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POSURE AND SENSOR COMPRISING THE MAGNETORESISTIVE ELEMENT

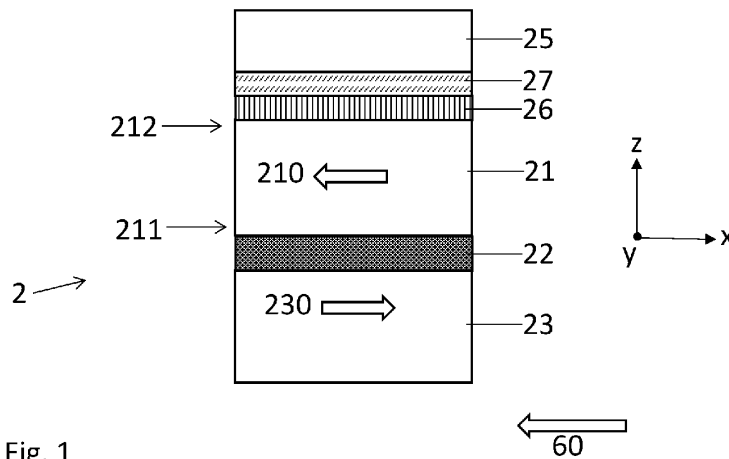


Fig. 1

(57) Abstract: Magnetoresistive element (2) comprising a reference layer (23) having a fixed reference magnetization (230); a ferro-magnetic sense layer (21) having a free sense magnetization (210) having a stable vortex configuration that is orientable relative to the fixed reference magnetization (230) in the presence of an external magnetic field (60); and a tunnel barrier layer (22) between the reference layer (23) and the sense layer (21) and contacting a first side (211) of the sense layer (21). The magnetoresistive element (2) further comprises a hard magnetic layer (25) arranged on a second side (212) of the sense layer (21) opposed to the first side (211), the hard magnetic layer (25) being configured to generate an interfacial magnetic coupling between the hard magnetic layer (25) and the sense layer (21) on the second side (212), such as to prevent chirality switching of the sense magnetization (210) after the magnetore-sistive element (2) has been submitted to a heat treatment and an external magnetic field above vortex expulsion field.

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