

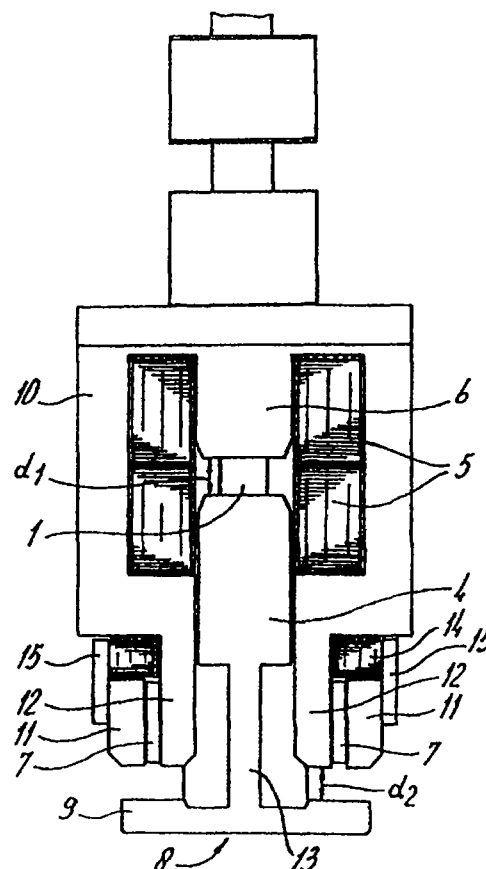
PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H01F 7/122, H01H 51/01, 50/32		A1	(11) International Publication Number: WO 99/14769
			(43) International Publication Date: 25 March 1999 (25.03.99)
(21) International Application Number: PCT/NL98/00512		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, 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, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 7 September 1998 (07.09.98)			
(30) Priority Data: 1007072 18 September 1997 (18.09.97) NL 1008983 24 April 1998 (24.04.98) NL			
(71) Applicant (for all designated States except US): HOLEC HOLLAND N.V. [NL/NL]; Tuindorpstraat 61, P.O. Box 23, NL-7550 AA Hengelo (NL).			
(72) Inventor; and (75) Inventor/Applicant (for US only): LAMMERS, Arend, Jan, Willem [NL/NL]; Louis Bouwmeesterstraat 117, NL-7558 TV Hengelo (NL).			
(74) Agent: DE BRUIJN, Leendert, C.; Nederlandsch Octrooibureau, Scheveningseweg 82, P.O. Box 29720, NL-2502 LS The Hague (NL).			
		Published With international search report.	
		 *G00002*	
		 *162162*	

(54) Title: ELECTROMAGNETIC ACTUATOR**(57) Abstract**

Electromagnetic actuator for moving a contact into a switched-on or switched-off state, comprising a contact-actuating rod which is displaceable in the longitudinal direction between a first position, corresponding to the switched-off state, and a second position, corresponding to the switched-on state. A core which is made of magnetizable material and interacts with a switch-on coil is attached to the contact-actuating rod. Also present is a pole piece which is made of magnetizable material and of which that face which is directed towards the core, in the first position of the contact-actuating rod, is arranged at an air-gap distance from that surface of the core which is directed perpendicular to the direction of displacement, and in the second position bears as closely as possible against the said core surface. The actuator furthermore comprises a yoke made of magnetizable material for closing the magnetic flux circuit of the switch-on coil through the pole piece and the core. A permanent magnet device is used to maintain the contact-actuating rod in the first position, while a spring preloads the contact-actuating rod, in its second position, towards the first position. The actuator is provided with a switch-off coil which, for the purpose of moving the contact-actuating rod from the second position to the first position, is excited in order to eliminate the magnetic field of the permanent magnet device at least temporarily, the magnetic flux circuit of the permanent magnet device being separate from that of the switch-on coil.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakhstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		