

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHINSUKE SUZUKI
and SHINJI MURAKI

Appeal 2008-0231
Application 10/892,133
Technology Center 1700

Decided: December 13, 2007

Before EDWARD C. KIMLIN, THOMAS A. WALTZ, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-12 and 24-32.
Claims 13-23 have been withdrawn from consideration. Claim 1 is
illustrative:

1. A dies bonding apparatus, comprising:

a nozzle unit which discharges an adhesive agent to a rectangular bonding area of a chip mounting surface, said nozzle unit including,

a central nozzle which discharges the adhesive agent to the center of the bonding area; and

a plurality of peripheral nozzles provided around the central nozzle and whose amount of discharge of the adhesive agent is smaller than the amount of discharge of the adhesive agent from the central nozzle;

wherein each of an area of a discharge port of the peripheral nozzles is substantially identical; and

wherein an area of a discharge port of the central nozzle is about 1.2 to 3 times of the area of the discharge port of each of the peripheral nozzles.

The Examiner relies upon the following references in the rejection of the appealed claims:

Yoshida	5,187,123	Feb. 16, 1993
Masato (as translated)	JP 11-145165	May 28, 1999

Appellants' claimed invention is directed to a die bonding apparatus comprising a nozzle unit that is used to discharge an adhesive to the bonding area of a chip mounting surface. The nozzle unit comprises a central nozzle and a plurality of peripheral nozzles located around the central nozzle. The discharge port of the central nozzle is about 1.2 to 3 times the area of the discharge port of each of the peripheral nozzles which are substantially identical.

Appealed claims 1-4, 7-9, and 24 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as

being unpatentable over Masato. Claims 5, 6, 10-12, and 25-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Masato in view of Yoshida.

With respect to the § 102/103 rejection, Appellants do not set forth separate, substantive arguments for claims 4 and 7-9. Accordingly, these claims stand or fall together with claim 1. Likewise, claims 5, 6, 10-12, and 25-32 stand or fall together.

We have thoroughly reviewed the respective positions advanced by Appellants and the Examiner. In so doing, we find that the Examiner has properly concluded that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103.

We consider first the Examiner's rejection of claims 1-4, 7-9, and 24 under § 102 or § 103 over Masato. Masato, like Appellants, discloses a die bonding apparatus that may discharge an adhesive agent comprising a central nozzle and a plurality of peripheral nozzles provided around the central nozzle. Figure 1(b) of Masato depicts a pattern of bonding material on a substrate that is discharged by the nozzle unit, and it can be seen that the central nozzle of Masato discharges more material than the four peripheral nozzles. As emphasized by Appellants, however, Masato does not describe that the discharge port of the central nozzle has a greater area than the discharge ports of the peripheral nozzles. The reference is silent with respect to the relative areas of the central and peripheral discharge ports. As a result, it cannot be concluded that Masato describes the claimed subject matter within the meaning of § 102.

However, we fully concur with the Examiner that Masato provides sufficient evidence that the claimed subject matter would have been obvious

to one of ordinary skill in the art under § 103. In our view, one of ordinary skill in the art would have readily understood that the pattern of the deposited material shown in Figure 1(b) of Masato may be generated by using a central nozzle having a greater area for the discharge port than the area of the discharge ports of the peripheral nozzles. While it may be true, as argued by Appellants, that the larger central area of deposited material may be achieved by means other than having the area of the central nozzle greater than the area of the peripheral nozzles, we are satisfied that utilizing discharge ports having different areas would have been one of the more obvious ways for obtaining the pattern depicted in Masato's Figure 1(b). We find no fault in the Examiner's citation of common sense to arrive at the legal conclusion that it would have been obvious for one with ordinary skill in the art to employ a central nozzle having an area larger than the areas of the peripheral nozzles to obtain a pattern of deposited material like that shown in Masato. Common sense is a legitimate and useful tool in the obviousness analysis under § 103. *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007).

We will also sustain the Examiner's § 103 rejection of claims 5, 6, 10-12, and 25-32 over Masato in view of Yoshida for essentially those reasons expressed in the Answer. Claim 5 defines a particular pattern for the location of the central nozzle and the peripheral nozzles, and we are convinced that it would have been a matter of *prima facie* obviousness for one of ordinary skill in the art to select any particular pattern for the discharge nozzles in the absence of a showing of criticality by Appellants that the particularly recited pattern produces an unexpected advantage. In general, where patentability is predicated upon a change in a condition of the

prior art, such as a change in size, configuration, concentration of ingredients, etc., the burden is on the applicant to establish with objective evidence that the change leads to a new, unexpected result. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990); *In re Ranier*, 377 F.2d 1006, 1010 (CCPA 1967); *In re Bourdon*, 240 F.2d 358, 361 (CCPA 1957); *In re Aller*, 220 F.2d 454, 456 (CCPA 1955). In the present case, Appellants have proffered no objective evidence that nozzle patterns within the scope of the appealed claims produce anything more than what would have been expected by one of ordinary skill in the art. Moreover, Appellants do not dispute the Examiner's factual finding that Yoshida discloses the claimed nozzle configuration for discharging bonding material. While Appellants argue that Yoshida does not disclose a variation in the hole size of the nozzles, we, for the reasons set forth above, agree with the Examiner that such a variation would have been obvious to one of ordinary skill in the art.¹ As for Appellants' argument that Masato injects solder whereas Yoshida injects adhesive paste, we find that the references are combinable inasmuch as they are both directed to the discharge of viscous, bonding material.

In conclusion, based on the foregoing, the Examiner's decision rejecting the appealed claims is affirmed.

¹ We also note that Appellants state in their Reply Brief that the argument appearing at page 10 of the Principal Brief, paragraph 2, was in error (*see* Reply Br. 4, para. 9).

Appeal 2008-0231
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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(effective Sept. 13, 2004).

AFFIRMED

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