

The opinion in support of the decision being entered today
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MASAMICHI IKETANI

Appeal 2007-1376
Application 10/677,870
Technology Center 3700

Decided: June 28, 2007

Before EDWARD C. KIMLIN, CHARLES F. WARREN, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 4-6. Claim 4 is illustrative:

4. A seal apparatus for a water pump provided between a non-rotating member having an inner peripheral surface and a rotating shaft of the water pump inserted into the non-rotating member and having an outer peripheral surface; comprising a seal ring having an outer peripheral edge fastened to the inner peripheral surface of the non-rotating member, and a slinger made from a metal plate and formed by bending, the slinger having an outer

peripheral surface and fitted around the rotating shaft to block between the inner peripheral surface of the non-rotating member and the outer peripheral surface of the rotating shaft of the water pump, the slinger having an outer peripheral edge formed with an outer-diameter-side cylindrical section which is concentric with the rotating shaft and has an outer peripheral surface, the seal ring comprising a first seal lip that comes in sliding contact with the outer peripheral surface of the rotating shaft or with the outer peripheral surface of the slinger that rotates together with the rotating shaft, and a second seal lip that has a tip edge which comes in sliding contact with the outer peripheral surface of the outer-diameter-side cylindrical section, and that is tilted inward in the radial direction toward the tip edge thereof, wherein the amount of elastic deformation of the second seal lip, which occurs when the tip edge of the second seal lip comes in contact with the outer peripheral surface of the outer-diameter-side cylindrical section, is at least 1/10 and up to 7/10 the height of the second seal lip in a free state, and the roughness of a section of the outer peripheral surface of the outer-diameter-side cylindrical section with which the tip edge of the second seal lip comes in sliding contact is from 0.2 μm to 2.0 μm in the arithmetic mean Ra, or is from 0.8 μm to 8.0 μm in the maximum height Ry.

The Examiner relies upon the following references as evidence of obviousness:

Repella	US 4,155,560	May 22, 1979
Takenaka	US 5,056,799	Oct. 15, 1991
Nobuhiko ('396)	JP H9-21396	Jan. 21, 1997
Rolf (JP '985)	JP H10-331985	Dec. 15, 1998
Johnen	US 2003/0189293 A1	Oct. 9, 2003
Hosoda	US 6,682,076 B1	Jan. 27, 2004

Appellants' claimed invention is directed to a seal apparatus for a water pump comprising a seal ring 13 fastened to an inner surface of a non-rotating member and a slinger 14 that is fitted around the rotating shaft to block between the inner surface of the non-rotating member and the outer

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surface of the rotating shaft. The seal ring comprises a first seal lip and a second seal lip. The second seal lip has a tip edge which comes in sliding contact with the outer surface of the outer cylindrical section of the slinger and is tilted inward in the radial direction towards the edge of the tip. The amount of elastic deformation of the second seal lip that occurs when its tip edge comes in contact with the outer peripheral surface of the slinger's cylindrical section is within the range of at least 1/10 and 7/10 of the height of the second seal lip in a free state.

Appealed claims 4-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese '396 in view of Hosoda, Takenaka, Repella, Johnen, and JP '985.

Appellants do not set forth an argument that is reasonably specific to any particular claim on appeal. Accordingly, all the appealed claims stand or fall together with claim 4.

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we are in complete agreement with the Examiner's reasoned analysis and application of the prior art, as well as his cogent and thorough disposition of the arguments raised by Appellants. Accordingly, we will adopt the Examiner's reasoning as our own in sustaining the rejection of record, and we add the following for emphasis only.

Appellants do not dispute the Examiner's factual determination that JP '396 discloses all the claimed features of Appellants' seal apparatus for a water pump with the exception that the reference "does not disclose that the

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slinger is made from a metal plate, and does not disclose that the amount of elastic deformation of the second seal lip . . . is at least 1/10 and up to 7/10 the height of the second seal lip in a free state, and does not disclose that the roughness of a section of the outer peripheral surface of the outer-diameter-side cylindrical section . . .” (final Office Action 7 and 8). Also, Appellants have not contested the Examiner’s legal conclusion that it would have been obvious to one of ordinary skill in the art to make the slinger of JP ‘396 from a metal plate and to impart the claimed roughness to the outer peripheral surface of the outer-diameter-side cylindrical section.

The sole argument advanced by Appellants is that the Examiner has improperly relied upon the drawings of Takenaka, Repella, and Johnen, which are not disclosed as drawn to scale, for the obviousness of the recited elastic deformation of the second seal lip. In the words of Appellants, “it is apparent that the Examiner’s conclusions relating to the alleged deformation percentages are based solely by measuring the drawing features [and] [i]n fact, the text of each reference does not disclose that the drawings are to scale, and is silent as to dimensions” (Br. 8, second para.). Appellants conclude that “[s]ince it has not been shown that the cited references teach or suggest that the amount of elastic deformation of the second seal lip is at least 1/10 and up to 7/10, the obviousness rejection is improper” (Br. 9, penultimate para.).

We agree with the Examiner that it is not necessary for a finding of obviousness under § 103 that it be established on the record that the

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drawings of Takenaka, Repella, and Johnen are to scale. As correctly set forth by the Examiner, the proper standard in evaluating the references is what they reasonably would have disclosed to one of ordinary skill in the art. As a result of applying this standard to the reference drawings, we have no doubt that one of ordinary skill in the art would have understood the drawings as depicting an amount of elastic deformation of the second seal lip as falling within the broadly claimed range. Significantly, Appellants have not advanced any contrary rationale which would support an argument that one of ordinary skill in the art would have understood that the elastic deformation taught by the references is outside the claimed range. Nor have Appellants set forth an argument explaining why it would have been nonobvious for one of ordinary skill in the art to design the second seal lip of JP '396 to have an elastic deformation falling within the claimed range. Appellants' bald argument that the reference drawings are not disclosed as being to scale is no substitute for the requisite rebuttal of the reasonable inferences made by the Examiner from the applied prior art. Moreover, we find that it would have been a matter of obviousness for one of ordinary skill in the art to determine the optimum elastic deformation of the second seal lip that maximizes the sealing function of the apparatus. *In re Boesch*, 671 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

As a final point, we note that Appellants base no argument upon objective evidence of nonobviousness, such as unexpected results attributed

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to the recited amount of elastic deformation, which would serve to rebut the inference of obviousness established by the Examiner.

In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner's decision rejecting the appealed claims 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) (2006).

AFFIRMED

clj

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