

[54] **SCHOTTKY BARRIER DIODE HAVING CHARGEABLE FLOATING GATE**

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[57]

ABSTRACT

A Schottky barrier diode having an encircling floating polycrystalline silicon gate which becomes charged upon avalanche breakdown of the diode. The gate is self-aligned with respect to the Schottky barrier diode metal so that the gate uniformly overhangs the depletion area in the semiconductor when the diode is reverse biased. The gate is insulated from the semiconductor material and from the metal by dielectric layers including silicon dioxide and silicon nitride.

Related U.S. Application Data

[63] Continuation of Ser. No. 437,120, Jan. 28, 1974, abandoned.

[51] Int. Cl.² **H01L 29/48**

[52] U.S. Cl. **357/15; 357/13; 357/23; 357/52; 357/53; 357/59; 307/238**

6 Claims, 1 Sheet Drawing,

7 Pages Specification

The file of this unexamined application may be inspected and copies thereof may be purchased (849 O.G. 1221, Apr. 9, 1968).

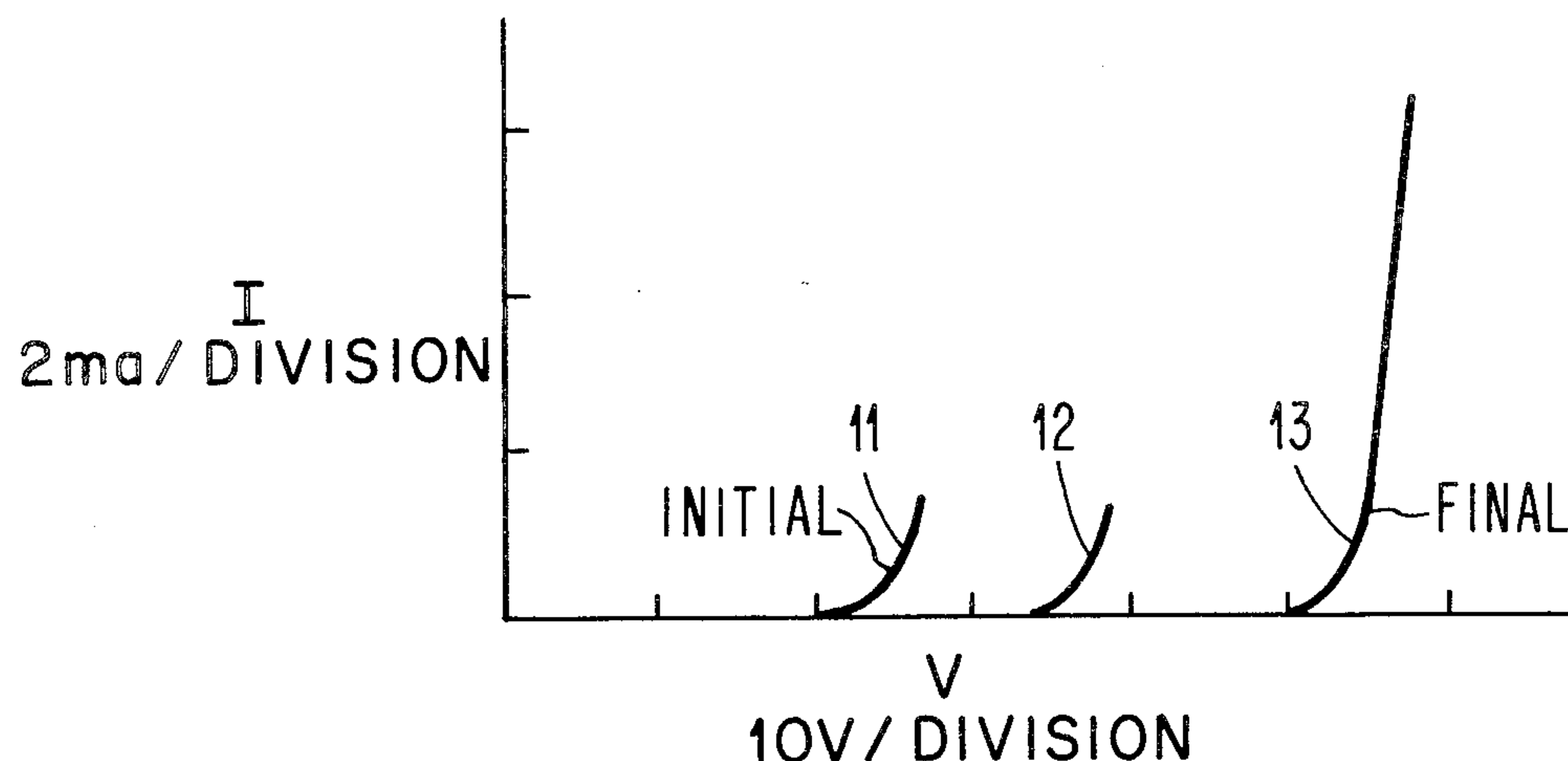
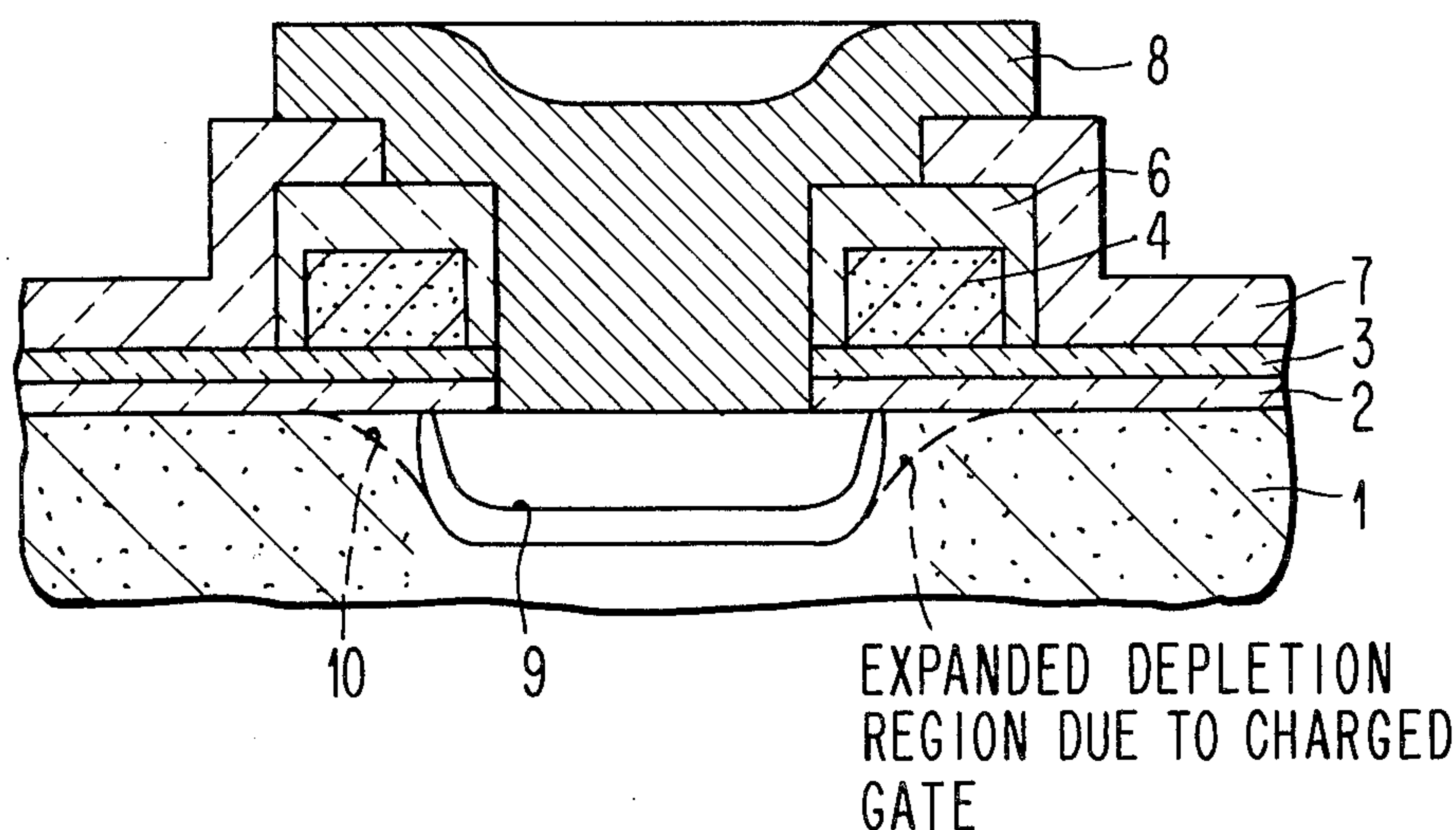


