

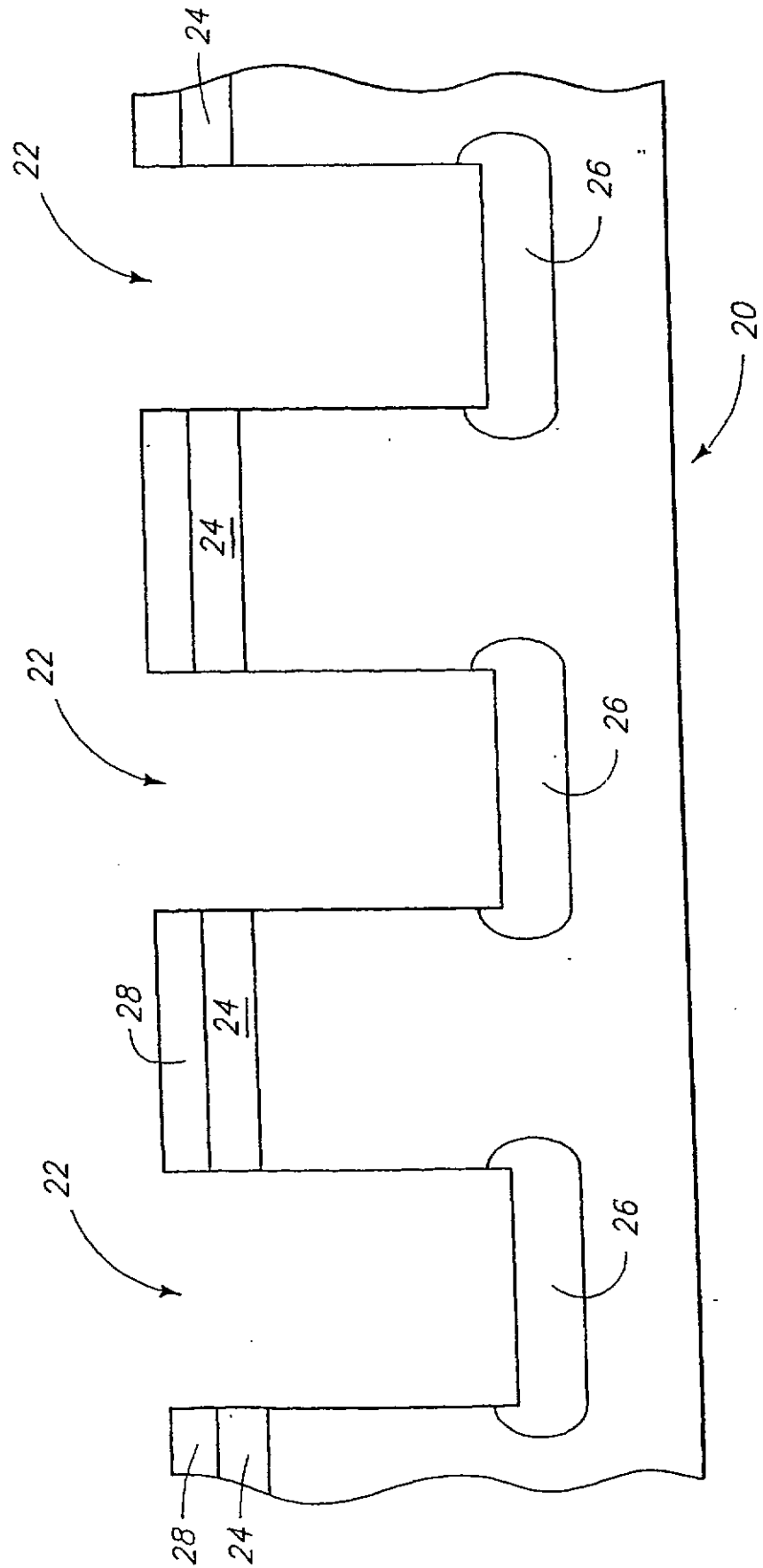


Fig. 1

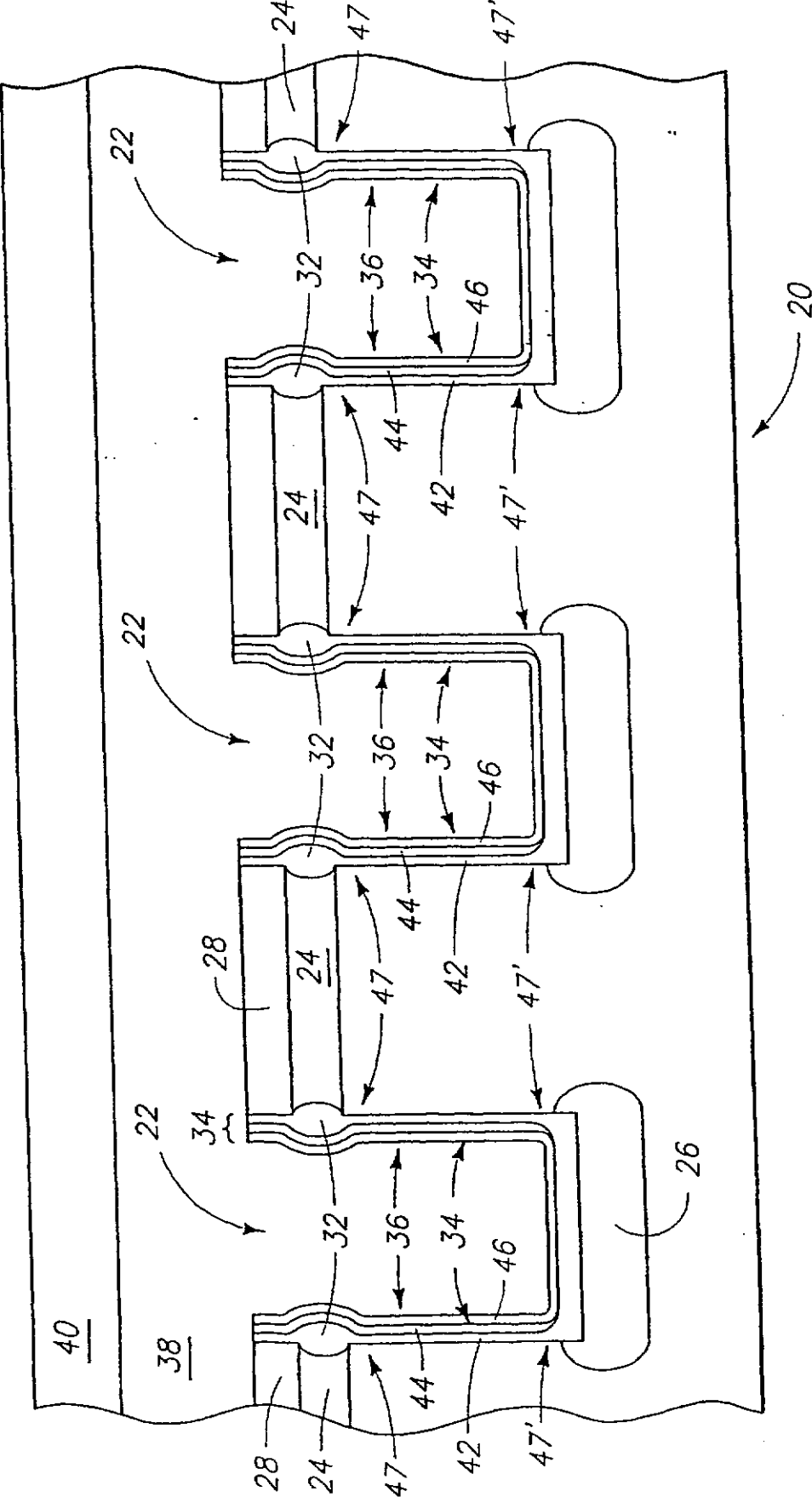


Fig. 2

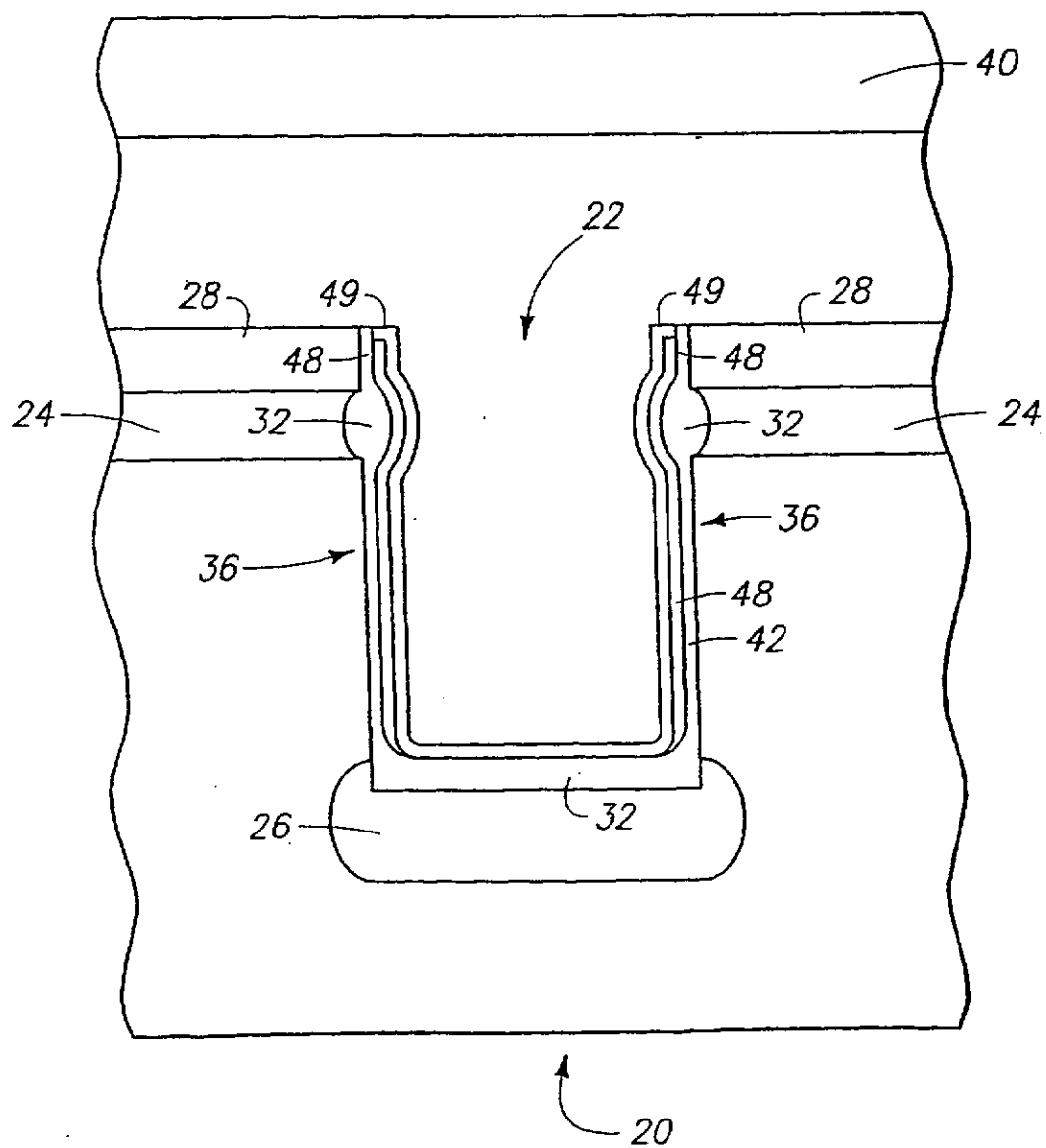


Fig. 3

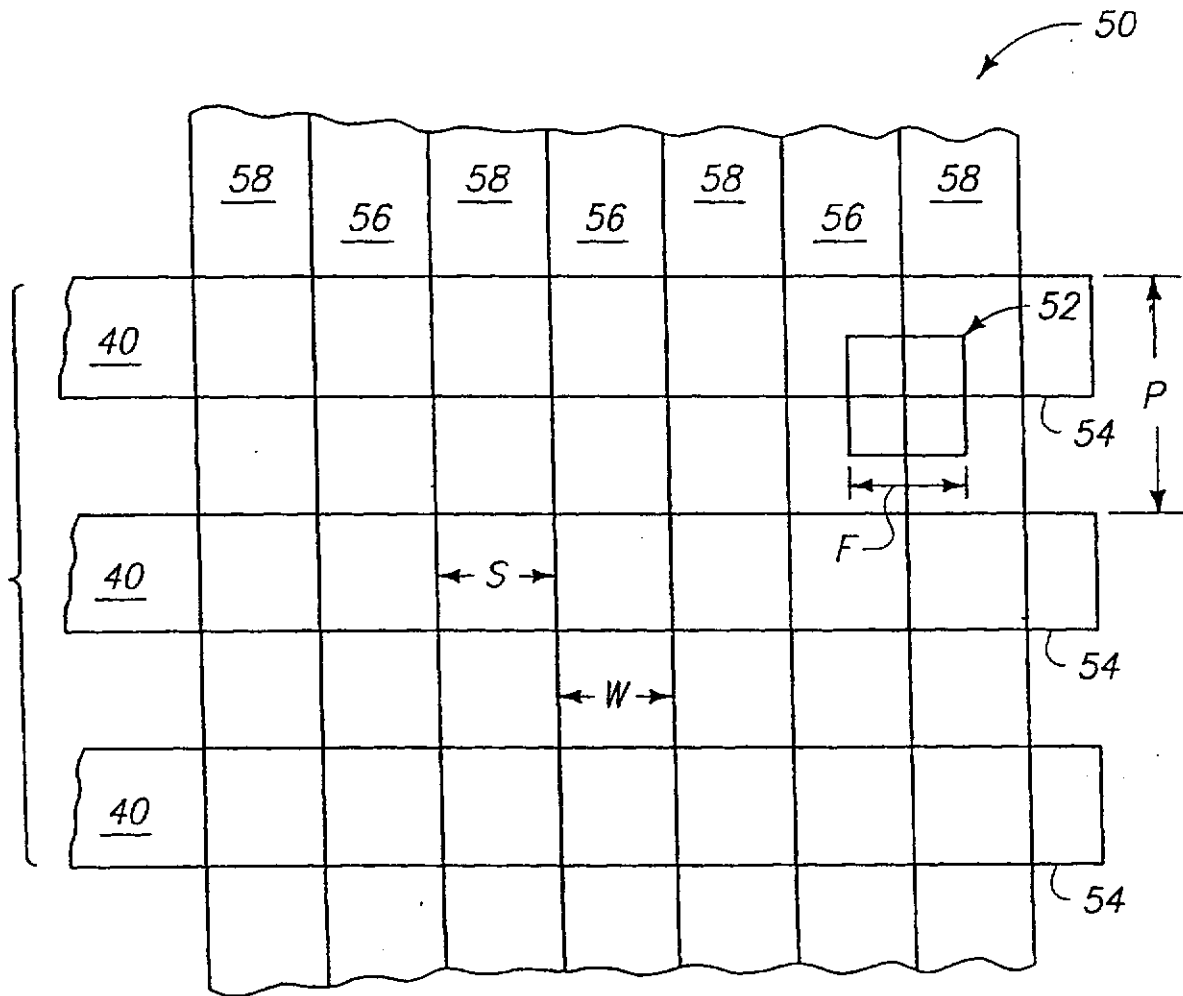


Fig. 4

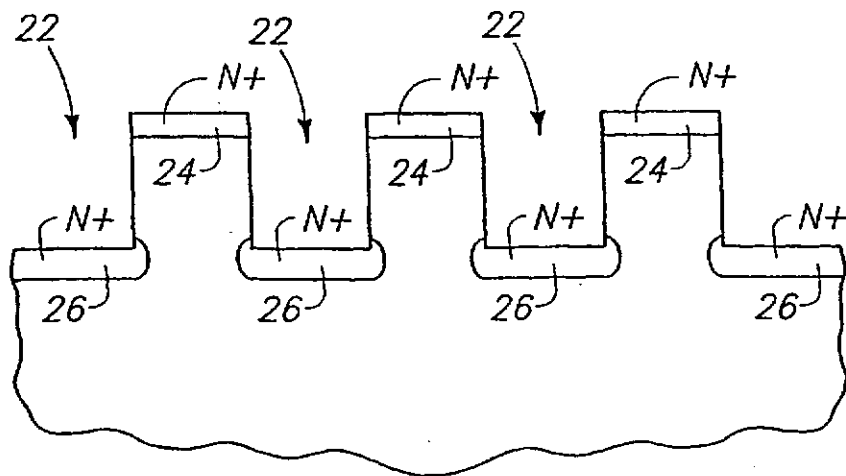


Fig. 5

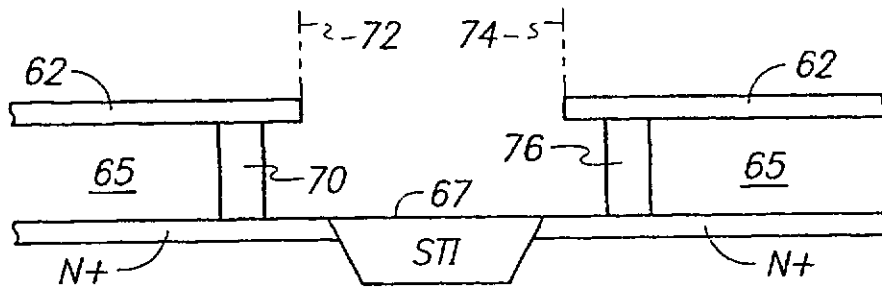


Fig. 7

