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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte ACHIM HARTMANN

Appeal No. 95-2245
Application No. 08,011,563[1]

HEARD: January 11, 1999

Before JOHN D. SMITH, PAK, and WARREN, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

Achim Harmann (appellant) appeals from the examiner's final rejection of claims 1, 3, 4 and 6 through 12, which are all of the claims remaining in the application.

Claim 1 is representative of the subject matter on appeal and reads as follows:

[1] Application for patent filed February 1, 1993.

1. A process for hydrolysis of carbonyl sulfide comprising the steps of obtaining a catalyst constituting sintered titanium dioxide particles as a by-product in preparation of titanium dioxide via a chloride process and contacting a mixture of carbonyl sulfide and water with the catayst.

The references of record relied upon by the examiner are:

Matijevic et al. (Matijevic)	4,241,042	Dec. 23, 1980
Nozue et al. (Nozue)	4,511,668	Apr. 16, 1985
Hums	4,847,234	Jul. 11, 1989
Quemere	5,171,551	Dec. 15, 1992
(effective filing date April 30, 1987)		

The appealed claims stand rejected as follows:

(1) Claims 1, 3, 4 and 6 through 12 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention;

(2) Claims 1, 3, 4 and 6 through 12 under 35 U.S.C. § 112, first paragraph, as lacking descriptive support for the

invention as is now claimed in the disclosure as originally filed[2];

(3) Claims 1, 3, 4 and 6 through 12 under 35 U.S.C. 103 as unpatentable over the combined disclosures of Quemere, Nozue and Matijevic; and

(4) Claims 3 and 7 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Quemere, Nozue, Matijevic and Hums.

We have carefully reviewed the entire record, including all of the arguments advanced by the examiner and appellant in support of their respective positions. For the reasons well articulated by appellant in his Brief, we determine that all of the examiner's rejections are not well taken. Accordingly, we will not sustain the examiner's rejections for essentially

[2] We note that the examiner has objected to the specification for including the content of U.S. Patent No. 4,784,841 which is not supported in the disclosure as originally filed. However, we decline to comment on the propriety of the examiner's objection to the specification inasmuch as it should be reviewed by way of petition. Compare MPEP 608.04(c) (Rev. 3, July 1997). Note that the objection can be overcome by deleting any reference to U.S. Patent No. 4,784,841.

those reasons set forth in the Brief. We add the following primarily for emphasis.

Indefiniteness

The purpose of the second paragraph of Section 112 is to basically insure, with a **reasonable** degree of particularity, an **adequate** notification of the metes and bounds of what is being claimed. ***See In re Hammack***, 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970). As the court stated in ***In re Moore***, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971), the determination of whether the claims of an application satisfy the requirements of the second paragraph of Section 112 is

> merely to determine whether the claims do, in fact, set out and circumscribe a particular area with a **reasonable** degree of precision and particularity. It is here where the definiteness of language employed must be analyzed -- not in a vacuum, but **always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art**. [Emphasis ours; footnote omitted.]

Here, the examiner argues that the meaning of "a chloride process that has a by-product of titanium dioxide" is unclear under 35 U.S.C. § 112, second paragraph. In so arguing, the examiner ignores the teachings of the application disclosure.

According to page 1 of the specification, “a chloride process” means:

> An example of a manufacturing process which produces sulfur as a by-product is the preparation of titanium dioxide pigments via vapor phase oxidation of titanium tetrachloride (the so-called chloride process). In this process titanium-containing ores or slags are chlorinated in a reducing atmosphere in a reactor at about 1000°C. Carbonaceous materials, such as petrol coke are used as a reducing agent. The gas mixture leaving the reactor contains besides the metal chlorides (particularly titanium tetrachloride and various metal chlorides), coke, unreacted ore, silicon dixoide, carbon dioxide, carbon monoxide, nitrogen, hydrogen chloride and, because of the sulfur content of the coke, carbonyl sulfide. After further treatment, the exhaust gas is burned before introduction into the atmoshphere because of its carbon monoxide content; in this burning, carbonyl sulfide is converted into sulfur dioxide and carbon dioxide and carbon dioxide. The sulfur compound must be removed from the exhaust gases under existing regulations.

