the presence of an applied magnetic field H shown by dashed arrows **58**. The low and high electrical resistance state of magnetic head **10** may be detected by passing an electrical current through the plurality of magnetic stripes and plurality of nonmagnetic conductors by way of electrodes **26** and **28**. Current source **60** provides current over leads **61**, through resistor **62** and over lead **63** to electrode **28**. Current from electrode **26** is coupled over lead **64** back to current source **60**. The voltage across leads **63** and **64** provide an indication of the resistance of magnetic head **10**.

[**0026**] Referring to **FIG. 1**, in operation magnetic media **32** may have information stored therein in track **67** in the form of magnetic domains **68** through **73**, with magnetic domain walls **74**, **76**, and **79-81** there between. As magnetic media is moved as shown by arrow **75**, magnetic domains **68** through **73** pass underneath magnetic head **10** and in close proximity to magnetic stripes **12** through **15**. As magnetic domain **71** passes under magnetic head **10**, fringe magnetic fields shown by arrows **58** are aligned in the same longitunal direction as magnetic stripes **12** through **15** and magnetically saturate magnetic stripes **12** through **15** in the longitudinal direction as shown by arrows **57**. The resistance of the current passing through magnetic stripes **12** through **15** from electrode **28** to electrode **26** or vice-versa will be low due to the giant magnetoresistive effect (GMR). As magnetic domain **72** passes underneath magnetic head **10**, the fringe magnetic field shown by arrows **77** will cause magnetic stripes **12** through **15** to magnetically saturate in the opposite direction. As magnetic stripes **12** through **15** change direction in magnetization, the magnetoresistance state will be high due to the misalignment of the magnetization due to the partial change of magnetic direction experience as magnetic domain **72** moves underneath magnetic head **10**. When magnetic domain **72** is completely underneath magnetic head **10**, fringe magnetic fields shown by arrows **77** are aligned with the longitudinal direction of magnetic stripes **12** through **15** and magnetically saturate magnetic stripes **12** through **15** in the longitudinal direction opposite to that shown by arrows **57**. The electrical resistance through magnetic head **10** via electrodes **26** and **28** will be low due to the giant magnetoresistive effect (GMR). Arrows **78** show the direction of fringe magnetic fields for magnetic domain **73** which may be in the same direction as magnetic domain **72**. When magnetic head **10** moves from being over magnetic domain **72** to being over magnetic domain **73**, the electrical resistance through magnetic head **10** via electrodes **26** and **28** will remain low as magnetic stripes **12** through **15** will remain magnetically saturated in the same direction as when magnetic head was over magnetic domain **72**.

[**0027**] The magnetic field to be sensed such as shown by arrows **58** in **FIG. 1**, may be applied in the plane of the device i.e., parallel to surface **23** of which magnetic stripes **12** through **15** are positioned and through magnetic stripes **12** through **15**. The electrical resistance between electrodes **26** and **28** will decrease until magnetic stripes **12** through **15** are saturated in the direction of the applied magnetic field which may be 30 Oe or less as shown by arrows **58** with respect to magnetic domain **70** which is the low GMR state.

[**0028**] Referring to **FIG. 2**, magnetic head **10** is positioned so that the magnetic stripes **12-15** are aligned transverse to surface **33** of magnetic media **32** to intercept transverse fringe magnetic fields shown in **FIG. 1** from magnetic domains **71** and **72** at or near domain wall **79**. Magnetic media **32** and more particularly track **67** is moving underneath magnetic head **10**. The vertical or transverse (vertical) component of the magnetic domain shown by arrows **58** and **77** in **FIG. 1** cause magnetic stripes **12-15** to be magnetically aligned in parallel lowering the resistance of magnetic head **10**. For example, when the magnetic stripes **12-15** are approaching domain wall **79** but are still in the region of magnetic domain **71** where the fringe fields, shown by arrows **58** in **FIG. 1**, are parallel to surface **33**, the magnetic stripes will be alternately magnetized due to magnetostatic coupling from adjacent magnetic stripes. When the fringe magnetic fields become vertical or transverse upon approaching the end of magnetic domain **71** near domain wall **79** as shown by arrows **58** in **FIG. 1**, the magnetization of magnetic stripes **12-15** will be directed in the down direction as shown by arrow **36**. Magnetic head **10** will be in the low resistance state with the magnetization of magnetic stripes **12-15** aligned parallel.

[**0029**] As media **32** moves domain wall **79** past magnetic stripes **12-15**, the magnetic stripes will be magnetized in the down direction near domain wall **79** as shown by arrows **77** in **FIG. 1**. As media **32**, domain wall **79**, moves way past magnetic stripes **12-15**, the fringing magnetic fields of domain **72** will be parallel to surface **33** and there will be no vertical or transverse magnetic component to magnetize magnetic stripes **12-15**. Magnetic head **10** will be in the high resistance state.

[**0030**] **FIG. 3** shows an alternate embodiment of the invention where in addition to the plurality of magnetic stripes **12** through **15** and nonmagnetic conducting stripes **16** through **19**, there are magnetic keepers **82** and **83** positioned over the ends of the magnetic stripes **12** through **15** as shown in **FIG. 3**. In **FIG. 3** like references are used for functions corresponding to the apparatus of **FIGS. 1 and 2**. Keepers **82** and **83** function to strengthen or reinforce the magnetostatic coupling connecting the ends of stripes **12** through **15**.

[**0031**] For optimal performance, a nonmagnetic electrically insulating spacer **84** must separate magnetoresistive stripes **12-15**, together with the intervening nonmagnetic conductors **16-19**, from the two keepers **82** and **83**. Spacer **84** serves to (1) prevent exchange stiffness coupling which would tend to align the stripe magnetizations in the same direction, thus counteracting the beneficial keeper effect, and (2 prevent the keepers, if conducting, from short-circuiting magnetoresistive stripes **12-15**. Spacer **84** thickness may be in the range from about 50 Å to about 200 Å and is optimally about 100 Å in thickness and needs no lithography since it can blanket over magnetic stripes **12-15** and nonmagnetic conductive stripes **16-19**.

[**0032**] **FIG. 4** is a first top view of **FIG. 3** showing the magnetic fields and magnetic stripes **12** through **15**, non magnetic stripes **16-19** and keepers **82** and **83**. The magnetic flux carried by each magnetic stripe **12** through **15** respectively is divided in two parts at its ends, each part closing through one of the neighboring magnetic stripes. Therefore, the saturation or magnetic flux capacity of each keeper **82** and **83** should be one half of the saturated magnetic flux capacity of stripes **12** through **15** respectively. In **FIG. 4**, flux paths **86** and **87** are shown passing through magnetic stripe **13** with flux path **86** passing through magnetic stripe **12** and flux path **87** passing through magnetic stripe **14**. Flux paths **87** and **88** pass through magnetic stripe **14** in the