

08 AUG 2002

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

162162

(43) International Publication Date
20 June 2002 (20.06.2002)

PCT

(10) International Publication Number
WO 02/049012 A3(51) International Patent Classification⁷: **G11B 17/028**,
23/00, 19/20**Josephus, A., H., M.**; Prof. Holstlaan 6, NL-5656 AA
Eindhoven (NL). **OPHEY, Willem, G.**; Prof. Holstlaan 6,
NL-5656 AA Eindhoven (NL).

(21) International Application Number: PCT/EP01/13814

(22) International Filing Date:
26 November 2001 (26.11.2001)(74) Agent: **SCHRIJNEMAEEKERS, Hubert, J., M.**; Interna-
tionaal Octrooibureau B.V., Prof Holstlaan 6, NL-5656 AA
Eindhoven (NL).

(25) Filing Language: English

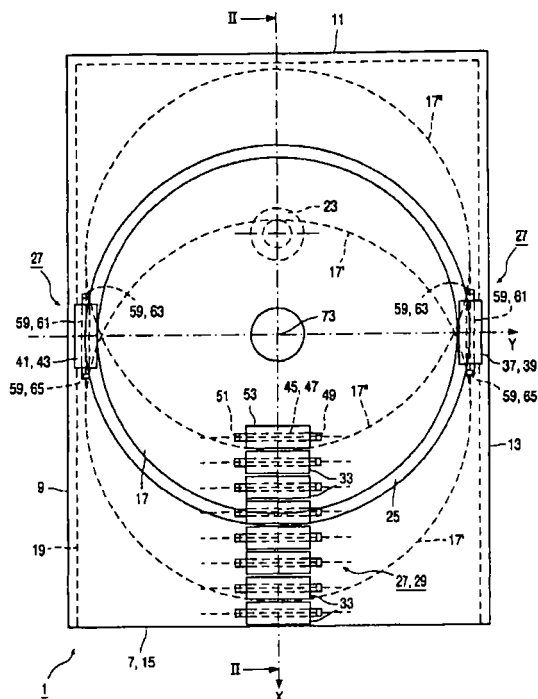
(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA,
ZW.

(26) Publication Language: English

(30) Priority Data:
00204509.4 14 December 2000 (14.12.2000) EP(71) Applicant: **KONINKLIJKE PHILIPS ELECTRON-
ICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA
Eindhoven (NL).(84) Designated States (*regional*): 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(72) Inventors: **VAN ROSMALEN, Gerard, E.**; Prof. Hol-
stlaan 6, NL-5656 AA Eindhoven (NL). **KAHLMAN,**

[Continued on next page]

(54) Title: DEVICE FOR SCANNING AN ELECTROMAGNETICALLY SUSPENDED INFORMATION CARRIER



(57) Abstract: The invention relates to a device for reading and/or writing a disc-shaped information carrier (17), which comprises a support element (25) of a magnetizable material along its circumference. The device comprises an electromagnetic unit (27) for co-operation with the support element and a scanning unit (23) for reading and/or writing the information carrier. By co-operation between the electromagnetic unit and the support element, the information carrier can be rotated about an axis of rotation (73) and positioned with respect to the scanning unit (23) in five degrees of freedom, i.e. in all degrees of freedom except the rotational degree of freedom around the axis of rotation. According to the invention, the electromagnetic unit (27) comprises a single pair of rows (29, 31) of electromagnets (33, 35), which rows are arranged, along an X-axis perpendicular to the axis of rotation (73), on both sides of the information carrier. The electromagnetic unit (27) further comprises a first pair of electromagnets (37, 39) and a second pair of electromagnets (41, 43) which are diametrically arranged with respect to each other, viewed in a middle position of the information carrier (17) along the X-axis and viewed along a Y-axis perpendicular to the X-axis and the axis of rotation, the magnets of the first and the second pair being arranged on both sides of the information carrier, and the magnetic poles (69, 71) of the electromagnets of each pair being arranged at equal distances from the X-axis and, in each position of the information carrier along the X-axis, on one side of a magnetic point of application (M) of the support element. Thus, the electromagnetic unit has a comparatively simple construction

and comprises a limited number of electromagnets, so that also the control unit, which is necessary to control the electromagnetic forces of the electromagnets, is simplified.

WO 02/049012 A3



ACTION

(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

(88) Date of publication of the international search report:
19 September 2002

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.