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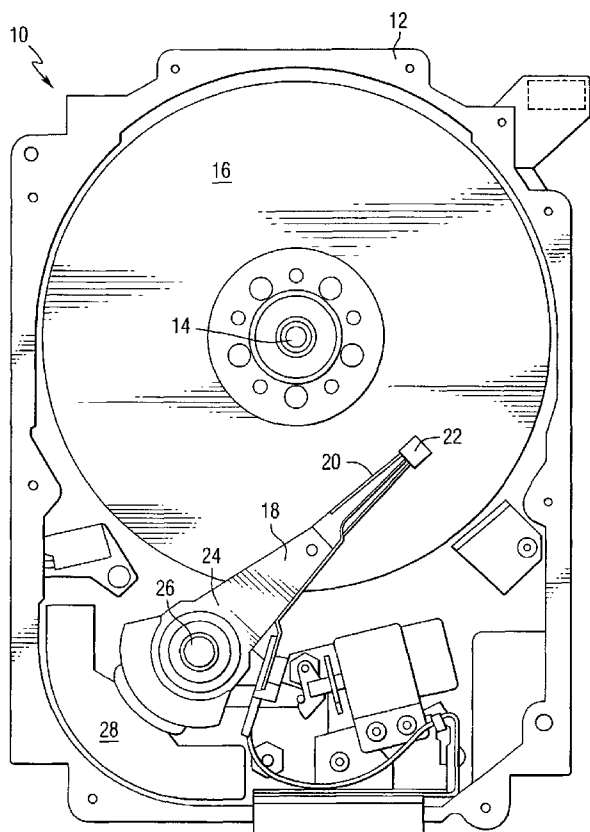
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(54) Title: PERPENDICULAR MAGNETIC RECORDING HEAD WITH SOFT UNDERLAYER BIASING



(57) Abstract: A perpendicular magnetic recording head 22 includes a read head having means for generating a magnetic field which reduces noise from a soft magnetic underlayer 40 of a recording medium 16 during operation of the recording head 22. The means for generating a magnetic field includes a current perpendicular to the plane read sensor 46 of the read head 34. The electrical current generates a magnetic field which biases the magnetization of the soft magnetic underlayer 40. By controlling the amount of current or current density that is passed through the read sensor 46, the magnitude of the magnetic field for biasing the soft magnetic underlayer 40 may be controlled. A method of using a perpendicular magnetic recording head 22 to magnetically bias a soft magnetic underlayer 40 of a recording medium 16 is also disclosed.

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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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