



(11) **EP 2 177 700 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
21.04.2010 Bulletin 2010/16

(51) Int Cl.:
E05F 11/48 (2006.01) B60J 1/17 (2006.01)

(21) Application number: **07822900.2**

(86) International application number:
PCT/ES2007/000492

(22) Date of filing: **22.08.2007**

(87) International publication number:
WO 2009/022027 (19.02.2009 Gazette 2009/08)

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(72) Inventor: **Daumal Castellon, Melchor**
08013 Barcelona (ES)

(74) Representative: **Morgades y Manonelles, Juan Antonio**
Morgades & Del Rio, S.L.
C/Rector Ubach, 37-39 bj. 2.o
08021 Barcelona (ES)

(30) Priority: **08.08.2007 ES 200701721**

(71) Applicant: **Daumal Castellon, Melchor**
08013 Barcelona (ES)

(54) **IMPROVED RAIL FOR AUTOMOBILE ELECTRIC WINDOWS DEVICE**

(57) The invention refers to a precut sheet rail forming part of a window raising device, which generically have the relevant pulleys and supports. These pulleys are held by appropriate means to the ends of the rail and fitted with an electric motor with its attached electronics. This, along with the rail and pulleys, plus the appropriate cables and sleeves supported on one of its ends by the aforementioned support-pulley allow the glass to go up and down inside the car door.

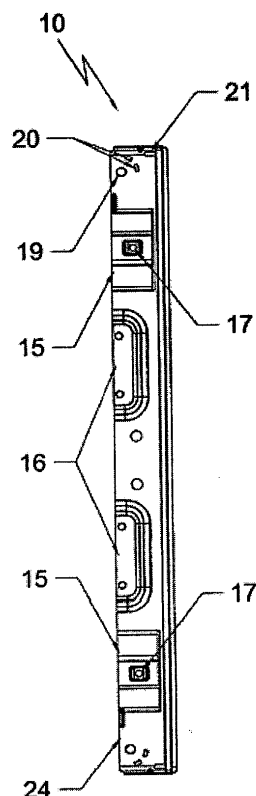


Fig. 1

Description

[0001] More specifically the invention refers to a precut sheet rail forming part of a window raising device, which generically have the relevant pulleys and supports. These pulleys are held by appropriate means to the ends of the rail and fitted with an electric motor with its attached electronics. This, along with the rail and pulleys, plus the appropriate cables and sleeves supported on one of its ends by the aforementioned support-pulley allow the glass to go up and down inside the car door.

[0002] This type of rail is held by appropriate means to the inside of the car door and more specifically to its reinforcing sheet welded to the inner section. The rail and device hidden by the door trim is usually modular and is obtained by die cutting and covering one of its sides with cloth or similar material.

[0003] The specified rail has been designed to simplify to a maximum its mechanism and equipment without affecting its structural strength. Furthermore the different parts of the window raising device assembly quickly and effectively built into the door facilitating its assembly and attachment to be door reinforcing cover due to its special configuration.

[0004] The rail has a slightly prismatic curve with one of its larger bases on the rear missing and with one of its side bases being larger. This is obtained by die stamping the sheet. Near to one of its ends that there is a slightly rectangular hole to retain rubber studs acting on the lower edge of the glass when it is lowered along the rail. All of this is mounted on its single larger base. There is also a hole to pass the axis of the pulley support through and a circle of holes to direct the support depending on the cable sheaths which, together with other parts in the device, allow the glass to go up and down inside the frame of the door.

[0005] Below the alignment of holes in the single larger base of the rail there is a outward moulding which has a trapezoidal cross-section, the base of which has a cavity to house a nut onto which is threaded a screw to allow in the rail to be held on to the car door reinforcing plate and with the complete device.

[0006] On the upper larger base of the rail there are pulley supports and the relevant pulleys in addition to a rubber which acts as a lower stop when the glass is lowered and the electromotor drum support in addition to the means of holding the rail to the lower section of the door.

[0007] Around the central area and around the single larger base there are reinforcing mouldings to give greater strength to the rail, inside which are holes to attach the electromotor drum cover. Between these mouldings there are holes to allow the rail to be removed after it has been die cut.

[0008] Other details and characteristics shall be shown throughout the description below referring to drawings attached to this report which are shown for illustrative but not limiting purposes a practical embodiment of the invention.

[0009] Below is a list of parts in the device with their corresponding numbers which appear in the attached diagrams; (10) rail, (11) upper base., (12) side base, (13) ribbing, (14) lower and upper smaller bases, (15) motor drum supports, (16) moulding, (17) hole, (18) nut, (19) pulley support shaft hole, (20) pulley support directional holes, (21) drilled hole, (22) ribbing, (23) stop, (24) upper base, (25) holes.

