

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ABBAS RAZAVI and GUY L.G. DEBRAS

Appeal No. 1998-3182
Application 08/459,526

ON BRIEF

Before KIMLIN, LIEBERMAN and KRATZ, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-6, 15, 16, 18 and 20-24. According to appellants, the examiner entered a new ground of rejection in the answer of previously-allowed claims 18, 20, 23 and 24 (see page 2 of reply brief, first full paragraph). Since appellants have responded to the examiner's rejection of claims 18, 20, 23 and 24 in their reply brief, we consider the rejection of claims 18, 20, 23 and 24 to be part of the present appeal.

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Claim 1 is illustrative:

1. A catalyst system effective in the preparation of polyolefins having a multimodal or at least bimodal molecular weight distribution comprising a supported catalyst-component comprising an alumoxane and at least two supported metallocenes each having activity effective for olefin polymerization containing the same transition metal and selected from the group consisting of mono, di, and tri-cyclopentadienyls and substituted cyclopentadienyls of a Group 4b, 5b, or 6b transition metal wherein at least one of the metallocenes is bridged and at least one of the metallocenes is unbridged.

In the rejection of the appealed claims the examiner relies upon the following reference as evidence of obviousness:

Tsutsui et al. (Tsutsui) 5,374,700 Dec. 20, 1994

Appellants' claimed invention is directed to a catalyst system comprising alumoxane and the recited bridged and unbridged metallocenes on a support, such as silica. The catalyst system is effective in preparing polyolefins having at least a bimodal molecular weight distribution.

Appealed claims 1-6, 15, 16, 18 and 20-24 stand rejected under 35 U.S.C. § 102(e) as anticipated by, or in the alternative, under 35 U.S.C. § 103 as being unpatentable over Tsutsui.

Appellants have not set forth separate arguments for claims 2-6 and 15. Accordingly, claims 2-6 and 15 stand or

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fall together with claim 1. (See page 5 of principal brief, paragraph 3).

We have thoroughly reviewed each of appellants' arguments for patentability, as well as the literature references cited in support thereof. However, we are in complete agreement with the examiner that the claimed subject matter is unpatentable over the cited patent to Tsutsui. Accordingly, we will sustain the examiner's rejection for essentially those reasons expressed in the answer.

There is no dispute that Tsutsui, like appellants, discloses a catalyst system effective in the preparation of polyolefins comprising the supported components of alumoxane, bridged and unbridged metallocenes. It is appellants' contention that there is no disclosure or teaching in Tsutsui that the catalyst system is effective in preparing polyolefins having at least a bimodal molecular weight distribution, as presently claimed. The examiner, on the other hand, counters (1) since a substantially similar catalyst system is used by both Tsutsui and appellants, "the examiner has a reasonable basis to suspect that the polymers of Tsutsui inherently possess such a property" (sentence bridging pages 3 and 4 of answer), and (2) Tsutsui discloses an intermediate catalyst system that is the same as appellants'

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claimed catalyst (page 4 of answer, first full paragraph).

Although appellants maintain that Tsutsui is confusing and internally inconsistent, we agree with the examiner that the reference provides a fair teaching of the claimed catalyst system. As pointed out by the examiner, Tsutsui, at column 5, lines 36 *et seq.*, clearly discloses a catalyst comprising [A] a fine particle carrier, [B] an unbridged metallocene, [C] a bridged metallocene and [D] an alumoxane. While Tsutsui teaches that the catalyst undergoes olefin prepolymerization to form a solid catalyst, it cannot be gainsaid that the catalyst described by Tsutsui, at least before prepolymerization, meets the claimed catalyst system. Since the components of the referenced catalyst and the catalyst defined by claim 1 are the same, it logically follows that the referenced catalyst would be effective in preparing a polyolefin having at least a bimodal molecular weight distribution. It is of no moment that the catalyst of Tsutsui is used to form a prepolymerized olefin solid catalyst but not a polyolefin having a bimodal molecular weight distribution. This is the case because the claims presently on appeal define a catalyst system, not a process or method of preparing a polyolefin having at least bimodal molecular weight distribution.