FIG. 1A

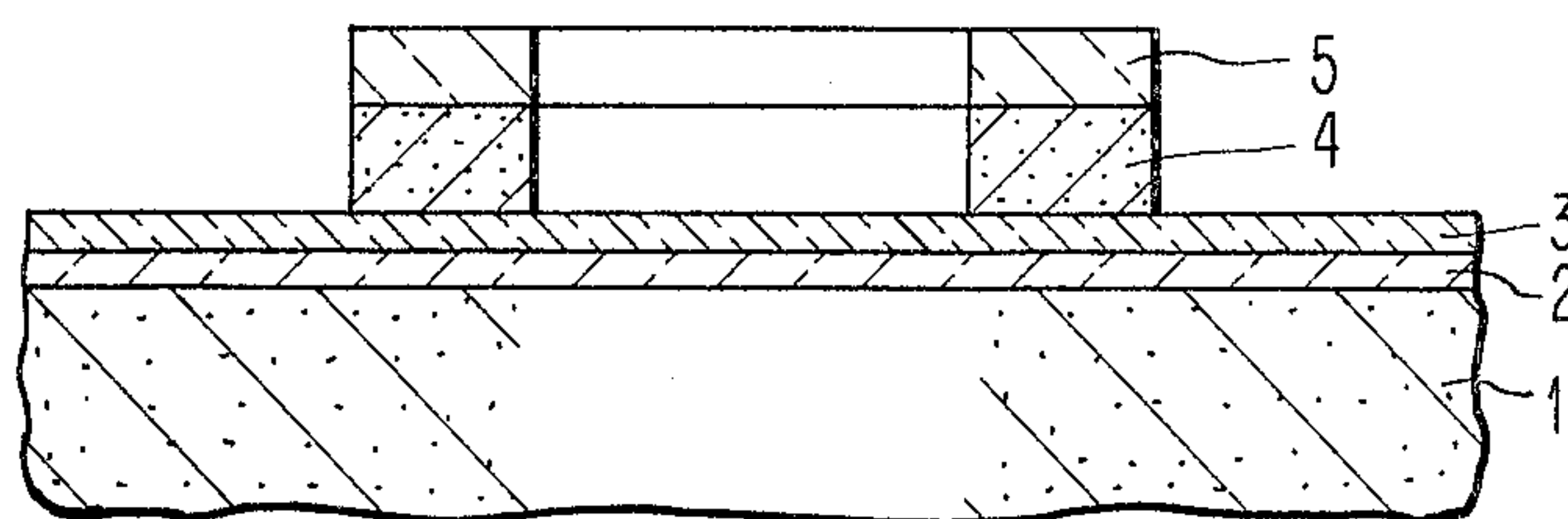


FIG. 1B

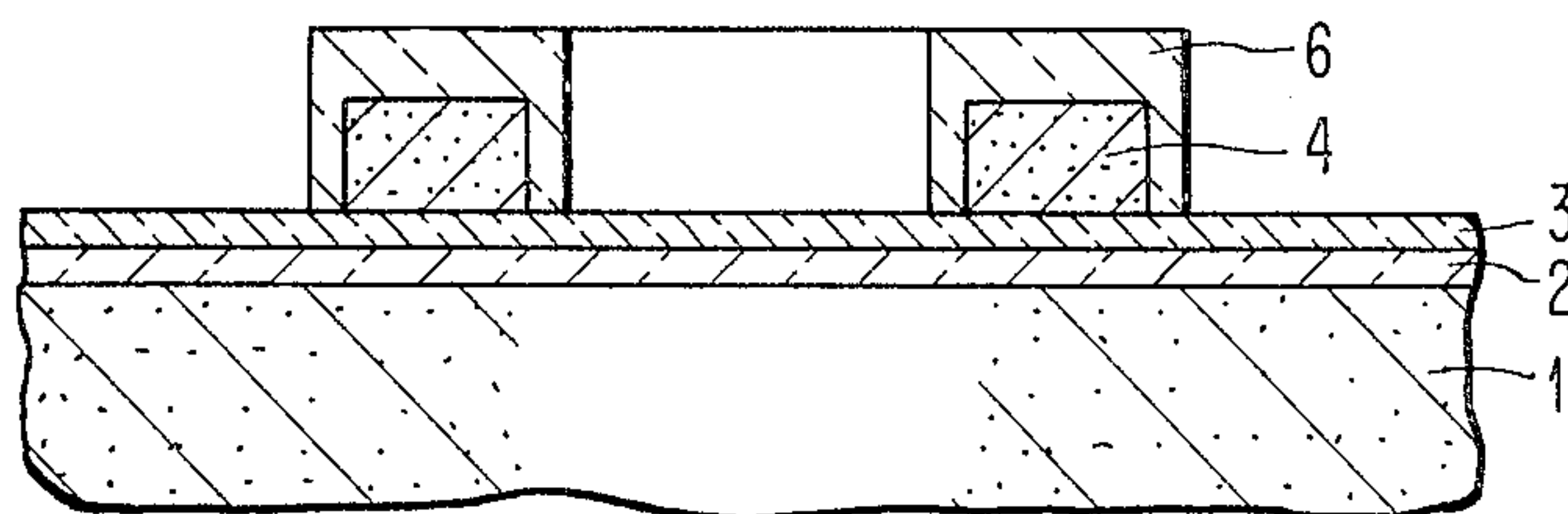