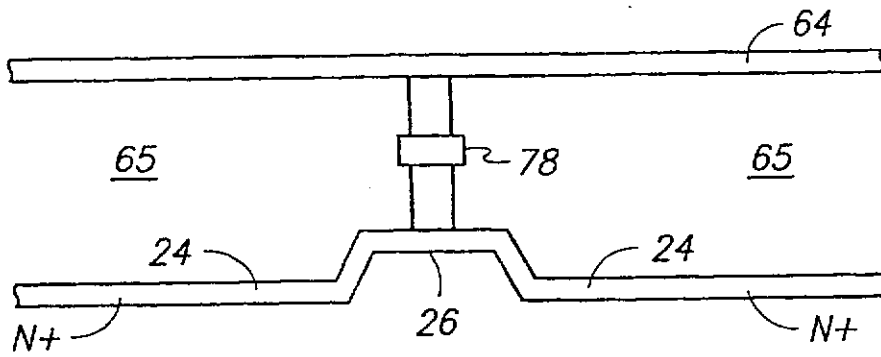


Fig. 8

A graph showing the relationship between $\sqrt{I_{DS}}$ (Y-axis) and V_{GS} (X-axis). The graph illustrates the effect of trapped electrons and mobility degradation on the device characteristics. Two sets of curves are shown, each consisting of a solid line and a dashed line. The dashed lines represent the ideal or initial state, while the solid lines represent the state after degradation. The shift to the right of the dashed lines is labeled ΔV_T DUE TO TRAPPED ELECTRONS. The change in slope of the solid lines is labeled CHANGE IN SLOPE MOBILITY DEGRADATION.

