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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(2) is not binding precedent of the Board.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. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES R. BUTLER and KEVIN P. KELLY

Appeal No. 94-4210
Application 07/932,415¹

ON BRIEF

Before WINTERS, DOWNEY, and GRON, *Administrative Patent Judges*.
GRON, *Administrative Patent Judge*.

DECISION ON APPEAL UNDER 35 U.S.C. ¶ 134

¹ Application for patent filed August 19, 1992. According to appellants, this application is a continuation of Application 07/593,706, filed October 4, 1990, now abandoned.

This is an appeal of an examiner's final rejections² of Claims 10-14, all claims pending in this application.

Introduction

Claims 10 and 13 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 12-13 stand rejected under 35 U.S.C. § 102(b) as described by Gross³. Claim 14 stands rejected under 35 U.S.C. § 103 as unpatentable over Gross in view of Carney⁴. Claim 10 stands rejected under 35 U.S.C. § 102(b) as described by Wertheim⁵. Claim 11 stands rejected under 35 U.S.C. § 103 as unpatentable over Wertheim. Claims 10-12 and 14 are rejected for obviousness-type double patenting of Claims 1-5 of Butler⁶.

Claims 10 and 12 are representative of the claimed subject matter and read:

² The examiner objects (1) to appellants' declaration because it purportedly does not comply with 37 CFR §§ 1.63(b)(1) and 1.33(a), and (2) to the specification because the status of the parent application is not current. We remind appellants and the examiner that the Board of Patent Appeals and Interferences (Board) lacks jurisdiction under 35 U.S.C. § 134 to review informal requirements. See In re Hengehold, 440 F.2d 1395, 1404, 169 USPQ 473, 479 (CCPA 1971).

³ Gross, H.W., et al., U.S. 3,468,641, patented September 23, 1969

⁴ Carney, R.W., et al., U.S. 3,291,839, patented December 13, 1966

⁵ Wertheim, Ronald J., et al., U.S. 4,816,353, patented March 28, 1989

⁶ Butler, James R., et al., U.S. 5,156,816, patented October 20, 1992

10. A system for the selective reduction of phenylacetylene to styrene in a styrene stream contaminated with phenylacetylene, said system comprising:

a single reactor vessel having a flow inlet at one end and a flow outlet at the other end;

a first reduction catalyst bed in said reactor vessel near the flow inlet;

a hydrogen injector upstream of said first catalyst bed arranged to inject hydrogen into said styrene stream;

a second reduction catalyst bed in said reactor vessel downstream from said first catalyst bed and near said flow outlet; and

a second hydrogen injector in said reactor vessel between said two catalyst beds.

12. A system for the reduction of phenylacetylene in styrene, said system comprising:

a first reactor vessel having a flow inlet, a flow outlet, and a reduction catalyst bed therein;

a second reactor vessel having a flow inlet communicating with the flow outlet of said first vessel, and further having a reduction catalyst bed therein;

a first hydrogen injector for injecting hydrogen into said first reactor vessel upstream of said catalyst bed therein; and

a second hydrogen injector for injecting hydrogen into said second reactor vessel upstream of said catalyst bed therein.

Discussion

While the examiner has rejected Claims 10 and 13 under 35 U.S.C. § 112, second paragraph, the examiner does not explain why persons having ordinary skill in the art would have had

difficulty understanding the metes and bounds of the claimed subject matter. We do not see the problem. Therefore, we reverse the rejections under 35 U.S.C. § 112, second paragraph.

We affirm the examiner's rejection of the dual reactor vessel system of Claim 12 under 35 U.S.C. § 102(b) over the dual reactor system described by Gross. Gross describes a system for catalytic splitting of liquid hydrocarbons which reasonably appears to be identical to a system defined by appellants' Claim 12. Referring to Gross' drawing, there is depicted a system comprising:

(1) a first reactor vessel 4 having a flow inlet 3, a flow outlet 6, and a catalyst bed 5 therein which contains nickel or cobalt (Gross, col. 5, lines 1-10, and col. 4, lines 19-25);

(2) a second reactor vessel 9 having a flow inlet 7 communicating with the flow outlet 6 of the first reactor vessel 4, and having a catalyst charge 10⁷ which may be the same as that forming the catalyst bed 5 of reactor vessel 4 (Gross, col. 6, lines 1-6);

(3) a first conduit 1 for supplying a hydrocarbon fluid

⁷ Gross states at column 4, lines 51-57:

The aftersplitting may be promoted by the same cobalt- or nickel-containing catalyst which is also used in the main reactor. This catalyst may contain, e.g., 20-40% cobalt or nickel on a support of magnesium silicate or alumina. It has been found desirable to add chromium, platinum, palladium or tungsten as stabilizers to these catalysts.

