

04 MAY 1998

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WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : F16C 39/06		A1	(11) International Publication Number: ✓ WO 97/09540
			(43) International Publication Date: 13 March 1997 (13.03.97)
(21) International Application Number: PCT/GB96/02150 (22) International Filing Date: 2 September 1996 (02.09.96) ✓ (30) Priority Data: 9517911.5 2 September 1995 (02.09.95) ✓ GB 9605925.8 21 March 1996 (21.03.96) GB 9610927.7 24 May 1996 (24.05.96) GB 9613061.2 21 June 1996 (21.06.96) GB			(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
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(54) Title: **MAGNETIC SUSPENSION SYSTEM**

(57) Abstract

A suspension system for magnetically suspending an object (O) comprises an electromagnetic coil (L) having an axially extending core (13) of magnetically permeable material and a permanent magnet (14) disposed on its axis. A permanent magnet (10) is also provided in the object (O) and is arranged such that it is in attraction with the permanent magnet (14) on the coil (L), and with the magnetically permeable core (13) so that the object (O) is suspended at a position below the coil (L) by the attractive force. Sensors (15, 16) on the coil (L) detect the magnetic field of the permanent magnet (10) in the object (O), and provide signals to a control circuit, which applies current to the coil (L) to attract the object (O) when the detected field is below a predetermined limit and to repel the object when the detector field is above a predetermined limit. In this manner, the object (O) is held in position using a relatively low current, since the coil (L) is only energised when the object moves away from the position in which it is held by the field of the permanent magnets (10, 14).

