

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte RAINER PFLUG, WOLFGANG MIEREISZ,  
and THOMAS MOTZ

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Appeal No. 2004-1171  
Application No. 09/754,618

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HEARD: NOVEMBER 17, 2004

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Before COHEN, STAAB, and BAHR, Administrative Patent Judges.  
COHEN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 11. These claims constitute all of the claims in the application.

Appellants' invention pertains to a thrust ball bearing and to a scroll compressor. A basic understanding of the invention can be derived from a reading of exemplary claims 1 and 7,

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respective copies of which appear in the APPENDIX to the main brief (Paper No. 13).

As evidence of obviousness, the examiner has applied the documents listed below:

|           |           |               |
|-----------|-----------|---------------|
| Niina     | 5,921,684 | Jul. 13, 1999 |
| Zernickel | 6,062,736 | May 16, 2000  |
| Volkmuth  | 6,203,634 | Mar. 20, 2001 |

Ball and Roller Bearings, Theory Design and Appliaction, 3rd Edition, John Wiley & Sons, pp. 38 through 41 (Technical Book)<sup>1</sup>

The following rejections are before us for review.

1. Claims 1 through 3 and 6 through 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Niina in view of Volkmuth and Technical Book.

2. Claims 4, 5, 10, and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Niina in view of Volkmuth and Technical Book, further in view of Zernickel.

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<sup>1</sup> While a date has not been provided for this publication, appellants have not contested its status as prior art.

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The full text of the examiner's rejections and response to the argument presented by appellants appears in the answer (Paper No. 14), while the complete statement of appellants' argument can be found in the main and reply briefs (Paper Nos. 13 and 16).

#### OPINION

In reaching our conclusion on the obviousness issues raised in this appeal, this panel of the board has carefully considered appellants' specification and claims, the applied teachings,<sup>2</sup> and the respective viewpoints of appellants and the examiner. As a consequence of our review, we make the determination which follows.

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<sup>2</sup> In our evaluation of the applied prior art, we have considered all of the disclosure of each document for what it would have fairly taught one of ordinary skill in the art. See In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966). Additionally, this panel of the board has taken into account not only the specific teachings, but also the inferences which one skilled in the art would reasonably have been expected to draw from the disclosure. See In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

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We sustain each of the obviousness rejections on appeal for reasons explained, infra.

#### The first rejection

Independent Claim 1 addresses a thrust ball bearing that includes the feature of first and second circular ring shaped bearing disks being made from a through-hardenable ferrous material. Independent claim 7 sets forth a scroll compressor that includes the feature of first and second bearing disks being made from a through-hardenable ferrous material.<sup>3</sup>

The patent to Niina discloses a thrust ball bearing in a scroll compressor (Figs 1A and 5). According to the patentee (column 4, lines 18 through 39), heat treating hardness is intended for the steel bearing rings 4a,4b from the raceway surface 4a1, 4b1 to any depth. Each of Volkmuth and the Technical Book reveal to us the knowledge in the art, at the time

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<sup>3</sup> It is worthy of pointing out that each of appellants' independent claims require that the disks be made from "through-hardenable" (not through-hardened) ferrous material.

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of appellants' invention, of through-hardened (heat treated) bearing steel components. In applying the test for obviousness,<sup>4</sup> we reach the conclusion that it would have been obvious to one having ordinary skill in the art, from a combined consideration of the applied prior art teachings, to utilize a through-hardenable bearing steel as the material for the steel bearing rings of Niina. In our opinion, one having ordinary skill in the art would have been motivated to use known through-hardenable bearing steel (Volkmoth and Technical Book) with the invention of Niina since this material would permit hardening to any depth (inclusive of through hardening), the intended objective of Niina. Thus, the obviousness rejection of claims 1 and 7 is determined to be sound. We also find ample suggestion in the applied prior art, in particular the Volkmoth and Technical Book references, for the materials of claims 2, 3, 8, and 9. The content of claim 6 would have been suggested by the scroll compressor disclosure of Niina.

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<sup>4</sup> The test for obviousness is what the combined teachings of references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

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The argument of appellants (main brief, pages 5 through 10 and reply brief, pages 2 through 7) fails to convince this panel of the Board that the examiner erred in rejecting appellants' claims under 35 U.S.C. § 103(a). In our opinion, the circumstance that the Volkmuth and Technical Book references do not mention thrust bearings, as argued, does not detract from the obviousness of the combination of references as applied above. It must be recognized that Niina expressly teaches hardened steel thrust bearings in a scroll compressor, and that the Volkmuth and Technical Book reference would have instructed those versed in the art as to known through-hardenable steels, particularly appropriate and suitable for bearing use. Thus, we are of the view that the references, collectively assessed, clearly would have provided ample motivation for their combination, contrary to the position taken by appellants (main brief, page 9, and reply brief, page 6). Additionally, the argument presented by appellants relative to the dependent claims (main brief, page 11) simply does not convince us that claims 2, 3, 6, 8, and 9 are patentable.

The second rejection

In this rejection, claims 4, 5, 10, and 11 are at issue, which claims respectively address bearing disks made by "a non-cutting process" carried out at a particular shaping speed.<sup>5</sup> These claims are appropriately recognized as product by product claims.

At this point, it is important to understand that the determination of the patentability of a product-by-process claim is based on the product itself, even though the claim may be limited and defined by the process. In other words, the product in such a claim is unpatentable if it is the same as or obvious from the product of the prior art, even if the prior product was made by a different process. See In re Thorpe, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985). To the extent that process limitations in product claims distinguish the product over the prior art, they must be given the same consideration as

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<sup>5</sup> As disclosed (specification, page 8), the non-cutting shaping process is effected by a press.

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traditional product characteristics. See In re Hallman, 55 F.2d 212, 215, 210 USPQ 609, 611 (CCPA 1981) and In re Luck, 476 F.2d 650, 653, 177 USPQ 523, 525 (CCPA 1973).

In the present case, it readily appears to us that the evidence of obviousness, in particular the Niina patent, would have been suggestive of the now claimed disks made by a non-cutting shaping process by its teaching of a shaped bearing ring produced by "press-work" (column 4, lines 18 through 22). Thus, the claimed product, i.e, the thrust ball bearing of claim 4 and the scroll compressor of claim 10 would have been obvious. As to claims 5 and 11, we simply note that, of course, one having ordinary skill in the art would have expected the press-work to proceed at typical shaping speeds. Nevertheless, we are of the opinion that the specific speed of shaping, as claimed, would not effect a discernible feature (difference) in a final product and, thus, the final product would not be distinguishable from the prior art.

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In light of the suggestion for a non-cutting shaping process derived from the Niina reference, as discussed above, the argument advanced by appellant relative to deficiencies in the Zernickel document (main brief, pages 12 and 13) does not convince us that claims 4, 5, 10, and 11 are patentable.

In summary, this panel of the board has sustained each of the obviousness rejections on appeal.

The decision of the examiner is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

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|-----------------------------|---|-----------------|
| IRWIN CHARLES COHEN         | ) |                 |
| Administrative Patent Judge | ) |                 |
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|                             | ) | BOARD OF PATENT |
| LAWRENCE J. STAAB           | ) | APPEALS         |
| Administrative Patent Judge | ) | AND             |
|                             | ) | INTERFERENCES   |
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| JENNIFER D. BAHR            | ) |                 |
| Administrative Patent Judge | ) |                 |

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