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(54) Title: MULTI-LAYER MAGNETIC RECORDING MEDIA AND MAGNETORESISTIVE DRIVE SYSTEMS

(57) Abstract

The present invention relates to improved multi-layer magnetic recording media and magnetoresistive drive systems incorporating the same. In particular, multi-layer media including alternating layers of cobalt or cobalt alloys and a precious metal, such as palladium or platinum, and a process to manufacture such media, are disclosed. Media in accordance with the invention generally include a substrate, a nucleating layer, a lattice, and a protective layer. In certain embodiments, the substrate is polished aluminum. In other embodiments, the thickness of the nucleating layer is thicker than 100 Å, and in certain embodiments between about 200 and about 600 Å. The lattice, generally includes bilayers of cobalt (or an alloy thereof) and palladium or platinum. The thickness of the cobalt layers are between about 1.5 Å and 10 Å, or between about 2 Å and 7 Å, or between about 3 Å and 5 Å. The thickness of the palladium or platinum layers are between about 5 Å and 15 Å, or between about 7 Å and 12 Å, or between about 8 Å and 11 Å. The number of layers in the lattice (33), or its periodicity, is between about 10 and 30 or between about 15 and 25. In certain embodiments, the thickness of the lattice (33) and the nucleating layer (32) do not exceed 1500 Å. The invention also provides a novel information storage device that includes a ring write head and a magnetoresistive (MR) read head in combination with a vertical recording media with perpendicular anisotropy exceeding 2 X 10^6 erg/cc and coercivity as high as 5000 Oe. Also provided is an improved MR read head. The improvement includes a physical offset in the MR element, such that the element is offset from perpendicular to the media.