Fig. 9C

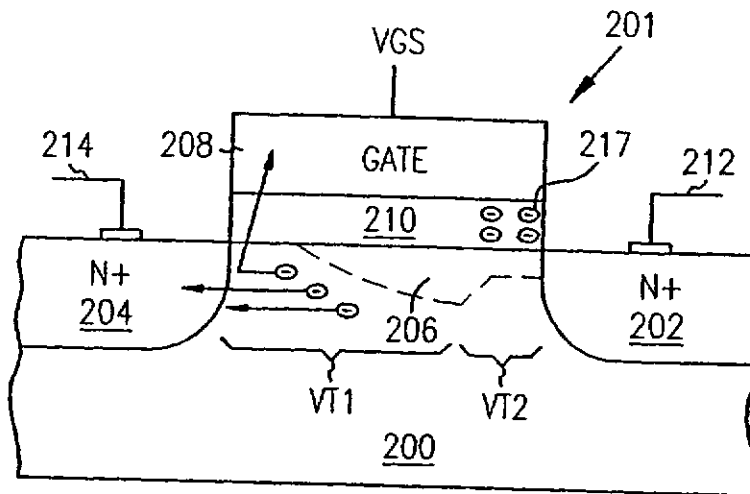


Fig. 10A

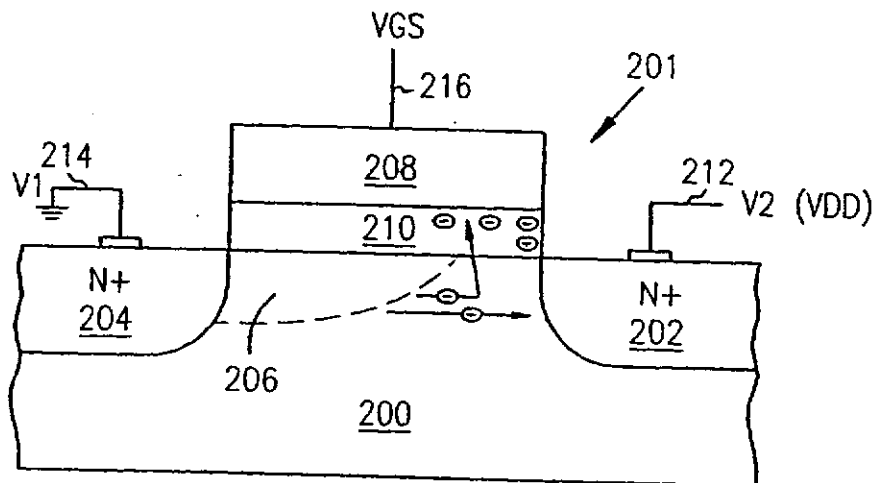


Fig. 10B

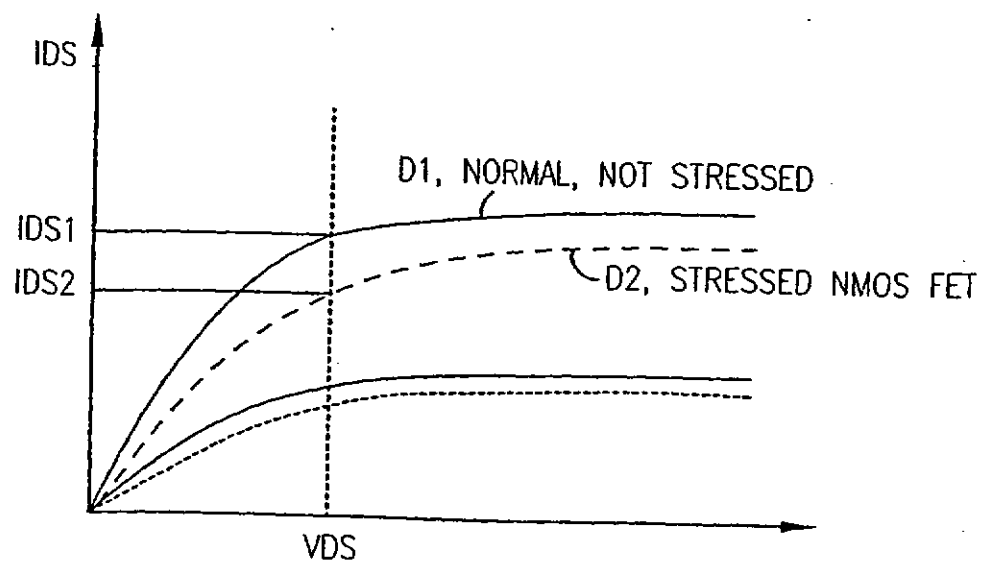


Fig. 10C

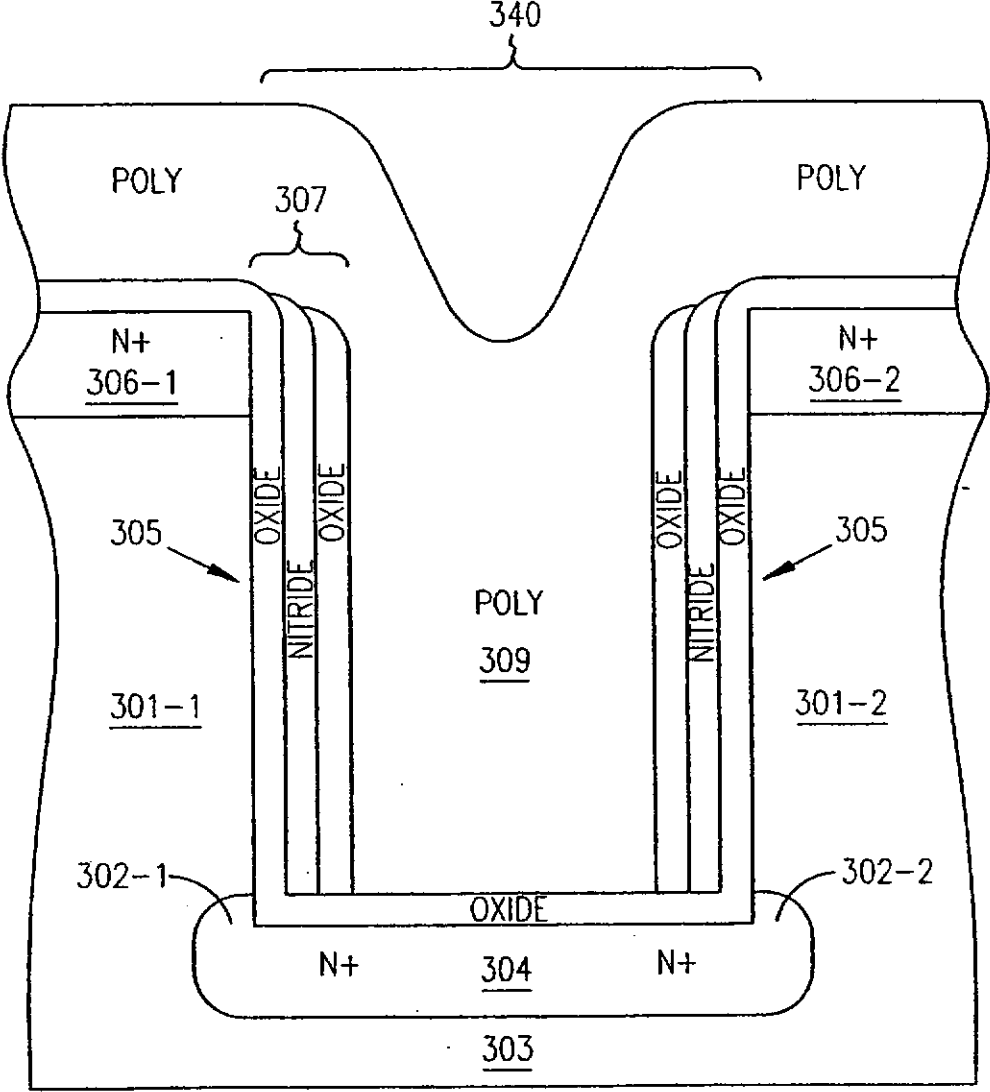


Fig. 11

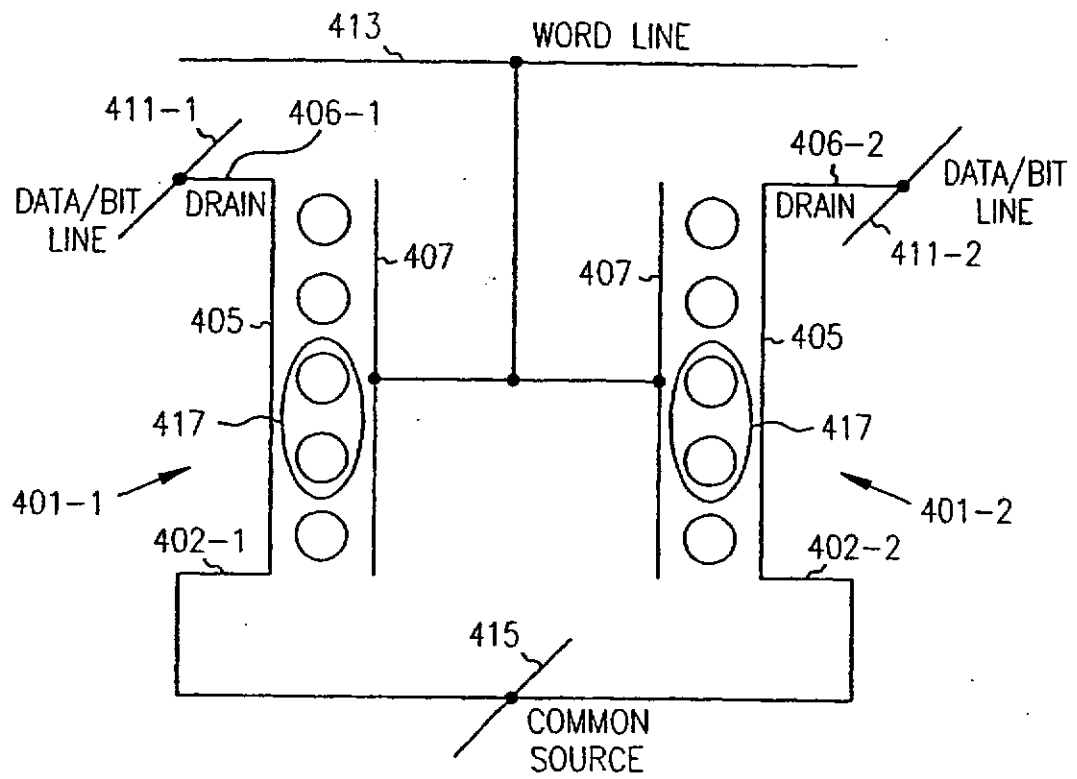


Fig. 12

