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(54) Title: ACTUATOR, COVER-PLATE ASSEMBLY HAVING THE ACTUATOR AND ILLUMINATING DEVICE

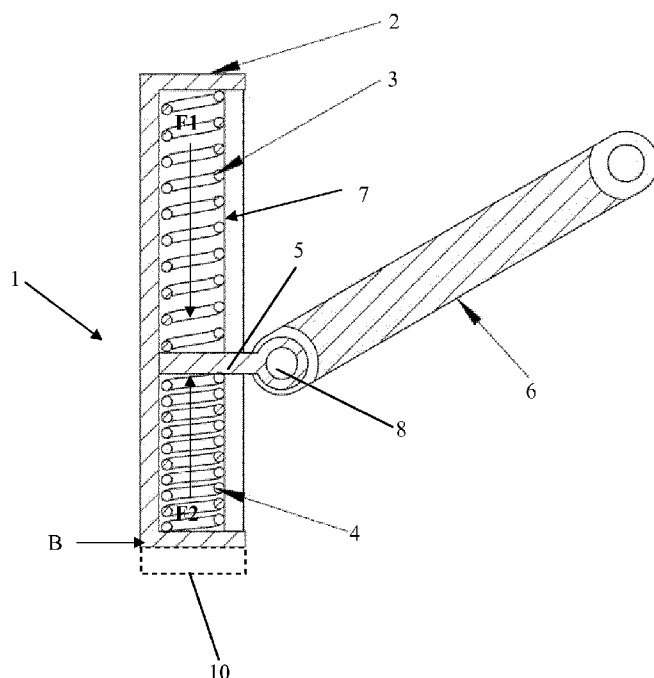


Figure 1

(57) Abstract: The present application relates to an actuator (1) for device having heat source (10), comprising a housing (2), a first elastomer (3) and a second elastomer (4) accommodated in the housing (2), an actuating element (5) and a driving element (6), wherein the actuating element (5) is arranged between the first and second elastomers (3, 4) and has one end in movable connection with one end of the driving element (6), characterized in that the first elastomer (3) and/or the second elastomer (4) is capable of changing an elastic force depending upon temperature to cause the actuating element (5) to move linearly in the housing (2) so as to control a position of the driving element (6). The actuator (1) has a small size, a high reliability, a simple structure and a low cost, and produces a low noise during operation. In addition, the present invention further provides a cover-plate assembly having the actuator and an illuminating device mounted with the cover-plate assembly.



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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 107 900 A1 (BLAZER INT CORP [US]) 9 May 1984 (1984-05-09) page 2, line 25 - page 3, line 22; figures 1-10 page 6, line 25 - page 7, line 20 page 10, line 23 - line 26 -----	1-7, 10-14
X	WO 2008/120255 A1 (FONTANAARTE S P A [IT]; BERGO LUCA [IT]) 9 October 2008 (2008-10-09) abstract; figures 1-3 -----	1-3,6,7, 9-12
X	US 2009/013684 A1 (TAKAHASHI MASAYA [JP]) 15 January 2009 (2009-01-15) the whole document -----	1-9
----- -/-		
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 10 2008 027541 A1 (ZIMMER GUENTHER [DE]; ZIMMER MARTIN [DE]) 17 December 2009 (2009-12-17) paragraph [0053] - paragraph [0061]; figures 4-8	1-3,7,9
A	----- GB 1 015 467 A (SCHMIDT PAUL) 31 December 1965 (1965-12-31) the whole document -----	1-14

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0107900	A1	09-05-1984	NONE
WO 2008120255	A1	09-10-2008	NONE
US 2009013684	A1	15-01-2009	JP 4832373 B2 07-12-2011 JP 2009019517 A 29-01-2009 US 2009013684 A1 15-01-2009
DE 102008027541	A1	17-12-2009	DE 102008027541 A1 17-12-2009 EP 2303066 A1 06-04-2011 JP 2011522642 A 04-08-2011 US 2011154817 A1 30-06-2011 WO 2009149689 A1 17-12-2009
GB 1015467	A	31-12-1965	BE 635543 A 10-02-2014 DE 1489534 A1 03-04-1969 FR 1364503 A 19-06-1964 GB 1015467 A 31-12-1965 LU 44180 A1 01-10-1963 NL 294816 A 10-02-2014