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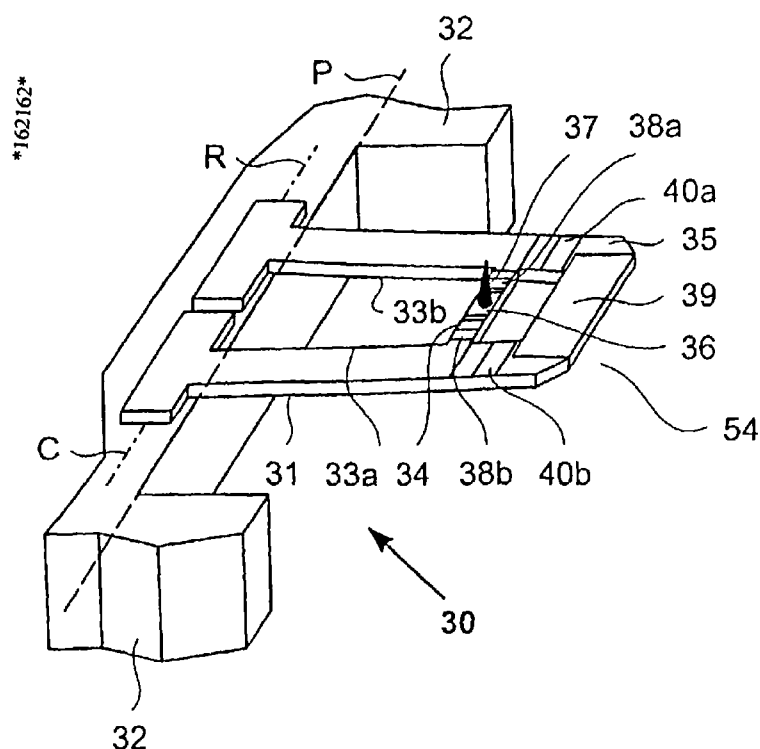
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(54) Title: **AFM-BASED DATA STORAGE AND MICROSCOPY**



(57) Abstract: Read/write components for AFM-based data storage devices are provided. In particular embodiments, a read/write component (30, 45, 50, 65, 80) comprises lever means (31, 51, 66, 82) and a support structure (32, 52, 67, 81), the lever means being connected to the support structure for substantially pivotal movement. The lever means (31, 51, 66, 82) provides first and second current paths between a pair of electrical supply lines (R, C) on the support structure via which the lever means can be connected in use to power supply means operable in a write mode and a read mode. A write-mode heater (36, 47, 56, 73) is provided on the lever means in the first current path, and a read/write tip (37, 57, 74, 84) is provided on the write-mode heater. A read-mode heater (39, 46, 58, 75, 83) is provided on the lever means in the second current path. Decoupling means (38a, 38b, 40a, 40b, 60, 61, 77a, 77b, 78a, 78b) is arranged to inhibit current flow to the write-mode heater via the first current path in use when the power supply means is operated in the read mode. The component, with separate write and read-mode heaters, can thus be addressed in both the write and read modes via a single pair of supply lines.

Other embodiments provide read/write components (100) employing a thermal decoupling mechanism, and read/write components (80) where read-sensing is performed by a proximity sensing arrangement between the lever means and the support structure. Sensing apparatus (115) for atomic force microscopes is also provided where tip movement can be detected via similar proximity sensing arrangements.

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