



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
18.03.2009 Bulletin 2009/12

(51) Int Cl.:
H01F 7/16 (2006.01) H01F 7/08 (2006.01)

(43) Date of publication A2:
15.11.2006 Bulletin 2006/46

(21) Application number: **06113745.1**

(22) Date of filing: **10.05.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(71) Applicant: **Elbi International SPA**
10129 Torino (IT)

(72) Inventor: **Marone, Giuseppe**
10042 Nichelino (IT)

(74) Representative: **Quinterno, Giuseppe et al**
Jacobacci & Partners S.p.A.
Corso Emilia, 8
10152 Torino (IT)

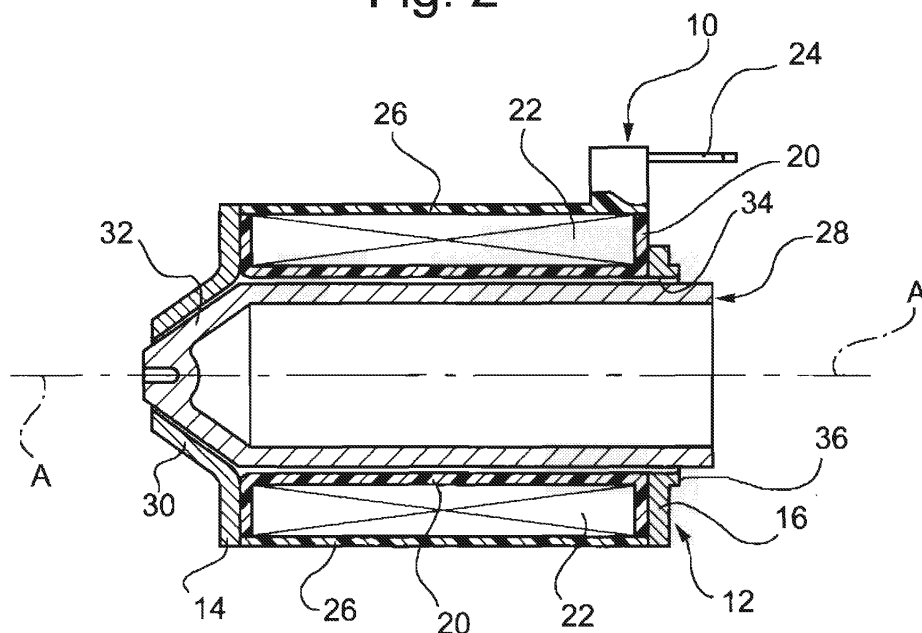
(30) Priority: **11.05.2005 IT TO20050059 U**

(54) **Direct current electric actuator, for domestic appliances in particular**

(57) The electrically controlled actuator (10), in domestic appliances in particular, comprises
- a shell (12) realized in a single piece in ferromagnetic material, substantially shaped in C form and including a first and second lateral branch (14, 16) reciprocally opposed and interconnected by an intermediate portion (18);
- a coil (22) of conductor wire fixed to the shell (12) in

such a way that its axis (A-A) extends in a direction substantially at right angles to the lateral branches (14, 16) of the shell (12); and
- a ferromagnetic nucleus (28) mounted movably with respect to the shell (12) in a manner axially translatable inside the coil (22) and suitable for passing from an axial rest position to an axial working position as an effect of excitation of the coil (22).

Fig. 2





EUROPEAN SEARCH REPORT

Application Number
EP 06 11 3745

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2003/155839 A1 (KRIMMER ERWIN [DE] ET AL) 21 August 2003 (2003-08-21) * paragraphs [0003], [0008], [0009], [0017] - [0033]; figures 1,3a,3b *	1-12	INV. H01F7/16 H01F7/08
X	EP 0 185 262 A (HARTING ELEKTRONIK GMBH) 25 June 1986 (1986-06-25) * page 5, line 19 - page 6, line 3; figures 2,3 * * page 6, line 20 - page 8, line 14; figures 8-11 *	1-12	
X	US 3 593 240 A (GARCZYNSKI FRANK S) 13 July 1971 (1971-07-13) * column 1, lines 54-60 * * column 2, lines 10-75 * * figures 1,2 *	1-12	
X	US 5 174 336 A (CASEY GARY L [US] ET AL) 29 December 1992 (1992-12-29) * column 4, lines 20,21,42-52; figure 1 * * column 5, lines 24-36; figures 8,9 *	1-12	
A	WO 2004/044467 A (INA SCHAEFFLER KG [DE]; WAGNER WERNER [DE]; BRAUN ARMIN [DE]) 27 May 2004 (2004-05-27) * page 5, lines 8-12 * * page 9, lines 7-11 * * page 13, lines 3-21 * * page 14, lines 10-15 * * page 15, lines 17-27 * * figure 1 *	5,6,8,10,11	TECHNICAL FIELDS SEARCHED (IPC) H01F F16K H01H
A	US 3 987 385 A (DILLER ROBERT W ET AL) 19 October 1976 (1976-10-19) * column 1, lines 53-58 * * column 2, lines 3-29 * * column 3, lines 23-39 * * figure 1 *	2,3,7,11	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 6 February 2009	Examiner Teske, Ekkehard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

 2
EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 11 3745

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-02-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003155839 A1	21-08-2003	WO 02071421 A2	12-09-2002
		DE 10110342 A1	12-09-2002
		EP 1368814 A2	10-12-2003
		JP 4130773 B2	06-08-2008
		JP 2004519109 T	24-06-2004
EP 0185262 A	25-06-1986	DE 3445917 A1	19-06-1986
		JP 1818678 C	27-01-1994
		JP 5028886 B	27-04-1993
		JP 61228603 A	11-10-1986
US 3593240 A	13-07-1971	NONE	
US 5174336 A	29-12-1992	EP 0587743 A1	23-03-1994
		JP 6508196 T	14-09-1994
		WO 9221904 A1	10-12-1992
WO 2004044467 A	27-05-2004	AU 2003274101 A1	03-06-2004
		CN 1711438 A	21-12-2005
		DE 10252431 A1	27-05-2004
		EP 1561058 A1	10-08-2005
		KR 20050086490 A	30-08-2005
		US 2005274336 A1	15-12-2005
US 3987385 A	19-10-1976	NONE	