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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN ROBERT LOCKEMEYER
and RANDALL CLAYTON YEATES

Appeal 2009-011750
Application 11/095,791
Technology Center 1700

Before CHUNG K. PAK, LINDA M. GAUDETTE, and MARK NAGUMO, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 through 9.[2] Claims 10 and 11, the other claims pending

[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

in the above-identified application, stand withdrawn from consideration by the Examiner. We have jurisdiction under 35 U.S.C. § 6.

STATEMENT OF THE CASE

The subject matter on appeal is directed to "a process for preparing a high-selectivity olefin epoxidation catalyst [and] the catalyst per se" (Spec. 1, ll. 8-10). Details of the appealed subject matter are recited in illustrative claims 1 and 9 reproduced from the Claims Appendix to the Appeal Brief as shown below:

1. A process for preparing a catalyst comprising silver, a rhenium component, and a rhenium co-promoter on a support, which process comprises

depositing the rhenium co-promoter on the support prior to or simultaneously with depositing silver on the support, and

depositing the rhenium component on the support after depositing silver on the support.

9. A catalyst comprising silver, a rhenium component, and a rhenium co-promoter prepared in accordance with the process of claim 1.

According to pages 12 and 13 of the Specification, the claimed rhenium co-promoter is described as including tungsten, chromium, molybdenum, sulfur, phosphorus and/or boron.

As evidence of unpatentability of the claimed subject matter, the Examiner relies on the following references at page 3 of the Answer:

Thorsteinson	US 5,187,140	Feb. 16, 1993

[2] *See generally* the Appeal Brief filed February 25, 2008 ("App. Br.), the Examiner's Answer dated May 15, 2008 ("Ans."), and the Reply Brief filed July 15, 2008 ("Reply Br.").

Lauritzen EP 0266 015 A1 May 4, 1988

Appellants seek review of the following grounds of rejection set forth by the Examiner in the Answer:

1) Claims 1 through 9 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Thorsteinson; and

2) Claims 1 through 9 under 35 U.S.C. § 103(a), as unpatentable over the disclosure of Lauritzen.[3]

RELEVENT FACTS, PRINCIPLES OF LAW, ISSUE, ANALYSIS, AND CONCLUSIONS

I. CLAIMS 1 THROUGH 8 UNDER § 102(b)

The Examiner has found that Thorsteinson teaches impregnating a catalyst support with an impregnation solution containing silver more than once, with a suitable promoter corresponding to the claimed rhenium co-promoter being deposited prior to, during or subsequent to the addition of silver to the catalyst support (Ans. 3-4). The Examiner has also found that Thorsteinson teaches that:

> When the catalyst comprises rhenium, the rhenium component can be provided in various forms, e.g., as the metal, as a covalent compound, as a cation or as an anion. The rhenium species that provides the enhanced efficiency and/or activity is not certain and may be the component added or that generated either during preparation of the catalyst or during use as a catalyst. [(*See* Ans. 4 together with Thorsteinson, col. 13, ll. 18-24.)]

[3] The Examiner has withdrawn the rejection of claims 1 through 9 under 35 U.S.C. § 102(b), as anticipated by the disclosure of Lauritzen set forth in the final Office action dated April 4, 2007 and entered a new ground of rejection against the same claims under 35 U.S.C. § 103 as unpatentable over the disclosure of Lauritzen (Ans. 2-4).

The Examiner has interpreted this passage of Thorsteinson as adding the rhenium catalytic species on a catalyst during the use of the catalyst in an olefin epoxidation process, thus meeting the limitation "depositing the rhenium component on the support after depositing silver on the support" as recited in claim 1 (Ans. 4 and 6). On the other hand, Appellants contend that the Examiner has misinterpreted the disclosure of Thorsteinson (Reply Br. 4-5). According to Appellants, Thorsteinson only teaches generating a rhenium species, not depositing a rhenium component on a catalyst during use as the catalyst (in an olefin epoxidation process) (*Id*.).

Thus, the dispositive question raised is: Has the Examiner erred in finding that Thorsteinson teaches depositing the rhenium component on a catalyst during use as the catalyst (i.e., during its use in an olefin epoxidation process) within the meaning of 35 U.S.C. § 102(b)? On this record, we answer this question in the affirmative.

