

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. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte SIEGMAR FISCHER, ERNST-WILHELM ALTENAU,  
RALF AUMUND-KOPP and GUNTER SIKORSKI

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Appeal No. 2002-0342  
Application No. 09/295,399

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ON BRIEF

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Before ABRAMS, STAAB, and McQUADE, Administrative Patent Judges.  
ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 4, 6 and 7. Claims 2 and 8-14 have been withdrawn as being directed to a non-elected invention, and claims 3, 5 and 15 have been canceled.

We REVERSE.

BACKGROUND

The appellants' invention relates to a spin-stabilized projectile. An understanding of the invention can be derived from a reading of exemplary claim 1, which reads as follows:

1. A spin-stabilized projectile having a longitudinal projectile axis, a projectile body and a guide band being circumferentially mounted on an outer face of said projectile body; said guide band comprising a plurality of first partial guide bands made of a material selected from the group consisting of copper and a copper alloy; said guide band further comprising a plurality of second partial guide bands made of soft iron; the total number of said first and second partial guide bands being at least four; said first and second partial guide bands alternating with one another in an axially adjoining relationship; and a total axial length of all second partial guide bands being between 5% and 50% of a total axial length of said guide band.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Himmer	2,454,801	Nov. 30, 1948
British Patent Specification	526,941	Sep. 30, 1940
German Patent <sup>1</sup>	308,537	Feb. 10, 1920

The following rejections stand under 35 U.S.C. § 103:

- (1) Claims 1, 4 and 6 on the basis of the British specification in view of the German patent.
- (2) Claim 7 on the basis of the British reference and the German patent, taken further in view of Himmer.

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<sup>1</sup>Our understanding of this foreign language document was obtained from a PTO translation, a copy of which is enclosed.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the Answer (Paper No. 15) for the examiner's complete reasoning in support of the rejections, and to the Brief (Paper No. 14) for the appellants' arguments thereagainst.

### OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Claim 1, the sole independent claim before us on appeal, stands rejected as being obvious<sup>2</sup> in view of the combined teachings of the British specification and the German patent. It is the examiner's view that the British reference discloses all of the subject matter recited in claim 1, but "does not disclose driving bands formed of a soft iron and a driving band comprising a copper partial driving band located at the front end

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<sup>2</sup>The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, for example, In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a prima facie case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

of the driving band and an iron partial driving band located at the rear of the driving band.” However, the examiner is of the opinion that these features are disclosed in the German patent, and it would have been obvious to one of ordinary skill in the art to so modify the projectile of the British reference “to reduce barrel wear, as taught by the German patent.” See Answer, page 3. The appellants argue in rebuttal that the copper partial bands on the projectile disclosed in the British reference do not engage the rifling of the barrel and therefore are not “guide bands” in the terminology of the invention, and that one of ordinary skill in the art would not have been motivated to combine the references in the manner proposed by the examiner. See Brief, pages 7 and 8.

As described in the appellants’ specification, “guide bands” are elements which “transfer the torque from the rifling of the weapon barrel” to the projectile to spin-stabilize the projectile (page 2, lines 14-16), and to accomplish this the guide bands “have such a diameter that as the projectile passes through the barrel, they are pressed into the rifling thereof” (page 2, lines 17-20). The specification explains that guide bands have been made of copper and copper alloy, which have the disadvantage of being inefficient to transfer torque because of their propensity for high wear as they pass through the barrel (page 2, line 16 et seq.), of soft iron, which has the disadvantage of increasing wear on the barrel (page 3, line 4 et seq.) and, as in the German patent applied against the claims, of a forward partial guide band of copper arranged ahead of a rearward partial guide band of soft iron, with the copper partial

band functioning as a lubricant (page 3, line 9 et seq.). However, the appellants allege that this type of combination guide band nevertheless frequently damaged the barrel because of the relatively long length of the soft iron portion (page 4, lines 1-3).

The British specification discloses a projectile having band elements which in the embodiment of Figure 2 comprise “a plurality of rings  $c$   $c^1$  of porous metal impregnated with lubricant alternating with a plurality of rings  $a$   $a^1$   $a^2$  of copper, the former projecting slightly beyond the latter so as to provide one or more salient anti-friction surfaces” (page 3, lines 39-44, emphasis added). The purpose of the copper rings is to retain the porous metal rings in place (page 3, lines 48-50) and to cushion them against “excessive shocks” (page 1, lines 54-55). They are not described as contacting the barrel and, considering the definition of “guide band” set forth by the appellants in their specification and the description of the invention disclosed in the British reference, it is our view that one of ordinary skill in the art would recognize that the copper bands are not “partial guide bands” as recited in the appellants’ claims in that they do not impart torque to the projectile from the barrel rifling.

Since the copper bands do not qualify as “partial guide bands,” the British reference fails to disclose or teach the claimed “first partial guide bands made of a material selected from the group consisting of copper and a copper alloy” alternating

with “second partial guide bands made of soft iron,” with the total length of the soft iron “partial guide bands” being 5% to 50% of the total length of said drive band,” as required by claim 1. We are not persuaded otherwise by the examiner’s reference to page 3, line 38, of the British reference, where the term “driving band” is used to refer to the alternating rings of porous metal and copper, for the reasons explained above regarding the definition of “guide band” that in our view must be applied here.

The German patent does disclose a “guide band,” as defined by the appellants. It comprises a single first partial guide band of copper and a single second partial guide band of low carbon steel. This reference teaches that the copper partial guide band, which is forward of the low carbon steel partial guide band, provides lubrication for the latter in the same manner as the appellants’ invention. However, there are only two partial guide bands, and although not so stated in the text it is clear from Figure 1 of the drawings that the total length of the second partial guide band clearly exceeds 50% of the total length of the guide band, and therefore does not meet the requirements of claim 1.

Based upon the above findings, it is our conclusion that the combined teachings of the British specification and the German patent fail to establish a prima facie case of obviousness with regard to the subject matter recited in claim 1, and we will not sustain the rejection of claim 1 or, it follows, of claim 4 and 6, which depend from claim 1 and were rejected on the same basis.

Himmer has been added to the other two references in the rejection of claim 7, which adds to claim 1 the requirement that there be circumferential grooves provided on the guide band. Be this as it may, Himmer does not alleviate the problems set out above with regard to the rejection of claim 1 on the basis of the British and German references, and we will not sustain the rejection of claim 7.

CONCLUSION

Neither rejection is sustained.

The decision of the examiner is reversed.

REVERSED

NEAL E. ABRAMS  
Administrative Patent Judge

LAWRENCE J. STAAB  
Administrative Patent Judge

JOHN P. McQUADE  
Administrative Patent Judge

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