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Furthermore, while Example 13 of Tsutsui, cited by the examiner, prepares the catalyst by prepolymerizing a suspension of a silica support, an alumoxane and an unbridged metallocene, and incorporates the bridged metallocene after prepolymerizing, we find that one of ordinary skill in the art would have understood Tsutsui as teaching that the support, alumoxane, unbridged metallocene and bridged metallocene can be combined prior to prepolymerization. It is well settled that a reference is not limited to its examples or preferred embodiments and, in addition to the disclosure at column 5 cited above, Tsutsui discloses that the bridged metallocene may be supported on the carrier before prepolymerization (see column 16, lines 4 et seq.) Also, we point out that Tsutsui expressly discloses that before prepolymerization, the support (carrier), unbridged metallocene and bridged metallocene may be presupported on a carrier, "or these catalyst components may only be arbitrarily contacted and mixed" (column 20, lines 38-42). (See also column 20, lines 29-37). Hence, appellants' arguments to the contrary notwithstanding, we are satisfied that Tsutsui fairly discloses the presently claimed catalyst system which, necessarily, would be effective in preparing a polyolefin having a bimodal molecular

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weight distribution.

We also concur with the examiner that the exemplified catalyst systems of Tsutsui are sufficiently similar to those within the scope of the appealed claims to support the reasonable conclusion that the exemplified systems would be effective in preparing polyolefins having a bimodal molecular weight distribution, and the burden is on appellants to prove otherwise with objective evidence. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980). In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Since appellants acknowledge at page 2 of their specification that it was known in the art that “[p]olyolefins having a multimodal MWD can be made by employing two distinct and separate catalysts in the same reactor each producing a polyolefin having a different MWD” (paragraph 2), it is reasonable to conclude that the catalyst system of Tsutsui, which employs distinct, separate catalysts, would be capable of preparing a multimodal MWD.

Appellants have presented different reasons why one of ordinary skill in the art would not expect that the polymers prepared by Tsutsui have a bimodal MWD. In support of this argument, appellants cite different properties of the reference

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and inventive polymers. However, these arguments of appellants miss the point. The issue is not whether the polymers prepared in the examples of Tsutsui have a bimodal MWD but, rather, whether the catalyst systems fairly taught and exemplified by Tsutsui possess the characteristics which enable them to prepare such bimodal polymers under the proper set of operating conditions. We emphasize, again, that the appealed claims define a catalyst system, not a process of preparing bimodal polyolefins. Furthermore, we are not convinced that appellants have persuasively demonstrated that the exemplified polymers of Tsutsui are not bimodal. While appellants point out that the polymers of Tsutsui have a different density and display a different relationship between density and melting point than the polymers of the present invention, appellants have not established that the properties of Tsutsui's polymers necessarily correlate to a non-bimodal MWD.

Appellants also make the argument that the relatively small amount of unbridged metallocene employed in Tsutsui's Example 13 "would have substantially no olefin polymerization activity at the conclusion of the procedure in which the bridged metallocene

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is incorporated into the catalyst component" (page 9 of principal brief, last full sentence). However, appellants have proffered no objective evidence to support the argument that one of ordinary skill in the art would not expect the polymer of reference 13 to be bimodal. Indeed, appellants have presented no objective evidence which demonstrates that the exemplified polymers of Tsutsui are not bimodal. Regarding the arguments of appellants based upon the Koltzenburg and Jungling publications, in addition to the legitimate criticisms lodged by the examiner in the answer, we note that appellants point to no disclosure in the publications which states that catalyst systems of the type disclosed by Tsutsui cannot be effective in preparing polymers having a bimodal MWD.

Concerning separately argued claim 16, for the reasons set forth above, we find that Tsutsui fairly teaches bridged metallocenes and unbridged metallocene supported on the same support. Likewise, we find that the reference fairly teaches all the catalyst components, including alumoxane, on the same support. As for the claim 22 requirement of contacting a solution of the two metallocenes with the support material, it is our view that Tsutsui teaches such by exemplifying the addition

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of the two metallocenes in separate solvents and teaching that the "catalyst components may only be arbitrarily contacted and mixed" (column 20, lines 41 and 42). For the same reason, we

also find that the examiner's new ground of rejection of claims 18, 20, 23 and 24 is well-founded.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

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

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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Administrative Patent Judge)	INTERFERENCES
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PETER KRATZ)	
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