

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHUNPEI YAMAZAKI,
AKIRA MASE, and MASAOKI HIROKI

Appeal No. 96-1467
Application No. 08/247,452¹

HEARD: June 8, 1999

Before THOMAS, JERRY SMITH, and GROSS , Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C.

¹ Application for patent filed May 23, 1994. According to the appellants, this application is a continuation of 08/148,528, filed November 08, 1993, which is a continuation of 08/044,387, filed April 08, 1993, which is a continuation of 07/673,295, filed March 22, 1991 now abandoned.

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§ 134 from the examiner's rejection of claims 22-32, which constitute all the claims remaining in the application.

The disclosed invention pertains to an electro-optical device such as a liquid crystal display (LCD) having a plurality of pixels disposed in a matrix arrangement. The pixels are switched on and off by thin film transistors (TFTs). The TFTs have a hydrogen-doped semiconductor layer as an active region, and the semiconductor layer has a crystalline structure with lattice distortion.

Representative claim 22 is reproduced as follows:

22. An electro-optical device comprising:

a pair of substrates;

a light influencing layer disposed between said substrates;

an electrode arrangement formed on an inside surface of at least one of said substrates, with which a plurality of pixels are defined in said influencing layer;

thin film transistors provided for said pixels; and

a driving circuit for supplying a control signal to said thin film transistors,

wherein said thin film transistors have a hydrogen-doped semiconductor layer as an active region, said semiconductor layer having a crystalline structure with lattice distortion, and having one of an electron mobility in

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the range of 15-300 cm² /Vsec and a hole mobility in the range of 10-200 cm²/Vsec.

The examiner relies on the following references:

Ohwada et al. (Ohwada)	4,818,077	Apr. 4, 1989
Mimura et al. (Mimura)	4,954,855	Sep. 4, 1990

Claims 22-32 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers Ohwada in view of Mimura.

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

At the outset, we note that the propriety of the examiner's objection to the drawings is not within our jurisdiction. Appellants must settle this question with the examiner or by petition to the Commissioner.

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 appellants' arguments set forth in the briefs along with the examiner's

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rationale in support of the rejection 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 not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 22-32. Accordingly, we reverse.

Appellants have indicated that for purposes of this appeal the claims will all stand or fall together except for claim 30 which is separately grouped [brief, page 6]. Consistent with this indication appellants have made separate arguments only with respect to claim 30 on appeal. Accordingly, all the other claims before us will stand or fall together. Note In re King, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). Therefore, we will consider the rejection against independent claims 22 and 30 as representative of all the claims on appeal.

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,

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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), 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).

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With respect to representative, independent claim 22, the examiner essentially asserts that Ohwada teaches all the recited features of claim 22 except for the hydrogen-doped semiconductor layer of the transistors. The examiner cites Mimura as teaching a hydrogen-doped semiconductor layer of a TFT. The examiner concludes that it would have been obvious to the artisan to use the hydrogen-doped TFT of Mimura for the TFT of Ohwada [answer, pages 3-4]. The examiner also observes that the lattice points in a semiconductor material having a crystal-like structure being distorted or strained is conventional in the art as disclosed by Yamazaki (4,409,134) [not applied in the statement of the rejection].

Appellants argue that Ohwada does not disclose a semi-amorphous semiconductor (SAS) wherein the semiconductor layer has a crystalline structure with lattice distortion. Appellants also argue that Mimura also never discloses a TFT employing SAS. Appellants' position is basically that even though SAS transistors were known in the art, there is no suggestion to employ SAS TFTs in an electro-optical device such as taught by Ohwada [brief, pages 7-8]. The examiner responds that crystalline structure with lattice distortion in

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a TFT device was conventional as disclosed by Yamazaki '134 [not applied].

Although we can agree with the examiner that Mimura broadly suggests the advantages of using a hydrogen-doped semiconductor layer in a TFT, we cannot agree with the examiner that the collective teachings of Ohwada and Mimura suggest the use of a crystalline structure having lattice distortion with a hydrogen-doped TFT. The hydrogen-doped TFT of Mimura is specifically described as having an active layer made of a polycrystalline silicon film, a monocrystalline silicon film or an amorphous silicon film [column 4, lines 11-15]. It is noted that none of these films is a semiconductor layer having a crystalline structure with lattice distortion as recited in claim 22. Thus, even if the artisan were motivated to use the Mimura hydrogen-doped TFT in the electro-optical device of Ohwada, there is no suggestion for the lattice structure as recited in the claim.

We note that the examiner has simply noted that such lattice structures were well known as evidenced by Yamazaki '134. Although Yamazaki was not applied against the claims as formal prior art, appellants have admitted that such

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semiconductor lattice structures were known. It is appellants' position, however, that there is no suggestion to use such a structure with a hydrogen-doped TFT in an electro-optical device as claimed. We agree. Mimura would have led the artisan to use a hydrogen-doped TFT having a semiconductor area made from polycrystalline silicon, monocrystalline silicon or amorphous silicon. The only teaching or suggestion of using a crystalline structure with lattice distortion for a hydrogen-doped TFT in an electro-optical device comes from appellants' own specification.

Since it is improper to use an inventor's own disclosure as a template for recreating the invention, and since there is no teaching or suggestion from only Ohwada and Mimura to use the crystalline structure with lattice distortion as claimed, we do not sustain the rejection of claim 22 or of claims 23-29, 31 and 32 which are grouped therewith.

With respect to representative, independent claim 30, the examiner essentially makes the same points that were made with respect to claim 22. The examiner also observes that the degree of crystallization in the channel layer as recited in

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claim 30 is an obvious design choice [answer, page 4]. The examiner also notes that such a TFT was conventional in the art as disclosed by Yamazaki (4,727,044) [not applied in the statement of the rejection].

Appellants argue that neither Ohwada nor Mimura teaches a hydrogen-doped TFT wherein the degree of crystallization in the channel region is smaller than the degree of crystallization in the source and drain regions. Appellants' position is basically that even though such transistors were known in the art, there is no suggestion to employ them in an active matrix electro-optical device [brief, page 11]. The examiner responds that the degree of crystallization in the channel layer being smaller than the degree of crystallization in the source and drain layers was conventional as disclosed by Yamazaki '044 [not applied].

We do not sustain the rejection of claim 30 for basically the same reasons discussed above with respect to claim 22. The mere fact that the recitations of a claimed invention existed separately in the prior art does not provide motivation for their combination as claimed. The examiner has officially applied no reference with the degree of

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crystallization as recited in claim 30, and the examiner has offered no rationale for using a transistor having such properties other than as an obvious design choice. The examiner has failed to establish that the obviousness of the claimed invention comes from the collective teachings of Ohwada and Mimura. Rather, the examiner appears to have concluded obviousness based on appellants' own disclosure. As noted above, such a conclusion is inappropriate.

In summary, we have not sustained the examiner's rejection of claims 22-32 under 35 U.S.C. § 103. Therefore, the decision of the examiner rejecting claims 22-32 is reversed.

REVERSED

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Administrative Patent Judge)	
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