

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 52

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM H. COCHRAN

Appeal No. 1997-0110
Application 08/236,258

ON BRIEF

Before KIMLIN, OWENS and LIEBERMAN, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1, 4-7 and 12-17. Claims 18 and 19, which are the only other claims remaining in the application, stand withdrawn

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from consideration by the examiner as being directed toward a nonelected invention.

THE INVENTION

Appellant's claimed invention is directed toward a flexible composite comprising a resilient polyurethane matrix formed in situ about an organic fibrous component. The fibrous component and the matrix are essentially chemically unbonded to each other such that the fibrous component remains able to move within the matrix. Claim 17 is illustrative and reads as follows:

17. A flexible composite comprising a [sic, an] organic fibrous component dispersed within a flexible or resilient polyurethane matrix which is formed in situ about the fibrous component at a temperature below the melting point of the fibrous component by positioning the urethane-forming components about the fibrous component and allowing the urethane-forming reaction to occur, the fibrous component and urethane-forming components being such that the matrix and fibrous component are essentially chemically unbonded to each other whereby the composite retains essentially the flexibility of the polymeric matrix and the fibers of the fibrous component remain able to move within the matrix, the flexibility of the composite being such that the composite may be bent or distorted until some or all its fibers are snubbed by the bent or distorted matrix such that their mobility at their interfaces with the matrix is reduced, the energy stored in the bent or distorted composite helping the composite to recover to its original unbent or undistorted form when the distorting force is released.

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THE REFERENCE

Yagi et al. (Yagi) 4,894,281 Jan. 16, 1990

THE REJECTIONS

Claims 1, 4-7 and 12-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as being obvious over Yagi.

OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and agree with appellant that the aforementioned rejections are not well founded. Accordingly, we reverse these rejections.

The Yagi reference

Yagi discloses a fiber-reinforced polymer molded body comprising a matrix of a polymer having a processing temperature lower than 220°C and at least one reinforcing layer of a molecularly oriented and silane-crosslinked ultra-high-molecular weight polyethylene fiber laminated with or

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embedded in the matrix (col. 1, line 62 - col. 2, line 3).
The matrix polymer can be a thermosetting polymer such as a
polyurethane (col. 12, lines 7-14).

Appellant's claims require that the composite is the same
or substantially the same as one in which the resilient
polyurethane matrix is formed in situ. Yagi teaches that in
the case where the matrix polymer is a thermosetting polymer,
"the reinforcing fiber layer is combined with a monomer or
prepolymer of the thermosetting resin and curing is then
carried out" (col. 14, lines 32-37). This teaching indicates
that the polymer is formed in situ with the reinforcing fiber
layer.

Rejection under 35 U.S.C. § 102(b)

In order for a claimed invention to be anticipated under
35 U.S.C. § 102(b), all of the elements of the claim must be
found in one reference. *See Scripps Clinic & Research Found.*
v. Genentech Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010
(Fed. Cir. 1991).

Regarding appellant's claim requirement that the matrix
and fibrous components are essentially chemically unbonded to

each other such that the fibrous component remains able to move within the matrix, the examiner argues that he has reason to believe that the interface is inherent to the matrix/fiber combination (answer, page 3). Yagi, however, indicates that because the fiber is silane-modified, the fiber shows good adhesiveness to the matrix polymer (col. 15, lines 61-63; col. 10, lines 48-52). The examiner's argument is not persuasive because the examiner has not explained, taking into account this teaching, why Yagi's

fibers and matrix are essentially chemically unbonded to each other such that the fibers are able to move within the matrix as required by appellant's claims.

The examiner argues that because appellant has not disclosed any operative steps which would modify the fiber/matrix interface, the burden shifts back to appellant to show how his composite differs from that of Yagi (answer, page 3). As discussed above, Yagi modifies his fibers to provide adhesion. The examiner's argument is not convincing

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because the examiner has not explained why, regardless of this modification, Yagi's composite reasonably appears to be the same or substantially the same that claimed by appellant. In the absence of such an explanation, appellant is not required to come forward with evidence. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The examiner argues that Yagi's disclosure of noncrosslinked fibers is a disclosure of appellant's invention (answer, pages 3-4). Yagi, however, does not disclose use of noncrosslinked fibers in combination with a polyurethane matrix.

For the above reasons, the examiner has not set forth a factual basis which is sufficient for supporting a finding of anticipation of the invention recited in any of appellant's claims. We therefore reverse the rejection under 35 U.S.C. § 102(b).

Rejection under 35 U.S.C. § 103

Regarding the examiner's argument that Yagi discloses noncrosslinked fibers (answer, pages 3-4), we note that this disclosure is in comparative examples, and a polyurethane is

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not used as the matrix polymer in any of these examples. Because Yagi's invention is directed toward use of silane-crosslinked fibers in combination with the matrix polymer, it does not appear that Yagi would have fairly suggested, to one of ordinary skill in the art, noncrosslinked fiber/matrix polymer combinations which are not disclosed in the comparative examples. The examiner argues that it would have been obvious to one of ordinary skill in the art to eliminate Yagi's silane modification of the fibers along with its function (answer, page 4). The examiner, however, has not explained why the prior art would have led one of ordinary skill in the art to do so. In order for a *prima facie* case of obviousness to be established, the teachings from the prior art itself must appear to have suggested the claimed subject matter to one of ordinary skill in the art. See *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). The mere fact that the prior art could be modified as proposed by the examiner is not sufficient to establish a *prima facie* case of obviousness. See *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). Appellants'

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specification (page 1, lines 29-34) and the declaration by Willwerth (filed September 17, 1998, attachment to paper no. 47) indicate that in the prior art, either fiber/matrix polymer combinations were selected so that there was adhesion between the fibers and the matrix, or the fibers were pretreated to obtain such adhesion. The examiner has not provided evidence which shows that one of ordinary skill in the art would have considered a composite having fibers and a matrix polymer which are unbonded to each other, such that the fibers are able to move within the matrix, to be a useful composite. Thus, the examiner has not established that the prior art would have fairly suggested, to one of ordinary skill in the art, eliminating Yagi's silane modification of the fibers along with its function of providing adhesion between the fibers and the matrix.

For the above reasons we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the invention recited in any of appellant's claims. Accordingly, we reverse the rejection under 35 U.S.C. § 103.

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DECISION

The rejections of claims 1, 4-7 and 12-17 under 35 U.S.C. §§ 102(b) and 103 over Yagi are reversed.

REVERSED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
TERRY J. OWENS))
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
)	
PAUL LIEBERMAN))
Administrative Patent Judge)	

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