of the invention**. The invention is, for purposes of the "written description" inquiry, **whatever is now claimed**.

With these authorities in mind, we have carefully reviewed the original disclosure and, like the examiner, fail to find descriptive support for the seal runner surface being "shaped to provide radial convergence of said seal gap," as is encompassed by the language of claim 5 as now amended, or "formed to converge toward [the sealing face surface]," as encompassed by the language of claim 12 as now amended.<sup>4</sup> Specifically, the appellant's specification indicates, in the embodiment of Figures 1A and 1B, that the convergence of the seal gap (21) is achieved by a step (42), in the ring sealing surface (26), extending toward the runner surface (20) to form a sealing dam (page 6, lines 11-15) and that the seal ring (24) is formed with a geometry such that a converging flow path is provided either as a step, a taper in the direction of the fluid flow to narrow the gap, or a combination of a step and a taper (page 10, lines 10-14). Further, we note that original independent claim 1 recited, in lines 16-17, "*said sealing face* being formed to converge toward said runner surface" (emphasis added) and that original claim 5, the

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<sup>4</sup> The language "at least one of [said surfaces]" is sufficiently broad to encompass either the seal ring surface or the seal runner surface being shaped to converge.

only other independent claim presented on the application's filing date, recited, inter alia, a rotatable shaft having a runner with a flat radial runner surface, a seal ring having a pair of opposed radial surfaces, one of said radial ring surfaces being exposed to pressure and the other radial ring surface confronting the runner surface, "*said other ring surface* being shaped to provide radial convergence of said seal gap" (lines 32-33; emphasis added). This original claim language indicates that, at the time the application was filed, the appellant regarded the invention as having the converging shape on the seal ring surface.

With regard to the appellant's arguments on pages 4 and 5 of the brief, it is well settled that the question of whether a modification is an obvious variant of that which is originally disclosed is irrelevant insofar as the written description requirement is concerned. See, e.g., Lockwood v. American Airlines Inc., 107 F.3d 1565, 1571-72, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997) and In re Wohnsiedler, 315 F.2d 934, 937, 137 USPQ 336, 339 (CCPA 1963). See also In re Barker, 559 F.2d at 593, 194 USPQ at 474, wherein the court, in quoting with approval from In re Winkhaus, 527 F.2d 637, 640, 188 USPQ 129, 131 (CCPA 1975) set forth: "That a person skilled in the art might realize from reading the disclosure that such a step is **possible** is not a sufficient indication to that person that the step is part of appellants' invention." Ex parte Grasselli, 231 USPQ 393, 394 (Bd. App. 1983), aff'd mem., 738 F.2d 453 (Fed. Cir. 1984).

Therefore, while we have considered the appellant's argument that "it is clear that one skilled in the art of seal design at the time of Appellant's filing date would know that the location of the converging member could be on either the seal runner or the seal ring" (brief, page 5) and the McNickle declaration submitted with the reply brief, they are not relevant to the issue before us. Quite simply, the appellant's original disclosure provides no indication that the appellant contemplated the converging shape being disposed on any surface other than the seal ring surface so as to convey to those skilled in the art that the appellant was in possession of the invention as now claimed.

For the reason discussed above, we shall sustain the examiner's rejection of claims 2 and 4 through 12 under the first paragraph of 35 U.S.C. § 112.

#### CONCLUSION

To summarize, the decision of the examiner to reject claims 2 and 4 through 12 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 CFR § 1.136(a).

AFFIRMED

JOHN P. McQUADE  
Administrative Patent Judge

MURRIEL E. CRAWFORD  
Administrative Patent Judge

JENNIFER D. BAHR  
Administrative Patent Judge

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