(gasoline) into flow inlet 3 of the first reactor vessel (Gross, col. 5, line 2);

(4) a second conduit 2 for introducing a gas (steam) into flow inlet 3 of the first reactor vessel upstream of catalyst bed 5 therein (Gross, col. 5, line 1); and

(5) a third conduit 8, for introducing a gas (air) into flow inlet 7 of the second reactor vessel 9 upstream of catalyst bed 10 therein (Gross, col. 6, lines 25-29).

If the catalyst Gross describes is a reduction catalyst capable of "reduction of phenylacetylene in styrene," as is required of the Claim 12 system, Gross reasonably appears to describe a system having each and every structural and chemical element of the system appellants claim. We not only find that the catalyst forming Gross' catalyst bed is a reduction catalyst, e.g., it facilitates "hydrogenating splitting of hydrocarbons," Gross' catalyst reasonably appears to be chemically and physically the same as the reduction catalysts described in appellants' specification (Specification, page 12, first full ¶).

In short, Gross reasonably appears to describe a reduction system identical to a system defined by appellants' Claim 12.

While we do not doubt that "the intended use and specified use in the claims can distinguish claim structure over prior art structure" (Appellants' Brief, page 7, lines 8-9), the functional language of Claim 12 does not appear to distinguish the system

Gross describes from the system defined by Claim 12, i.e., the preamble here is not "necessary to give life, meaning, and vitality to the claims." Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Here, as in Kropa v. Robie at 151-152, 88 USPQ at 480-481:

. . . the preamble has been denied the effect of a limitation where the claim . . . was drawn to a structure and the portion of the claim following the preamble was a self-contained description of the structure not depending for completeness upon the introductory clause; or where the claim . . . was drawn to a product and the introductory clause merely recited a property inherent in the old composition defined by the remaining part of the claim. In those cases, the claim . . . apart from the introductory clause completely defined the subject matter, and the preamble merely stated a purpose or intended use of that subject matter.

Accord, In re Pearson, 494 F.2d 1399, 1403, 181 USPQ 641, 644 (CCPA 1974).

However, we reverse the examiner's rejection of Claim 13 under 35 U.S.C. § 102(b) over Gross. As we interpret appellants' Claim 13, the system requires four conduits: (1) a first conduit for supplying fluid feedstock into the flow inlet of the first reactor vessel, (2) a second conduit for introducing gas into the flow inlet of the first reactor vessel upstream of its catalyst bed, (3) a third conduit for introducing a gas into the flow inlet of the second reactor vessel upstream of its catalyst bed, and (4) a fourth conduit associated with at least one of the gas conduits for introducing diluent to the gas prior to its

introduction into a reactor vessel. While we agree with the examiner that it is irrelevant to the patentability of the claimed system whether the conduits of Gross's system introduce hydrogen or diluent or any other gas or fluid (Examiner's Answer, pages 4-5, bridging ¶), we find that the number of conduits introducing material into the reactors of the system defined by appellants' Claim 13 exceeds by one the number of conduits introducing material into the reactors of the system described by Gross.

On the other hand, we affirm the examiner's rejection of Claim 14 under 35 U.S.C. ¶ 103 as unpatentable over Gross in view of Carney. Appellant argues that the rejection of Claim 14

(Appellants' Brief, page 7):

based upon the combination of Gross . . . and Carney . . . fails for the reasons stated . . . with respect to Gross . . . that [Gross is] . . . directed to structures for hydrocracking straight-chain hydrocarbons and [has] . . . nothing to do with purification of monomer feedstock prior to polymerization, such as phenylacetylene reduction in styrene monomer.

As stated above, we find that Gross describes each and every physical and chemical limitation of the system defined by appellants' Claim 12. Moreover, we also find that the introduction of steam and/or gas via conduits 2 and 8 into main feedstock flow inlets 3 and 7 in Gross' system inherently acts to statically mix the fluids in the inlets of the respective reactor vessels of the system. Furthermore, we hold that placement of

venturi aspirators or eductors at the junctions of feedstock conduit 1 with steam conduit 2 and/or air conduit 8 with flow inlet 7 in Gross' system would have been obvious to a person having ordinary skill in the art for more effective mixing of the steam, fluid and/or gas mixtures introduced into either of the reactor vessels of Gross' system. We find that persons having ordinary skill in the art reasonably would have expected that implementation of the venturi aspirators or eductors of Carney's catalytic reaction system to mix steam with reactant fluid in Gross' system would similarly improve the efficiency of Gross' catalytic reactor system (Carney, col. 2, lines 43 to 54).

