

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MANFRED KAUFHOLD

Appeal No. 2001-0754
Application 09/040,276

HEARD: APRIL 24, 2002

Before OWENS, TIMM and NAGUMO, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from the final rejection of claims 1-14 and 16. Claims 17 and 18, which are all of the other claims remaining in the application, stand withdrawn from consideration by the examiner as being directed toward a nonelected invention.

THE INVENTION

The appellants claim a method for making 1,2,3,6-tetrahydro-2,2,6,6-tetramethylpyridine N-oxide, and also claim a redox catalyst which includes this compound. Claims 1 and 16 are illustrative:

1. A process for the preparation of 1,2,3,6-tetrahydro-2,2,6,6-tetramethylpyridine N-oxide by the catalytic oxidation of 1,2,3,6-tetrahydro-2,2,6,6-tetramethylpyridine, comprising oxidizing 1,2,3,6-tetrahydro-2,2,6,6-tetramethylpyridine with hydrogen peroxide in an aqueous medium in the presence of an alkaline earth metal salt or hydroxide as catalyst.

16. A redox catalyst which includes 1,2,3,6-tetrahydro-2,2,6,6-tetramethylpyridine N-oxide prepared by the process as claimed in Claim 1.

THE REFERENCES

References relied upon by the examiner

Büschken et al. (Büschken)	5,416,215	May 16, 1995
Büschken et al. (EP '667) ¹	0 574 667	Dec. 22, 1993
(European patent application)		

Reference relied upon by the appellant

Wiezer	4,223,148	Sep. 16,
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¹Our consideration of EP '667 is based upon an English translation thereof, a copy of which is provided to the appellant with this decision.

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THE REJECTION

Claims 1-14 and 16 stand rejected under 35 U.S.C. § 103 as being obvious over Büschken and over EP '667.

OPINION

We reverse the aforementioned rejections. We need to address only claim 1, which is the sole independent process claim, and claim 16. Also, because Büschken and EP '667 are equivalents we address only one of these references, i.e., Büschken.

Claim 1

Büschken discloses a method for making 2,2,6,6-tetramethylpiperidine-N-oxide by catalytically oxidizing 2,2,6,6-tetramethylpiperidine with hydrogen peroxide in an aqueous medium in the presence of an alkaline earth metal salt catalyst (col. 1, lines 9-37; col. 2, lines 57-61; col. 3, lines 12-15). Thus, as shown by a comparison of the reactions at column 2, lines 21-48 of Büschken and page 2, line 15 through page 3, line 5 of the appellant's specification,

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Büschken's process differs from the alkaline earth metal salt catalyst embodiment in the appellant's claim 1 only in that the ring in Büschken's starting material and product is saturated, whereas the appellant's starting material and product have a double bond at the 3-4 position. Thus, Büschken's starting material has a potential site for reaction with hydrogen peroxide only at the secondary amine group of the

ring, whereas the appellant's starting material has potential reaction sites both at this position and at the double bond.

The examiner correctly points out that Büschken's reaction conditions (col. 3, lines 42-57) are the same as those of the appellant (specification, page 5, line 19 - page 6, line 6). The examiner argues that for this reason and because the -NH- reaction site is the same in the starting materials of Büschken and the appellant, one of ordinary skill in the art would have had a reasonable expectation that the product formed in Büschken's process would be the same as the product formed in the appellant's process (answer, pages 4-6).

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The examiner further argues that "the prior art has met each of the claim limitations with the exception of non-participatory double bond which remains unchanged after the reaction" (answer, page 6). The examiner, however, has not provided evidence that one of ordinary skill in the art would have known that if a double bond were present at the 3-4 position in Büschken's starting material, the hydrogen peroxide would react preferentially at the -NH- site rather than at the double bond. The record indicates that the examiner relies upon the appellant's specification for that knowledge, but the appellant's specification is not part of the prior art. Consequently, the record indicates that the examiner used impermissible hindsight in rejecting the appellant's claim 1. See *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960).

Although the appellant has provided a dictionary definition which states that hydrogen peroxide is a strong oxidizing agent (attachment to brief), the examiner argues

that hydrogen peroxide is a weak oxidizing agent (answer, page 6). The examiner's argument is not persuasive because the examiner has not established that, regardless of whether hydrogen peroxide is a strong or weak oxidizing agent, one of ordinary skill in the art reasonably would have expected it to react with the -NH- secondary amine group of 1,2,3,6-tetrahydro-2,2,6,6-tetramethylpyridine rather than reacting at the double bond.

Wiezer, which is relied upon by the appellant, discloses reacting polyalkyl piperideines having a 3,4-double bond with organic peracid to produce the corresponding polyalkyl-piperidine 3,4-diols (col. 2, lines 17-59). Wiezer teaches that a side reaction in which N-oxides are formed according to the known oxidation of amines to N-oxides could not be excluded (col. 3, lines 43-53).

The examiner argues that the process recited in the appellant's claim 1 does not involve an organic peroxide (answer, page 8). Wiezer, however, is evidence that a peroxide can react preferentially at a 3,4-double bond of a piperidene ring, and the examiner has not provided any evidence that one of ordinary skill in the art would have

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expected hydrogen peroxide to react with the piperidene ring in a different manner.

For the above reasons we find that the examiner has not set forth a factual basis which is sufficient to support a conclusion of *prima facie* obviousness of the process recited in the appellant's claim 1.

Claim 16

The examiner has not provided evidence that the compound recited in claim 16, which the appellant states is capable of functioning as a redox catalyst (specification, page 4, line 3), was known in the art. Also, as discussed above regarding the rejection of claim 1, the examiner has not established that it would have been *prima facie* obvious to one of ordinary skill in the art to make that compound.

DECISION

The rejections of claims 1-14 and 16 under 35 U.S.C. § 103 over Büschken and over EP '667 are reversed.

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REVERSED

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TERRY J. OWENS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
CATHERINE TIMM))
Administrative Patent Judge)	APPEALS AND
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MARK NAGUMO)	
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