

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte YASUHIRO MORIMURA and HIDEFUMI KOTSUBO

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Appeal No. 1999-2760  
Application 08/773,304

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ON BRIEF

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Before CALVERT, COHEN, and JOHN D. SMITH, Administrative Patent Judges.

CALVERT, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 to 3, 5 to 12, and 14 to 28, all the claims remaining in the application.

The invention involved in this case concerns a polishing sheet having abrasive grains on a support, and in particular, to the adhesive used to secure a layer of abrasive to the support,

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or used as a binder for the abrasive. Claim 23 is representative of the subject matter in issue, and reads:

23. A polishing sheet comprising a support and an abrasive layer formed thereon directly or with an adhesive layer interposed therebetween, characterized in that

said abrasive layer comprises abrasive grains and a binder which is a thermosetting or photo-curable adhesive composition based on at least one resin selected from the group consisting of,

(A) an ethylene-vinyl acetate copolymer,

(B) a copolymer of ethylene, vinyl acetate, and an acrylate or methacrylate monomer,

(C) a copolymer of ethylene, vinyl acetate, and maleic acid or maleic anhydride,

(D) a copolymer of ethylene, an acrylate or methacrylate monomer, and maleic acid or maleic anhydride, and

(E) an ionomer resin in the form of an ethylene-methacrylic acid copolymer whose molecules are bonded by a metal ion,

the abrasive grains being bound with a cured product of said adhesive composition, and wherein said thermosetting or photo-curable adhesive composition further comprises 0.1 to 10 parts by weight of a photosensitizer added per 100 parts by weight of said resin.

The claims on appeal are reproduced, with some minor errors, in

the revised appendix filed on December 6, 1999.

The references applied in final rejection are:

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Murakami et al. (Murakami) 1990	4,938,784	Jul. 3,
Harmer et al. (Harmer) 1994	5,360,462	Nov. 1,
Hibbard et al. (Hibbard) 3, 1995	5,454,844	Oct.
Engen et al. (Engen) 1997	5,611,825	Mar. 18,
	(filed Sept. 19,	
1994)		

The appealed claims stand finally rejected under 35  
U.S.C.

§ 103(a) on the following grounds:

- (1) Claims 18 to 28, unpatentable over Engen in view of  
Harmer.
- (2) Claims 1 to 3, 6 to 12 and 15 to 17, unpatentable over  
Engen in view of Harmer and Murakami.
- (3) Claim 5 and 14, unpatentable over Engen in view of Harmer,  
Murakami and Hibbard.

Rejection (1)

First considering this rejection in relation to claim 23,  
Engen discloses a polishing sheet comprising a support and an  
abrasive layer thereon, the grains of the abrasive layer being  
in a binder formed of a urea-aldehyde resin and the solids

portion of a latex, which may be a vinyl acetate/ethylene copolymer (col. 18, lines 37 and 38).<sup>1</sup> Since ethylene-vinyl acetate (EVA) polymer is a member of the Markush group of resins recited in claim 23, Engen meets all the limitations of the claim except for the recitation in the final portion that the adhesive further comprises a photosensitizer.

As evidence that claim 23 would have been obvious notwithstanding this difference between Engen and the claimed subject matter, the examiner cites Harmer, stating at pages 2 and 3 of the final rejection:

Harmer et al. '462 discloses [a] coated abrasive article. With reference to column 8, lines 52, Harmer discloses that it is known to use acryloxy for better curing. With reference to column 16, lines 49-65, photosensitizer is well-known in the polymerizable composition. The amount of photosensitizer is generally in the range of 0.1 to 10 parts by weight per part of curing system.

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the abrasive particle [sic: binder ?] of Engen with acryloxy and photosensitizer as taught

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<sup>1</sup> Although Engen discloses that the latex is a "minor portion" of the binder precursor (col. 15, line 16), it also states that the latex may be up to 90% of the binder precursor (col. 18, lines 59 to 61).

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by Harmer to provide better curing and adhesiveness. The degree of concentration would have been [an] obvious matter of design choice.

Since this rejection is applied to claims 18 to 28 collectively, and some of those claims (i.e., dependent claims 21 and 27) recite an acryloxy group-containing compound specifically, it is not clear from the foregoing whether, with regard to claim 23, it is the examiner's position that, in view of Harmer, (i) it would have been obvious to add a photosensitizer to the binder of Engen, or (ii) it would have been obvious to add an acryloxy group-containing compound to the binder of Engen, together with a photosensitizer as a curing agent for the compound.

In any event, we do not consider the rejection to be well taken. Harmer discloses an adhesive (make coat precursor) for securing abrasive grains to a support, the precursor comprising an ethylenically unsaturated monomer, a cationically polymerizable monomer or a polyurethane precursor, and a curing agent (col. 8, lines 23 to 34). The acryloxy group-containing compound noted by the examiner<sup>2</sup> is

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<sup>2</sup> 2,2-bis[1-(3-acryloxy-2-hydroxy)]-propoxyphenylpropane.

simply listed by Harmer at col. 8, lines 52 and 53, as one of the ethylenically unsaturated monomers usable in the make coat precursor; we do not find any disclosure in Harmer which would have suggested to one of ordinary skill that "it is known to use acryloxy for better curing," as the examiner states, and certainly no teaching or suggestion that a urea-aldehyde/EVA system as disclosed by Engen would have better curing or be improved in any other way if an acryloxy group-containing compound were added thereto.

As for Harmer's disclosure of a photosensitizer, the reference states that photosensitizers may be included "in the polymerizable compositions" (col. 16, lines 49 to 51), i.e., in the polymerizable compositions disclosed by Harmer. However, since the polymerizable compositions disclosed by Harmer are not of the same type as the urea-aldehyde/EVA binder precursor composition disclosed by Engen, we do not consider that Harmer would have taught one of ordinary skill to include a photosensitizer in the Engen precursor. In other words, given the differences between the polymer systems disclosed in the two references, there would have been no

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motivation for the skilled worker to have added the photosensitizer disclosed for use in the Harmer system to the system of Engen.

The rejection of claim 23 therefore will not be sustained. The rejection of claim 18, the other independent claim included in this rejection, will not be sustained for the same reasons; likewise, we will not sustain the rejection of dependent claims 19 to 22 and 24 to 28.

Rejections (2) and (3)

To meet the additional limitations recited in the claims subject to rejections (2) and (3), the examiner adds Murakami for rejection (2), and further adds Hibbard for rejection (3). However, since neither of these references overcome the above-noted deficiencies of the Engen/Harmer combination, rejections (2) and (3) will not be sustained.

The Morimura Declaration

It should be evident from the foregoing that we have

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concluded that the examiner has not established a prima facie case of obviousness. Accordingly, consideration of the declaration (under 37 CFR 1.132) of Yasuhiro Morimura, filed on March 10, 1998, is unnecessary.

Conclusion

The examiner's decision to reject claims 1 to 3, 5 to 12 and 14 to 28 is reversed.

REVERSED

IAN A. CALVERT	)
Administrative Patent Judge	)
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	) BOARD OF PATENT
IRWIN CHARLES COHEN	)
Administrative Patent Judge	) APPEALS AND
	)
	) INTERFERENCES
	)
JOHN D. SMITH	)
Administrative Patent Judge	)

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Sughrue Mion Zinn Macpeak & Seas

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2100 Pennsylvania Avenue N.W.  
Washington, DC 20037-3202