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(54) **IMPROVEMENTS MADE IN THE BASE PLATE OR DRAG PLATE FORMING PART OF THE ELECTRIC WINDOWS DEVICES FOR AUTOMOBILES**

(57) The claimed invention comprises a substantially rectangular metal plate or perimeter drag plate, formed from a metal sheet by stamping and die-casting thereof; wherein the plastic part which includes the clip for fas-

tening and immobilising the window pane by the lower portion thereof is rigidly attached to said metal sheet; said clip has a slot in the central portion thereof, where the window pane rests, thereby rigidly attaching the plastic part to the three point drag plate.

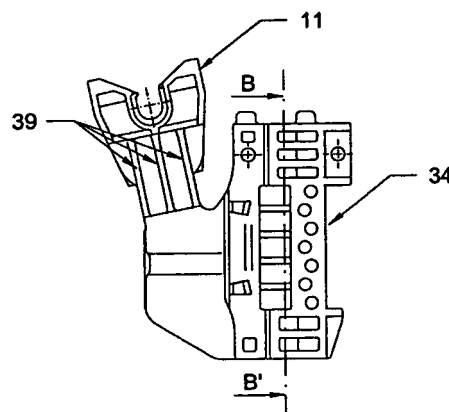


Fig. 9

Description

ures:

[0001] More specifically, the invention relates to improvements made to the base plate or built in drag plate for power window devices in motor vehicles, generally comprising a clip to hold the glass at its bottom edge, or in the immediate vicinity of the same, which slides on a guide rail with the help of a supporting element and a slider allowing the glass to go up and down with the maximum safety along the rail, driven by an electric motor that pulls a cable whose ends are joined to the base plate by suitable means.

[0002] In the current State of the Art in this industrial sector, several different systems of power windows are known, such as those described in the previous paragraph, so that aforementioned clips, normally two, are secured to a support and the clip and support help to immobilise the glass and align it with the car door window frame. As well as this alignment function, a basic fact is that the support and the clip slide along the guide rail, for which purpose a slider built in to the support is needed, and the inside of the slider matches the guide rail.

[0003] The claimed invention, unlike the current State of the Art, is a single component comprising the clip and the slider, as well a means of joining said parts to the base plate or built in drag plate, the parts being preferably made by plastic injection moulding, and the plate made from a metal sheet by stamping and die-casting, incorporating means for alignment and immobilisation of the bottom edge of the glass to the plate, so that the glass is secured at three points.

[0004] The claimed invention comprises a substantially rectangular metal plate or perimeter drag plate, formed from a metal sheet by stamping and die-casting thereof; wherein the plastic part which includes the clip for fastening and immobilising the window pane by the lower portion thereof is rigidly attached to said metal sheet; said clip has a slot in the central portion thereof, where the window pane rests, thereby rigidly attaching the plastic part to the three point drag plate. In addition to the three aforementioned holes, the built in drag plate has three stamped holes in its central part with three orifices for securing the clips, and in the top edge of the supporting element there are four or more grooves to press fit the rubber gaskets that avoid the glass breaking.

[0005] The clip and slider, being a single component, makes assembly easier and quicker to assemble, in addition to the fact that the system of contact with the guide for sliding the power window is easy to install, by means of a groove that allows the base plate drag to be fitted with said guide rail.

[0006] 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 preferred embodiment of the invention.

[0007] A numerical list of the different parts of the specified device is given below, which are shown in the fig-

- (10) base plate or drag plate;
- (11) clip;
- (12) tabs to secure glass;
- (13) rubber gasket for glass;
- (14) drag plate nut;
- (15) screw;
- (16) metal clip;
- (17) groove; (18) flange;
- (19) drilled holes;
- (20) grooves;
- (21) hooks;
- (22) wings; (23) recess;
- (24) drill to fit the hooks (21);
- (25) lug;
- (26) drill;
- (27) stamped hole;
- (28) drill;
- (29) lug;
- (30) stamped holes;
- (31) sloping part;
- (32) vertical part;
- (33) top edge;
- (34) slider;
- (35) longitudinal vertical channel;
- (36) lugs;
- (37) top edge of the slider (34);
- (38) wings of the clip (11);
- (39) longitudinal ribs;
- (40) cavity;
- (41) glass;
- (42) smaller side bases of (10);
- (43) guide rail; and
- (44) bottom edge of the slider (34).

Figure 1 is a front elevation view showing the base plate or drag plate (10) with the clip-slider component (11-34), object of this invention, fitted.

Figure 2 is a rear elevation view of the base plate or drag plate (10).

Figure 3 is a top plan view of the base plate (10) from its top edge (33).

Figure 4 is a perspective view of the base plate (10), where one can see the stamped holes (30) for fitting the drag plates (16).

