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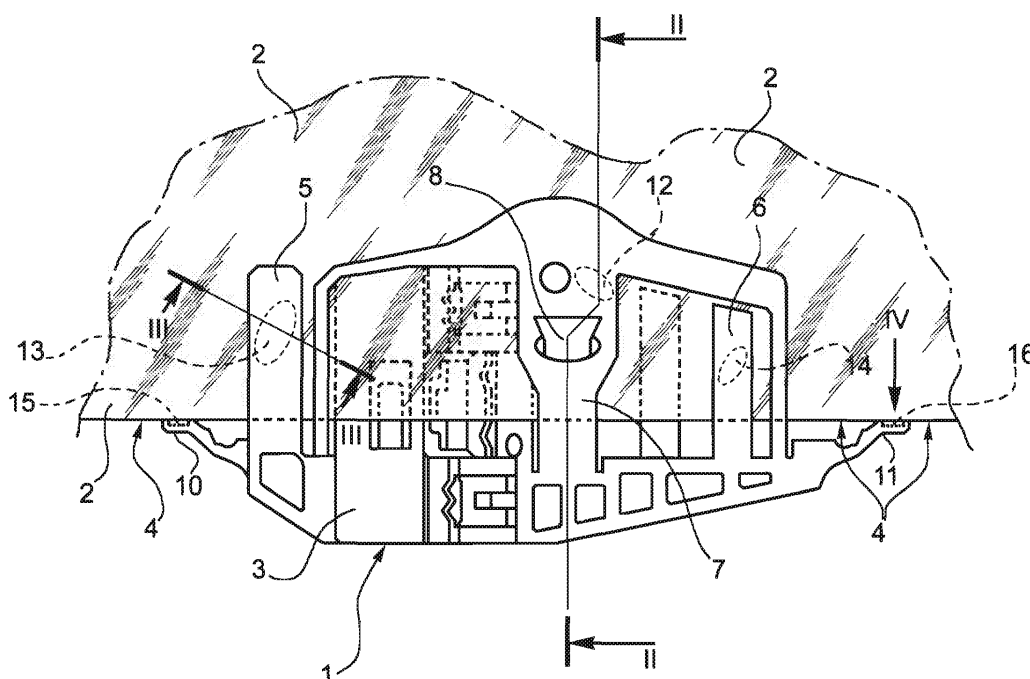
(54) **A drive block for the window pane associated with an opening of a motor vehicle**

(57) The block (1) comprises a shaped body (3) made of plastics material suitable for being fitted on and restrained astride an edge (4) of the window pane (2) and having a plurality of shaped portions (5-7, 10, 11) which bear against corresponding portions of the surface of the window pane (2) when the block (1) is in the mount-

ed condition.

Recesses or chambers (12-16) operatively facing the window pane (2) and suitable for housing a quantity of a lubricating material are formed in the surfaces of contact with the window pane (2) of at least some of the shaped portions (5-7, 10, 11).

FIG. 1



Description

[0001] The present invention relates to a drive block for the window pane associated with an opening and, in particular, with a window opening, of a motor vehicle.

[0002] In this description and in the appended claims, the term "window pane" means a movable, not necessarily flat sheet of an at least partially transparent material, associated with an opening of a motor vehicle.

[0003] More specifically, the subject of the invention is a drive block for the window pane of an opening of a motor vehicle, the drive block comprising a shaped body made of plastics material suitable for being fitted on and restrained astride an edge of the window pane and having a plurality of shaped portions which bear against corresponding portions of the surface of the window pane when the block is in the mounted condition.

[0004] Drive blocks of this type which are made, for example, of an acetal resin such as polyoxymethylmethylen (POM) are known.

[0005] Materials of this type ensure the long-term reliability of the system for restraining and moving the window pane. The force fit between the drive block and the window pane which, typically, is achieved by means of snap-coupling elements, restraining tabs which bear on the principal faces of the window pane, and appendages that are resiliently loaded against its end edge, decays progressively under the effect of the operative stresses, of vibrations when the vehicle is in motion, and of the accumulation of dust between the surface of the block and the window pane.

[0006] This leads to increasingly marked very small relative movements, surface degradation of the contact areas, and the production of noises (squeaking) which are annoying to the users of the vehicle. The production of noises is more marked during the raising and lowering of the window pane and, in particular, in the vicinity of the travel limit positions.

[0007] To overcome these disadvantages, the drive block may be connected more tightly to the window pane and the assembly and working tolerances of the window pane along its guides may be reduced. However, this generally leads to a greater working load as far as the window-regulator device and the drive blocks themselves are concerned, so that they have to withstand greater stresses.

[0008] Alternatively, it would be possible to consider using drive blocks made of more expensive materials selected appropriately so as to reduce the above-described disadvantages.

[0009] An object of the present invention is to propose a drive block for a window pane which overcomes the disadvantages outlined above without substantially altering the morphology of the block and in particular its shape and size, can be made of materials that are not particularly expensive, and does not lead to substantial cost increases from the point of view of assembly and installation operations.

[0010] This and other objects are achieved according to the invention by a drive block of the type defined above, characterized in that recesses or chambers operatively facing the window pane and suitable for housing a quantity of lubricating material are formed in the surfaces of contact with the window pane of at least some of the said shaped portions.

