

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL MODELL,
EVAN F. KUCHARICH, and MICHAEL R. ROONEY

Appeal No. 1996-4174
Application No. 08/134,204

ON BRIEF

Before GARRIS, WARREN, and KRATZ, Administrative Patent Judges.
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's refusal to allow claims 14-27 as amended after the final rejection, which are all of the claims pending in this application.¹

¹ The examiner states in the advisory action mailed on March 21, 1995 (Paper no. 12) that the amendment filed by appellant on February 21, 1995 (Paper no. 10) will be entered. The amendment has not been clerically entered, as required. This matter should be addressed upon return of the application to the examiner.

Appellants' invention relates to an apparatus for oxidizing organic material under pressure in an elongated tubular reactor having a substantially constant internal diameter. An understanding of the invention can be derived from a reading of exemplary claims 14, 15 and 16, which are reproduced below.

14. Apparatus for oxidizing organic material in the presence of inorganic material and water, comprising:

a) an elongate tubular reactor having a substantially constant internal diameter from an inlet, of an inlet end of the elongate tubular reactor, to an outlet, of an outlet end of the elongate tubular reactor;

b) means for forming a pressurized reaction mixture of organic material, inorganic material, water and a source of oxygen, said pressurized reaction mixture having a pressure which is supercritical for water;

c) means for passing said pressurized reaction mixture through said elongate tubular reactor at a velocity sufficient to prevent settling of a substantial portion of solid particles from the reaction mixture within the elongate tubular reactor;

d) means for introducing sufficient heat to the pressurized reaction mixture in the elongate tubular reactor to cause at least a substantial portion of the organic material in the reaction mixture to oxidize, the temperature of the reaction mixture being elevated to at least supercritical temperature for water; and

e) means for cooling the reaction mixture within the elongate tubular reactor, but at the outlet end of said elongate tubular reactor, to a temperature sufficient to

cause formation of gas and liquid phases in the reaction mixture, the liquid phase including solid particles.

15. An apparatus of Claim 14 further including an external heat transfer means for transfer of heat from the reaction mixture at the outlet end of the elongate tubular reactor and for transferring heat removed therefrom to the reaction mixture at

the inlet end of said elongate tubular reactor, thereby heating the reaction mixture at the inlet end of the elongate tubular reactor.

16. An apparatus of Claim 15, wherein the means for heating and cooling the reaction mixture include,

- inlet i) a tube-in-tube heat exchanger disposed at the end,
- ii) a tube-in-tube heat exchanger at the outlet end,
- tube iii) a heat-transfer fluid disposed in the tube-in-tube heat exchangers, and
- iv) means for recirculating the heat-transfer fluid between said tube-in-tube heat exchangers.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Binning et al. (Binning) 4,869,833 Sep.
26, 1989

Welch et al. (Welch), Published International Appl. No.
PCT/US89/01079 (WO 89/08614), Sep. 21, 1989

Claims 14 and 15 stand rejected under 35 U.S.C. § 102(b) as anticipated by Binning. Claims 16-18 stand rejected under

35 U.S.C. § 103 as being unpatentable over Binning. Claims 19-27 stand rejected under 35 U.S.C. § 103 as being unpatentable over Binning in view of Welch.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by appellant and the examiner. This review leads us to conclude that the examiner's § 102(b) rejection of claims 14 and 15 is sustainable. However, we will not sustain the examiner's § 103 rejections. Our reasons for these determinations follow.

Rejection under § 102(b)

Appealed claims 14 and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Binning. According to the examiner, Binning fully meets the structure recited in these claims including the claimed "elongate tubular reactor having a substantially constant internal diameter..." (claim 14, lines 3 and 4). Appellants' argument with respect to this rejection is solely focused on that claimed limitation. In arguing against the examiner's contrary opinion regarding the

internal diameter of the tubular reactor (18, Figs. 1 and 4-7) of Binning being embraced by the claimed language, appellants express the viewpoint that the "...abrupt bends..." as used in Binning "...will generally incorporate significant changes in the internal diameter of the reactor along the path of flow of the reaction mixture" (brief, page 5). We disagree.

As noted by the examiner (answer, page 4), the coiled tubular reactor (18) of Binning is not disclosed or shown to have any substantial internal diameter variations. While Binning may not explicitly describe the diameter of the reactor (18) in the same words as used by appellants in their claims, such is not required for the Binning reference to fully anticipate the claimed subject matter within the meaning of § 102(b). The law of anticipation does not require that the reference teach what the appellant is claiming, but only that the claims on appeal "read on" something disclosed in the reference, i.e., all limitations of the claim are found in the reference. See *Kalman v. Kimberly Clark Corp.*, 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983) *cert. denied*, 465 U.S. 1026 (1984).