Figure 5 is a side elevation view of the base plate (10), showing the flange (18) for supporting the clip (11).

Figure 6 is a detail view of the support flange (18) of the clip (11) through "A" in Figure 3, which has a die-cut hole (28).

Figure 7 is a longitudinal cross-sectional view of the slider (34) with a groove inside (35) and on its top edge (37) the lugs (36), through line C-C in Figure 10.

Figure 8 is a transverse, cross-sectional view of the slider (34) through line B-B' in Figure 9, whose lower part has hooks (21) for securing the slider (34) to the

base plate (10).

Figure 9 is a front elevation view of the single-component clip-slider set (11-34).

Figure 10 is a side elevation view of the single-component clip-slider set (11-34).

Figure 11 is an enlarged detail of the hook (21) through "D" in Figure 8.

[0008] In one of the preferred embodiments of this invention, as may be seen in Figs. 1 and 2, the drag plate (10) is composed of a rectangular metal stamped and die-casting plate, with stamped holes (30) in the proximity of the bottom base to which a drag plate (16) is secured with a screw (15) and a nut (14).

[0009] In the central part of the base plate (10) and in the vicinity of the top edge (33) there is a flange (18), as can be seen in Fig. 5, which has a sloping part (31) that extends upwards forming a vertical part (32). There are also slots (20) in the top edge (33) of the base plate (10) into which rubber seals are press fitted (13) and the glass (41), not shown in the figures, see Figs. 1, 2 and 4.

[0010] The single-component clip-slider set (11-34), as can be seen in Fig. 10, is composed of a clip (11), formed by two wings (38), which have a groove in their central part (17), these wing (38) being reinforced with longitudinal ribs (39). Between the wings (38) there is an open cavity (40) adapted for fitting the glass (41), not shown in the figures.

[0011] From the smaller side bases (42) of the drag plate (10) project tabs (12), on which the bottom edge of the glass (41) rests, so that (41) it first rests on the clip (11) and in its cavity (40), in the support rubbers (13) the drag plates (16) and the tabs (12).

[0012] The slider (34), as can be seen in Figs. 7 and 8, has a prism-shaped body, with a vertical longitudinal groove inside (35) adapted to fit in a guide-rail (43), not shown in the illustrations. On its top edge (37) it (34) has some lugs (36) to secure it to the top edge (33) of the drag plate (10), whereas its bottom edge (44) has some hooks (21), whose wings (22) are press fitted into the drilled holes (24) by the recesses of (22) in (24).

[0013] Having sufficiently described this invention using 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.

Claims

1. - **"IMPROVEMENTS MADE IN THE BASE PLATE OR BUILT IN DRAG PLATE FOR POWER WINDOW DEVICES IN MOTOR VEHICLES** comprising a base plate that serves as a supporting for a clip securing the glass, and also incorporating a slider for the movement of the glass along a guide rail, **characterised by** the fact that the clip (11) and slider (34) a form a single component, which is secured to

the base plate (10) with by means of lugs (36) that project from the top edge of the slider (34) and hooks (21) that project from the vicinity of the bottom edge (44) of (34) and are press-fitted into the drilled holes (24) in the base plate (10).

2. - **"IMPROVEMENTS MADE IN THE BASE PLATE OR BUILT IN DRAG PLATE FOR POWER WINDOW DEVICES IN MOTOR VEHICLES** according

to the claim 1 **characterised by** the fact that the drag plate (10) is composed of a rectangular metal stamped and die-casting plate formed from a metal sheet, with stamped holes (30) in the proximity of the bottom base to which a drag plate (16) is secured with a screw (15) and a nut (14).

3. - **"IMPROVEMENTS MADE IN THE BASE PLATE OR BUILT IN DRAG PLATE FOR POWER WINDOW DEVICES IN MOTOR VEHICLES** according

to the claim 1 **characterised by** the fact that in the central part of the base plate (10) and in the vicinity of the top edge (33) there is a flange (18), which has a sloping part (31) that extends upwards forming a vertical part (32), with slots (20) in the top edge (33) of the base plate (10) into which rubber seals are press fitted (13) and the glass (41).

4. - **"IMPROVEMENTS MADE IN THE BASE PLATE OR BUILT IN DRAG PLATE FOR POWER WINDOW DEVICES IN MOTOR VEHICLES** according

to the claim 1 **characterised by** the fact that the single-component clip-slider set (11-34) is composed of a clip (11), formed by two wings (38), which have a groove in their central part (17), these wing (38) being reinforced with longitudinal ribs (39). Between said wings (38) there is an open cavity (40) adapted for fitting the glass (41).

