

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN C. PARKS, DAVID H KNOEBEL, LAWRENCE M. JENKINS,
GEORGE H. RANSFORD, GARY L. BOWMAN, JR. and SAADAT HUSSAIN

Appeal No. 2001-1234
Application 08/658,983

ON BRIEF

Before OWENS, KRATZ and PAWLIKOWSKI, *Administrative Patent Judges.*

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

This appeal is from the refusal to allow claim 50, which was added after final rejection, and claims 26, 27, 29-34, and 43-48 which depend directly or indirectly therefrom. These are all of the claims remaining in the application.

THE INVENTION

The appellants' claimed invention is directed toward a process for making decabromodiphenylethane wherein a mixture of bromine and molten diphenylethane is fed to a stirrable reaction mass containing bromine and a bromination catalyst. Claim 50 is illustrative:

50. A process for the manufacture of a decabromodiphenylethane product, which process comprises:

feeding a mixture which is,

(i) formed from at least bromine and molten diphenylethane in a molar ratio of bromine to molten diphenylethane which is within the range of from about 5:1 to about 30:1, and

(ii) is substantially free of a brominating catalyst,

to a stirrable reaction mass comprising bromine and a catalytic amount of a bromination catalyst, such reaction mass being at a temperature which is within the range of from about 30 to about 80°C.

THE REFERENCES

Ransford	5,030,778	Jul. 9, 1991
Produits Chimiques Ugine Kuhlmann (GB '524) (Great Britain patent specification)	1,411,524	Oct. 29, 1975

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THE REJECTION

Claims 26, 27, 29-34, 43-48 and 50 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ransford in view of GB '524.¹

OPINION

We reverse the aforementioned rejection.

Ransford discloses a process for making decabromodiphenyl alkanes, the preferred decabromodiphenyl alkanes including decabromodiphenylethane (col. 1, lines 26-49). The process includes charging a reaction vessel with a bromination catalyst and liquid elemental bromine, feeding diphenylalkane in molten or solute form, at about 0.055 to about 0.033 moles of diphenylalkane per mole of elemental bromine initially charged, into the reaction vessel at a point below the level of the charged liquid bromine, and maintaining the reaction mass at about 30 to about 80°C (col. 1, lines 26-37; col. 2, lines 7-8).

¹ A rejection of claims 26, 27, 29-34, 43-48 and 50 under 35 U.S.C. § 103 over GB '524 in view of U.S. 5,055,235 to Brackenridge et al. is withdrawn in the examiner's answer (page 4).

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Ransford does not disclose feeding into the reaction vessel a mixture of bromine and molten diphenylalkane.

GB '524 discloses a process for brominating an aromatic compound by introducing the aromatic compound into a reaction vessel containing 0.5-100% of the amount of bromine required for the reaction, the additional bromine being added "parallel to" the aromatic compound (page 1, lines 25-33). GB '524 also discloses "placing in the reactor a certain quantity of the bromine necessary and then introducing with agitation the product to be brominated on the one hand and the additional quantity of bromine on the other" (page 2, lines 17-21). In example 11, bromine and molten diphenyl are added through separate feed flasks to a reactor containing bromine and an anhydrous aluminum chloride bromination catalyst, and decabromodiphenyl is produced at 30-50°C. GB '524 does not disclose feeding a mixture of bromine and molten aromatic compound into the reactor.

The examiner argues that in the absence of unobvious results the order of addition of reactants is not crucial and, therefore, changes in the order of addition of the reactants would have been obvious to one of ordinary skill in the art (answer, pages 5-6).

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The examiner has the initial burden of establishing a *prima facie* case of obviousness. See *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). Unless the examiner has established a *prima facie* case of obviousness, the appellants need not provide any results.

The examiner does not explain how the applied prior art itself would have fairly suggested the appellants' claimed invention to one of ordinary skill in the art. See *In Rinehart*, 531 F.2d at 1051, 189 USPQ at 147. Instead, the examiner merely relies upon a *per se* rule that the order of addition of reactants is not crucial. As stated by the Federal Circuit in *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995), "reliance on *per se* rules of obviousness is legally incorrect and must cease." Moreover, because GB '524 discloses adding the bromine and the molten aromatic compound in parallel (page 1, lines 30-33), the order of addition of the reactants is not an issue in this case. Therefore, the *per se* rule relied upon by the examiner is irrelevant. The relevant issue regarding claim 50, the sole independent claim, is whether the applied

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references would have fairly suggested, to one of ordinary skill in the art, mixing bromine and molten aromatic compound before they are fed to the reaction vessel. In dependent claims 29, 30 and 45, a further issue is whether the applied references would have led one of ordinary skill in the art to carry out this mixing at specified short times before the mixture is fed to the reaction vessel.

The examiner has not provided evidence or technical reasoning which shows that the applied references would have fairly suggested, to one of ordinary skill in the art, feeding a mixture of bromine and molten aromatic compound into the reaction vessel, especially at the short times after mixing recited in claims 29, 30 and 45.² Hence, the examiner has not established a *prima facie* case of obviousness of the process recited in any of the appellants' claims. Consequently, we reverse the examiner's rejection.

²The examiner appears to argue that Ransford's diphenylalkane solute is in molten form (answer, page 6), but has provided no supporting evidence.

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DECISION

The rejection of claims 26, 27, 29-34, 43-48 and 50 under
35 U.S.C. § 103 over Ransford in view of GB '524 is reversed.

REVERSED

TERRY J. OWENS)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
PETER F. KRATZ)	
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
BEVERLY A. PAWLIKOWSKI)	
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