

comprises a magnetoresistive-effect layer, a soft magnetic layer, and a nonmagnetic layer wherein said magnetoresistive-effect layer and said soft magnetic layer are laminated with said nonmagnetic layer interposed therebetween.

107. A method for manufacturing a magnetoresistive-effect device according to claim 99, wherein said free magnetic layer comprises a plurality of soft magnetic thin films having different magnetic moments and nonmagnetic material layers, which are alternately laminated with one soft magnetic thin film separated from another by one nonmagnetic material layer, and said free magnetic layer is in a ferrimagnetic state in which the magnetization directions of adjacent soft magnetic thin films, separated by the nonmagnetic material layer, are aligned antiparallel to each other.

108. A method for manufacturing a magnetoresistive-effect device according to claim 107, wherein, in the step of depositing said bias layers, the magnetic coupling junction between said multilayer film and said bias layer is fabricated of an interface with the end face of only one of the plurality of the soft magnetic thin films forming said free magnetic layer.

109. A method for manufacturing a magnetoresistive-effect device according to claim 99, wherein said pinned magnetic layer comprises a plurality of soft magnetic thin films having different magnetic moments and nonmagnetic material layers, which are alternately laminated with one soft magnetic thin film separated from another by one nonmagnetic material layer, and said pinned magnetic layer is in a ferrimagnetic state in which the magnetization directions of adjacent soft magnetic thin films, separated by the nonmagnetic material layer, are aligned antiparallel to each other.

110. A method for manufacturing a magnetoresistive-effect device according to claim 107, wherein said nonmagnetic material layer is made of a material selected from the group consisting of Ru, Rh, Ir, Cr, Re, Cu, and alloys thereof.

111. A method for manufacturing a magnetoresistive-effect device according to claim 99, wherein in the step of depositing said bias layers, the position of at least one of the top edge and the bottom edge of the magnetic coupling junction between said multilayer film and said bias layer in the direction of the movement of a medium is set to be at the same level as the position of at least one of the top surface and the bottom surface of said free magnetic layer or said magnetoresistive-effect layer in the direction of the movement of the medium.

112. A method for manufacturing a magnetoresistive-effect device according to claim 105, wherein said antiferromagnetic layer is made of a PtMn alloy.

113. A method for manufacturing a magnetoresistive-effect device according to claim 105, wherein said antiferromagnetic layer is made of an X—Mn alloy where X is a material selected from the group consisting of Pd, Ir, Rh, Ru, and alloys thereof.

114. A method for manufacturing a magnetoresistive-effect device according to claim 105, wherein said antiferromagnetic material is made of a Pt—Mn—X' alloy where X' is a material selected from the group consisting of Pd, Ir, Rh, Ru, Au, Ag, and alloys thereof.

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