However, we agree with appellants that the examiner's rejections of Claim 10 under 35 U.S.C. § 102(b) over Wertheim's disclosure and Claim 11 under 35 U.S.C. § 103 in view of Wertheim's teaching itself are untenable. Material findings of fact by the examiner with regard to the system Wertheim describes are clearly erroneous. The examiner clearly errs in finding that

(Examiner's Answer, page 5, ¶ 6; emphasis added):

Wertheim et al disclose a system which the examiner compares to the left reactor vessel 12, which has a flow inlet 16 and a flow outlet 18, a first reduction catalyst 40 near the flow inlet 16, a first gas injector 14 upstream of said first catalyst bed, a second reduction catalyst 94 downstream of the first catalyst bed 40 and near the flow outlet 18, and a second gas injector 20 between the two catalyst beds.

To the contrary, Wertheim teaches (Wertheim, col. 5, lines 39-50) that valve **30** for steam and hydrocarbon feedstock flow inlet **14**

and valve **38** for flow outlet **18** are open when valve **32** for gas inlet **20**, valve **34** for flow inlet **22** and valve **36** for flow outlet **16** are all closed. Note particularly that **16** is a flow outlet, not an inlet as the examiner finds. Thus, valve **30** is open when valves **32** and **36** are closed, and valve **30** is closed when valves **32** and **36** are opened. Accordingly, Wertheim does not describe all the elements of appellants' Claim 10 system, i.e., a single reactor vessel having a feedstock flow inlet, a first catalyst bed near the feedstock flow inlet, a gas inlet upstream of the first catalyst bed arranged to inject gas into the feedstock flow, a second catalyst bed downstream of the first catalyst bed, and a gas inlet between the first and second catalyst beds. Thus, we reverse the examiner's rejections of Claim 10 under 35 U.S.C. § 102(b) over Wertheim and Claim 11 under 35 U.S.C. § 103 in view of Wertheim's teaching alone.

Claims 10-12 and 14 stand rejected for obviousness-type double patenting of Claims 1-5 of Butler. Rather than argue the merits of the examiner's rejection, appellants indicate that they

(Appellants' Brief, page 8, lines 1-4):
attempted to file a terminal disclaimer to overcome this rejection during prosecution of this case, but the terminal disclaimer was rejected by the examiner. Appellants would still be willing to file a proper terminal disclaimer given sufficient guidance as to what the Examiner feels should be required in such a document.

Under 35 U.S.C. § 134, the Board reviews rejections of claims

for propriety. The propriety of the obviousness-type double patenting rejection in this case is not contested. Therefore, we affirm the examiner's rejection pro forma. Whether the PTO's refusal to accept appellants' efforts to disclaim any patent rights to the subject matter claimed in this case which would extend beyond the patent term of U.S. 5,156,816 was proper is a petitionable matter for the Commissioner to resolve. See In re Hengehold, 440 F.2d at 1404, 169 USPQ at 479.

Conclusion

1. The rejections of Claims 10 and 13 under 35 U.S.C. § 112, second paragraph, are reversed.
2. The rejection of Claim 12 under 35 U.S.C. § 102(b) as described by Gross is affirmed.
3. The rejection of Claim 13 under 35 U.S.C. § 102(b) as described by Gross is reversed.
4. The rejection of Claim 14 under 35 U.S.C. § 103 as unpatentable over Gross in view of Carney is affirmed.
5. The rejection of Claim 10 under 35 U.S.C. § 102(b) as described by Wertheim is reversed.
6. The rejection of Claim 11 under 35 U.S.C. § 103 as unpatentable over Wertheim is reversed.
7. The rejection of Claims 10-12 and 14 for obviousness-type double patenting of Claims 1-5 of Butler is affirmed.

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

AFFIRMED-IN-PART

Sherman D. Winters)	
Administrative Patent Judge)	
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Mary F. Downey)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
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Appeal No. 94-0984

Application 07/750,109

Appeal No. 94-4210

Application 07/932,415

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