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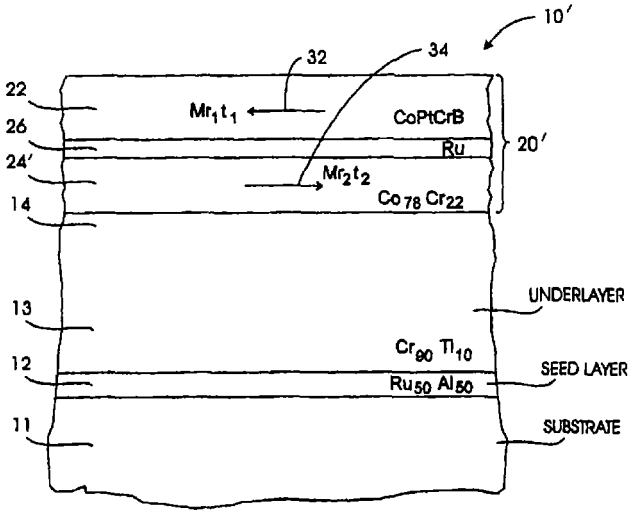
(54) Title: ANTIFERROMAGNETICALLY COUPLED MAGNETIC RECORDING MEDIA



(57) Abstract: A magnetic recording medium for data storage uses a magnetic recording layer having at least two ferromagnetic films exchange coupled together antiferromagnetically across a nonferromagnetic spacer film. In this antiferromagnetically-coupled (AFC) recording layer the magnetic moments of the two ferromagnetic films are oriented antiparallel, and thus the net remanent magnetization-thickness product (Mrt) of the AFC recording layer is the difference in the Mrt values of the two ferromagnetic films. This reduction in Mrt is accomplished without a reduction in thermal stability of the recording medium. The lower ferromagnetic film in the AFC recording layer is a boron-free ferromagnetic CoCr alloy that does not require a nucleation layer between it and the Cr alloy underlayer. The ferromagnetic CoCr alloy has sufficient saturation magnetization (M_s) to produce excellent magnetic recording performance for the AFC recording layer, while also serving as a template or nucleation layer to induce the growth of the spacer layer and top ferromagnetic boron-containing ferromagnetic film.

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