

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 September 2008 (12.09.2008)

PCT

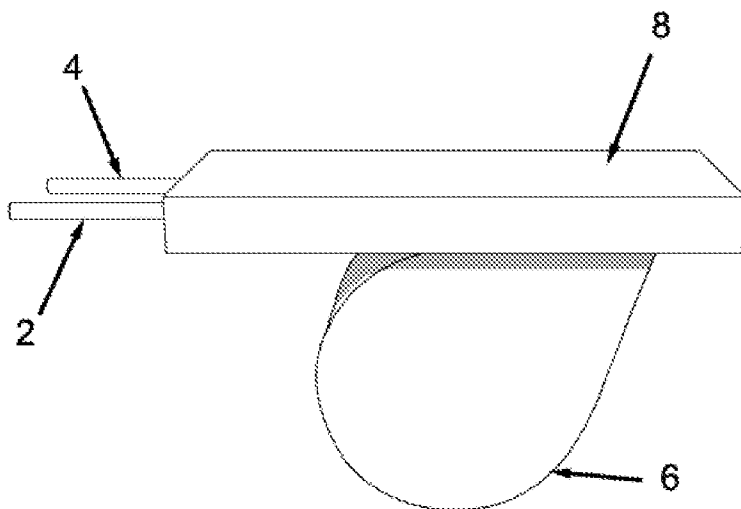
(10) International Publication Number
WO 2008/108863 A3

- (51) **International Patent Classification:**
H01H 61/06 (2006.01) *E05B 15/16* (2006.01)
- (21) **International Application Number:**
PCT/US2007/072046
- (22) **International Filing Date:** 25 June 2007 (25.06.2007)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
60/805,627 23 June 2006 (23.06.2006) US
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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, KM, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) **Date of publication of the international search report:**
18 December 2008

(54) **Title:** LOCKING DEVICE USING SHAPE MEMORY MATERIALS



(57) **Abstract:** The disclosed devices use shape memory materials, and specifically shape memory polymers and composites to allow or disallow mechanical or physical movement. By positioning the shape memory polymer so it is near the mechanical device which is to be moved, the shape memory polymer will allow or disallow the motion of the mechanical device depending on the state the shape memory polymer is in. When the shape memory polymer is in its hard rigid state the device cannot move. Once activated the shape memory polymer will become soft and pliable, whereupon with sufficient force the mechanical device can be moved to a new position. Once in this new position the SMP can either remain in its relaxed state, the SMP can return to a hard rigid state and maintain its deformed shape, or the SMP can return to its original shape to ensure the device does not move.

Fig. 1

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/72046

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - H01H 61/06; E05B 15/16 (2008.04)
 USPC - 337/139
 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)
 USPC: 337/139

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 USPC: 337/123, 139, 140, 141, 382, 393, 395, 397, 398;
 292/163, 137, 144, 146, 150, DIG.11, DIG.66, 126, 38, 141, 171; and search terms listed below.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 PubWest (PGPB,USPT,USOC,EPAB,JPAB; PLUR=YES; OP=ADJ); Google Scholar
 Search terms: shape memory polymer, active material, lock, locking, styrene, cyanate, maleimide, epoxy, smp, alloys, thermal, heat, water, light, magnetic, electromagnetic, electrical conductors

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/0012191 A1 (BREI et al.) 19 January 2006 (19.01.2006), see paragraphs [0008], [0009], [0033], [0034], [0083], and [0094] - [0098].	1-10
A	US 2005/0183479 A1 (ALACQUA et al.) 25 August 2005 (25.08.2005), see entire document.	1-10
A	US 2005/0275196 A1 (ZANELLA et al.) 15 December 2005 (15.12.2005), see entire document.	1-10
A	US 7,029,056 B2 (BROWNE et al.) 18 April 2006 (18.04.2006), see entire document.	1-10

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 - "&" document member of the same patent family

Date of the actual completion of the international search 03 October 2008 (03.10.2008)	Date of mailing of the international search report 09 OCT 2008
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