

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHI-JIE TAN

Appeal No. 2006-2930
Application No. 10/299,198

ON BRIEF

Before JERRY SMITH, RUGGIERO, and SAADAT, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 7-11 and 13, which constitute all the claims pending in this application.¹

The disclosed invention pertains to an electrical connector for connecting an electronic package, such as a central processing unit, with a printed circuit board. A recess is provided in a bottom face of a supporting portion of the

¹ Although the examiner indicates that claims 7-13 are subject to appeal in the "Status of the Claims" and "Grounds of Rejection" sections of the answer [see answer, pages 2 and 3], claim 12 has been cancelled. See brief, page 4.

connector to provide an additional path for heating airflow. As a result, all solder joints of the connector are adequately and uniformly heated when the connector is soldered to the circuit board.

Representative claim 7 is reproduced as follows:

7. An electrical connector for electrically connecting an electronic package to a circuit substrate, the electrical connector comprising:

a base defining a plurality of receiving holes therethrough;

a plurality of terminals received in the receiving holes respectively, each of the terminals having at least one heat-fusible element exposed out from a main surface of the base;

at least one supporting portion for receiving a cam actuator, provided at least one side of the base and extending along essentially a full length of said side; and

a cover slidably engaged on the base;

wherein at least one recess is defined in a bottom face of the at least one supporting portion for facilitating heating airflow to reach the heat-fusible elements.

The examiner relies on the following references:

Sinclair 5,092,789 Mar. 3, 1992

Appellant's admitted prior art in Figs. 5-7 of the present application ("APA").

The following rejection is on appeal before us:

Claims 7-11 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over APA in view of Sinclair.

Rather than repeat the arguments of appellant or the examiner, we make reference to the brief and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in the claims on appeal. Accordingly, we affirm.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). The examiner must articulate reasons for the examiner's decision. In re Lee, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). In particular, the examiner must show that there is a teaching, motivation, or suggestion of a motivation to combine references relied on as evidence of obviousness. Id. at 1343, 61 USPQ2d at 1433-34. The examiner cannot simply reach conclusions based on the examiner's own understanding or experience -

or on his or her assessment of what would be basic knowledge or common sense. Rather, the examiner must point to some concrete evidence in the record in support of these findings. In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). Thus, the examiner must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the examiner's conclusion. However, a suggestion, teaching, or motivation to combine the relevant prior art teachings does not have to be found explicitly in the prior art, as the teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. In re Kahn, 441 F.3d 977, 987-88, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (citing In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000)). See also In re Thrift, 298 F. 3d 1357, 1363, 63 USPQ2d 2002, 2008 (Fed. Cir. 2002). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges,

783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR § 41.37(c)(1)(vii)(2004)].

Regarding independent claims 7 and 10, the examiner's rejection essentially finds that APA (*i.e.*, Figs. 5-7 of the present application) teaches every claimed feature except for at least one recess defined in a bottom face of the at least one supporting portion. The examiner cites Sinclair as disclosing a test socket comprising corner standoffs that form a recess therebetween. The examiner finds that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the structure of APA by using corner standoffs and the recess formed thereby to allow cooling air to circulate to the heat-fusible elements [answer, pages 3 and 4].

Appellant argues that no recess is defined in Sinclair's connector, but rather the reference discloses a plurality of standoffs that raise the bottom surface of the base [brief, page 9]. Appellant further argues that since Sinclair does not teach a recess for allowing cooling air to circulate, the reference therefore fails to provide the motivation to define a recess for such a purpose [brief, page 10]. The examiner responds that the space or recess is inherently

formed between the standoffs in Sinclair, and such a recess would inherently allow cooling air to circulate [answer, pages 4 and 5].

Appellant also argues that Sinclair's standoffs will raise the housing of base 14 and consequently space the housing from the circuit board. According to appellant, such spacing will cause the electrical connector and circuit board to be out of alignment, thus requiring extensive modifications [brief, pages 10-12]. Appellant emphasizes that the recess of the claimed invention, however, is defined in the supporting portion. Therefore, the recess of the claimed invention will not change the distance between the base and the circuit board [id.]. The examiner responds that providing a recess in APA in the manner suggested by Sinclair would not result in alignment problems since Sinclair disposes standoffs at each corner thus leveling the connector on the circuit board [answer, pages 5 and 6].

