



(51) International Patent Classification:

E06B 3/46 (2006.01) *E05F 15/14* (2006.01)
E06B 7/02 (2006.01) *E04F 10/06* (2006.01)
E06B 7/76 (2006.01)

(21) International Application Number:

PCT/EP2012/061669

(22) International Filing Date:

19 June 2012 (19.06.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11170572.9 20 June 2011 (20.06.2011) EP

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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, 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, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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,

[Continued on nextpage]

(54) Title: COVERINGS FOR BUILDING APERTURES OR SURFACE PORTIONS OF BUILDINGS AND DRIVE SYSTEM FOR SUCH COVERINGS

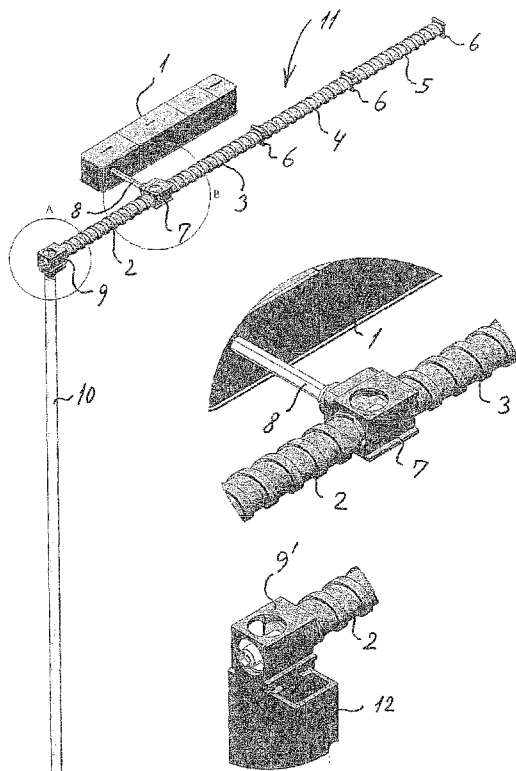


Fig. 1(a)

(57) Abstract: The invention relates to a mechanism for converting a rotary motion originating from a rotary energy generator (1) into a longitudinal motion of a carriage (25) that is adapted for attachment to a covering, such that said rotary motion will result in a longitudinal displacement of the covering, the mechanism comprising one or more spindle sections (2, 3, 4, 5) drivingly connected at a longitudinal end of at least one of said spindle sections via a gear means (7; 9; 22, 23, 24, 27) to said rotary energy generator (1). The invention further relates to a drive system for coverings comprising mechanisms according to the invention. The invention further relates to a covering system for covering a surface portion such as a window, glass door or the like, of a building.

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, ML, MR, NE, SN, TD, TG).

— *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:

11 July 2013

Published:

— *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/061669

A. CLASSIFICATION OF SUBJECT MATTER
INV. E06B3/46 E06B7/02 E06B7/16 E05F15/14
ADD. E04F10/06

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)
E06B E04F A47H

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 A	wo 91/04390 AI (LYNGHOLM TORE [NO]) 4 April 1991 (1991-04-04) the whole document -----	1-7, 10-21 8,28
X A	US 3 774 665 A (BOURNE H) 27 November 1973 (1973-11-27) the whole document -----	1-7, 10-21 8
X A	DE 200 21 691 UI (MAYR MICHAEL [DE] ; LUTZ FRANZ [DE]) 12 April 2001 (2001-04-12) figure 4 -----	1-7, 10-21 8
X	GB 2 396 657 A (WILKINS BRIAN MALCOLM [GB]) 30 June 2004 (2004-06-30) the whole document ----- - / - -	1-7, 10-21



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

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"P" document published prior to the international filing date but later than the priority date claimed

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"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

13 May 2013

Date of mailing of the international search report

23/05/2013

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/061669

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 44 28 983 A1 (RUETH ERICH [DE]) 22 February 1996 (1996-02-22) figures 1-3 -----	1-7, 10-21
X	US 6 024 156 A (CHU WINSTON [US]) 15 February 2000 (2000-02-15) the whole document -----	1-7, 9-21
X	DE 20 2004 005204 U1 (REHAU AG & CO [DE]) 17 June 2004 (2004-06-17) figures 2, 2a, 4, 5 -----	22-27
A		28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2012/061669

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 64(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 the additional search 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: 1-21

spindle drive able to be used for coverings

2. claims: 22-27

frame profiles of a covering

3. claim: 28

energy harvesting in a ventilation channel

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2012/061669

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9104390	AI	04-04-1991	AU 6406290 A 18-04-1991
			EP 0518859 AI 23-12-1992
			NO 893651 A 13-03-1991
			WO 9104390 AI 04-04-1991

US 3774665	A	27-11-1973	US 3774665 A 27-11-1973
			ZA 7202357 A 27-12-1972

DE 20021691	UI	12-04-2001	AT 263303 T 15-04-2004
			AU 3543201 A 31-07-2001
			DE 20021691 UI 12-04-2001
			DK 1163417 T3 02-08-2004
			EP 1163417 AI 19-12-2001
			ES 2218386 T3 16-11-2004
			PT 1163417 E 30-07-2004
			TR 200400903 T4 21-06-2004
			US 2002053410 AI 09-05-2002
			WO 0153647 AI 26-07-2001

GB 2396657	A	30-06-2004	AU 2003296831 AI 22-07-2004
			GB 2396657 A 30-06-2004
			WO 2004059116 AI 15-07-2004

DE 4428983	AI	22-02-1996	NONE

US 6024156	A	15-02-2000	NONE

DE 202004005204	UI	17-06-2004	NONE
