

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte PONNUSAMY PALANISAMY

Appeal No. 2005-0142
Application No. 09/904,246

ON BRIEF

Before THOMAS, GROSS, and BARRY, *Administrative Patent Judges*.
BARRY, *Administrative Patent Judge*.

A patent examiner rejected claims 1-10. The appellant appeals therefrom under 35 U.S.C. § 134(a). We reverse.

I. BACKGROUND

The invention at issue on appeal concerns "large area displays." (Spec at 1.) Large area displays are constituted by connected modules; each module displays part of an overall image that is discernible from the composite of modules. Each pixel of each module includes a light altering member that produces light of a particular color. Commonly, a single pixel will include light altering elements for each color in a tri-color space such as red, green, and blue. (*Id.*)

In organic light emitting device ("OLED") displays, each subpixel associated with a particular color is sandwiched between row and column electrodes. The row, column, and OLED material may be deposited on a glass panel. (*Id.*) The glass panel and its associated electrodes and OLED material may be referred to as a "display panel." (*Id.* at 2.) An electrical connection is needed between the display panel and a circuit board that conditions signals for the display panel. Traditionally, explains the appellant, such connections were made around the periphery of the overall display. He asserts, however, that available edge space may be limited in some cases. Furthermore, adds the appellant, edge regions may be subject to disruption from impact or the use of sealing materials to connect adjacent modules. (*Id.*)

Accordingly, appellant's display features a display panel and a circuit board that are surface mounted to one another. More specifically, the surface mount interconnections are distributed across the display, thereby avoiding the need to situate contacts around the periphery. (*Id.* at 15.) A further understanding of the invention can be achieved by reading the following claim.

1. A display comprising:

a circuit board;

a display panel electrically coupled to said circuit board in face-to-face abutment substantially along a plane; and

an electrical connection including a first contact on said circuit board, a second contact on said display panel, and a conductor coupling said first and second contacts and extending generally along said plane.

Claims 1-5 stand rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,265,986 ("Oka") and U.S. Patent No. 6,274,391 ("Wachtler"). Claims 6, 7, and 10 stand rejected under § 103(a) as obvious over Oka; Wachtler; and U.S. Patent Application Publ'n No. 2002/0054037 ("Kawano"). Claims 8 and 9 stand rejected under § 103(a) as obvious over Oka; Wachtler; Kawano; and U.S. Patent No. 5,253,091 ("Kimura").

II. OPINION

Rather than reiterate the positions of the examiner or the appellant *in toto*, we focus on the points of contention therebetween. The examiner finds, "Wachtler teaches . . . a first contact (pad) on circuit board, a second contact (pad 20) on the semiconductor device, and a conductor (solder ball 22) coupling the first and second contacts. . . ." (Examiner's Answer at 3.) She then asserts, "Fig. 6 of Wachtler clearly shows the contacts and solder balls are provided extending along the whole plane of the device." (*Id.*) The appellant argues, "[r]egardless of whether the solder balls are distributed across the plane, they themselves do not extend along that plane." (Reply Br. at 3.)

In addressing the point of contention, the Board conducts a two-step analysis. First, we construe the claim at issue to determine its scope. Second, we determine whether the construed claim would have been obvious.

A. CLAIM CONSTRUCTION

"Analysis begins with a key legal question — *what is the invention claimed?*" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). In answering the question, "[t]he Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art." *In re Lowry*, 32 F.3d 1579, 1582, 32 USPQ2d 1031, 1034 (Fed. Cir. 1994) (citing *In re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 403-04 (Fed. Cir. 1983)).

Here, claim 1 recites in pertinent part the following limitations: "a display panel electrically coupled to said circuit board in face-to-face abutment substantially along a plane; and an electrical connection including a first contact on said circuit board, a second contact on said display panel, and a conductor coupling said first and second contacts and extending generally along said plane." Giving the independent claim its broadest, reasonable construction, the limitations require a coupling conductor that extends along a plane of face-to-face abutment.

B. OBVIOUSNESS DETERMINATION

Having determined what subject matter is being claimed, the next inquiry is whether the subject matter would have been obvious. "In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)). "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

Here, the examiner admits, "Oka does not disclose the electrical connection including a conductor coupling the first and second contacts and extending generally along the plane." (Examiner's Answer at 3.) For its part, Wachtler discloses "a high density interconnect land grid array package (HDIP), generally at 10." Col. 7, ll. 50-51. More specifically, "an array of pads 20 [is formed] on the bottom surface of thin film overlay 18," *id.* at ll. 61-62, and "a solder ball 22 is formed on each bond pad 20. . . ." *id.* at ll. 66-67. "Infrared, convention or vapor phase reflow is then used melt solder balls 22 sufficient to mechanically and electrically connect each pad 20 to a

corresponding pad (not shown) on printed wiring board (PWB) 24." Col. 7, l. 67 - col. 8, l. 4. Once melted, we agree with the examiner's finding that the solder balls 22 couple the pads 20 of the thin film overlay to those of the PWB 24.

We are unpersuaded, however, that the solder balls 22 extend along the plane of face-to-face abutment of the thin film overlay 18 and the PWB 24. To the contrary, Figures 6 and 7 collectively confirm the appellant's observation that "the solder ball extends transversely to the plane of face-to-face abutment." (Reply Br. at 3.) Absent a teaching or suggestion of a coupling conductor that extends along the plane of face-to-face abutment, we are unpersuaded of a *prima facie* case of obviousness. Therefore, we reverse the obviousness rejection of claim 1 and of claims 2-5, which depend therefrom.

Furthermore, the examiner does not allege, let alone show, that the addition of Kawano or Kimura cures the aforementioned deficiency of Oka and Wachtler. Therefore, we also reverse the obviousness rejection of claims 6-10, which also depend from claim 1.

III. CONCLUSION

In summary, the rejections of claims 1-10 under § 103(a) are reversed.

REVERSED

JAMES D. THOMAS
Administrative Patent Judge

ANITA PELLMAN GROSS
Administrative Patent Judge

LANCE LEONARD BARRY
Administrative Patent Judge

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Timothy N. Trop
TROP, PRUNER & HU, P.C.
8554 KATY FWY, STE. 100
HOUSTON, TX 77024-1805