

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. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GREGORY BREYTA, NICHOLAS J. CLECAK,
WILLIAM D. HINSBERG III, DONALD C. HOFER, HIROSHI ITO,
SCOTT A. MACDONALD and RATNAM SOORIYAKUMARAN

Appeal No. 1997-0548
Application 08/345,290

ON BRIEF

Before PAK, WARREN and LIEBERMAN, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal and Opinion

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 19.¹ Appellants have withdrawn the appeal of claims 12, 13 and 15 through 17, and thus we dismiss the appeal with respect to these claims. Claims 20 through 27 are also of record and have been withdrawn from consideration by the examiner under 37 CFR § 1.142(b). Accordingly, claims 1 through 11, 14, 18 and 19 are the only claims before us for consideration on appeal.

¹ See specification, pages 28-31, and the amendment of March 24, 1994 (application 07/971,140; Paper No. 11) .

We have carefully considered the record before us, and based thereon, find that we cannot sustain the ground of rejection of claims 1 through 11, 14, 18 and 19 under 35 U.S.C. § 103 as being unpatentable over Brunsvold and Schlegel.²

It is well settled that in order to establish a *prima facie* case of obviousness, “[b]oth the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant’s disclosure.” *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991), citing *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). Thus, a *prima facie* case of obviousness is established by showing that some objective teaching or suggestion in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention as a whole, including each and every limitation of the claims, without recourse to the teachings in appellants’ disclosure. *See generally, In re Oetiker*, 977 F.2d 1443, 1447-48, 24 USPQ2d 1443, 1446-47 (Fed. Cir. 1992) (Nies, J., concurring); *In re Fine*, 837 F.2d 1071, 1074-76, 5 USPQ2d 1596, 1598-1600 (Fed. Cir. 1988); *In re Geiger*, 815 F.2d 686, 2 USPQ2d 1276 (Fed. Cir. 1987).

We must agree with appellants that the examiner has not established that the claimed process would have been *prima facie* obvious over the applied prior art. The dispositive issue in this appeal is whether one of ordinary skill in this art would have found the suggestion in the teachings of Brunsvold and of Schlegel to combine the teachings of these references in the reasonable expectation of arriving at a process of generating a resist image on a substrate falling within the appealed claims wherein the photoresist film comprises a “vinyl polymer,” as this term would be interpreted in light of appellants’ specification as it would be interpreted by one of ordinary skill in this art. *See In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). There is no dispute that Brunsvold discloses processes involving prebaking and post-exposure-baking (PEB) of resists formed with films which comprise such vinyl polymers that have high glass transition temperatures, and that Schlegel discloses the same baking steps in forming resists from films which comprise novolak matrix resins that have low glass transition temperatures. The dispute arises as to whether the low temperature prebake

² The references are listed at page 3 of the answer.

(“softbake”) and high temperature PEB taught by Brunsvold can be combined with the high temperature prebake and low temperature PEB taught by Schlegel for the respective resists.

Appellants submit (principal brief, pages 7 and 9-10) that these two types of polymers are different and, in this respect, point to, *inter alia*, the teaching in Brunsvold that vinyl polymers form “resist structures that can withstand high temperatures without experiencing autodecomposition or undergoing additional stabilization as in Deep UV hardening of Novolak resists” (page 357), which arguments and disclosure is not addressed by the examiner. Both appellants and the examiner discuss the teachings of section “E” of Schlegel (pages 284-285), with appellants also pointing to other teachings in that reference. We find that in section “E” of Schlegel, the amount of solvent retained in films after “identical prebaking conditions” at “80°C for 10 minutes” formed from “Polyvinylphenol (resin M)” as well as from two novolak resins is discussed with respect to Schlegel Fig. 13, wherein it is disclosed that the film formed with the former resin had a “higher content of solvent” (*id.*). While Schlegel does state that “(i)n all cases, it is imperative to apply a prebaking near the glass transition temperature” (page 285), we find no disclosure in this reference that the film formed with the vinyl polymer was prebaked near its glass transition temperature or that the film that was prebaked at “80°C for 10 minutes” was imaged and subjected to a PEB. Thus, on this record, we find that one of ordinary skill in this art would have reasonably inferred from Schlegel that the teachings with respect to the performance of the polyvinyl resist ended with the finding that “it is easier to remove solvent from polymer films with lower glass transition temperature” from which Schlegel concludes that “it is not necessarily advantageous to use a resist with high glass transition temperature” (page 285). Indeed, in the absence of the disclosure of a complete imaging process, including a PEB for a polyvinyl resist in Schlegel, there is little support for the examiner’s contention that the disclosure in the reference that, in the absence of a prebake “near the glass transition temperature of the resist, . . . the high acid mobility due to solvent traces would degrade the resolution of the resist” (page 285) applies to the vinyl polymer resists. Thus, on this record, the prebake to which the film formed from “Polyvinylphenol (resin M)” was subjected by Schlegel appears to correspond to the “softbake” employed with similar resin by Brunsvold.

Accordingly, in the absence of evidence or scientific explanation in the record establishing that one of ordinary skill in this art would have reasonably expected that the teachings with respect to novolak resists in Schlegel would apply to the vinyl polymers of Brunsvold, it is manifest that the only direction to appellants' claimed invention as a whole on the record before us is supplied by appellants' own specification. *Fine, supra; Dow Chem.*, 837 F.2d at 473, 5 USPQ2d at 1531-32.

The examiner's decision is reversed.

Reversed

CHUNG K. PAK)	
Administrative Patent Judge)	
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CHARLES F. WARREN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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