As correctly stated by Appellants at pages 4 and 5 of the Reply Brief, Thorsteinson as a whole indicates that the above-cited passage of Thorsteinson must be read as generating, not adding, a rhenium component during use as the catalyst. (*See also* Thorsteinson, cols. 11-60). The Examiner has not shown why a person having ordinary skill in the art would have understood the above-cited passage of Thorsteinson as teaching the deposition of the rhenium component on the catalyst support during use of the catalyst.

Accordingly, we reverse the Examiner's decision rejecting claims 1 through 8 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Thorsteinson.

II. CLAIM 9 UNDER § 102(b)

Thorsteinson discloses an olefin epoxidation catalyst comprising silver and one or more promoters, with the most preferred promoters being one or more oxyanions of nitrogen, sulfur, manganese, tantalum, molybdenum, tungsten, and rhenium (col. 11, ll. 5-13 and 37-39). Although Thorsteinson does not describe the claimed process limitation, i.e., the claimed deposition sequence, with sufficient specificity[4] as explained by Appellants in their Brief, it is well settled that the patentability of a claim in product-by-process form is determined based on the product itself, not on the method of making it. *See In re Thorpe*, 777 F.2d 695, 697 (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 art product was made by a different process."). This is especially true in this instance since Thorsteinson teaches that the most preferred "promoters may be deposited prior to, during, or subsequent to silver addition to the carrier" (col. 16, ll. 37-38). Implicit in this teaching of Thorsteinson is that the same or substantially the same catalyst useful for olefin epoxidation is formed, regardless of the depositing sequence for silver, rhenium, and a rhenium co-promoter. Indeed, Appellants do not

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[4] A prior art reference must identify each and every element as set forth in the claim "with sufficient specificity to constitute a description thereof within the purview of 35 U.S.C. § 102". *In re Schaumann*, 572 F.2d 312, 315 (CCPA 1978). "Random picking and choosing" of steps and elements from the prior art may not be relied upon to establish anticipation. *Akzo N. I1. v. U.S. International Trade Commission,* 808 F.2d 1480, 1471 (Fed. Cir. 1986).

argue that one of ordinary skill in the art would not readily envisage a catalyst comprising silver, a rhenium co-promoter (e.g., sulfur, molybdenum or tungsten), and rhenium from the teachings of Thorsteinson (App. Br. 13 and Reply Br. 8). Rather, Appellants only contend that the Examples and Table II of the Specification show that the claimed process limitation, i.e., the claimed sequence for depositing silver, rhenium, and a rhenium co-promoter, renders the claimed catalysts patentably different from Thorsteinson's catalysts prepared from a different depositing sequence (*Id*.).

Thus, the dispositive question is: Have Appellants demonstrated that the claimed process limitation renders the olefin epoxidation catalysts encompassed by claim 9 patentably different from the olefin epoxidation catalysts of Thorsteinson[5]? On this record, we answer this question in the negative.

As is apparent from the Examples and Table II of the Specification, Appellants have not demonstrated that Thorsteinson's catalyst does not possess the characteristics of some of the catalysts encompassed by claim 9 on appeal. In particular, the Examples and Table II of the Specification relied upon by Appellants only show that Catalyst B containing 27.3% Ag, 560 ppm Cs/g catalyst, 2.4 μmole Re/g catalyst, 0.60 μmole W/g catalyst, and 12 μmole Li/g catalyst prepared from impregnating a particular catalyst

[5] When Appellants' product and a product of the prior art appear to be identical or substantially identical, the burden shifts to Appellants to provide evidence that the prior art product does not necessarily or inherently possess the characteristics of Appellants' claimed product. *See Thorpe*, 777 F.2d at 698; *In re Fitzgerald*, 619 F.2d 67, 70 (CCPA 1980); *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977); *In re Fessmann*, 489 F.2d 742, 745 (CCPA 1974).

