



- (51) International Patent Classification:
B65D 83/08 (2006.01) *F16F 1/10* (2006.01)
- (21) International Application Number:
PCT/GB2013/052208
- (22) International Filing Date:
21 August 2013 (21.08.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
1214874.8 21 August 2012 (21.08.2012) GB
1214872.2 21 August 2012 (21.08.2012) GB
1306857.2 16 April 2013 (16.04.2013) GB
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published: — with international search report (Art. 21(3))

[Continued on next page]

(54) Title: SPRING ACTUATOR

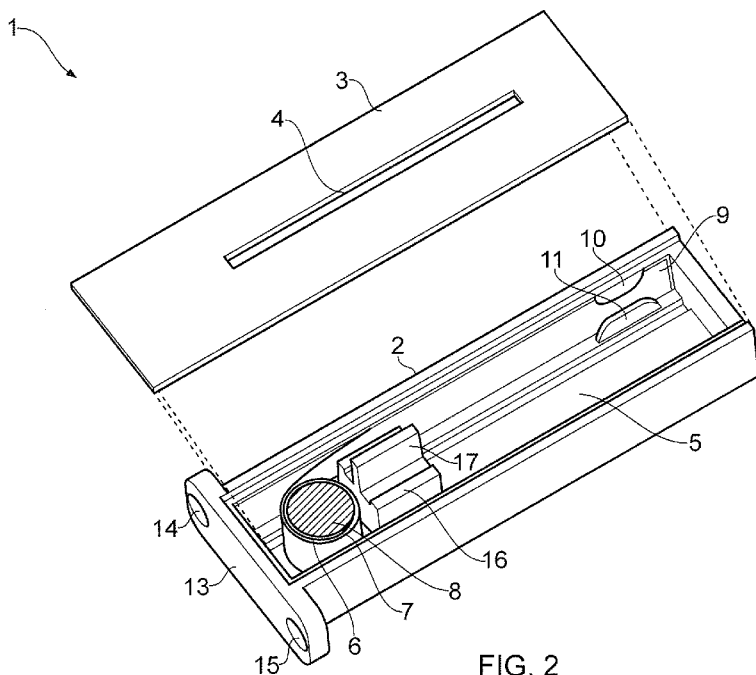


FIG. 2

(57) Abstract: A spring actuator (1) has a constant force spiral extension spring (6) with a central coil end (7) and a free end (9). A channel member (5) is provided to house the constant force spiral extension spring (6) with flanges (10, 11) to secure the free end (9) in a fixed position and to allow the constant force spiral extension spring (6) to unwind in the channel member (5) away from the free end (9) and to wind up in the channel member (5) towards the free end (9). A slider (16) is provided to slide in the channel member (5) and abut against the constant force spiral extension spring (6) and to be biased towards the free end (9) when the constant force spiral extension spring 6 is unwound. In use the slider (16) is engageable with an object to provide a spring bias on the object as the slider (16) is biased toward the free end (9).



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
4 June 2015

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2013/052208

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D83/08 F16F1/10
ADD.
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
F16F

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 practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2011/050818 A1 (FJELLOE-JENSEN KIM [DK]) 5 May 2011 (2011-05-05)	1,12
Y	the whole document	2-11,15,16,19-21
Y	----- WO 2010/016984 A1 (ILLINOIS TOOL WORKS [US]; ZEILENGA CHAD K [US]; DOORNBOS DAVID A [US];) 11 February 2010 (2010-02-11) the whole document	2-9
Y	----- EP 1 650 626 A1 (MATSUSHITA ELECTRIC IND CO LTD [JP] PANASONIC CORP [JP]) 26 April 2006 (2006-04-26) the whole document	10
Y	----- US 4 601 246 A (DAMICO FRANK M [US]) 22 July 1986 (1986-07-22) the whole document	11
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent 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 22 April 2015	Date of mailing of the international search report 07/05/2015
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Savelon, Olivier
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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2013/052208

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2 027 671 A (BROEREN FRANK L) 14 January 1936 (1936-01-14)	13,14, 17,18, 22,24,25
Y	the whole document	15,16, 19-21,23
A		1
Y	----- US 2 114 935 A (PARSONS PHILIP D) 19 April 1938 (1938-04-19) figure 2	21
Y	----- US 2004/099681 A1 (JULIUS ROBERT P [US]) 27 May 2004 (2004-05-27) figure 7 -----	23

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2013/052208

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-12

A spring actuator

2. claims: 13-25

A wipe dispensing container

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/GB2013/052208

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
WO 2011050818	A1	05-05-2011	NONE	

WO 2010016984	A1	11-02-2010	CN 102112777 A	29-06-2011
			US 2011127704 A1	02-06-2011
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US 2004099681	A1	27-05-2004	NONE	
