The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 36

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MOTOO ASAI and YOICHIRO KAWAMURA

Appeal No. 2001-1509
Application No. 08/871,890

HEARD: AUGUST 21, 2003

Before RUGGIERO, BARRY, and LEVY, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal from the final rejection of claims 5-24, which are all of the claims pending in the present application. Claims 1-4 have been canceled. An amendment filed June 7, 2000 after final rejection was approved for entry by the Examiner.

The claimed invention relates to a multilayer printed circuit board having a core substrate in which multilayer wiring layers are formed on the core substrate by alternately laminating insulating layers and conductor circuits. A group of solder pads

having solder bumps, including an outer layer pad group and an inner layer pad group, are planarly arranged on an outermost surface of the multilayer wiring layers. The outer layer pad group includes solder pads, located in at least two and up to five rows from an outer position of the outer layer group, having flat pads connected to a conductor pattern on the outermost surface of the wiring layers. Solder pads of the inner layer pad group are connected to via holes connected to flat pads located on a first inner layer and at least one further inner layer of the multilayer wiring layers.

Claim 5 is illustrative of the invention and reads as follows:

> 5. A multilayer printed circuit board, comprising:
>
> a core substrate;
>
> multilayer wiring layers formed on the core substrate by alternately laminating interlaminar insulating layer and conductor pattern;
>
> a group of solder pads having solder bumps planarly arranged on an outermost surface of the multilayer wiring layers, the group of solder pads including an outer layer pad group and an inner layer pad group;
>
> wherein the outer layer pad group includes solder pads located in at least two and up to five rows from an outer position of the solder pad group having flat pads each connected to an outermost conductor pattern located on the outermost surface and having solder bumps formed on surfaces of the solder pads;

wherein solder pads other than the solder pads connected to the conductor pattern on the outermost surface form the inner layer pad group; and

wherein the inner layer pad group comprises solder pads which are connected to viaholes connected to flat inner layer pads located on one of a first inner layer and at least one further inner layer with solder bumps being formed in recess portions of the viaholes, the inner layer pad group comprising solder pads located in at least one and up to five rows from an outer position of the inner layer pad group that are connected through the viaholes to flat pads connected to conductor patterns on the first inner layer, while solder pads of the inner layer pad group other than the solder pads connected to flat pads connected to conductor patterns on the first inner layer are connected through the viaholes to flat pads located on the at least one further inner layer located inward relative to the first inner layer.

The Examiner relies on the following prior art:

Kumagai et al. (Kumagai)	5,248,852	Sep. 28, 1993
Bhatt et al. (Bhatt)	5,487,218	Jan. 30, 1996
Kato et al. (Kato)	JP402100353A	Apr. 12, 1990
Sygiyama et al. (Sygiyama)[1] (Published Japanese Kokai Patent Application)	JP 7-106767	Apr. 21, 1995
Asai et al. (Asai) (Published Japanese Patent Application)	WO 96-39796	Dec. 12, 1996

Claims 5-24 stand finally rejected under 35 U.S.C. § 103(a). As evidence of obviousness, the Examiner offers Sygiyama (hereinafter JP ‘767) in view of Bhatt with respect to claims 5, 9, 13, and 17, adds Kumagai and Kato to the basic combination

[1] Copies of translations of the Sygiyama and Asai references provided by the U.S. Patent and Trademark Office on May 2000 and October 2002, respectively, are enclosed with this decision.

with respect to claims 6, 10, 14, 18, and 22, adds Asai (hereinafter WO '796) and Kato to the basic combination with respect to claims 7, 8, 11, 12, 15, 16, 19, 20, 23, and 24, and adds Kato alone to the basic combination with respect to claim 21.[2]

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Briefs[3] and Answer for the respective details.

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, Appellants' arguments set forth in the Briefs along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer.

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[2] Since both Appellants and the Examiner refer to the Sygiyama and Asai references by document number, we will do so also in this decision to maintain consistency.

[3] The Appeal Brief was filed August 7, 2000 (Paper No. 24). In response to the Examiner's Answer dated October 24, 2000 (Paper No. 25), a Reply Brief was filed December 22, 2000 (Paper No. 27), which was acknowledged and entered by the Examiner as indicated in the communication dated March 7, 2001 (Paper No. 29).

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 not have suggested to one of ordinary skill in the art the invention as set forth in claims 5-24. Accordingly, we reverse.

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, 1073-74, 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, 17-18, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v.

Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

With respect to the Examiner's 35 U.S.C. § 103(a) rejection of appealed claim 5, the sole independent claim on appeal, based on the combination of JP '767 and Bhatt, Appellants assert that the Examiner has failed to establish a prima facie case of obviousness since all of the claimed limitations are not taught or suggested by the applied prior art references. In particular, Appellants contend (Brief, pages 11 and 12; Reply Brief, pages 4-6) that the Bhatt reference, relied upon by the Examiner for teaching the claimed solder pad arrangement, does not meet the requirements of claim 5. Appellants assert that, in contrast to the language of claim 5 which requires that the outer layer pad group include solder pads " . . . in at least two and up to five rows from an outer position of the solder pad group . . . , " Bhatt discloses only one row of solder pads that have flat pads connected to the outermost conductor pattern 21.

At page 8 in the "***Response to Argument***" portion of the Answer, the Examiner, while agreeing with Appellants' assertion that Bhatt discloses only one row of outer flat pads connected to the outermost conductor pattern, nevertheless suggests the obviousness to the skilled artisan of employing any number of rows of outer flat pads. As the basis for this conclusion, the Examiner contends (id.) that " . . . it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v Bemis Co.*, 193 USPQ 8." It is our view, however, that the Examiner has improperly relied on a per se rule of obviousness that merely adding duplicate additional parts, such as rows of solder pads in the present factual situation, is not patentable. The issue of obviousness must always be determined on a case by case basis considering the specific recitations of the claimed invention and the specific teachings of the applied prior art.

Further, our review of the disclosure of Bhatt reveals that it is directed primarily to the structure and placement of through holes in a printed circuit board. Aside from a drawing illustration in Bhatt's Figure 1, we find no disclosure in Bhatt related to the amount or placement of solder pads for mounting components. Given this deficiency in the disclosure of Bhatt, we

find no basis for the Examiner's assertion that the skilled artisan would have been motivated and found it obvious to add additional rows of solder pads, let alone in the particular configuration set forth by Appellants in claim 5. It also follows therefore that, even assuming, arguendo, that the skilled artisan would have been motivated to combine the teachings of Bhatt with JP '767 so as to use the board of JP '767 as a chip carrier as proposed by the Examiner, the resultant structure would not meet the requirements of appealed claim 5.

In view of the above discussion, since the Examiner has not established a prima facie case of obviousness, the 35 U.S.C. § 103(a) rejection of independent claim 5, as well as claims 6-24 dependent thereon, is not sustained.

We have also considered the Kumagai, Kato, and WO '796 references applied by the Examiner to address the various features of several dependent claims. We find nothing in these references, however, which would overcome, either individually or collectively, the innate deficiencies of Bhatt and JP '767 discussed supra.

In conclusion, we have not sustained the Examiner's 35 U.S.C. § 103(a) rejection of any of the claims on appeal. Therefore, the decision of the Examiner rejecting claims 5-24 is reversed.

REVERSED

JOSEPH F. RUGGIERO Administrative Patent Judge	)	
LANCE LEONARD BARRY Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
STUART S. LEVY Administrative Patent Judge	)	

JFR/hh

GREENBLUM & BERNSTEIN
1941 ROLAND CLARKE PLACE
RESTON, VA 20191