

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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* ARLEN L. ROESNER  
and DOUGLAS A. FLEECS

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Appeal No. 2003-1412  
Application 10/017,543

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ON BRIEF

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Before WARREN, KRATZ and MOORE *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal and Opinion*

We have carefully considered the record in this appeal under 35 U.S.C. § 134, including the opposing views of the examiner, in the answer, and appellants, in the brief and reply brief, and based on our review, find that we cannot sustain any of the grounds of the rejections advanced by the examiner on appeal: claims 1 through 4, 6 through 9, 22 through 25 and 27 through 30 stand rejected under 35 U.S.C. § 102(a) as anticipated by Green et al. (Green); claims 5 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Green; claims 10, 11, 13 through 15 and 17 through 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Green in view of Tzeng et al. (Tzeng); claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Green in view of Tzeng; and claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Green in view of Tzeng, as applied

to claim 10, and further in view of Lee et al. (Lee).<sup>1,2</sup> We refer to the examiner's answer and to appellants' brief and reply brief for a complete exposition of the opposing views of the parties.

In order to review the examiner's application of prior art to the appealed claims, we must first interpret the language thereof by giving the claim terms their broadest reasonable interpretation in light of the written description in the specification as it would be interpreted by one of ordinary skill in this art. *See, e.g., In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000); *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997), *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). We find it apparent from the plain language thereof that appealed independent claims 1, 10 and 22, on which all other appealed claims directly or ultimately depend, each specify that the thermal interface comprises at least any carrier having a layer of any "phase-change material" on one side thereof and a layer of any "pliable, thermal compound" on the other side thereof. We are of the opinion that one of ordinary skill in this art would understand from the specification that a "phase-change material" is, as the terms imply, a material which changes phase, in this case from solid at room temperature to at least partially liquid at higher temperatures; and that a "pliable, thermal compound" is a compound or composition that is pliable and does not change phases, in this case a change in viscosity from semi-liquid at room temperature to liquid at higher temperatures (e.g., page 1, line 15, to page 2, line 11; and, page 5, line 16, to page 6, line 12).

Turning now to the application of prior art in the grounds of rejection with respect to the appealed claims as we have interpreted the language thereof above, it is well settled that the examiner has the burden of making out a *prima facie* case of anticipation under § 102(b) in the first instance by pointing out where each and every element of the claimed invention, arranged as required by the claim, is described identically in a single reference, either expressly or under the principles of inherency, in a manner sufficient to have placed a person of ordinary skill in the art in possession thereof. *See generally, In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990). It is also well settled that in order to establish a *prima facie* case of

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<sup>1</sup> Appealed claims 1-30 are all of the claims in the application. See the copy of the appealed claims in the appendix to the brief.

<sup>2</sup> The grounds of rejection are set forth on pages 2-4 of the Office action mailed October 24, 2002 (Paper No. 7) (Answer, page 3).

obviousness, the examiner must show that some objective teaching, suggestion or motivation in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in this 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 Rouffet*, 149 F.3d 1350, 1358, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998); *Pro-Mold and Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629-30 (Fed. Cir. 1996); *In re Fine*, 837 F.2d 1071, 1074-76, 5 USPQ2d 1596, 1598-1600 (Fed. Cir. 1988); *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531-32 (Fed. Cir. 1988).

The dispositive issue with respect to all of the grounds of rejection is whether the composition containing *phase-changing* alkyl substituted poly (hydro, methyl-siloxane) wax polymers used to coat both sides of a plastic or metal carrier to form a thermal interface, taught by Green (e.g., col. 1, lines 314-60; col. 2, line 64, to col. 4, line 11; Example IV; and col. 8, lines 20-54) is only a "phase-change material" or is both a "phase-change material" and a "pliable, thermal compound." The examiner contends that the composition as disclosed by Green constitutes both types of materials, stating that this is so "by definition" but without stating any reason for so holding (answer, e.g., page 3, lines 11-12; Paper No. 7, page 4, lines 14-16) as pointed out by appellants (brief, page 10, second full paragraph; reply brief, page 2). Therefore, on this record, we find that the composition containing *phase-changing* alkyl substituted poly (hydro, methyl-siloxane) wax polymers taught by Green is solely a "phase-change material."

On the basis of this fact, we find that as a matter of fact Green does not disclose the elements of a thermal interface arranged as specified in appealed independent claims 1, 10 and 22. Thus, Green does not *prima facie* describe the invention encompassed by appealed claims 1 and 22 and claims dependent thereon within the meaning of § 102(a). We include here appealed claims 5 and 26 because contrary to the examiner's position in rejecting these claims under § 103(a), Green does disclose aluminum as a carrier material in Example IV and col. 8, lines 26-27. We are not persuaded otherwise by the examiner's allegation that silicone grease is disclosed in Green to be a thermal spreader (answer, page 3) because, as appellants point out, a silicone grease is not a heat spreader (reply brief, page 2), and indeed, on this record it is clear from the

reference that a heat spreader, like a heat sink, is made of metal (col. 8, lines 32-33 and 55-59). Similarly, we find no basis in the record which supports the examiner's position that "the pressure sensitive adhesive is the pliable thermal compound in the primary reference Green." Thus, on this record, there is no basis to combine Green with Tzeng alone and additionally with Lee because the thermal interface structure disclosed by Green does not include a "pliable, thermal compound" layer of any type, including those of Tzeng and Lee, and accordingly, the combined teachings of the references do not provide the factual underpinnings for a *prima facie* case of obviousness under § 103(a).

