

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board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. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN G. DAVIS,
MICHAEL A. GAYNES
and JOSEPH D. POOLE

Appeal No. 2000-0713
Application 08/864,726

HEARD: February 19, 2002

Before KIMLIN, WALTZ and POTEATE, Administrative Patent Judges.
POTEATE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the final rejection of claims 16-20, which are all of the claims remaining in the application.

Claim 16 is representative of the subject matter on appeal and is reproduced below:

16. An adhesive preform of thermoplastic material for bonding facing surfaces of upper and lower components of an electronic package, the adhesive preform comprising opposing convex curved surfaces, the perimeter of the adhesive preform having concave shape edges.

Various methods for providing an adhesive bond between a heat sink and integrated circuit package are known in the art.

One such method involves positioning an adhesive preform between the heat sink and integrated circuit package and then heating the assembly to create a bond. Specification, page 4, lines 1-7. One of the drawbacks of this method is that air or gas may be captured between bonding surfaces and the resultant bubbles present a region of reduced thermal conductivity. Specification, page 3, lines 11-18 and page 4, lines 7-12. It is less likely that air or gas will be trapped if a dispensable adhesive, rather than an adhesive preform is utilized. Specification, page 4, lines 13-20. However, dispensable adhesives generally have either poor thermal characteristics or require special dispensing equipment and handling. Specification, page 4, line 20-page 5, line 4.

The purpose of the present invention is to provide a thermoplastic preform adhesive which overcomes the aforementioned drawbacks of the prior art. Appeal Brief, p. 2. The claimed adhesive preform is shaped such that it has opposing convex surfaces and a perimeter having concave edges. Claim 16. Thus, the adhesive preform has a pillow-like shape in cross-section. Specification, page 10, lines 24-29.

According to appellants:

[a]s a direct result of the configuration of the present invention, it is now possible to avoid entrapment of ambient gases or air between the facing surfaces of the electronic package . . . [and] to significantly control and/or regulate the flow of

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adhesive during the bonding process thereby ensuring that no adhesive will extrude from the edges of the bond.

Appeal Brief, pages 3-4. Air is eliminated from between the package and heat sink by "contacting the two components at the apex of the preform adhesive and then collapsing the convex surfaces together while joining the components." Appeal Brief, page 3. The concave shape edges along the perimeter of the preform adhesive allow the preform adhesive to get progressively larger in area over the facing surfaces of the package and heat sink during the bonding process. Id.

DISCUSSION

Claims 16-20 are rejected under 35 U.S.C. § 102 as anticipated by Prud'Homme. Anticipation requires the disclosure, in a single prior art reference, of each element of the claim under consideration. See W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983).

Prud'Homme discloses compositions for use in adhesives for bonding the surfaces of electronic devices. Prud'Homme, abstract. The compositions may be used as a starting material in the manufacture of a preform such as a sheet, a tape, a tablet, or a self-supporting film. Prud'Homme, column 20, lines 41-43. The examiner takes the position that the term "TABLET . . ." is held/seen to encompass within its scope and definition such entities/articles having opposed contoured/non-planar surfaces, to include a 'pillow' configuration as envisioned by appellants i.e. as in SOME

MEDICINAL TABLETS)." Examiner's Answer, Paper No. 22, page 4. Appellants argue that "the mere disclosure of a tablet, itself, does not imply, nor does it impute to one of ordinary skill in the art, opposing curved surfaces or a perimeter having a concave shape." Appeal Brief, page 8.

The common dictionary meanings of the word "tablet" are:

- 1a. a flat surface, slab or plaque suited for or bearing an inscription;
- b. a thin slab used for writing;
- 2a. a compressed or molded block of a solid material;
- b. a small mass of medicated material usually in the shape of a disk or flat square.

Webster's Third New International Dictionary 2325 (1971).¹ Appellants assert that the "proper interpretation [of a tablet] would include a planar surface (e.g., flat surface) which teaches away from the claimed invention." Appeal Brief, page 8.

The examiner appears to have adopted the second sense of the word "tablet" and notes that while some medicinal tablets are coin-shaped others "have a non-planar/-contained/pillow shape (ie like an M&M). . . ." Examiner's Answer, page 5. Even if the examiner were correct that one of ordinary skill in the art in reading Prud'Homme would consider a tablet as including

¹The examiner does not identify, nor do we find any disclosure in Prud'Homme which would lead us to conclude that the term "tablet" as used in the context of an adhesive preform has any meaning other than these common dictionary meanings.

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both planar and non-planar shapes, the examiner has not identified, nor do we find, any teaching of a preform having both opposing convex curved surfaces and a perimeter with concave shape edges as required by claim 16. Therefore, the rejection under 35 U.S.C. § 102(b) is reversed.

Claims 16-20 were rejected, in the alternative, under 35 U.S.C. § 103 as obvious over Prud'Homme. The initial burden of presenting a prima facie case of obviousness rests on the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In determining whether an invention is obvious, the examiner must consider (1) the scope and content of the prior art; (2) the differences between the prior art and the claimed invention; (3) the level of ordinary skill in the art; (4) any objective considerations that may be present. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 466-67 (1966). "The question under 35 U.S.C. § 103 is not merely what the references expressly teach but what they would have suggested to one of ordinary skill in the art at the time the invention was made." In re Lamberti, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976). Even where a single prior art reference is relied upon show obviousness, there must be a showing of a suggestion or motivation to modify the teaching of that reference to achieve the claimed invention. In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000). The suggestion or motivation to modify a reference may be implicit from the prior art as a whole rather than expressly stated. Id. However, regardless of whether the

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examiner relies on an express or implicit showing, he must provide reasons for finding a limitation to be taught or suggested in the reference. Id.

We find no evidence in the record to support the examiner's conclusion that the term "tablet" would have suggested to one of ordinary skill in the art an adhesive preform having "opposing convex curved surfaces, the perimeter of the adhesive preform having concave shape edges" as required by the claims on appeal. Moreover, the examiner has not identified a showing of a suggestion or motivation to modify the "tablet" disclosed in Prud'Homme to have the shape of the adhesive preform as recited in the claims on appeal. Accordingly, we find that the examiner has not established a prima facie case of obviousness and the rejection under 35 U.S.C. §103 is reversed.

The decision of the examiner is reversed.

REVERSED

Edward C. Kimlin)
Administrative Patent Judge)
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