

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WERNER HARTMANN and DIETER KERNER

Appeal No. 2004-1092
Application No. 10/014,425

ON BRIEF¹

Before WALTZ, KRATZ and PAWLIKOWSKI, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 2, 5 and 11, which are all of the claims pending in this application.

BACKGROUND

Appellant's invention relates to a titanium dioxide/iron oxide mixed oxide powder composition having specified characteristics, wherein the mixed oxide is prepared using a "flame hydrolytic method" (specification, page 1, lines 22-30).

¹ Appellants failed to appear for the oral hearing scheduled on July 15, 2004 without requesting and securing a postponement. Consequently, appellants waived their right to an oral hearing.

According to appellants, the claimed mixed oxide compositions exhibit improved UV light absorption as compared with products of the prior art (specification, page 2, lines 17-21). Exemplary claim 2 is reproduced below.

2. A titanium dioxide powder composition consisting of a flame hydrolytically prepared iron oxide/titanium dioxide mixed oxide with a BET surface area of 10 to 150 m²/g and a particle size ranging between 5 nm-100 nm, which contains 0.5 to 50 wt.% of iron oxide, with reference to the total amount, as a component of the mixed oxide.

The sole prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Jin et al. (Jin), "Decomposition of 2-Butanol Catalyzed by Iron Oxide and Mixed Oxides Containing Iron," Bull. Chem. Soc. Jpn; Vol. 56, No. 11, 1983, pp. 3208-15.

Claims 2, 5 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jin.

We refer to the brief and to the answer for a complete exposition of the opposing viewpoints expressed by appellants and the examiner concerning the issues before us on this appeal.

OPINION

Having carefully considered each of appellants' arguments set forth in the brief and reply brief, appellants have not persuaded us of reversible error on the part of the examiner.

Accordingly, we will affirm the examiner's rejection for substantially the reasons set forth by the examiner in the answer. Because we are in agreement with the examiner's factual findings and response to appellants' arguments, we adopt the examiner's factual findings and rebuttal as our own. We add the following for emphasis.

While appellants' assert that the claims should not stand or fall together, appellants have not fairly explained on this record how each of the claims are separately patentable over the applied prior art. Consequently, we select claim 2 as the representative claim on which we decide this appeal. See 37 CFR § 1.192(c)(7) and (c)(8) (2002) and In re McDaniel, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002) ("if the brief fails to meet either requirement, the Board is free to select a single claim from each group of claims subject to a common ground of rejection as representative of all claims in that group and to decide the appeal of that rejection based solely on the selected representative claim").

The claims at issue here are product-by-process claims. As such, we note that the product made by the process, not the process per se, is the focus of our inquiry in assessing the subject matter at issue. See In re Thorpe, 777 F.2d 695, 697,

227 USPQ 964, 966 (Fed. Cir. 1985) ("If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."). Moreover, see In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977), wherein the predecessor of our reviewing court explained as follows:

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. . . Whether the rejection is based on 'inherency' under 35 U.S.C. 102, on 'prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. [Citations and footnotes omitted.]

Moreover, we agree with the explanation of Jin offered in a remand section of the prior Board opinion (Appeal No. 1997-1793) in parent application No. 08/528,044, now U.S. Patent No. 6,406,532. In that opinion, Jin (referred to as Hattori) was described as teaching:

that the disclosed binary oxides are produced by a coprecipitation method involving the steps of subjecting a mixed solution of ferric nitrate and titanium tetrachloride to hydrolysis with aqueous ammonia at a pH of 8-9 to form a precipitate, washing

the precipitate with deionized water, drying the precipitate at 100°C for 20-30 hours, and then calcining the dried precipitate in air at 500°C for 2-3 hours (experimental section, page 3208). However, as in the appellants' flame hydrolysis preparation process (specification, page 1, line 31 to page 2, line 7 ...), Hattori [Jin] describes the coprecipitation method as reacting an iron salt with titanium tetrachloride and then treating the resulting product at elevated temperatures to yield an iron oxide-titanium oxide binary oxides having the same composition and the same surface area as recited in appealed claim 2.

...

Although Hattori [Jin] uses a different preparation method, the final catalyst product identified as "Fe₂O₃-TiO₂(1/9)" possesses the same composition and the same surface area as the "flame hydrolytically prepared" product recited in appealed claim 2. Under these circumstances, we think it is reasonable to conclude that the prior art product is indistinguishable from the appellants' claimed product and that it is appropriate to shift the burden of proof to the appellants to show a patentable difference. *Best*, 562 F.2d at 1255, 195 USPQ at 433-34; *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) (reaffirming the principle that similarities in terms of reactants, reaction conditions, and properties amount to a *prima facie* case of unpatentability). The fairness in the shifting of the burden of proof here would be evidenced by the PTO's inability to conduct laboratory experiments. *Best*, 562 F.2d at 1255, 195 USPQ at 433-34.

