

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte JOHN P. ERDELJAC and LOUIS N. HUTTER

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Appeal No. 2000-1389  
Application No. 08/949,826

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ON BRIEF

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Before HAIRSTON, GROSS, and BARRY, Administrative Patent Judges.  
GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 8 through 13 and 19 through 24, which are all of the claims pending in this application.

Appellant's invention relates to a method of forming an EEPROM cell. Claim 8 is illustrative of the claimed invention, and it reads as follows:

8. A method for making a floating gate in an EEPROM cell construction process, comprising the steps of:

(a) providing a semiconductor substrate of first conductivity type;

(b) forming a first doped region of second conductivity type in said semiconductor substrate having a first doping concentration to provide a tank at a surface of said substrate;

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(c) forming in said tank and at the surface of said substrate a second doped region of second conductivity type having a second doping concentration greater than said first doping concentration;

(d) forming a layer of insulation over the surface of said substrate having a first thickness to provide a tunnel region over at least a portion of said second doped region and a greater thickness over any remaining portion of said second doped region and elsewhere; and

(e) forming said floating gate of a material capable of holding an electrical charge above said second doped region and at least a portion of said first doped region on said layer of insulation, said floating gate extending laterally beyond lateral boundaries of the second doped region in every direction, at least a portion of said floating gate extending over said larger thickness of said layer of insulation.

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Santin et al. (Santin)	5,411,908	May 02, 1995
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The amendment filed April 15, 1996 stands objected to under 35 U.S.C. § 132 as introducing new matter. Similarly, the proposed drawing correction filed April 15, 1996 stands disapproved for introducing new matter.

Claims 8 through 13 and 24 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

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Claims 19 and 21 through 23 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over Santin.

Claim 20 stands rejected under 35 U.S.C. § 103 as being unpatentable over Santin.

Reference is made to the Examiner's Answer (Paper No. 23, mailed December 8, 1999) for the examiner's complete reasoning in support of the rejections, and to appellants' Brief (Paper No. 22, filed November 4, 1999) and Reply Brief (Paper No. 25, filed January 13, 2000) for appellants' arguments thereagainst.

#### OPINION

We have carefully considered the claims, the applied prior art reference, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will reverse the rejection of claims 8 through 13 and 24 under 35 U.S.C. § 112, first paragraph, also reverse both the anticipation rejection of claims 19 and 21 through 23 and the obviousness rejection of claim 20.

Before we can decide the propriety of the rejection of the claims under 35 U.S.C. § 112, first paragraph, we should determine whether the amendments to the specification and drawings constitute new matter. Specifically, the examiner objects to two changes to the specification: amending "less" to "more" on page 5, line 20, and on page 6, line 10, and amending

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"n" to "n+" on page 13, line 2. Also, the examiner objects to the corresponding proposed drawing correction changing "n-" to "n+" in Figures 1 and 2A-2D. Lastly, the examiner objects to amending Figure 1 to differentiate between tank and moat regions "when they mean the same thing in the specification" (Answer, page 3).

Regarding the first change to the specification, appellants clearly state in the specification that the first and second doped regions (elements 13 and 46, respectively) are both of the second conductivity type and that the second doped region (46) is a further doped part of already doped first region (13). Thus, the second doped region must have a greater doping concentration than the first doped region as it is doped a first time with the first doped region and a second time by itself. Therefore, page 5, line 20, and page 6, line 10, where the specification reads that the second doping concentration is less than the first, are clearly in error and should be changed as amended to be consistent with the rest of the disclosure. Accordingly, we find that no new matter has been added by the amendment.

As to the amendment of "n" to "n+" on page 13, line 2, and in the drawings, the original disclosure (page 10, lines 10-11) read, "The tunnel diode region 16 has an n+ doped diffused tunnel region 46 below a rectangular tab portion 20 ...." Thus, there

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is support in the original disclosure for making element 46 "n+", and the portions of the specification and drawings that have something other than n+ for element 46 should be changed as amended to be consistent with the rest of the disclosure. Therefore, we find that no new matter has been added by the amendment.

We further disagree with the examiner's assertion that tank and moat regions mean the same thing in the specification. Appellants do differentiate between the two elements on page 14 of the original disclosure. Specifically, line 5 reads "tank region 13," whereas line 18 reads "active moat region 40." Although other portions of the original disclosure recited "tank or moat region 13," appellants amended many of them to differentiate between the two terms without objection from the examiner. Accordingly, as the specification differentiates between "moat" and "tank," Figure 1 should also be amended to differentiate between the two terms. Thus, we find that the amendment to Figure 1 does not introduce new matter.

Turning now to the rejection of the claims as including new matter, we find that the original specification supports the present claims. In particular, the examiner rejects claims 8 through 13 and 24 under 35 U.S.C. § 112, first paragraph, asserting that the specification as originally filed fails to

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provide support for forming the second doped region with a doping concentration higher than the first doping concentration of the tank. However, as explained *supra*, the method disclosed in the specification as originally filed forms the second doped region with a higher concentration than the first doped region, and any disclosure to the contrary is clearly in error. Consequently, we cannot sustain the rejection of claims 8 through 13 and 24 under 35 U.S.C. § 112, first paragraph.

Regarding the anticipation rejection, independent claim 19 recites, in pertinent part, "forming a tunnel region in said tank region of the same conductivity type as said tank region." In Santin, the examiner (Answer, page 4) points to elements 32 and 13 as the tank and tunnel regions, respectively. Elements 32 and 13 are both disclosed as being of an n-conductivity type, thereby satisfying the limitation that they are of the same conductivity type. However, element 13 is a column line buried in P-tank 11, not a tunnel region formed in tank region 32 as recited in the claims. Therefore, Santin fails to meet each and every element of claim 19 and the claims dependent therefrom and, consequently, cannot anticipate the claims. Accordingly, we cannot sustain the anticipation rejection of claims 19 and 21 through 23.

The examiner's rejection of claim 20 relies on the same interpretation of Santin that we found above to be deficient.

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Therefore, we will not sustain the obviousness rejection of claim  
20.

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CONCLUSION

The decision of the examiner rejecting claims 8 through 13 and 24 under 35 U.S.C. § 112, first paragraph, claims 19 and 21 through 23 under 35 U.S.C. § 102, and claim 20 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
ANITA PELLMAN GROSS	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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	)	
LANCE LEONARD BARRY	)	
Administrative Patent Judge	)	

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