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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,610	03/31/2000	James E. Nulty	16820.P097	2171

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EXAMINER

CHU, CHRIS C

ART UNIT PAPER NUMBER

2815

DATE MAILED: 09/11/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/540,610

Applicant(s)

NULTY ET AL.

Examiner

Chris C. Chu

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 20 May 2002.
- 2a)  This action is **FINAL**.                      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 25 - 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 25 - 39 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All   b)  Some \*   c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a)  The translation of the foreign language provisional application has been received.
- 15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)

4)  Interview Summary (PTO-413) Paper No(s).

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's amendment filed on May 20, 2002 has been received and entered in this office action.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 25 and 27 ~ 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dennison et al. in view of Figura et al.

Regarding claim 25, Dennison et al. discloses in column 3, line 35 the etch stop material (20) being silicon nitride.

Regarding claim 27, Dennison et al. discloses in Fig. 2 a structure (10), comprising:

- a conductive layer (12 and column 3, lines 29 ~ 33) disposed over a substrate;
- a first insulating layer (18) on the conductive layer;
- a contact region (the area of 34) in the first insulating layer;

- at least one insulating spacer (18) in the contact region adjacent to the first insulating layer (see Fig. 2); and
- an etch stop material (20 and column 3, line 35) over the first insulating layer and adjacent to the insulating spacer (see Fig. 2).

Dennison et al. does not disclose the etch stop material being a different material from the insulating spacer. However, Figura et al. discloses in Fig. 1 an etch stop material (column 4, lines 51 and 52) being a different material from the insulating spacer (column 4, lines 11 and 12). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Dennison et al. by using different materials for the etch stop material and the insulating spacer as taught by Figura et al. The ordinary artisan would have been motivated to modify Dennison et al. in the manner described above for at least the purpose of minimizing current leakage and short circuits (column 2, lines 36 ~ 38).

Regarding claim 28, Dennison et al. discloses in Fig. 2 the insulating spacer (18) having a substantially rectangular profile in the contact region (see Fig. 2).

Regarding claims 29 and 36, Dennison et al. discloses in Fig. 2 the insulating spacer (18) having a surface portion in the contact region without overlying etch stop material (see Fig. 2).

Regarding claims 30 and 37, Dennison et al. discloses in Fig. 2 the insulating spacer (18) surface portion without overlying etch stop material comprising an insulating spacer surface portion most distant from the substrate (see Fig. 2).

Regarding claim 31, Dennison et al. discloses in Fig. 2 the insulating spacer (18) having a surface portion in the contact region without overlying etch stop material (see Fig. 2).

Regarding claims 32 and 38, Dennison et al. discloses in Fig. 2 a structure (10), further comprising a second insulating layer (28) on the etch stop layer and over the conductive layer (see Fig. 2).

Regarding claims 33 and 39, Dennison et al. discloses in Fig. 2A a structure (10), further comprising a second conductive material (40) in the contact region (see Fig. 2A).

Regarding claim 34, Dennison et al. discloses in Fig. 2 a structure, comprising the step of:

- a first electrically conductive material (24) formed in and/or on a surface of a substrate;
- a contact opening (the area of 34) in a region adjacent to a second electrically conductive material (the area of 40 in Fig. 2A) formed on the substrate;
- an electrically insulative spacer (18) in the contact opening adjacent to the second electrically conductive material (see Fig. 2);
- an etch stop material (20) over the electrically insulative spacer and the first and second electrically conductive materials (see Fig. 2);
- a blanket layer (28) over the etch stop material; and
- an opening through a first part of the etch stop material to the first electrically conductive material (see Fig. 2).

Dennison et al. does not disclose the etch stop material being a different material from the insulating spacer. However, Figura et al. discloses in Fig. 1 an etch stop material (column 4, lines 51 and 52) being a different material from the insulating spacer (column 4, lines 11 and 12).

Thus, it would have been obvious to one of ordinary skill in the art at the time when the

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