[0010] Figure 1 is a front view in elevation of the rail (10) in this invention.

[0011] Figure 2 is a side top view of the rail (10).

[0012] Figure 3 is a front view in elevation of the opposite side of the rail (25).

[0013] Figure 4 is a perspective view of the opposite side of the rail (25) slightly inclined.

[0014] Figure 5 is a perspective view of the rail (10) slightly inclined.

[0015] In one of the preferred set-ups of this application, the rail (10), as shown in the figure is as a slightly prismatic body which is curved and manufactured by die stamping from a metal sheets in one single piece. The body of the rail (10) has a single larger base, the upper base (11), a single larger side base (12) with longitudinal reinforcing ribbing through its centre (13), as shown in figures 3 and 5.

[0016] On the larger upper base (11) and also on the moulding there are preferably rectangular holes (21) in the surrounding area with the upper and lower smaller bases (14) to insert a rubber (23) not shown in the figure is, the function of which is to act as a lower stop for the glass when it reaches the end of its lower run.

[0017] Also on the larger upper base (11) there are some circular holes (19) to house the pulley shaft, not shown in the figures, which together with its support is housed in the upper section of the rail (10). The direction of the pulley support, not shown in the figures, is adjusted by the circular layout of holes (20), which direct the aforementioned pulley support so that it fits into the corresponding glass lifting cable sheaths.

[0018] In the upper and lower third of the rail (10) there are mouldings with a trapezoidal cross-section (15), which act as the rail support (10) on the door reinforcement. On the upper base (24) of the mouldings (15) there is a hole (17), into which a nut (18) is inserted. The function of the nut (18) is to be screwed onto a screw from the inner section of the aforementioned door reinforcing sheets to hold the rail (10) with the corresponding window raising device parts.

[0019] Finally, in order to reinforce the aforementioned mouldings (15), ribbing (22) has been designed into its bases as seen in Figures 1, 3, 4 and 5, all of which also have reinforcing mouldings (16), in the areas immediately around the centre section of the rail (10).

[0020] On the surface inside the mouldings (16) there are holes (25), see Figure 3, in which the cover of the electromotor's drum in the window raising device is held in using the relevant nuts and bolts.

[0021] Having sufficiently described this invention us-

ing the Figures attached, it is easy to understand that any changes judged to be suitable may be made, whenever these changes do not alter of the essence of the invention summarised in the following claims.