We will sustain the examiner's rejection of independent claims 7 and 10. At the outset, we note that it is undisputed that the only difference between APA and the claimed invention is the existence of a recess in the bottom face of the supporting portion. Accordingly, the sole issue before us is whether it would have been obvious to the skilled artisan at the time of the invention to add a recess to the supporting portion of APA in light of the teachings of Sinclair. We agree with the examiner that, in view of Sinclair, the skilled artisan would have been motivated to provide such a recess in the supporting portion of the APA device.

We agree with the examiner that Sinclair's standoffs 58, 60, and 62 inherently form recesses between the standoffs. Such notch-shaped recesses are best seen in Figs. 1-3. Although Sinclair is silent regarding the recesses' ability to circulate air or gas from outside the base member 14 to the area therein in the vicinity of solder tails 182, we nonetheless see no reason why air could not circulate as the examiner suggests. The recesses directly expose the solder tails to the atmosphere outside of the base member and therefore provide a direct air or gas flow path to the interior of the base member. In our view, the existence of such air or gas circulation -- and its attendant heat transfer effects -- would be readily apparent to the skilled artisan given the structure of Sinclair.

Because we find that Sinclair's recesses would inherently enable air or gas circulation to the interior of the base member, the fact that Sinclair may not have specifically mentioned such a feature is irrelevant. If a feature is inherent in the prior art, it is irrelevant that the prior art did not recognize such a feature or even if the feature was unknown. Toro Co. v. Deere & Co., 355 F.3d 1313, 1321, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004). See also Atlas Powder Co. v. IRECO, Inc., 190 F.3d 1342, 1348-49, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999) (noting that it is irrelevant that the prior art does not recognize a key aspect of an invention if such an aspect is nevertheless inherent in the prior art).

In addition, the standoffs of Sinclair's base member 14 contact the circuit board equally around the periphery of the base member. Although Sinclair characterizes these corner portions of base member 14 as "standoffs" 58, 60,

and 62, such standoffs merely constitute those portions of the base member 14 that are not recessed. That is, forming notch-shaped recesses in the base member of Sinclair inherently produces “standoffs” on either side of the notch. Indeed, even in the present application, a notch-shaped recess 211 is shown in Figs. 1 and 2. Thus, even the recess disclosed in the present application inherently produces “standoffs” on either side of the recess (*i.e.*, areas on the bottom face of the supporting portion adjacent the recess).

With these principles in mind, we turn to the APA/Sinclair combination. Sinclair essentially discloses equally-spaced notch-shaped recesses around the periphery of a “supporting portion” (*i.e.*, base member 14). Significantly, the base member in Sinclair -- like the bottom face of the supporting portion of APA -- directly contacts the circuit board except for the areas that are recessed. As we indicated previously, such recesses would inherently promote air or gas circulation therein. In light of this teaching, we see no reason why the skilled artisan would not provide at least one notch-shaped recess in the bottom face of the supporting portion of APA to promote air or gas circulation therein. In our view, forming such a notch-shaped recess in the supporting member of APA would hardly result in the tilted, misaligned structure characterized on page 12 of appellant’s brief.

For the above reasons, we find that the examiner’s rejection of independent claims 7 and 10 is reasonable based on APA and Sinclair. Accordingly, the rejection will be sustained. Since appellant has not separately

argued the patentability of dependent claims 8, 9, 11, and 13, these claims fall with the independent claims. See In re Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987). See also 37 CFR § 41.37(c)(vii).

In summary, we have sustained the examiner's rejection with respect to all claims on appeal. Therefore, the decision of the examiner rejecting claims 7-11 and 13 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED

JERRY SMITH)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
JOSEPH F. RUGGIERO)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
)	
)	
)	
MAHSHID D. SAADAT)	
Administrative Patent Judge)	

JS/jaj/rwk

Appeal No. 2006-2930
Application No. 10/299,198

WEI TE CHUNG
FOXCONN INTERNATIONAL, INC.
1650 MEMOREX DRIVE
SANTA CLARA, CA 95050