5. - **"IMPROVEMENTS MADE IN THE BASE PLATE OR BUILT IN DRAG PLATE FOR POWER WINDOW DEVICES IN MOTOR VEHICLES** according

to the claim 1 **characterised by** the fact that The slider (34) has a prism-shaped body, with a vertical longitudinal groove inside (35) adapted to fit in a guide-rail (43), having some lugs (36) on its top edge (37) to secure it to the top edge (33) of the drag plate (10), whereas its bottom edge (44) has some hooks (21), whose wings (22) are press fitted into the drilled holes (24) by the recesses of (22) in (24).

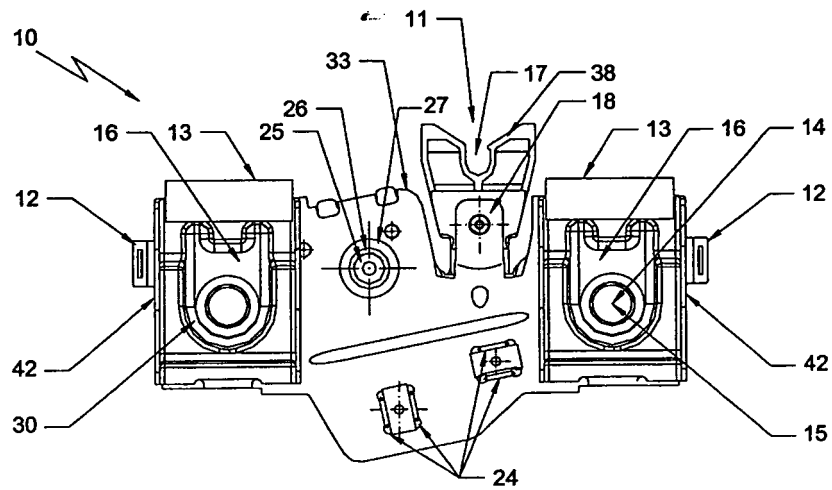


Fig. 1

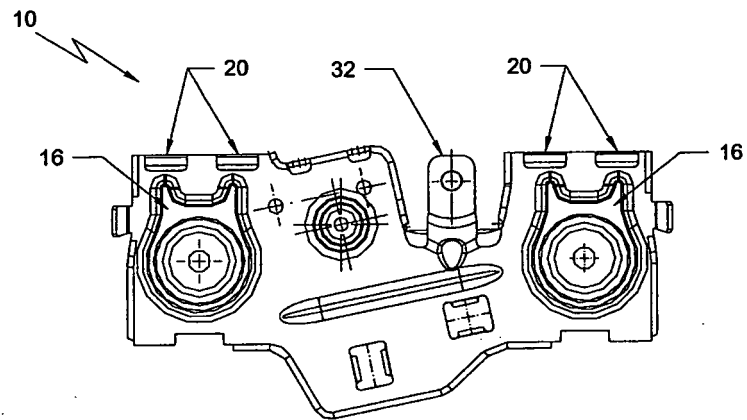
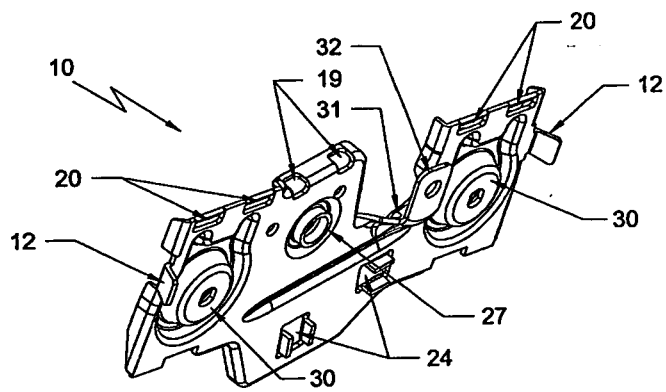
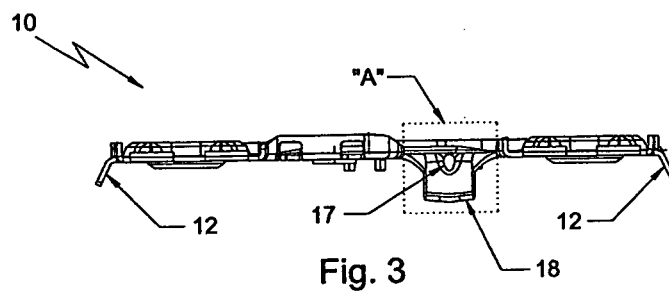