5

Claims

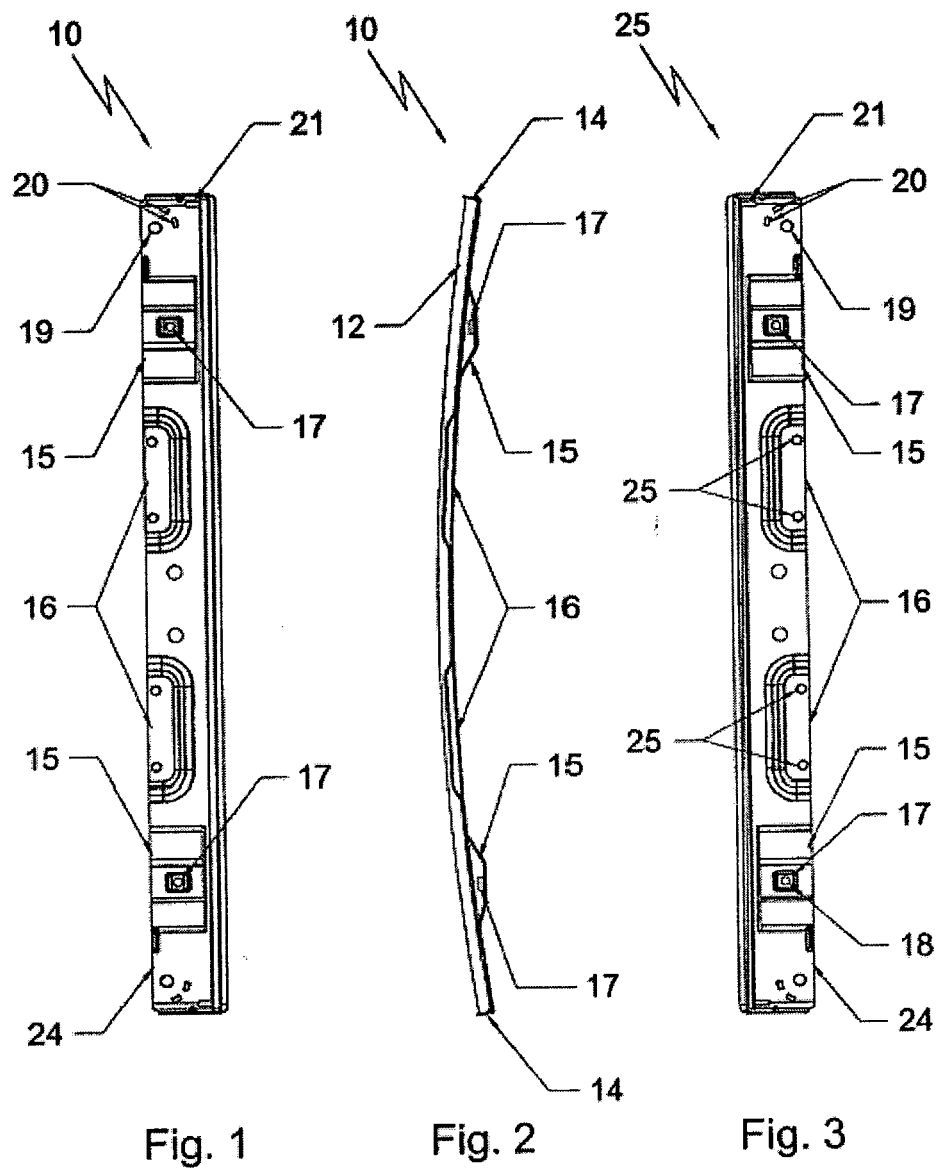
1. - **"IMPROVED RAIL FOR RAISING CAR WINDOWS"** formed by one or more metal parts obtained by moulding a flat metal sheet along which the glass lifting device slides formed by other parts such as pulleys, cables with sheaths and an electromotor with its electronics. The window raising device is **characterised by** the fact that the rail (10) is a single body obtained by die stamping a flat metal plate. The rail is slightly prismatic and curved longitudinally with a single larger upper base (11), and a single larger side base (12) containing longitudinal reinforcing ribbing (13). On the aforementioned upper base (11) there are means of mounting a pulley shaft and its support, means of directing the aforementioned pulley support in addition to the rail mountings (10) onto the car door reinforcing plate.

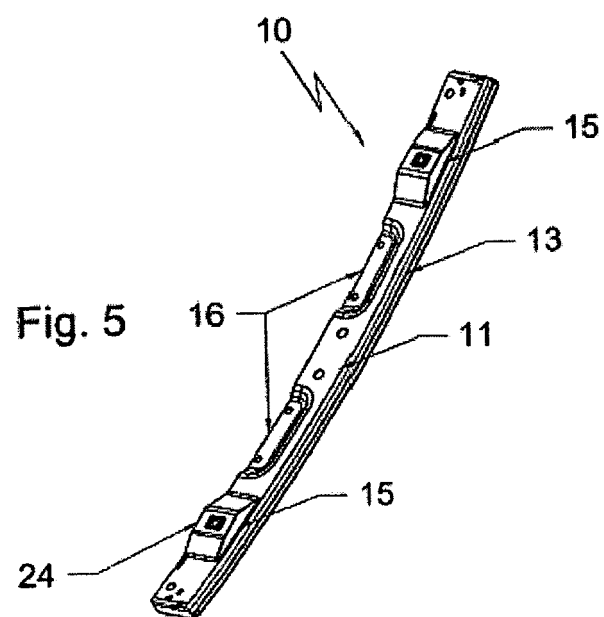
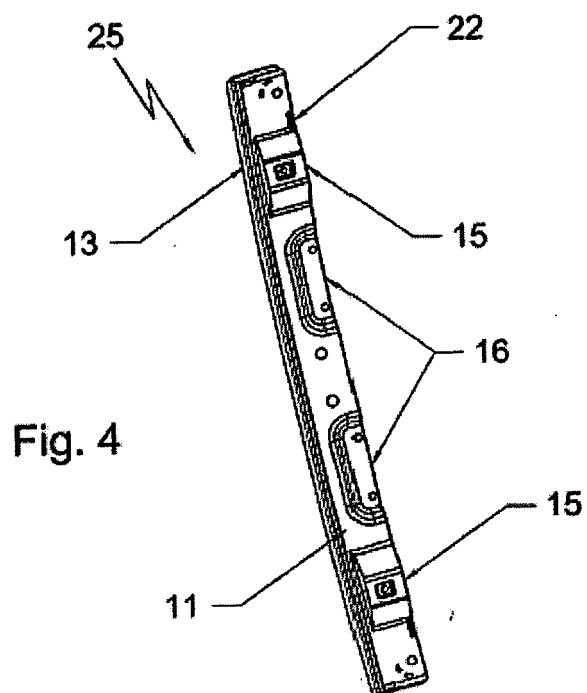
10
15
20
2. - **"IMPROVED RAIL FOR RAISING CAR WINDOWS"** according to the Claim 1 **characterised by** the fact that means of mounting the pulley shaft and directing the pulley support are formed by a hole (19) near to the ends of the rail (10), whereas holes (20) direct the pulley support so that it fits into the ends of the window raising device cable sheath.