The representative appealed claim 2 at issue here differs from the claim 2 that was before the prior Board panel, particularly by requiring that the particle size of the claimed powder range between 5-100 nm. Regarding that further

limitation, we note that Jin discloses that the catalyst is powdered (page 3208, column 1) suggesting a small particle size range. Based on that disclosure coupled with the surface areas reported for the $\text{Fe}_2\text{O}_3\text{-TiO}_2$ catalyst of Jin (page 3208) and the examiner's undisputed factual determination that the catalyst of Jin is non-porous, we agree with the examiner's assessment that one of ordinary skill in the art following the teachings of Jin would have been led to produce $\text{Fe}_2\text{O}_3\text{-TiO}_2$ catalyst particles with a size and surface area as claimed. In this regard, we note that one of ordinary skill in the art would recognize that the catalyst size is a result effective variable because a smaller size non-porous catalyst would be expected to have a larger surface area available for furnishing catalyzed reaction sites. Consequently, one of ordinary skill in the art would have been led to the claimed catalyst sizes upon routine experimentation in determining the workable range of powder sizes for the catalyst. See In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980) ("[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art."); In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) ("[W]here the general conditions of a claim are disclosed in

the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”).

In light of the above, we are not persuaded by appellants' argument that obtaining a particle size within the claimed range is not inherently achieved by following the teachings of Jin. As noted by the examiner (answer, page 5) and further amplified above, the examiner's § 103(a) rejection is not based on an inherency theory but rather on the obviousness of the claimed product composition based on the teachings of Jin as they would be understood by one of ordinary skill in the art.

Appellants' arguments with respect to differences in making the claimed product over the prior art method of making their catalyst have not been substantiated with any persuasive evidence establishing a patentable difference in the product made, which product is the subject of this appeal. Appellants rely on a Hartmann et al. Declaration² that was submitted in parent application No. 08/528,044, now U.S. Patent No. 6,406,532 and several excerpts from Ullmann's Encyclopedia of Industrial

² A copy of the declaration was not located in the present application file. Consequently, prior to final disposition of this application the examiner should require appellants to submit a copy of the executed declaration for the record of this application file.

Chemistry to show that the claimed product is allegedly not only patentably different (nonobvious) but superior to that of Jin.

Regarding the referred to Ullmann's Encyclopedia excerpts, the referred to pages relate to silicas that were prepared pyrogenically or via precipitation as well as titanium dioxide prepared via sulfate or chloride methods. Appellants have not reasonably established how that relied upon evidence relating to different materials is sufficient to show a patentable distinction between the here claimed product and that of the applied prior art.

As for the Hartmann et al. declaration, that declaration furnishes a UV absorption comparison between dispersions of an aluminum oxide/zirconium oxide coated titanium mixed oxide powder prepared by a precipitation method and obtained from the Ishihara Sangyo company with a dispersion of a pyrogenically produced mixed titanium mixed oxide of a specified iron oxide content with a 50 m²/g surface area presumably prepared according to the present invention. Besides not being commensurate in scope with the appealed claims, that showing does not even test the product of the applied prior art. Moreover, the descriptions of the comparative (prior art) mixed oxide in the declaration as well as the inventive mixed oxide are somewhat vague. Thus, the test

results reported have not been established as being reasonably comparative with the closest prior art holding all variables constant except for the novel features of the claimed invention and whether the showing is in fact commensurate in scope with the appealed claims which are not limited to a 2 weight percent iron oxide content and a 50 m²/g surface area. Also, it is not clear whether the phrase "pyrogenically produced" is indicative of the production process as broadly recited in appealed claim 2 or claim 3. It is apparent that appellants' evidence is considerably more narrow in scope than the representative appealed claim 2. See In re Dill, 604 F.2d 1356, 1361, 202 USPQ 805, 808 (CCPA 1979). Similarly, it is not clear whether the comparative mixed oxide is in fact made by a process which corresponds to the process as described in Jin notwithstanding the unsupported attorney argument of record to the effect that the comparative mixed oxide is presumably representative of a patent family that is more relevant than the applied Jin reference.

To the extent that appellants are asserting that the examples furnished in the declaration establish unexpected results for the claimed subject matter, we note that the question as to whether unexpected advantages have been demonstrated is a

factual question. In re Johnson, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984). Thus, it is incumbent upon appellants to supply the factual basis to rebut the prima facie case of obviousness established by the examiner. See, e.g., In re Klosak, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). Appellants, however, do not provide an adequate explanation regarding the factual showing in the declaration, that is referred to in the brief, to support a conclusion of unexpected advantages.

Having reconsidered all of the evidence of record proffered by the examiner and appellants, we have determined that the evidence of obviousness, on balance, outweighs the evidence of nonobviousness. Hence, we conclude that the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art. Accordingly, we affirm the examiner's § 103(a) rejection.

CONCLUSION

The decision of the examiner to reject claims 2, 5 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Jin is affirmed.

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

AFFIRMED

THOMAS A. WALTZ)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
PETER F. KRATZ)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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BEVERLY A. PAWLIKOWSKI)	
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