Fig. 2



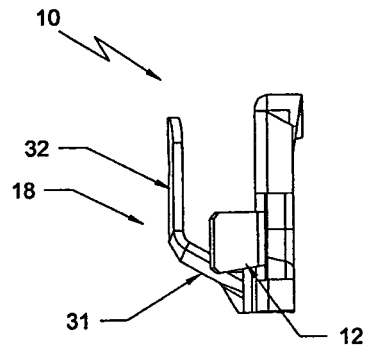


Fig. 5

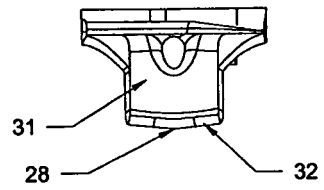


Fig. 6

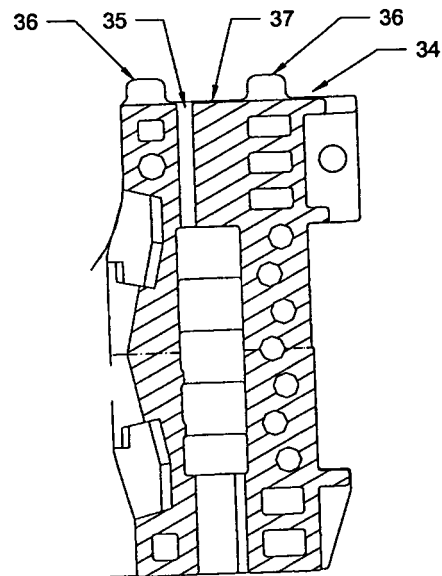


Fig. 7

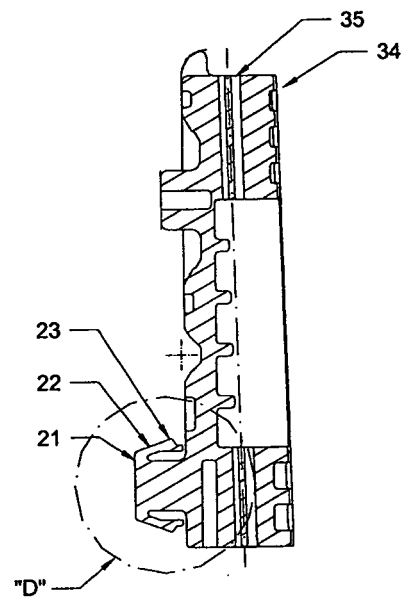


Fig. 8

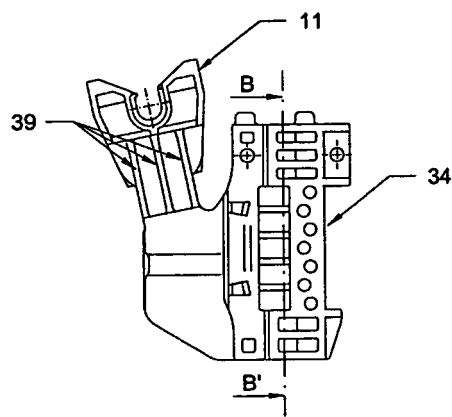


Fig. 9

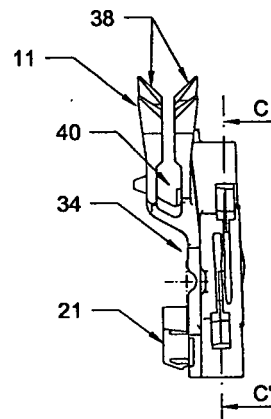


Fig. 10

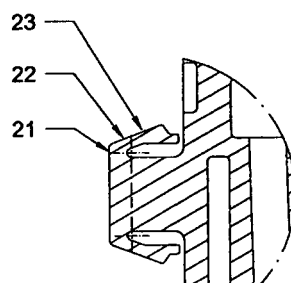


Fig. 11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 2007/000589

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)

INVENES,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 1300269 A1 (DELPHI TECH INC) 09.04.2003, paragraphs [8-24]; figures.	1-5
A	ES 2253612 T3 (LAMES SPA) 01.06.2006, column 2, line 22 - column 6, line 5; figures.	1-5
A	US 2004088924 A1 (MOSER et al.) 13.05.2004, paragraphs [22-40]; figures.	1-5
A	US 5809695 A (STRICKLAND et al.) 22.09.1998, column 3, line 15 - column 6, line 43; figures.	1-5
A	ES 1055444 U (DAUMAL CASTELLON MELCHOR) 16.11.2003, the whole document.	4,5

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:	"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
"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)	"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
"O" document referring to an oral disclosure use, exhibition, or other means	"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
"P" document published prior to the international filing date but later than the priority date claimed		
	"&"	document member of the same patent family

Date of the actual completion of the international search

27.June.2008 (27.06.2008)

Date of mailing of the international search report

(01-07-2008)

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Form PCT/ISA/210 (second sheet) (July 2008)

EP 2 196 610 A1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2007/000589

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INTERNATIONAL SEARCH REPORT

International application No.

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CLASSIFICATION OF SUBJECT MATTER

E05F 11/38 (2006.01)

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