25
30
3. - **"IMPROVED RAIL FOR RAISING CAR WINDOWS"** according to the Claim 1 **characterised by** the fact that means of mounting the rail (10) to the car door reinforcing plate are formed by mouldings (15), with a trapezoidal cross-section with its upper base (24) having a hole (17) to insert a nut (18).

35
40
4. - **"IMPROVED RAIL FOR RAISING CAR WINDOWS"** according to the Claim 1 **characterised by** the fact that surrounding the mouldings (15) there is reinforcing ribbing (22) and surrounding the centre section of the rail (10), there is also reinforcing ribbing (16). On the inner surface of the mouldings there are holes (25) to mount the window raising device's electromotor drum cover.

45
50
55





INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 2007/000492

A. CLASSIFICATION OF SUBJECT MATTER		
see extra sheet		
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) E05F11, B60J1		
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) CIBEPAT,EPODOC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1491708 A1 (ANTOLIN GRUPO ING SA) 29.12.2004, paragraphs [17-44]; figures.	1-4
A	DE 19705054 A1 (BROSE FAHRZEUGTEILE) 06.08.1998, the whole document.	1-4
A	ES 2264265 T3 (ANTOLIN GRUPO ING SA) 16.12.2006, the whole document.	1-4
A	US 2003140562 A1 (STASER et al.) 31.07.2003, paragraphs [16-26]; figures.	1-3
A	ES 2190890 A1 (ANTOLIN GRUPO ING SA) 16.08.2003, the whole document.	1,3
A	ES 2185405 T3 (BROSE FAHRZEUGTEILE) 16.04.2003, the whole document.	1,3
☐ 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 document 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 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 16.April.2008 (16.04.2008)		Date of mailing of the international search report (25/04/2008)
Name and mailing address of the ISA/ O.E.P.M. Paseo de la Castellana, 75 28071 Madrid, España. Facsimile No. 34 91 3495304		Authorized officer M ^a J. Cuenca González Telephone No. +34 91 349 30 74

Form PCT/ISA/210 (second sheet) (April 2007)

EP 2 177 700 A1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2007/000492

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
EP 1491708 AB	29.12.2004	WO 03083240 A CA 2449516 AC AU 2002251088 A BR 0210247 A US 2004187389 A US 7121044 B MX P EP 20020720016 CN 1625637 A CN 1312372 C ES 2288187 T DE 60220548 T	09.10.2003 09.10.2003 13.10.2003 10.08.2004 30.09.2004 17.10.2006 06.12.2004 03.04.2002 08.06.2005 25.04.2007 01.01.2008 07.02.2008
DE 19705054 AC	06.08.1998	WO 9833999 A	06.08.1998
ES 2264265 T	16.12.2006	WO 0009354 A AU 5290999 A EP 1020310 AB EP 19990938399 BR 9906635 A US 6256929 B JP 2002522674 T DE 69931883 T	24.02.2000 06.03.2000 19.07.2000 30.07.1999 01.08.2000 10.07.2001 23.07.2002 28.12.2006 28.12.2006
US 2003140562 A	31.07.2003	US 6758013 B	06.07.2004 06.07.2004 06.07.2004
ES 2190890 A B	16.08.2003	NONE	-----
ES 2185405 T	16.04.2003	WO 0009846 A DE 19838347 AC BR 9913034 A EP 1105610 AB EP 19990952366 CN 1312879 A CN 1119492 C JP 2002522678 T US 6516493 B	24.02.2000 24.02.2000 08.05.2001 13.06.2001 12.08.1999 12.09.2001 27.08.2003 23.07.2002 11.02.2003 11.02.2003 11.02.2003

Form PCT/ISA/210 (patent family annex) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2007/000492

CLASSIFICATION OF SUBJECT MATTER

E05F 11/48 (2006.01)

B60J 1/17 (2006.01)