FIG. 1C

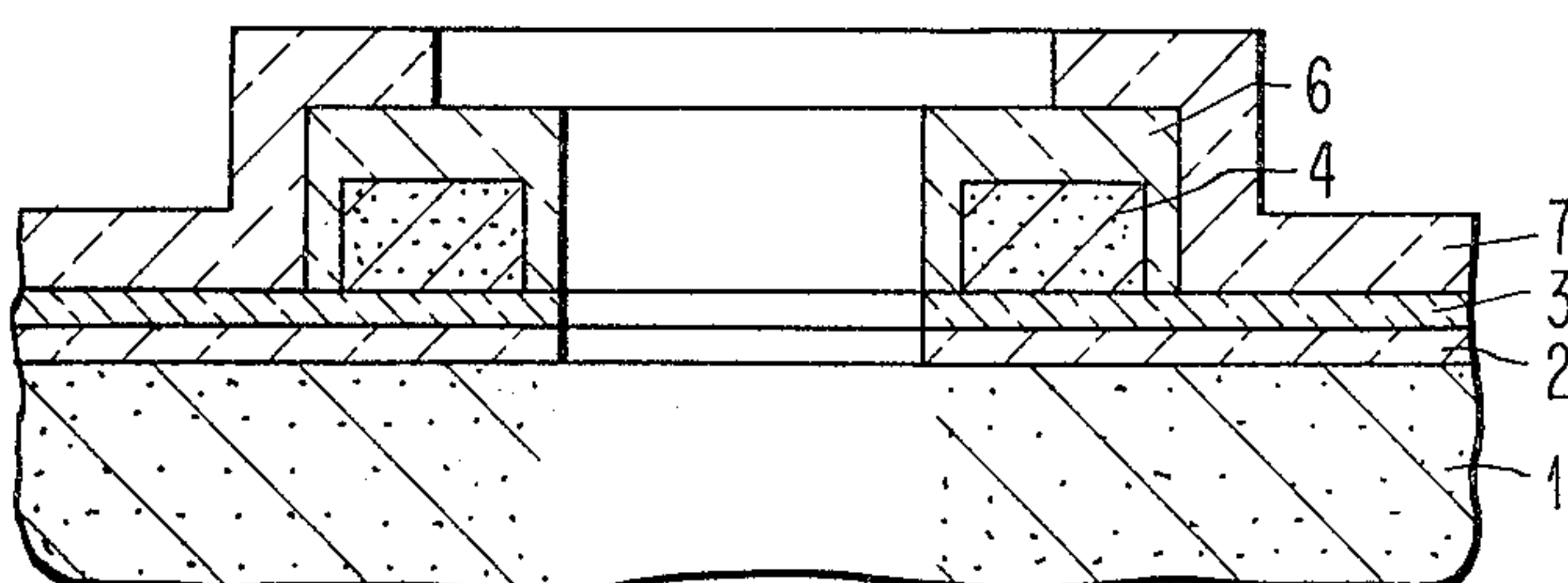
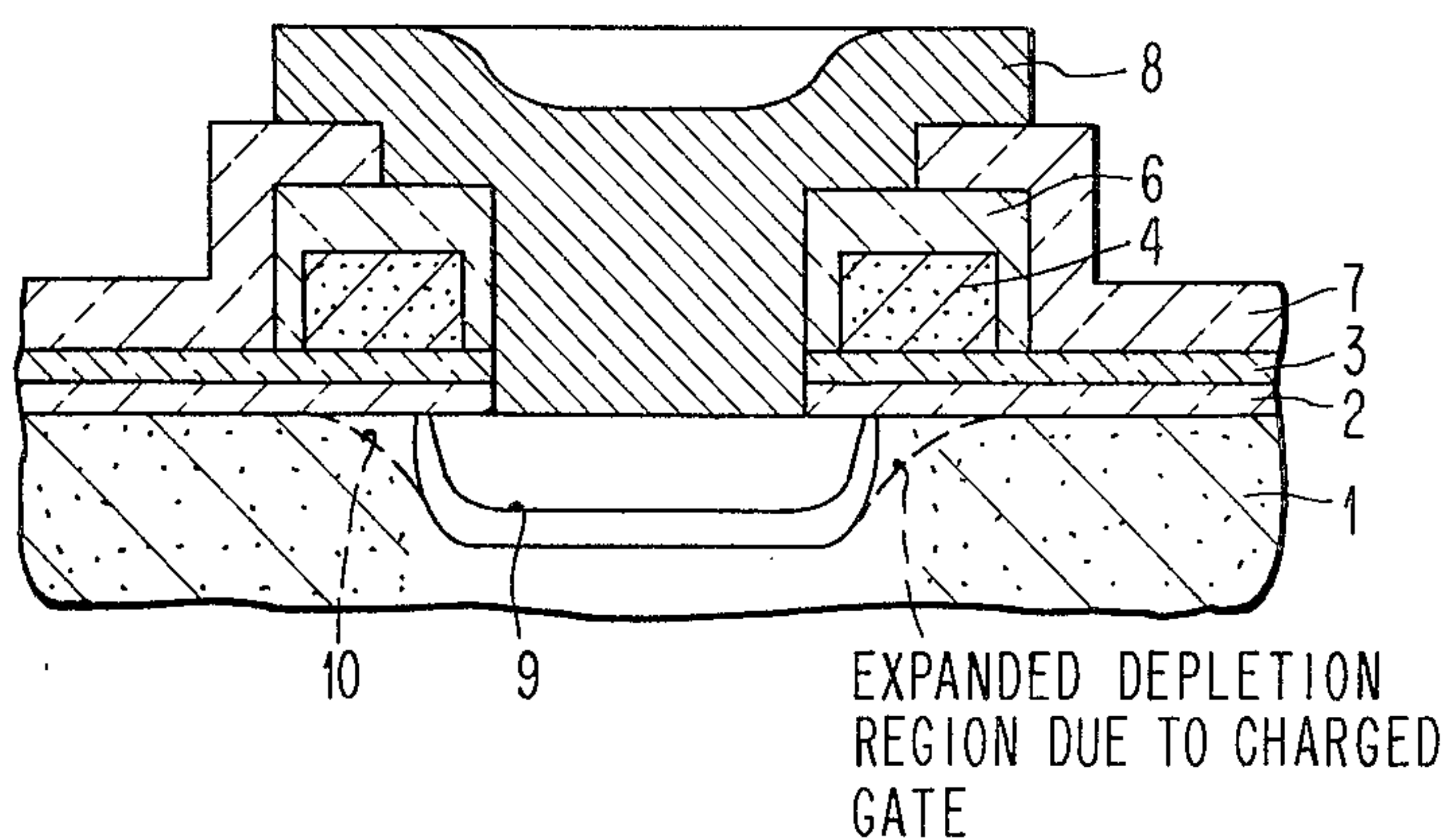


FIG. 1D



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FIG. 2