support with a first solution comprising silver and ammonium tungsten dissolved in an ethylenediamine/water mixture and then with a second solution containing silver, NH_4ReO_4 in an ethylenediamine/water mixture, $LiNO_3$ dissolved in water, and CsOH has an improvement in activity stability relative to Catalyst A containing about the same amounts of the same ingredients prepared from using a first impregnating solution containing silver and a second impregnating solution containing silver, NH_4ReO_4, ammonium metal tungstate, $LiNO_3$ and CsOH (Spec. 21-25). In other words, the Examples and Table II of the Specification show that only one of the myriad of catalysts embraced by claim 9 possesses an improved catalytic stability characteristic (*Id.*). For instance, Appellants have not shown that the claimed catalysts containing different ingredients, e.g., silver, rhenium and either sulfur or chromium (a rhenium co-promoter) prepared from the claimed, but different impregnating steps and solutions than those used to prepare Catalyst B possess such improved catalytic stability characteristic relative to the same catalysts prepared from the prior art's preferred impregnation steps. Thus, on this record, Appellants have not demonstrated that the claimed process limitation renders all of the olefin epoxidation catalysts encompassed by claim 9 patentably different from the olefin epoxidation catalysts of Thorsteinson.

Accordingly, we affirm the Examiner's decision rejecting claim 9 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Thorsteinson.

III. CLAIMS 1 THROUGH 9 UNDER 35 U.S.C. § 103(a)

Appellants acknowledge at page 8 of the Reply Brief that:

> Lauritzen discloses in broad generic terms possible deposition steps for preparing a catalyst, in particular depositing on the support a further metal prior to, coincidentally with,

> or subsequent to silver and depositing on the support rhenium prior to, coincidentally with, or subsequent to silver and/or further metal. *See European Application No. 0 266 015,* pg. 3, ll. 14-18; pg. 7, ll. 31-33. In a further preferred embodiment, the catalyst additionally contains a co-promoter. The co-promoter may be deposited at the same time the other components are added or before and/or later. *Id.* at pg. 12, ll. 19-23. The preferred process is to deposit silver and all the promoters in single deposition step. *Id.* at pg. 5, ll. 20-23; pg. 7, ll. 33-35; pg. 12, ll. 21-23.

Appellants do not question the Examiner's determination that Lauritzen would have suggested, *inter alia*, employing the claimed deposition sequence for silver, a rhenium co-promoter, and rhenium to arrive at the olefin epoxidation catalysts recited in claims 1 and 9. Rather, Appellants only contend that Lauritzen does not recognize that the catalysts prepared from particular impregnation sequences embraced by claims 1, 2, 3, and 9 provide unexpectedly enhanced catalyst performance as evidenced by the Examples and Table II of the Specification (Reply Br. 9-10).

Thus, the dispositive question here is: Have Appellants demonstrated that the claimed subject matter as a whole imparts unexpected results relative to the invention taught by Lauritzen, thereby rebutting any prima facie case of obviousness established by the Examiner? On this record, we answer this question in the negative.

It is well settled that a showing of unexpected results may be sufficient to overcome a *prima facie* case of obviousness. *In re Dillon*, 919 F.2d 688, 692-93 (Fed. Cir. 1990) (internal citations omitted). The burden is on Appellants to show that the claimed invention imparts unexpected results. *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). Such a showing must be reasonably commensurate with the scope of protection sought by the claims

on appeal. *In re Grasselli,* 713 F.2d 731,743 (Fed. Cir. 1983); *In re Clemens,* 622 F.2d 1029, 1035 (CCPA 1980). However, as indicated *supra*, the Examples and Table II of the Specification only show that only one of the myriad of catalysts embraced by claims 1, 2, 3, and 9 imparts an alleged unexpected catalytic stability characteristic. Appellants have not shown that such showing is applicable to or predictive of the other materially different catalysts, impregnation steps and solutions encompassed by claims 1, 2, 3, and 9.

Accordingly, based on the totality of the record, including due consideration of Appellants' arguments and evidence, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the claimed subject matter within the meaning of 35 U.S.C. § 103(a).

ORDER

Upon consideration of the record, and for the reasons given, it is

ORDERED that the decision of the Examiner to reject claims 1 through 8 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Thorsteinson is REVERSED;

FURTHER ORDERED that the decision of the Examiner to reject claim 9 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Thorsteinson is AFFIRMED; and

FURTHER ORDERED that the decision of the Examiner to reject claims 1 through 9 under 34 U.S.C. § 103(a) as unpatentable over the disclosure of Lauritzen is AFFIRMED; and,

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

sld

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