



- (51) International Patent Classification:
H01H 3/10 (2006.01) *H01H 19/11* (2006.01)
- (21) International Application Number:
PCT/US2014/016672
- (22) International Filing Date:
17 February 2014 (17.02.2014)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
13/776,180 25 February 2013 (25.02.2013) US
- (71) Applicant: **MOTOROLA SOLUTIONS, INC.** [US/US];
1303 East Algonquin Road, Schaumburg, Illinois 60196 (US).
- (72) Inventors: **MAHIDA, Dharmendrasinh R.**; 3565 NW 86th Way, Sunrise, Florida 33351 (US). **GILMORE, Peter B.**; 580 Gettysburg Terrace, Plantation, Florida 33325 (US). **KAKIEL, Anthony M.**; 9265 NW 17th Street, Coral Springs, Florida 33071 (US). **KLINE, Charles E.**; 12321 NW 18th Street, Plantation, Florida 33323 (US).
- (74) Agents: **DOUTRE, Barbara R.** et al.; 1301 East Algonquin Road, IL02/SH5, Schaumburg, Illinois 60196 (US).

(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, IR, 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))

(88) Date of publication of the international search report:
16 October 2014



WO 2014/130387 A3

(54) Title: ROTARY CONTROL

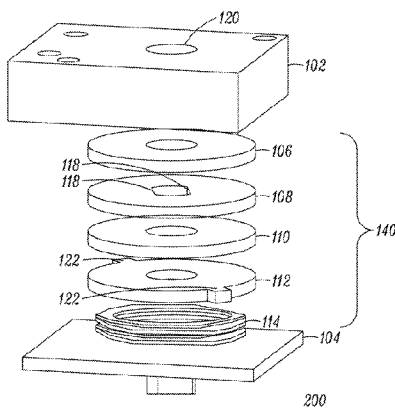


FIG. 2

(57) Abstract: A rotary control (100, 500, 700) provides improved running-torque through a running-torque stack up assembly (140). The running-torque stack up assembly (140) may be implemented in a modular approach (500, 700) independent of a shaft (130) and switch housing, or may be implemented to incorporate the shaft (100) and switch housing. The running-torque stack up assembly (140) is formed of a spring (114), a stationary disk (112), and a rotating disk (108) having sliding top and bottom surfaces provided through either pads (106, 110) or an overmolded coating (710).

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/016672

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H01H3/10 H01H19/11
 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)
 H01H G05G
 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 036 079 A (PRATT ALBERT R) 19 July 1977 (1977-07-19) column 2, line 17 - column 3, line 62; figures 1-3 -----	1-25
Y	US 4 487 089 A (HARWOOD CRAIG E [US]) 11 December 1984 (1984-12-11) column 3, line 13 - column 5, line 56; figures 1-3 -----	1-25
A	US 7 592 562 B1 (VANDERWEGE MICHAEL [US] ET AL) 22 September 2009 (2009-09-22) column 3, line 27 - column 8, line 28; figures 1-14 -----	1

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Date of the actual completion of the international search 12 May 2014	Date of mailing of the international search report 20/05/2014
---------------------------------------------------------------------------------	-------------------------------------------------------------------------

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 Nieto, José Miguel
----------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/016672

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4036079	A	19-07-1977	NONE
US 4487089	A	11-12-1984	NONE
US 7592562	B1	22-09-2009	NONE