The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

_____

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte ROBERT H. HAVEMANN

_____

Appeal No. 1999-1623
Application 08/474,239

_____

ON BRIEF

_____

Before THOMAS, BARRETT and RUGGIERO, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellant has appealed to the Board from the examiner's final rejection of claims 25-44. Claims 1-24 have been canceled. Because the examiner has indicated the allowability of claims 31, 36, 39, 40, 42 and 44 at the bottom of page 4 of the answer, claims 25-30, 32-35, 37, 38, 41 and 43 remain for our consideration on appeal.

Representative claims 25 is reproduced below:

25. A method of making a transistor comprising the steps of:

(a) providing a volume of semiconductor material doped with a dopant of a predetermined conductivity type having a pair of opposed surfaces;

(b) then forming at least one region of electrically insulating material within said volume, said at least one region of electrically insulating material including a part of said semiconductor material, said at least one region of electrically insulating material being spaced from said pair of opposed surfaces;

(c) then forming two spaced apart regions in said volume of semiconductor material of conductivity type opposite to said predetermined conductivity type, at least one of said spaced apart regions of opposite conductivity type extending from one of said opposed surfaces to said at least one region of electrically insulating material to provide one of an emitter or collector region between said one of said opposed surfaces and said at least one region of electrically insulating material with the remainder of said volume doped said predetermined conductivity type forming a base region.

The following references are relied on by the examiner:

Birrittella et al. (Birrittella)	4,631,570	Dec. 23, 1986 (filing date July 3, 1984)
Nakazato et al. (Nakazato)	4,769,687	Sep. 6, 1988 (effective filing date of Feb. 13, 1985)
Shoji [Kouji][1] (Japanese Kokai)	52-30175	Mar. 7, 1977

In what appears to be separately stated rejections the examiner has rejected claims 25, 26, 28-30, 32-34 and 41 under 35 U.S.C. §102(b) as being anticipated by Shoji

[1] The bottom of page 4 of the principal brief on appeal indicates that the translation of record was supplied to appellant by the examiner during prosecution.

[Kouji](Paper No. 4). This reference is combined with Birrittella in Paper No. 8 rejecting claim 43 under 35 U.S.C. § 103. Finally, also set forth in Paper No. 4, is a separate rejection under 35 U.S.C. §103 of claims 25-28, 35, 37 and 38 in light of Nakazato in view of Shoji [Kouji].

Rather than repeat the positions of the appellant and the examiner, reference is made to the briefs and the answer for the respective details thereof.

OPINION

We reverse.

At the outset, the examiner's reliance upon rejections set forth in prior Papers No. 4 and No. 8, as well as the Advisory Action in Paper No. 10, as expressed at pages 2 and 3 of the answer is highly disfavored. This approach appears to violate MPEP § 1208, topic A, which only permits the examiner to rely upon a single Office action for a statement of the rejection and instructs the examiner to avoid references to other Office actions.

All claims on appeal relate to methods of making a transistor. Each of the three independent claims 25, 26 and 41 recite in the initial clause providing a volume of semi-conductor material as well as other features. The next succeeding clauses of each

independent claim require the sequential forming in step B followed then by an additional sequential forming in step C of certain regions within the volume initially recited in the first subclause A of each independent claim. In claim 25, for example, after the volume of semi-conductor material has been provided in clause A, at least one region of electrically insulating material is "then" formed "within" that volume, where that electrically insulating material includes a part of the volume of the semi-conductor material itself, further requiring that the region of electrically insulating material be spaced from the pair of opposite surfaces of the volume itself. Independent claims 26 and 41 each require that a pair of regions be formed in step B "within" the volume of semi-conductor material.

It is these recitations of independent claims 25, 26 and 41 on appeal that form the basis of a reversal of the rejections under 35 U.S.C. § 102 as being anticipated by Shoji [Kouji]. Even the abstract accompanying the translation indicates that the N-type epitaxial layer 7 is formed first and then the second N-type epitaxial layer 9 is formed.
The examiner's position and persistent view during the prosecution that the semiconductor volume of the claims includes layers 7 and 9 in Shoji [Kouji] Figure 2, for example, is misplaced. Shoji's [Kouji's] end product shown in Figure 2 appears to correspond to the final product of the method of manufacturing Figures 3-6. According to the description at lines 9-15 of page 5 of the translation, the numeral 7 indicates an N-type first epitaxial

layer, followed by region 8 indicating a silicon dioxide film, followed in turn by a second epitaxial layer 9. Line 7 of page 6 of the translation indicates that there is formed in this reference "a double-layer epitaxial structure." The details of the manufacture of Shoji's [Kouji's] device begin with Figure 3 at the middle of page 6, again indicating that N-type epitaxial layers 7 and 9 are separately formed. It is thus readily seen that regions 7 and 9 do not form a single volume of semiconductor material and that the insulating layer of silicon dioxide labeled as region 8 is formed between the deposition of the first layer 7 and the second layer 9, Figures 3 and 4, and can not be fairly stated to be formed "within" any one region 7 or 9 as required by clause B of each independent claim 25, 26 and 41 on appeal.

Because we do not sustain the rejection of each independent claim 25, 26 and 41 on appeal as being anticipated by Shoji [Kouji], we also reverse the rejection of dependent claim 43 under 35 U.S.C. § 103 with the additional teachings provided by Birrittella, which fails to cure the deficiencies of Shoji [Kouji] noted earlier. Since Shoji [Kouji] is utilized as a basis for a separate rejection under 35 U.S.C. § 103 of independent claims 25 and 26, that rejection as well must fall. The various drawings in Nakazato, for example, do not indicate that a region of electrically insulating material is formed "within" a volume of

semiconductor material as well. Thus, the rejection of dependent claims 27, 28, 35, 37 and 38 is also reversed.

In view of the foregoing, the decision of the examiner rejecting various claims under 35 U.S.C. § 102 is reversed. Similarly, the examiner's rejection of various claims under 35 U.S.C. § 103 is reversed. Accordingly, the decision of the examiner is reversed.

REVERSED

James D. Thomas Administrative Patent Judge	))
Lee E. Barrett Administrative Patent Judge	) BOARD OF PATENT)) APPEALS AND)
Joseph F. Ruggiero Administrative Patent Judge	) INTERFERENCES)

JDT/cam

Rene E. Grossman

Texas Instruments Incorporated
Patent Dept. MS 219
P. O. Box 655474
Dallas TX 75265