Therefore, we reverse all of the grounds of rejection.

The examiner's decision is reversed.

#### *Other Issues*

We decline to exercise our authority under 37 CFR § 1.196(b) and enter on the record new grounds of rejection of the appealed claims with respect to following matters, and instead suggest that the examiner consider the following upon any further prosecution of the appealed claims subsequent to the termination of this appeal.

The application of the teachings of Green to the appealed claims under § 103(a) stands on a different footing than applying the reference to the same appealed claims under § 102(a). *See In re Wiggins*, 488 F.2d 538, 543, 179 USPQ 421, 425 (CCPA 1973) (a reference that does not anticipate the claimed invention under § 102(b) can still be applied thereto "as evidence of obviousness under § 103 for all it fairly suggests to one of ordinary skill in the art"). The examiner notes in the statement of the ground of rejection under § 102(a) that "the paraffin-based phase change materials and thermally conductive grease compounds are widely known and used as indicated in the 'Background Of The Invention' section of" Green (Paper No. 7, page 2) but does not apply such evidence in any ground of rejection.

We find that Green does disclose the use of such materials (e.g., col. 2, lines 27-40) and appellants acknowledge the use of such materials as well, including the use thereof on a multilayer thermal interface (specification, pages 1-2). *See In re Nomiya*, 509 F.2d 566, 570-71, 571 n.5, 184 USPQ 607, 611, 611 n.4 (CCPA 1975) ("We see no reason why appellants' representations in their application should not be accepted at face value as admissions that Figs. 1

and 2 may be considered “prior art” for any purpose, including use as evidence of obviousness under § 103. [Citations omitted.] By filing an application containing Figs. 1 and 2, labeled prior art, *ipsisssimis verbis*, and statements explanatory thereof, appellants have conceded what is to be considered as prior art in determining obviousness of their improvement.”). While these known materials can have the disadvantages pointed out in Green and in the specification, that reason alone is not enough to teach away from the use of such materials in thermal interface applications by one of ordinary skill in this art. *See, e.g., In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) (“We share Gurley’s view that a person seeking to improve the art of flexible circuit boards, on learning from Yamaguchi that epoxy was inferior to polyester-imide resins, might well be led to search beyond epoxy for improved products. However, Yamaguchi also teaches that epoxy is usable and has been used for Gurley’s purpose.”).

Accordingly, we suggest that the examiner consider whether one of ordinary skill in this art would have found in the prior art the reasonable suggestion to modify the thermal interface structures disclosed by Green and any other reference(s) developed by the examiner, such as United States Patent 5,912,805 which is described by appellants to disclose a double “phase-change material” sided thermal interface structure (*see* specification, page 2), by adding a “pliable, thermal compound” as a layer on the opposite side of a substrate from a “phase-change material” in a single “phase-change material” sided thermal interface (*see* Green, col. 1, lines 53-55), or by interchanging a “phase-change material” layer with a “pliable, thermal compound” in a double “phase-change material” sided thermal interface structure, in the reasonable expectation of obtaining a double sided structure useful as a thermal interface. *See, e.g., Dow Chem.*, 837 F.2d at 473, 5 USPQ2d at 1531 (“The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that [the claimed process] should be carried out and would have a reasonable likelihood of success viewed in light of the prior art. [Citations omitted] Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant’s disclosure.”); *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (“It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. *In re Susi*, . . . 440 F.2d 442, 445,

Appeal No. 2003-1412  
Application 10/017,543

169 USPQ 423, 426 ([CCPA] 1971); *In re Crockett*, . . . 279 F.2d 274, 276-77, 126 USPQ 186, 188 ([CCPA] 1960). As this court explained in *Crockett*, the idea of combining them flows logically from their having been individually taught in the prior art.”); *In re Siebentritt*, 372 F.2d 566, 567-68, 152 USPQ 618, 619 (CCPA 1967) (express suggestion to interchange methods which achieve the same or similar results is not necessary to establish obviousness).

*Reversed*

CHARLES F. WARREN	)	
Administrative Patent Judge	)	
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	)	
	)	
PETER F. KRATZ	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
JAMES T. MOORE	)	
Administrative Patent Judge	)	

Hewlett-Packard Company  
Intellectual Property Administration  
P.O. Box 272400

Appeal No. 2003-1412  
Application 10/017,543

Fort Collins, CO 80527-2400