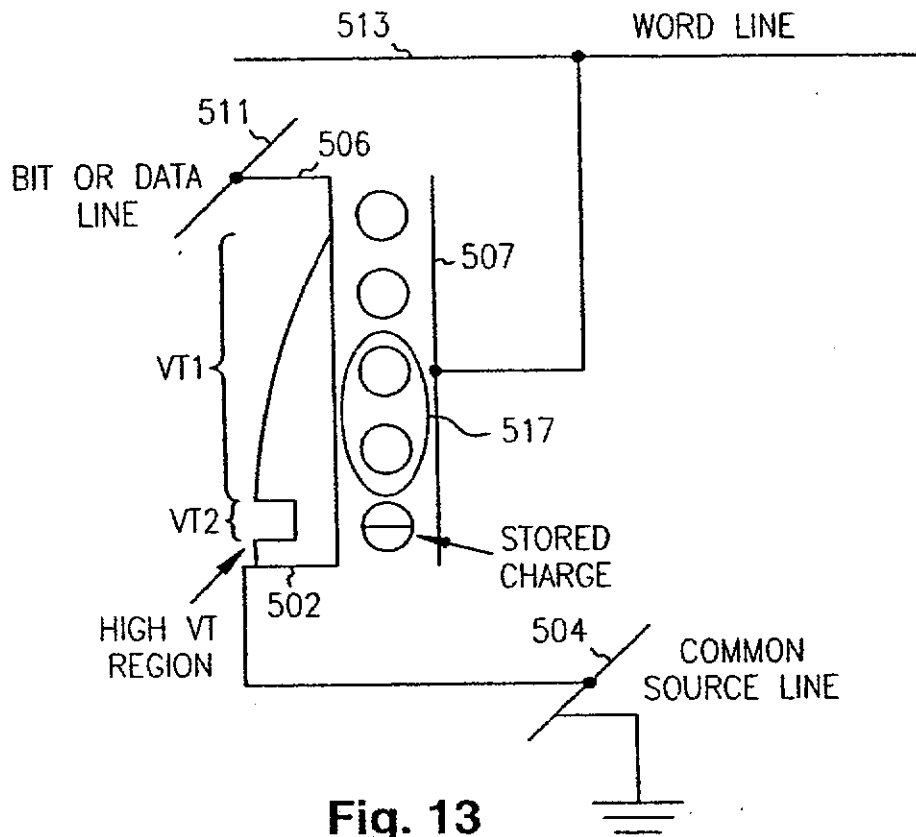


Fig. 13

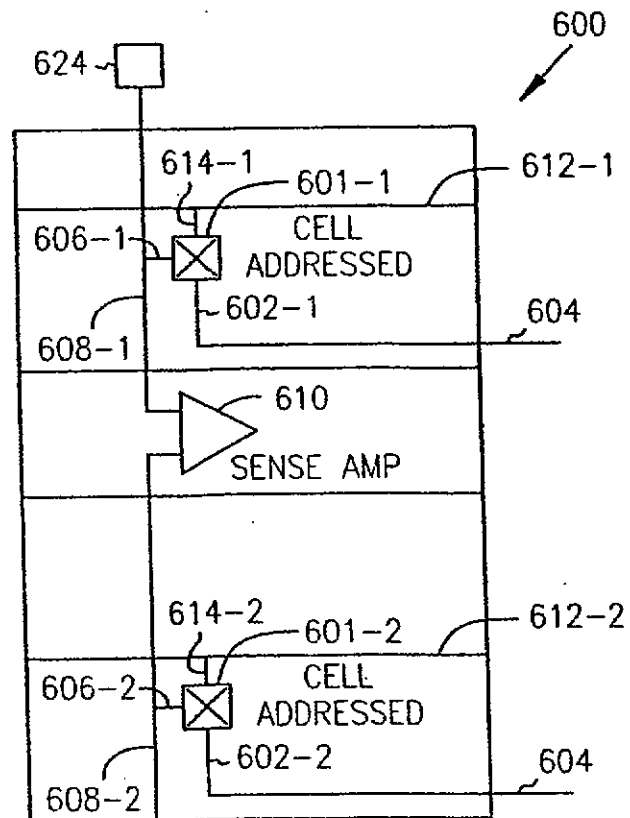
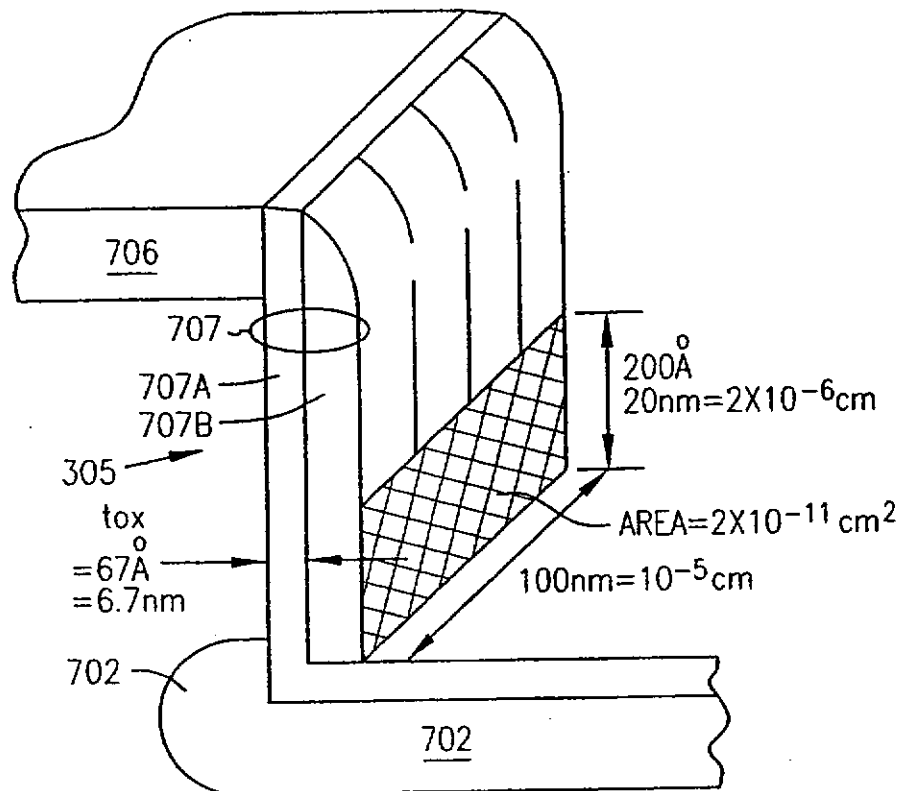


Fig. 14



$$C_{ox} = \frac{1.06 \times 10^{-12}}{3 \times 6.7 \times 10^{-7}} = 0.5 \times 10^{-6} \text{ F/cm}^2$$

$$C_{ox} = 0.5 \times 10^{-6} \text{ F/cm}^2 \times 2 \times 10^{-11} \text{ cm}^2 = 10^{-17} \text{ F}$$

$$\Delta V = 1.6 \text{ V} \quad Q = C \Delta V = 1.6 \times 10^{-17} \text{ COULOMBS}$$

$$Q = Nq$$

$$N = \frac{160 \times 10^{-19} \text{ COULOMBS}}{1.6 \times 10^{-19} \text{ COULOMBS}} = \frac{160}{1.6} = 100 \text{ ELECTRONS}$$