The language in claim 1 also clearly requires that sintered titanium dioxide recovered as a by-product from this chloride process be used as a catalyst. Under this circumstance, we do not believe that it can seriously be contended that the artisan would not understand the meaning of “a chloride process that has a by-product of titanium dioxide”.

Accordingly, we reverse the examiner’s decision rejecting

claims 1, 3, 4 and 6 through 12 under 35 U.S.C. § 112, second paragraph.

Description Requirement

The description requirement found in the first paragraph of 35 U.S.C. § 112 is separate from the enablement requirement of that provision. ***See In re Wilder***, 736 F.2d 1516, 222 USPQ 369 (Fed. Cir. 1984); ***In re Barker***, 559 F.2d 588, 194 USPQ 470 (CCPA 1977), ***cert. denied, sub. nom, Barker v. Parker***, 434 U.S. 1238 (1978). Moreover, as the court stated in ***In re Kaslow***, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983):

> The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claimed language.

The language in original claims must also be taken into consideration in determining compliance with the written description requirement. ***See In re Smith***, 481 F.2d 910, 914, 178 USPQ 620, 624 (CCPA 1973); ***In re Gardner***, 475 F.2d 1389, 1391, 177 USPQ 396, 397 (CCPA 1973). In other words, the

original application disclosure as a whole must be considered with the recognition that the claimed subject matter need not be described in ***haec verba*** in the original disclosure to satisfy the description requirement. ***See In re Wright***, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989). Precisely how close the original description must be to the claim language to comply with the description requirement must be determined on a case-by-case basis. The inquiry into whether the description requirement is met is a question of fact. ***See In re Wilder, supra***.

Here, the examiner asserts that the claim language "sintered titanium dioxide particles as a by-product" does not appear in the original application disclosure. Contrary to the examiner's assertion, however, the specification as originally filed describes (page 3) that:

> sintered titanium dioxide particles, also known as scrub solids have been found to be particularly useful. These particles are used in the preparation of titanium dioxide according to the chloride process, if the reaction gases are to be cooled via indirect heat exchange, in that the cooling area can be maintained extensively free of unwanted coatings. The particles, though a by-product in the preparation of titanium dioxide, are believed available from other processes and sources as well.

> Their use as inert particulate material is described in, for example, U.S. Patent No. 4,455,288 and 4,784,841. Such scrub particles consist of titanium dioxide, which may be subjected to additional calcining and have a particle size preferable above 0.15 mm.

Consistent with this passage in the specification, original claims 2 and 5 recite:

> 2. The process according to Claim 1, wherein the titanium dioxide catalyst is sintered titanium dioxide particles.
>
> 5. The process according to Claim 1, wherein the titanium dioxide particles are obtained as a by-product in preparation of titanium dioxide according to the chloride process.

From our perspective, the above passage alone, or together with original claims 2 and 5, clearly conveys to the artisan that the inventor had possession of the invention now claimed at the time the application was filed. Accordingly, we reverse the examiner's decision rejecting claims 1, 3, 4 and 6 through 12 under 35 U.S.C. § 112, first paragraph.

Obviousness

The obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. ***See ACS Hospital Systems, Inc. v. Montefiore Hospital***, 732 F.2d 1572,

1577, 221 USPQ 929, 933 (Fed. Cir. 1984). This does not mean that the cited prior art references must specifically suggest making the combination. ***See B.F. Goodrich Co. V. Aircraft Braking Systems Corp.***, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996); ***In re Nilssen***, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988). Rather, the test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. ***In re Young***, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); ***In re Keller***, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

The claimed subject matter is directed to a process involving at least two positive steps, with the first step being drawn to obtaining sintered titanium dioxide as a by-product in preparation of titanium dioxide via a chloride process and the second step being drawn to using the resultant sintered titanium dioxide as a catalyst for promoting hydrolysis of carbonyl sulfide in the presence of water. See claim 1. According to page 1 of the specification, “a chloride process” is defined as:

> An example of a manufacturing process which produces sulfur as a by-product is the preparation of titanium dioxide pigments via vapor phase oxidation of titanium tetrachloride (the so-called chloride process). In this process titanium-containing ores or slags are chlorinated in a reducing atmosphere in a reactor at about 1000°C. Carbonaceous materials, such as petrol coke are used as a reducing agent. The gas mixture leaving the reactor contains besides the metal chlorides (particularly titanium tetrachloride and various metal chlorides), coke, unreacted ore, silicon dioxide, carbon dioxide, carbon monoxide, nitrogen, hydrogen chloride and, because of the sulfur content of the coke, carbonyl sulfide. After further treatment, the exhaust gas is burned before introduction into the atmosphere because of its carbon monoxide content; in this burning, carbonyl sulfide is converted into sulfur dioxide and carbon dioxide. The sulfur compounds must be removed from the exhaust gases under existing regulations.

