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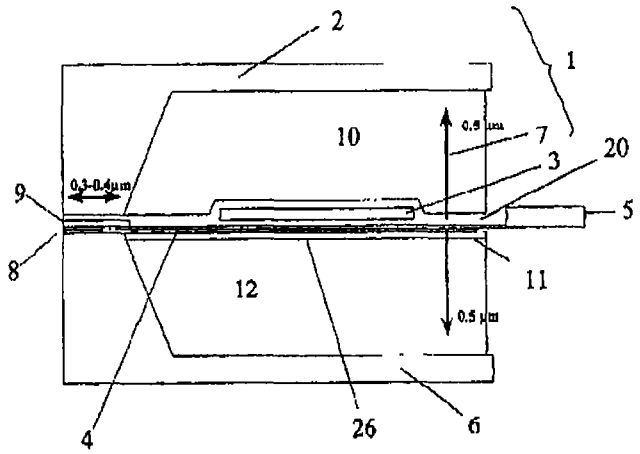


G00001

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(54) Title: REDUCING SENSOR TEMPERATURE IN MAGNETORESISTIVE RECORDING HEADS



(57) Abstract

A method and apparatus for dissipating heat generated in a sensor element of a vertical magnetoresistive recording head or flux guide magnetoresistive recording head having a recess formed in the lower and/or upper magnetic shields for enhancing efficiency during reading data from a magnetic medium. Heat is dissipated through a non-magnetic metal filler layer (10, 12) formed in the shield recesses (140) between an upper (2) or lower (6) metal shield and a sensor element (4) comprising a magnetoresistive head structure. The metal filler (10, 12) must be non-magnetic, must avoid an electrical short between the sensor element and the upper (2) or lower (6) magnetic shield, and must be compatible with the adjacent shield in terms of adhesion thereto and the thermal expansion coefficient thereof. An insulator layer (11, 20) comprising an electrical insulator is formed between the sensor element (4) and the metal filler (10, 12) to insure electrical insulation. The metal filler (10, 12) acts as a thermal path from the sensor element (4) to the metal shields (2, 6).

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