

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(2) is not binding precedent of the Board.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. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEVEN LEE and GAYLE MILLER

Appeal No. 95-4292
Application 07/962,544¹

ON BRIEF

Before BARRETT, CARMICHAEL and CRAWFORD, Administrative Patent Judges.

CRAWFORD, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed October 19, 1992.

Appeal No. 95-4292
Application 07/962,544

This is a decision on an appeal from the examiner's final rejection of claims 5-9 and 11. Claims 1-4 have been withdrawn from consideration and claim 10 has been canceled.

The appellants' claimed subject matter is a monolithic semiconductor device having a field effect transistor and a bipolar junction transistor. Claim 5 is exemplary of the subject matter on appeal and recites:

5. A monolithic semiconductor device having a field effect transistor and a bipolar junction transistor, the bipolar junction transistor further comprising:

a collector of a first dopant type;

a base having an intrinsic concentration of a second dopant type and forming a first PN junction with the collector, the base including (i) an extrinsic contact region characterized by a concentration of the second dopant which is greater than the intrinsic concentration and (ii) a trenched surface;

a pillar structure, comprising the second dopant type, extending from the base and away from the trenched surface;

an emitter of the first dopant type connected to the pillar structure at a surface displaced from the base, the emitter forming a PN junction with the pillar structure.

THE REFERENCES

Appeal No. 95-4292
Application 07/962,544

The following references were relied on by the
examiner:

Havemann 1987	4,703,554	Nov. 3,
Scovell et al. (Scovell) 17, 1988	4,745,080	May

THE REJECTIONS

Claims 5-9 and 11 stand rejected under 35 U.S.C.
§ 103 as being unpatentable over Scovell in view of Havemann.

Rather than reiterate the entire arguments of the
appellants and the examiner in support of their respective
positions with respect to this rejection, we make reference to
the appellants' brief (Paper No. 19), the reply brief (Paper
No. 24) and the examiner's answer (Paper No. 20) for the full
exposition thereof.

OPINION

In reaching our conclusions on the issues raised in
this appeal, we have carefully considered appellants'
specification and claims, the applied references and the

Appeal No. 95-4292
Application 07/962,544

respective viewpoints advanced by the appellants and the examiner. As a consequence of our review, we have made the determinations which follow.

The rejection is one made under 35 U.S.C. § 103. We note that in making a rejection 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 factual determinations 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

Appeal No. 95-4292
Application 07/962,544

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. See, In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We consider first this rejection as it is directed to claim 5. Scovell discloses, as is depicted in Figures 1-7, a collector which is comprised of "n-type" single crystalline silicon (Col. 1, lines 45-46). Mesa 7 is comprised of "n-type" dopant and forms the emitter and does not comprise a pillar structure comprising a second dopant type extending from the base and away from the trenched surface. Nor is the "emitter. . . connected to the pillar structure at a surface displaced from the base"; it is connected at the surface. Mesas 14 are comprised of "n-type" dopant and collector is comprised of n-type material. Therefore, Scovell does not disclose "a collector of a first dopant type . . . a pillar structure, comprising a second dopant type" as recited in claim 5. In addition, alignment mesas 14 do not extend from the base 5 and are not connected to the emitter 7 as required by claim 5. As such, neither mesa 7 nor mesas 14 meet the limitations of claim 5. We have reviewed the disclosure of

Appeal No. 95-4292
Application 07/962,544

Havemann and have found no motivation to modify Scovell in the manner proposed by the examiner. As such, we will not sustain this rejection as it is directed to claim 5 or claim 6 dependent therefrom.

We turn now to claim 7. Scovell discloses a base 5 which is comprised of a first dopant which is "p-type". However, even if the examiner's finding that base 5 includes a trenched extrinsic contact region is correct, Mesa 7 is comprised of "n-type" dopant and forms the emitter and does not comprise a pillar structure comprising a second type extending from the base and away from the trenched surface. Nor is the "emitter. . . connected to the pillar structure at a surface displaced from the base"; it is connected at the surface. Mesas 14 do not comprise the first dopant or "p-type" dopant but are comprised of "n-type" dopant. In addition, mesas 14 are not disposed so as to be "overlying a non-trenched portion" of base 5 as recited in claim 7. Therefore, neither mesa 7 nor mesas 14 meet the limitations recited in claim 7. We have reviewed the disclosure of Havemann and have concluded that Havemann does not cure the deficiencies of the Scovell reference nor provide motivation

Appeal No. 95-4292
Application 07/962,544

to modify the structure of Scovell. Therefore, we will not sustain the examiner's rejection of claim 7 or of claim 8 dependent therefrom.

Claim 9 also recites that the pillar structure and "the semiconductor of a first dopant type having a surface and a pillar extending away from said surface." The mesas 7 and 14 of Scovell do form a pillar extending away from the base 5. The "semiconductor of the second dopant type" is connected to the surface and not to a pillar. We have reviewed the disclosure of Havemann and have concluded that Havemann does not cure the deficiencies of the Scovell reference nor provide motivation to modify the Scovell device as proposed by the examiner. Therefore, we will not sustain the examiner's rejection of claim 9 and claim 11 dependent therefrom.

In view of the foregoing, the decision of the examiner is reversed.

REVERSED

Appeal No. 95-4292
Application 07/962,544

LEE E. BARRETT)	
Administrative Patent Judge)	
)	
)	
)	
MURRIEL E. CRAWFORD)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
JAMES T. CARMICHAEL)	
Administrative Patent Judge)	

WAYNE P. BAILEY
SYMBIOS LOGIC INC.
2001 DANFIELD COURT, MAIL STOP E
FORT COLLINS, CO 80525

Appeal No. 95-4292
Application 07/962,544