Fig. 15A

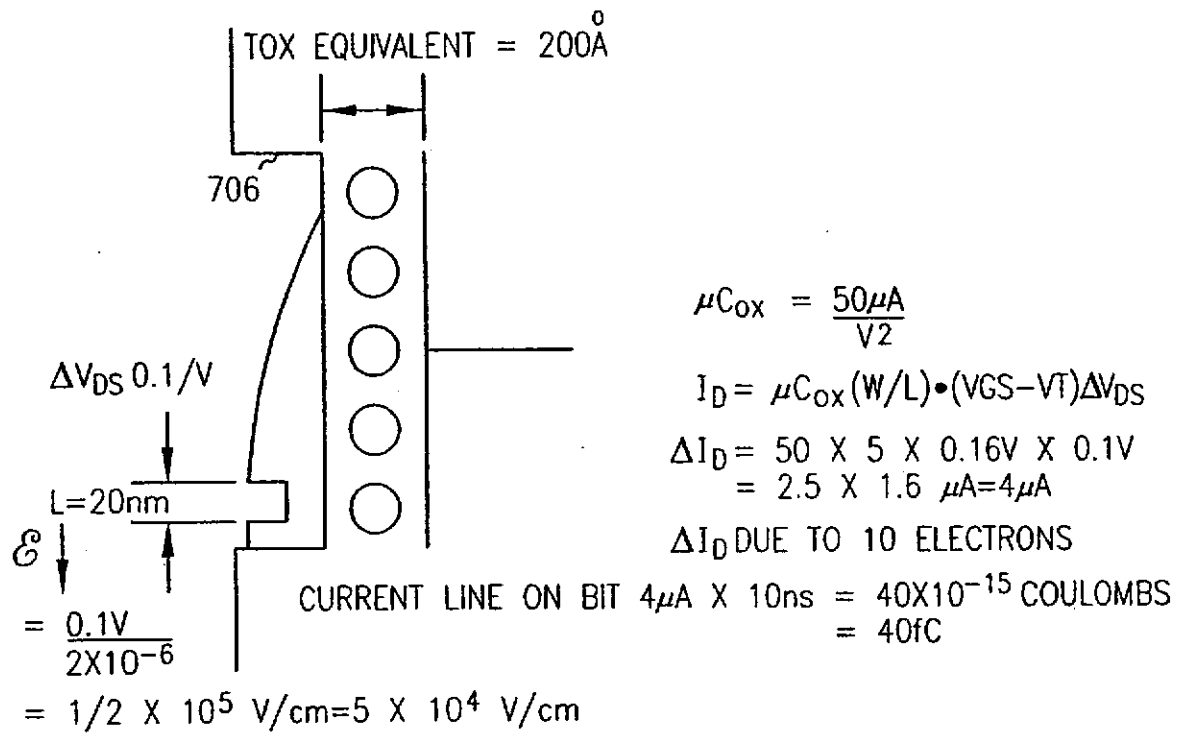


Fig. 15B

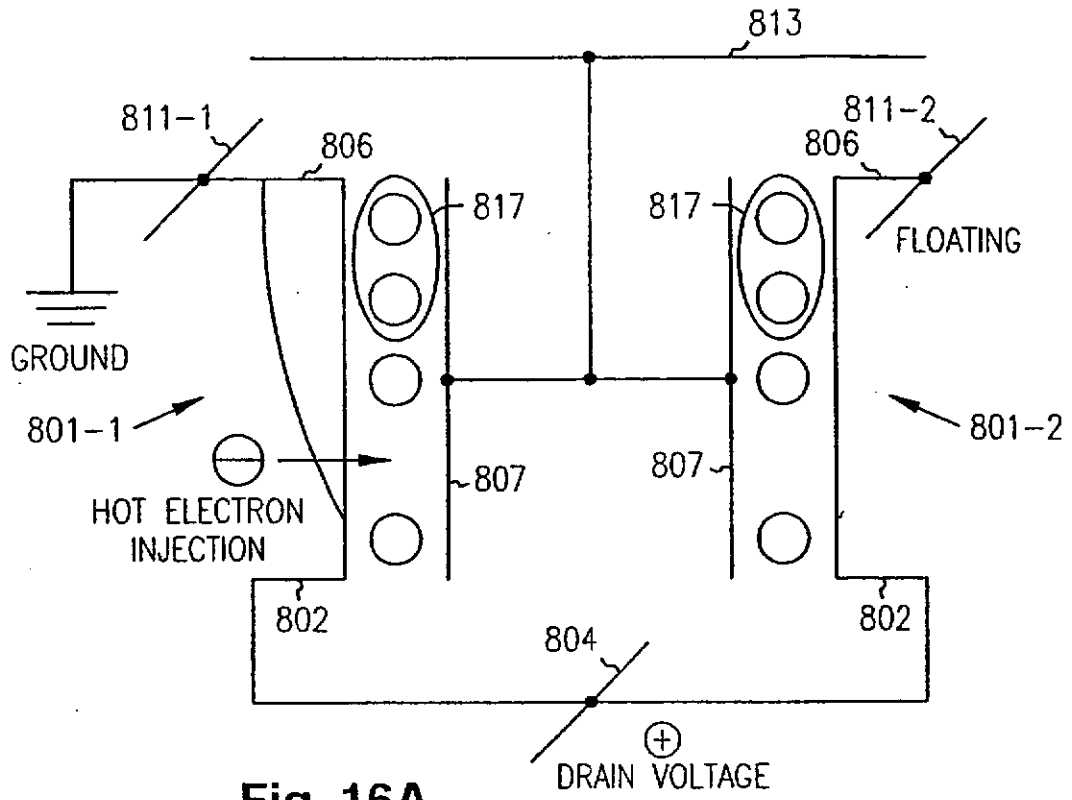


Fig. 16A

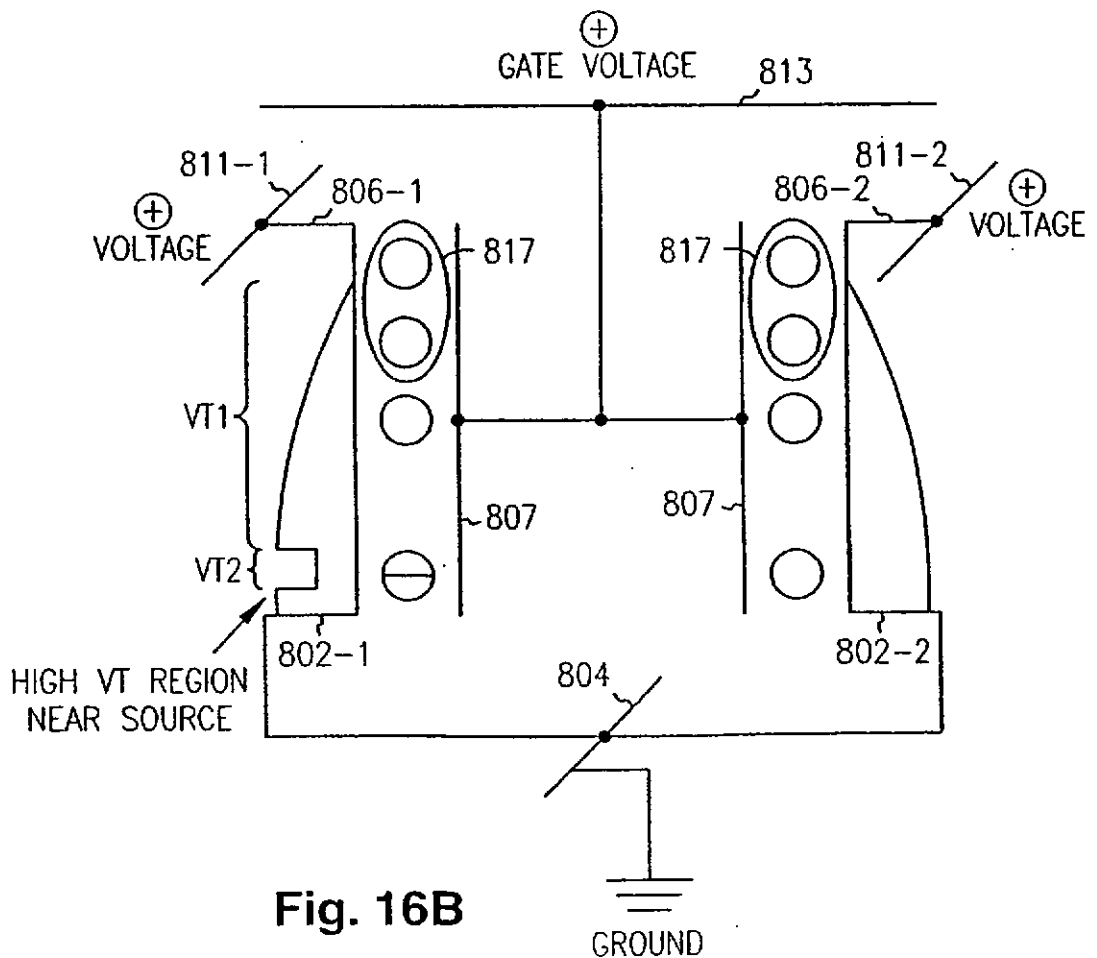


Fig. 16B

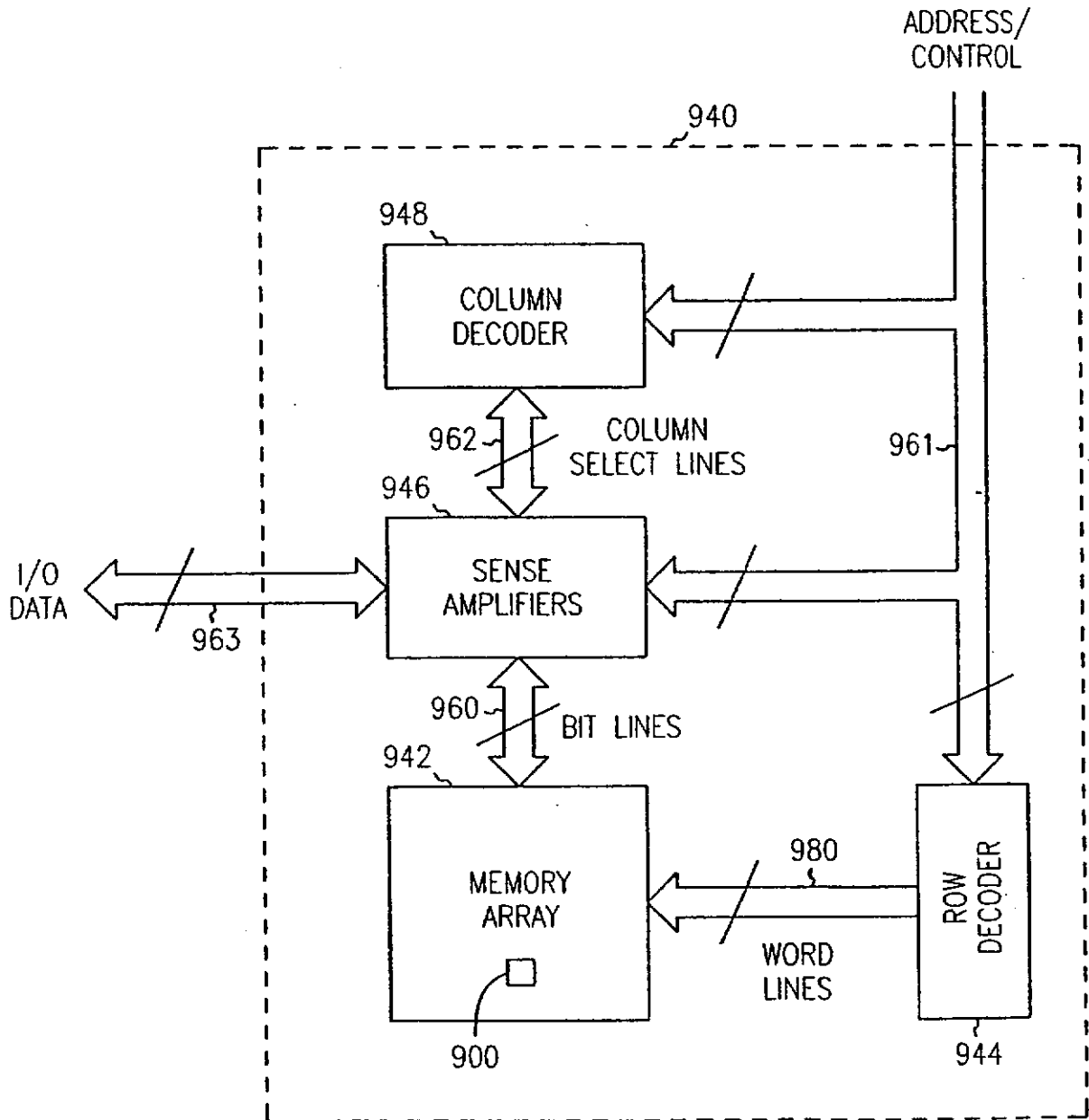


Fig. 17

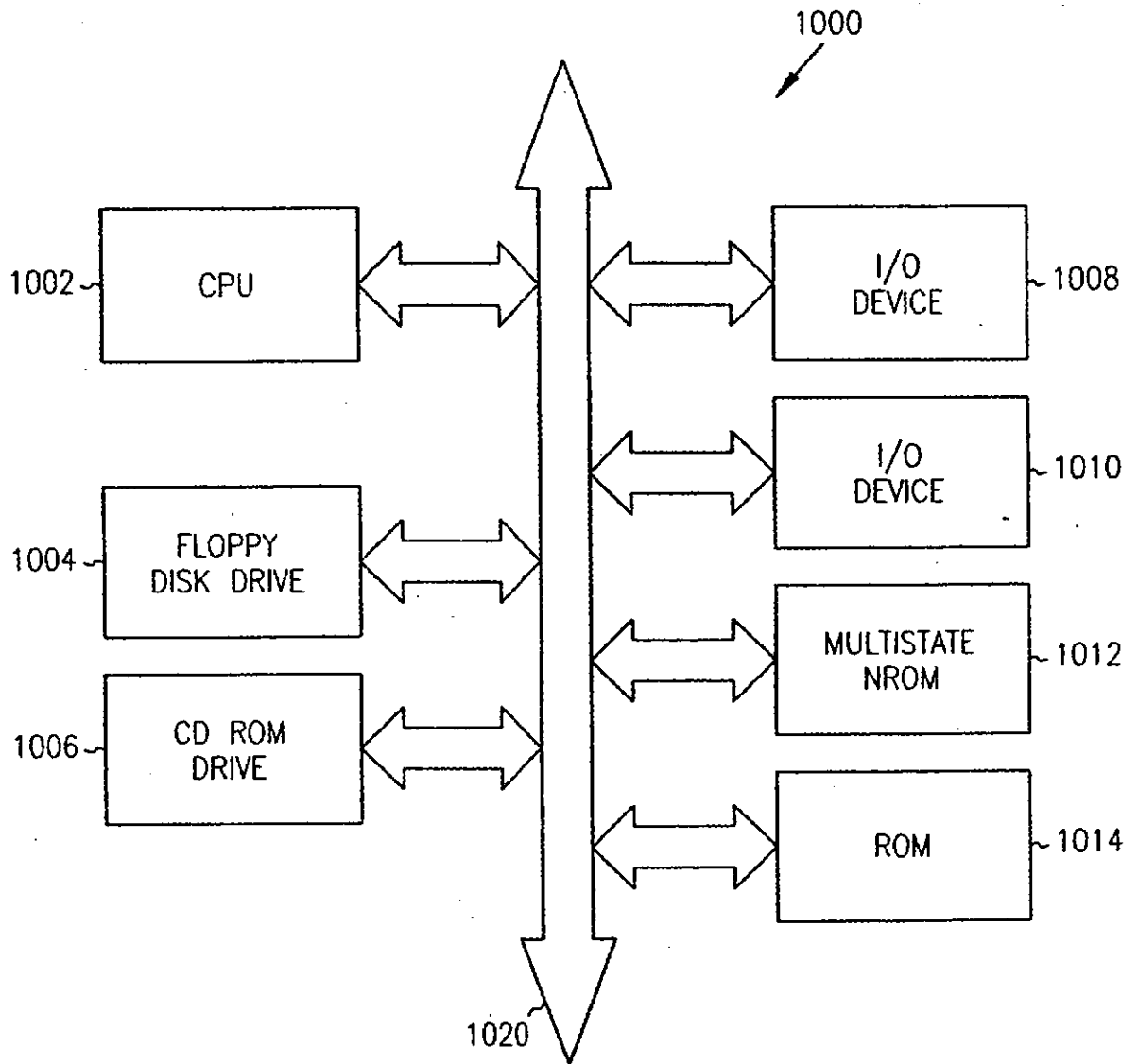


Fig. 18