

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
26 February 2004 (26.02.2004)

PCT

(10) International Publication Number  
WO 2004/017307 A3

(51) International Patent Classification<sup>7</sup>: G11B 7/22,  
7/12, 7/085

SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,  
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:  
PCT/IB2003/003730

(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, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 31 July 2003 (31.07.2003)

(25) Filing Language: English

(26) Publication Language: English

**Declaration 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, NI, NO, NZ, OM, PG, PH,  
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,  
TR, TT, TZ, UA, UG, UZ, VC, 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, BG, CH, CY, CZ, DE,  
DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT,  
RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

(30) Priority Data:  
02078391.6 16 August 2002 (16.08.2002) EP

(71) Applicant (for all designated States except US): KONIN-  
KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL];  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): POLLEN, Rudy, W.,  
J. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven  
(NL).

(74) Agent: SCHRIJNEMAEEKERS, Hubert, J., M.; Philips  
Intellectual Property & Standards, Prof. Holstlaan 6,  
NL-5656 AA Eindhoven (NL).

**Published:**

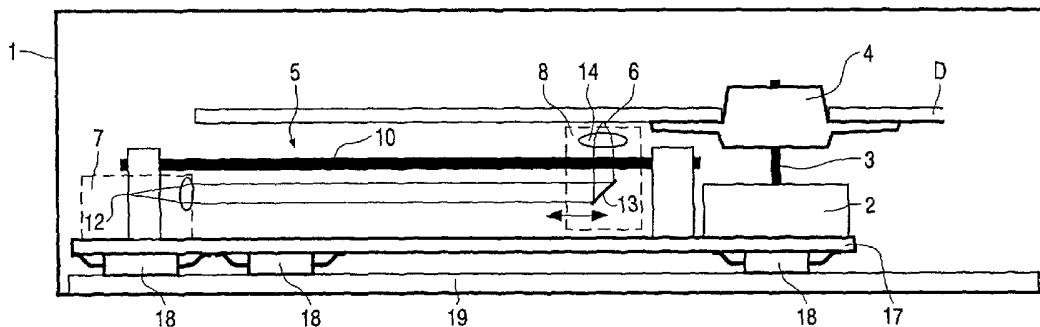
— with international search report

(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, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,

(88) Date of publication of the international search report:  
21 May 2004

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.

(54) Title: AN OPTICAL DISK DRIVE, AND A METHOD OF ASSEMBLING IT



(57) Abstract: An optical disk drive comprises an optical pick-up unit (5) comprising a fixed part (7) with at least a light source, and a movable part (8) mounted on a guide (9) and comprising at least a mirror (13), a focusing lens (14), and lens-moving elements. The movable part is adapted to move a focused beam along the disk (D). A PCB (17) comprises a signal connection to the lens-moving elements on the movable part of the pick-up unit through flexible wires (20). Only one PCB (17) is provided which serves as a mounting base for the fixed part (7) of the optical pick-up unit (5), the guide (9), and the drive motor (2).

WO 2004/017307 A3

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IB 03/03730

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 G11B7/22 G11B7/12 G11B7/085				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 G11B G01B				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
A	EP 0 436 378 A (SONY CORP) 10 July 1991 (1991-07-10) the whole document	1-9		
A	EP 0 475 673 A (CANON KK) 18 March 1992 (1992-03-18) column 3, line 25 - line 53; figure 4	1-9		
A	US 5 038 240 A (ISOMURA AKIHIRO) 6 August 1991 (1991-08-06) the whole document	1-9		
<input type="checkbox"/> Further documents are listed in the continuation of box C.				
<input checked="" type="checkbox"/> Patent family members are listed in annex.				
* Special categories of cited documents:				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;">                     *A* document defining the general state of the art which is not considered to be of particular relevance                      *E* earlier document but published on or after the International filing date                      *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)                      *O* document referring to an oral disclosure, use, exhibition or other means                      *P* document published prior to the international filing date but later than the priority date claimed                 </td> <td style="width: 50%; border: none; vertical-align: top;">                     *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention                      *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone                      *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.                      *&amp;* document member of the same patent family                 </td> </tr> </table>			*A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the International filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family
*A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the International filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *&* document member of the same patent family			
Date of the actual completion of the international search  <p style="text-align: center;">26 February 2004</p>	Date of mailing of the international search report  <p style="text-align: center;">04/03/2004</p>			
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  <p style="text-align: center;">Annibal, P</p>			

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 03/03730

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0436378	A	10-07-1991	CA 2032961 A1	29-06-1991
			DE 69026589 D1	23-05-1996
			DE 69026589 T2	26-09-1996
			EP 0436378 A2	10-07-1991
			US 5357500 A	18-10-1994
			US 5119362 A	02-06-1992
EP 0475673	A	18-03-1992	JP 4121833 A	22-04-1992
			DE 69124038 D1	20-02-1997
			DE 69124038 T2	15-05-1997
			EP 0475673 A1	18-03-1992
			US 5471453 A	28-11-1995
US 5038240	A	06-08-1991	JP 2066774 A	06-03-1990