Here, Binning clearly discloses that the long reactor coil (18) has a diameter of "about two inches" (column 3, lines 11-17) and a length of about one mile (column 4, lines 26-29). Binning further exemplifies a particular elongated tubular reactor construction with "an inside diameter of 1.8 inches" (column 7, lines 6-8). In light of the above, it is our view that the examiner has reasonably established that Binning discloses an apparatus including an elongated tubular reactor with a

substantially constant diameter that corresponds to and is encompassed by the appealed claims herein.

We do not find appellants' contentions regarding Binning suggesting abrupt bends to be entirely consistent with the disclosure of Binning in that Binning merely requires an elongated coiled tubular reactor construction, not abrupt bends. Moreover, appellants have not substantiated their view that the coiled reactor of Binning will incorporate significant internal diameter changes as a result of such

construction with any evidence to support their supposition on this matter.

On this record, after reconsideration in light of appellants' arguments, we find ourselves in agreement with the examiner's position regarding the appealed claims being inclusive of the elongated tubular coil reactor construction utilized by Binning in their apparatus for the reasons set forth by the examiner in the answer and as further discussed above. Appellants simply have not convinced us of any reversible error in the examiner's stated § 102(b) rejection.²

Accordingly, we sustain the examiner's rejection of claims 14 and 15 under 35 U.S.C. § 102(b).

Rejections under § 103

Our disposition of the examiner's rejections under 35 U.S.C. § 103 is another matter. We observe that all of the appealed claims that are rejected under § 103 require the limitations recited in claim 16 including a tube-in-tube heat

²We note that appellants have not furnished any separate arguments with respect to claim 15 regarding this rejection. Thus, claims 14 and 15 stand or fall together with respect to this rejection.

exchanger at each of the inlet and outlet ends of the tubular reactor with a heat transfer fluid disposed in each heat exchanger and means for recirculating such heat transfer fluid between the exchangers.

The examiner correctly recognizes that the heat exchanger (86, Figure 6) of Binning is constructed to transfer heat between reactor incoming and effluent streams. According to the examiner, it would have been obvious to modify Binning to use conventional tube-in-tube heat exchangers as the exchangers thereof "...since this has not been shown to be a result-effective modification" (final rejection, page 3).

However, even if such a modification would have been obvious, the examiner has not explained how a skilled artisan would have arrived at the claimed apparatus including structure corresponding to appellants' claimed means for recirculating heat transfer fluid between the tube-in-tube heat exchangers. The burden is on the examiner to establish that an ordinarily skilled artisan would have been led to modify the apparatus of Binning in a manner such that the claimed apparatus would result from such a modification of the prior art relied upon. This the examiner has not done.

Moreover, the examiner's argument is not persuasive because the examiner has not provided evidence that the level of ordinary skill in the art was such that the ordinarily skilled artisan would have had been led to make the modification as proposed with a reasonable expectation of success. We note that the examiner has not cited any particular reference showing a pair of tube-in-tube heat exchangers and means for recirculating heat exchange fluid therebetween in an arrangement that in combination with the teachings of Binning would have rendered the overall claimed apparatus obvious within the meaning of 35 U.S.C. § 103.

The determination of obviousness must be based on facts, and not on unsupported generalities. See *In re Freed*, 425 F.2d 785, 787, 165 USPQ 570, 571 (CCPA 1970). Hence, it is manifest that the examiner's stated rejection falls short of establishing the obviousness of the claimed structure herein including the claimed tube-in-tube heat exchangers and means for circulating heat transfer fluid between the exchangers. Accordingly, we will not sustain the examiner's § 103 rejection of claims 16-18 over Binning.

Separately rejected claims 19-27 require all of the limitations of claim 16. Moreover, we note that the examiner has not established that Welch remedies the deficiencies of the teachings of Binning. Consequently, we will not sustain the examiner's § 103 rejection of claims 19-27 over the combined teachings of Binning and Welch.

CONCLUSION

The decision of the examiner to reject claims 14 and 15 under 35 U.S.C. § 102 as anticipated by Binning is affirmed. The decision of the examiner to reject claims 16-18 under 35 U.S.C.

§ 103 as being unpatentable over Binning and to reject claims 19-27 under 35 U.S.C. § 103 as being unpatentable over Binning in view of Welch is reversed.

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

BRADLEY R. GARRIS)	
Administrative Patent Judge)	
)	
)	
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)	BOARD OF PATENT
CHARLES F. WARREN)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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PETER F. KRATZ)	
Administrative Patent Judge)	

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APPEAL NO. - JUDGE KRATZ
APPLICATION NO. 08/134,204

APJ KRATZ

APJ GARRIS

APJ WARREN

DECISION: **AFFIRMED-IN-PART**

Prepared By: TINA

DRAFT TYPED: 16 Aug 01

FINAL TYPED: