MAGNETORESISTANCE SENSOR WITH ENHANCED MAGNETORESISTIVE EFFECT

ABSTRACT

A magnetoresistive (MR) sensor (400) having end regions separated from each other by a central region. Hard bias layers (442, 444) disposed in the end regions longitudinally bias an MR layer which is formed in the central region. A soft adjacent layer (SAL) (454) is utilized to transversely bias the MR layer. The MR layer and the hard bias layers (442, 444) are electrically insulated from the SAL (454) by an insulator. The SAL magnetization is fixed through exchange coupling with an antiferromagnetic layer. Separating the MR layer and the hard bias layers from the SAL (454) by an insulator prevents the sense current from flowing in the SAL (454) thus improving the MR effect.

Fig. 4B