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(54) **Title:** HDD PATTERN APPARATUS USING LASER, E-BEAM, OR FOCUSED ION BEAM

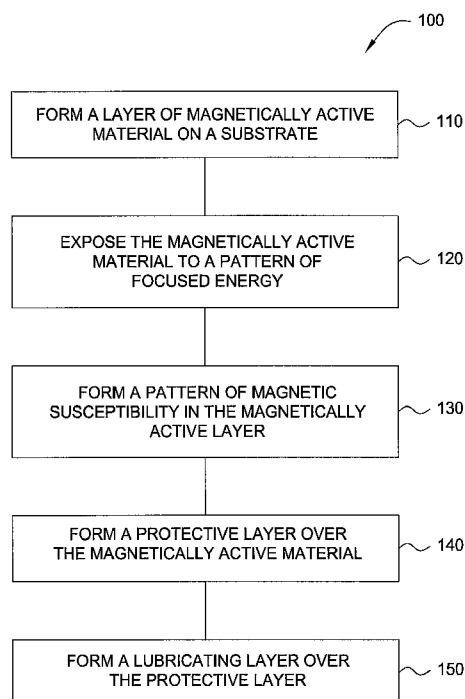


FIG. 1

(57) **Abstract:** A method and apparatus for manufacturing magnetic storage media is provided. A structural substrate is coated with a magnetically active material, and a magnetic pattern is formed in the magnetically active material by treating portions of the material with energy from a laser, e-beam, or focused ion beam. The beam may be divided into a packet of beamlets by passing the beam through a divider, which may be a diffraction grating for laser energy, a thin film single crystal for electrons, or a perforated plate for ions, or the beam may be generated by an array of emitters. The beamlets are then focused to a desired dimension and distribution by optics or electric fields. The resulting beam packet may be shaped further by passing through an aperture of any desired shape. The resulting beam may be applied sequentially to exposure zones to treat an entire substrate or plurality of substrates.



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