This chloride process is admittedly known. See Specification, page 1.

In rejecting claim 1, the broadest claim on appeal, the examiner relies only on the Quemere reference. According to the examiner (Answer, page 4), "the Quemere reference discloses ... hydrolysis of carbonyl sulfide in a gas mixture using titanium dioxide particles." The examiner then concludes (Answer, page 5) that:

> it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any available source of titanium dioxide in

> Quemere's process because the Quemere reference requires no specific source from which to obtain the titanium dioxide and a skilled artisan would be motivated by economics to depart from the prior art to reduce costs consistent with the desired product properties, ***In re Clinton*** 188 USPQ 365, ***In re Thompson*** 192 USPQ 275.

It appears to be the examiner's conclusion that it would have been obvious to employ by-product sintered titanium dioxide from an admittedly known chloride process as a catalyst for promoting hydrolysis of carbonyl sulfide. However, the examiner's conclusion is not supported by evidence. We find that the examiner does not refer to any evidence which indicates that the existence of sintered titanium dioxide as a by-product in a chloride process was known to those skilled in the art at the time the application was filed. We also find that the examiner has not demonstrated that **sintered** titanium dioxide was known to be useful as a catalyst for the hydrolysis of carbonyl sulfide at the time the application was filed. Without such knowledge, we cannot find any motivation or suggestion to employ the sintered titanium dioxide by-product from a chloride process for hydrolyzing carbonyl

sulfide in the presence of water, much less obtain sintered titanium dioxide as a by-product from a chloride process.

The examiner alternatively asserts that a step for obtaining sintered titanium oxide as a by-product of a chloride process is not entitled to any patentable weight because it is tantamount to claiming a catalyst in a product-by-process format. See Answer, pages 5 and 6. This assertion, however, is inapposite to the present situation since the present claims recite a two-step process, rather than a single step process involving the employment of a catalyst which is defined by a product-by-process format. ***See In re Hirao***, 535 F.2d 67, 69, 190 USPQ 15, 17 (CCPA 1976).

Although the examiner does not refer to the Hums reference[3] in rejecting claim 1 in a statement of rejection (Answer, page 4), the examiner states that it teaches at column 5, lines 9-11, sintering titanium dioxides in order to attach the resulting titanium dioxide to a support material (Answer, page 8). However, not only we do not find such a teaching at column 5, lines 9-11 of the Hum reference, but

[3] It is relied upon to reject only claims 3 and 8 which are dependent on claim 1.

also the resulting sintered titanium dioxide is used to remove nitrogen oxides in flue or waste gases. See column 2, lines 39-49 and column 3, lines 42-57. Nowhere does the Hum reference indicate that sintered titanium dioxide would be useful for hydrolyzing carbonyl sulfide. Nor does the Hum reference indicate that sintered titanium dioxide is known to exist as a by-product in a chloride process.

Since the examiner does not rely on the remaining prior art to remedy the above deficiencies, we conclude that the examiner has not supplied sufficient evidence to establish a ***prima facie*** case of obviousness. Hence, we reverse the examiner's decision rejecting the appealed claims under 35 U.S.C. § 103.

The decision of the examiner is reversed.

REVERSED

JOHN D. SMITH Administrative Patent Judge	)	
CHUNG K. PAK Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
CHARLES F. WARREN Administrative Patent Judge	)	

lp

Appeal No. 95-2245
Application No. 08,011,563

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Appeal No. 95-2245
Application No. 08,011,563

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DECISION: REVERSED
Send Reference(s): Yes No
or Translation (s)
Panel Change: Yes No
Index Sheet-2901 Rejection(s): 103

Prepared: September 27, 1999

Draft Final

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HEARD CASE /GAU 1103

PALM / ACTS 2 / BOOK
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