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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			VALENROD, YEVGENY	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHEL STREBELLE and DOMINIQUE BALTHASART

Appeal 2011-006646
Application 11/722,598
Technology Center 1600

Before ERIC GRIMES, MELANIE L. McCOLLUM, and SHERIDAN K. SNEDDEN, *Administrative Patent Judges*.

GRIMES, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a method of making 1,2-dichloroethane, which have been rejected for obviousness.

We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

Claims 19-31, 34, 37, and 38 are on appeal. Claim 19 is representative and reads as follows:

Claim 19: A process for the manufacture of 1,2-dichloroethane starting with a hydrocarbon source comprising, in the following order a) - f):

- a) subjecting the hydrocarbon source to cracking to produce a mixture of cracking products;
- b) subjecting the mixture of cracking products to a succession of treatments to obtain a mixture of products comprising ethylene and other constituents, wherein the succession of treatments comprises:
 - an aqueous quenching,
 - removing at least most of any carbon dioxide by alkaline washing, thereby generating an alkaline solution, and
 - removing hydrogen sulphide contained in the mixture of cracking products by oxidation;
- c) separating the mixture of products comprising ethylene and other constituents into at least one fraction comprising ethylene having a purity of less than 99.8% and into a heavy fraction;
- d) conveying the fraction(s) comprising the ethylene to a chlorination reactor and/or an oxychlorination reactor,
- e) converting the ethylene to 1,2-dichloroethane in the chlorination reactor and/or oxychlorination reactor; and
- f) separating the 1,2-dichloroethane from other products produced in the chlorination and/or oxychlorination reactors.

The Examiner has rejected all of the claims on appeal under 35 U.S.C. § 103(a) as obvious based on Strebelle,¹ Zimmermann,² Huntley,³ and Connaught⁴ (Answer 3-4). The Examiner finds that Strebelle discloses the process of claim 19 except for “the specific treatment steps found in part b). . . . Specifically: aqueous quenching, removing of carbon dioxide by alkaline washing, removing hydrogen sulfide by oxidation using hydrogen

¹ Strebelle et al., WO 00/26164, May 11, 2000. Our citations are to the English language translation of record.

² Heinz Zimmermann, et al., *Ethylene*, Ullmann’s Encyclopedia of Industrial Chemistry – John Wiley & Sons, published June 15, 2000.

³ Huntley, US 5,891,346, Apr. 6, 1999.

⁴ Connaught et al., US 4,417,986, Nov. 29, 1983.

peroxide.” (*Id.* at 5.) The Examiner finds that Zimmermann teaches that removal of carbon dioxide and hydrogen sulfide from cracking products is known in the art (*id.*) and that Huntley and Connaught teach the methods of accomplishing such removal that are recited in claim 19 (*id.* at 5-6). The Examiner concludes that including those stages in Strebelle’s process would have been obvious to those of ordinary skill in the art (*id.* at 6).

Appellants argue that “Strebelle, when properly understood, actually relates to the direct use of a mixture of cracking products in a chlorination reaction, . . . and at page 1, lines 17-19 specifically directs the use of the ethylene ‘in the presence of the impurities usually obtained’ from cracking directly in the chlorination stage” (Appeal Br. 5). Appellants have provided a declaration under 37 C.F.R. § 1.132 of Michel Strebelle, a co-inventor of the Strebelle reference and of the application on appeal, to support this position (Appeal Br., Evidence Appendix). Appellants also argue that neither Huntley nor Connaught teach removal of hydrogen sulfide in a mixture of cracking products by oxidation, as required by the claims (Appeal Br. 7).

We agree with Appellants that the Examiner has not persuasively shown that the process of claim 19 would have been obvious based on the cited references. The Strebelle reference discloses that its “invention refers to a process in which one chlorinates of 1 ' ethylene in the presence of the impurities obtained at the time of the cracking of petroleum products” (Strebelle 1⁵). The Strebelle reference also states that “the invention refers

⁵ The Strebelle translation of record is a machine translation and includes numerous grammatical errors, untranslated French words, and plain

to a process ethane cracking coupled to a production of 1,2dichloréthane according to which the ethylene obtained at the time of this process is separated from the other products by a stage from chlorination” (*id.*). The Strebelle reference states that “[t]his allowing to avoid complex separations of ethylene of the products by-products at the time of a cracking of petroleum products” (*id.* at 1-2).

Mr. Strebelle declared that “Strebelle relates to the direct use of a mixture of cracking products, as such, in a chlorination reaction proceeding, in terms of Claim 19 above, directly from a) to d). There is no separation of the mixture of products into fractions with at least one containing ethylene and one being a heavy fraction.” (Strebelle Declaration, ¶ 5.) This interpretation is consistent with the translation of the Strebelle reference.

The Examiner argues that, even if the Strebelle reference does not teach separation of ethylene prior to chlorination, “the paragraph describing the step in question is a paragraph describing preferred embodiments and it is improper to interpret the said paragraph as a teaching away” (Answer 8). The Examiner is correct that Strebelle does not “teach away” from the separation step recited in step c) of claim 19, in that it does not suggest that more purified ethylene would be unsuitable for its process.

However, Strebelle expressly states that an advantage of its process is that it avoids complex separations of ethylene at the time of cracking, and instead allows separation by a chlorination stage. The Examiner’s proposed modification of Strebelle would eliminate the disclosed advantage of

gibberish. Our understanding of the reference is based on what can be gleaned from the translation, as further explained in the author’s declaration.

Strebelle's process (Strebelle 1-2), and the Examiner has not identified any offsetting advantage that would be gained by including a separation step. The Examiner therefore has not shown that the proposed modification would have been obvious to a person of ordinary skill in the art.

In addition, Appellants have pointed out that both Huntley and Connaught teach treating an aqueous effluent solution by oxidation, not treating the cracking products themselves as required by step b) of claim 19 (Appeal Br. 7). Mr. Strebelle also makes this point (Strebelle Declaration, ¶¶ 8, 9), which the references support. *See* Huntley, col. 2, ll. 5-7 (“The present invention provides a process for treating a sulfide-containing alkaline aqueous effluent, which comprises subjecting it to an oxidation treatment.”); Connaught, col. 2, ll. 8-15 (“[A] solution of spent alkaline reagent . . . obtained from the treatment of mercaptan-containing hydrocarbon fluid . . . with an alkali metal hydroxide, . . . is substantially reduced by contacting the solution with hydrogen peroxide.”). The passages relied on by the Examiner in Huntley and Connaught also refer to treatment of an alkaline aqueous solution, not cracking products (*see* Answer 5-6, *citing* Huntley at col. 1, ll. 14-30, and Connaught at abst., col. 1, ll. 8-22 and col. 2, ll. 46-52).

The Examiner's Answer does not respond to Appellants' argument on this point. Thus, even if the references were combined as proposed by the Examiner, the resulting process would not meet all of the limitations of claim 19. Claim 38, the only other independent claim on appeal, includes the same relevant limitations.

Appeal 2011-006646
Application 11/722,598

SUMMARY

We reverse the rejection of claims 19-31, 34, 37, and 38 under 35
U.S.C. § 103(a).

REVERSED

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