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(54) **SPIN VALVE FILMS WITH IMPROVED CAP LAYERS**

**Related U.S. Application Data**

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(57) **ABSTRACT**

The invention includes spin valve sensors. The spin valve sensors of the invention can be dual spin valves, bottom pinned spin valves, or top pinned spin valves. Spin valve sensor in accordance with the invention include a cap layer of tantalum nitride and a free layer. Cap layers of the invention include both monolayers and bilayers. Monolayer cap layers are tantalum nitride, and bilayer cap layers are a first layer of tantalum nitride with a layer of copper, ruthenium, gold, or silver thereon.

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