Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte V. M. MALLIKARJUNA RAO
and
MUNIRPALLAM A. SUBRAMANIAN

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Appeal No. 1998-2623
Application No. 08/677,062

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ON BRIEF

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Before PAK, WALTZ, and TIERNEY, **Administrative Patent Judges**.

WALTZ, **Administrative Patent Judge**.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 2, 3, 10 and 11. The examiner has indicated that claims 1, 8 and 9 are allowed (see the Final Rejection dated Apr. 28, 1997, Paper No. 7; and the Brief, page 1). Claims 4 through 7 and 12 through 14, the only other claims in this application, stand withdrawn from

consideration by the examiner as being directed to a non-elected invention (*Id.*).

According to appellants, the invention is directed to multiphase catalyst compositions consisting essentially of chromium fluoride and a crystalline fluoride of one or more specific metals where the atom percent of chromium is at least equal to the atom percent of the crystalline metal fluoride and the phases of the crystalline fluorides are homogeneously dispersed with phases of chromium fluoride (Brief, page 2). A copy of illustrative claim 3 is attached as an Appendix to this decision.

The examiner has relied upon the following reference in support of the rejections:

Fiske et al. (Fiske) 4,147,733 Apr. 3, 1979

Appellants rely upon the following reference in rebuttal of the examiner's rejections:

Schwarz et al. (Schwarz), "Methods for Preparation of Catalytic Materials," 95 *Chem. Rev.,* no. 3, 477-510 (American Chemical Society, 1995).

Claims 2-3 and 10-11 stand rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as unpatentable over Fiske (Answer, page 3).[1]

[1]The examiner incorrectly denominates the sole reference as "Fisk" throughout the Final Rejection and the Answer. In

We *reverse* both of the examiner's rejections for reasons which follow.

OPINION

The examiner construes the claims as requiring a catalyst consisting essentially of chromium fluoride and a specified crystalline metal fluoride where the atom percent of chromium is at least equal to the atom percent of the crystalline metal fluoride and the phases of the crystalline metal fluoride are homogeneously dispersed with the phases of chromium fluoride (Answer, paragraph bridging pages 3-4). The examiner recognizes that claims 2 and 10 are drafted in product-by-process form (Answer, page 4).

The examiner finds that a difference between the claimed invention and Fiske is that Fiske does not disclose any specific atom percent ratio of chromium to fluoride metals (*Id.*). The examiner concludes that "since the ratio of chromium fluoride to aluminum fluoride <u>is not limited</u> by the broad disclosure of Fisk [sic, Fiske] et al.(4,147,733), appellants [sic, appellants'] claimed ratio is considered to

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this decision we refer to the sole reference by the correct name of "Fiske."

be encompassed by the disclosure of the applied reference." (Emphasis original.) (*Id.*). We disagree. We find that the general disclosure of Fiske teaches a metal fluoride catalyst which may be "preferably an aluminum fluoride, a nickel fluoride, a chromium fluoride, or a mixture thereof." (Col. 1, ll. 32-34). There is no general disclosure or teaching in Fiske of any ratio of the metal fluorides.[2] To imply a generic range of ratios from the lack of disclosure in Fiske coupled with selection of an atom percent of chromium "at least equal" to the atom percent of the metal fluoride to meet the limitation of claim 3 on appeal would entail picking and choosing from the reference disclosure. Accordingly, this limitation cannot be said to be "described" within the meaning of 35 U.S.C. § 102. *See In re Arkley,* 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972). Therefore we cannot sustain the examiner's rejection of the claims on appeal under 35 U.S.C. § 102.

With regard to the examiner's rejection under § 103, the examiner concludes that "any ratio would display at least some

[2]The specific disclosure of the examples of Fiske will be discussed below.

catalytic properties because the combination of chromium fluoride and aluminum fluoride is known to possess catalytic properties." (Answer, page 4). The examiner further concludes that it would have been obvious "to select any atom percent ratio for aluminum fluoride and chromium fluoride that would provide for an active catalyst . . . " (Answer, page 5). As discussed above, we find that Fiske discloses that mixtures of metal fluorides can be used as a catalyst but there is no general disclosure as to the amounts or ratios of the metals involved in these mixtures (col. 1, ll. 32-34; col. 2, ll. 25-26). However, Fiske specifically discloses several examples where chromium is used in low amounts (see Examples 1, 4 and 6).[3] The examiner has not pointed to any disclosure or teaching in Fiske that would have led one of ordinary skill in the art to employ the claimed atom percentages of chromium and metal fluoride. The claimed atom percents are much higher than the amounts disclosed in the Examples of Fiske. Thus,

[3]We note that, on this record, there are no calculations equating the "percent by weight" disclosed in the Examples of Fiske with the "atom percent" recited in the claims on appeal. In the absence of such calculations on the record, we will only designate the amounts of chromium as relatively high or low.

the only disclosure or teaching in Fiske would have led one of ordinary skill in the art towards relatively low amounts of chromium and high amounts of aluminum, i.e., away from the claimed atom percents. *See generally In re Baird,* 16 F.3d 380, 383, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994).

Additionally, the claims on appeal recite a "multiphase" catalyst composition "wherein phases of said crystalline fluorides are homogeneously dispersed with phases of said chromium fluoride." See claim 3 on appeal. Fiske discloses coating or impregnating alumina with a nickel or chromium compound to produce a catalyst or that "a granular metal fluoride or mixture of metal fluorides can be used directly as the catalyst." (Col. 2, ll. 21-26). The examiner has not established that the disclosure of these methods of preparation in Fiske would have suggested this claim limitation to one of ordinary skill in the art at the time of appellants' invention (see the Answer, page 6).

We recognize that the examiner bears a lesser burden of proof to establish a *prima facie* case of obviousness for

product-by-process claims 2 and 10.[4] However, we determine, for reasons noted above, that the examiner has not established that the cited prior art discloses a product that "appears to be either identical with or only slightly different than [the] product claimed in [the] product-by-process claim." *In re Fitzgerald,* 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980).

[4]*In re Fessmann,* 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974).

For the foregoing reasons, we find that the examiner has not established a *prima facie* case of obviousness based on the reference evidence. Accordingly, the rejection of the claims on appeal under 35 U.S.C. § 103 as unpatentable over Fiske is reversed.

The rejection of claims 2, 3, 10 and 11 under 35 U.S.C. § 102(e) or, in the alternative, under 35 U.S.C. § 103, over Fiske is reversed.

The decision of the examiner is reversed.

REVERSED

CHUNG K. PAK Administrative Patent Judge	)
THOMAS A. WALTZ Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
MICHAEL P. TIERNEY Administrative Patent Judge	)

TAW:hh

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APPENDIX

3. A multiphase catalyst composition consisting essentially of chromium fluoride and a crystalline fluoride of at least one metal selected from the group consisting of Al, Sc, V, Fe, Ga and In, provided that the atom percent of Cr is at least equal to the atom percent of said crystalline fluoride metals, wherein phases of said crystalline fluorides are homogeneously dispersed with phases of said chromium fluoride.