

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALFRED LELL

Appeal No. 2001-0726
Application 09/272,969

ON BRIEF

Before JERRY SMITH, DIXON 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. § 134 from the examiner's rejection of claims 15-18. Claims 1-14 stand withdrawn from consideration as being directed to a non-elected invention.

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The disclosed invention pertains to a semiconductor configuration, particularly an optical transmitter and receiver configuration formed on a single semiconductor substrate.

Representative claim 15 is reproduced as follows:

15. A semiconductor configuration having at least two semiconductor elements, comprising:

a semiconductor substrate having a top side;

at least two differently doped surface regions embodied in said top side; and

at least two active layer structures each having a plurality of layers disposed on different ones of said at least two differently doped surface regions and each defining a semiconductor element, each of said plurality of layers having a lowermost electrically conductive layer disposed toward said semiconductor substrate and electrically separated from one another.

The examiner relies on the following references:

Hara et al. (Hara)	4,794,609	Dec. 27, 1988
Chinen	5,281,829	Jan. 25, 1994

Claims 15 and 16 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the disclosure of Chinen. Claims 17 and 18 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers Chinen in view of Hara.

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

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of anticipation and obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs 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 by the examiner supports each of the rejections before us. Accordingly, we affirm.

We consider first the rejection of claims 15 and 16 under 35 U.S.C. § 102(b) as being anticipated by the disclosure of Chinen. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ

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303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The examiner's finding of anticipation is briefly stated on page 3 of the examiner's answer. Appellant argues that the layer 14 of the Chinen phototransistor is not an integral part of the substrate 6 of the Chinen device, but is disposed on substrate 6 after the substrate has been back-etched. Appellant also argues that layer 14 in Chinen is not decoupled from the substrate 6 as claimed. Appellant argues that Chinen does not disclose the differently doped regions which are electrically decoupled from one another as claimed [brief, pages 9-12].

The examiner responds that although the structure of Chinen is made by a different process from the claimed invention, the resulting structures are the same. The examiner also notes that the doped regions of Chinen are electrically decoupled to the same extent that the regions in the claimed invention are decoupled [answer, pages 3-4].

Appellant responds that the phototransistor of Chinen is not electrically decoupled from the laser whereas the receiver of the claimed invention is electrically decoupled from the transmitter. Appellant notes that the claimed invention always has one of the two diodes in a blocking direction so that layer 3 is electrically decoupled from layer 4. Appellant also notes

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that a change in the potential at contact 19 or 15 "does not immediately effect" the operation of receiver diode 12 [reply brief].

We agree with the examiner that the structure recited in claim 15 reads on the structure disclosed by Chinen in Figure 2. First, appellant's argument that layer 14 of Chinen is not an integral part of substrate 6 is not persuasive. Claim 15 simply recites that there are two differently doped surface regions embodied in the top side of the substrate. We agree with the examiner that region 14 is clearly embodied in the top surface of substrate 6 in the resultant structure of Chinen [see Figure 2]. Regions 14 and 6 of Chinen form two differently doped surface regions in the exact same manner as regions 2 and 3 of the disclosed invention.

Appellant's arguments regarding the electrical decoupling of their invention and of Chinen are also not persuasive. Appellant's specification notes that the electrical decoupling occurs because a p-n junction forms which electrically decouples the p-doped surface region 2 from the n-doped surface region 3 [specification, page 9]. We agree with the examiner that the same electrical decoupling occurs between p-doped region 14 and n-doped region 6 of Chinen. The specification of this

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application does not describe any operation of the voltages applied to the various metal contacts to achieve this electrical decoupling. Since the disclosed structure for achieving electrical decoupling is exactly the same as the structure disclosed by Chinen, we find that Chinen fully meets the invention of claim 15.

With respect to claim 16, appellant argues that Chinen does not disclose an optical transmitter diode and an optical receiver diode as claimed. Notwithstanding this argument, the laser of Chinen is clearly an optical transmitter diode, and the phototransistor is clearly an optical receiver diode. Therefore, we find that the invention of claim 16 is also fully met by the disclosure of Chinen.

We now consider the rejection of claims 17 and 18 based on the teachings of Chinen and Hara. 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), and to provide a reason why one having ordinary skill in the pertinent art would have been

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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). 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.

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Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived by appellant [see 37 CFR § 1.192(a)].

Claims 17 and 18 recite that the two active layers of claim 15 are two of a plurality of active layer structures disposed in a line structure or in an array structure. The examiner cites Hara as teaching a plurality of lasers and photodetectors disposed in an array. The examiner finds that it would have been obvious to the artisan to use the Chinen device in an array as taught by Hara [answer, page 3]. Appellant argues that there is no motivation to combine the teachings of Chinen and Hara [brief, pages 13-15].

We sustain the examiner's rejection of claims 17 and 18. As noted by the examiner, Hara teaches that it was well known to form lasers and photodetectors in an array structure (which would include a line structure). Appellant has offered no reason why the artisan would not have been motivated to configure the lasers and phototransistors of Chinen in this well known manner.

In summary, we have sustained each of the examiner's rejections of the claims on appeal. Therefore, the decision of the examiner rejecting claims 15-18 is affirmed.

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

AFFIRMED

JERRY SMITH)	
Administrative Patent Judge)	
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JOSEPH L. DIXON)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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