[0011] Further characteristics and advantages of the invention will become clear from the following detailed description which is given purely by way of non-limiting example, with reference to the appended drawings, in which:

Figure 1 is a partial view which shows a drive block according to the present invention, fitted on a window pane,

Figure 2 is a section taken on the line II-II of Figure 1,

Figure 3 is a section taken on the line III-III of Figure 1, on an enlarged scale, and

Figure 4 is a view of an end appendage of the drive block of Figure 1, taken on the arrow IV of that drawing, on an enlarged scale.

[0012] In Figures 1 and 2, a drive block for a window pane 2 associated, for example, with a motor-vehicle window opening is generally indicated 1.

[0013] The block 1 comprises a body 3 made of plastics material, for example, polyoxymethylmethylen (POM), fitted on and restrained astride an edge 4 of the pane 2.

[0014] The shaped body 3 has a plurality of shaped portions which bear against corresponding portions of the surface of the window pane 2 when the block 1 is in the mounted condition. In the embodiment shown by way of example, the body 3 of the block 1 has, for example, a pair of lateral restraining tabs 5 and 6 (Figure 1) which bear on a principal face or surface of the pane 2. In the embodiment shown, the body 3 also has an intermediate lateral brace 7 which also bears against the principal surface or face of the pane 2 on which the restraining tabs 5 and 6 bear. The brace 7 has a central prong-like portion 8 which extends out of the general plane of the brace and snap-engages in a corresponding indentation or recess 9 provided in the margin of the pane 2 (see Figure 2).

[0015] In the embodiment shown, the body 3 of the drive block 1 further comprises two terminal appendages 10 and 11 (Figure 1) which bear resiliently against the edge 4 of the pane 2.

[0016] According to the invention, at least some of the above-mentioned shaped portions of the body 3 of the block 1 are provided with recesses or chambers operatively facing the window pane 2 and suitable for housing a quantity of lubricating material, preferably viscous material such as a grease or the like.

[0017] In the embodiment described, a recess 12 is formed, for example, in the upper portion of the interme-

diate brace 7, as can be seen in Figures 1 and 2. Similar recesses 13 and 14 are provided in the surfaces of the restraining tabs 5 and 6 that are in contact with the window pane 2 (Figure 1).

[0018] In the embodiment described, similar recesses 15 and 16 are formed in the resilient appendages 10 and 11 which bear against the surface of the edge 4 of the pane 2 (Figures 1 and 4).

[0019] The above-described recesses or chambers advantageously but not necessarily have an oblong, preferably elliptical, cross-section in plan.

[0020] In an embodiment not shown in the drawings, the recesses or chambers 12-16 may be formed with their openings closed by a removable film, for example, a micro-perforated film which can easily be removed during installation.

[0021] The locations of the above-described recesses or chambers are advantageously selected in a manner such that the lubricating material contained therein can reduce both the abrasive effect exerted on the pane and the production of noises such as squeaking or grating in operation.

[0022] The lubricating material can easily be inserted in the recesses or chambers of the block, for example, by means of a spatula, during the installation of the block. In operation, the recesses or chambers are completely inaccessible from outside and thus effectively enclose and protect the lubricating material contained therein.

[0023] Naturally, the principle of the invention remaining the same, the forms of embodiment and details of construction may be varied widely with respect to those described and illustrated purely by way of non-limiting example, without thereby departing from the scope of the invention as defined in the appended claims.

portions (10, 11) operatively bearing against the surface of the edge (4) of the window pane (2), the recesses or chambers (12-16) for the lubricating material being formed in at least one of the first shaped portions (5-7) and in at least one of the second shaped portions (10, 11).

3. A drive block according to Claim 1 or Claim 2 in which the recesses or chambers (5-7; 15, 16) have an oblong, preferably elliptical cross-section in plan.
4. A drive block according to any one of the preceding claims in which the lubricating material is a viscous material such as a grease or the like.
5. A drive block according to any one of the preceding claims in which the recesses or chambers (5-7, 15, 16) are formed with their openings closed by a removable film.

Claims

1. A drive block (1) for the window pane (2) of an opening (1), in particular, of a window opening, of a motor vehicle, comprising a shaped body (3) made of plastics material suitable for being fitted on and restrained astride an edge (4) of the window pane (2) and having a plurality of shaped portions (5-7, 10, 11) which bear against corresponding portions of the surface of the window pane (2) when the block (1) is in the mounted condition, the block (1) being **characterized in that** recesses or chambers (12-16) operatively facing the window pane (2) and suitable for housing a quantity of a lubricating material are formed in the surfaces of contact with the window pane (2) of at least some of the shaped portions (5-7, 10, 11).
2. A drive block according to Claim 1 in which the shaped body (3) has first shaped portions (5-7) operatively bearing against the principal faces or surfaces of the window pane (2) and second shaped

FIG. 2

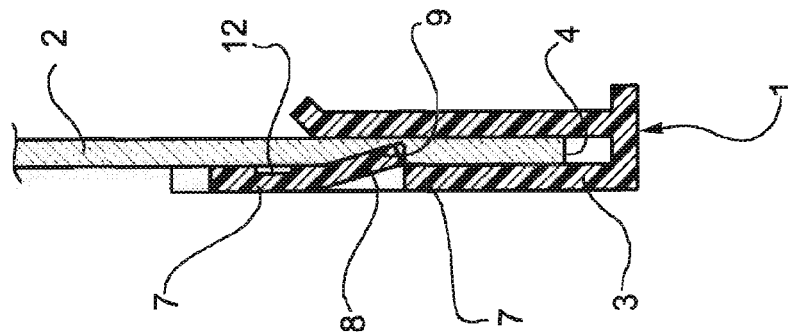


FIG. 1

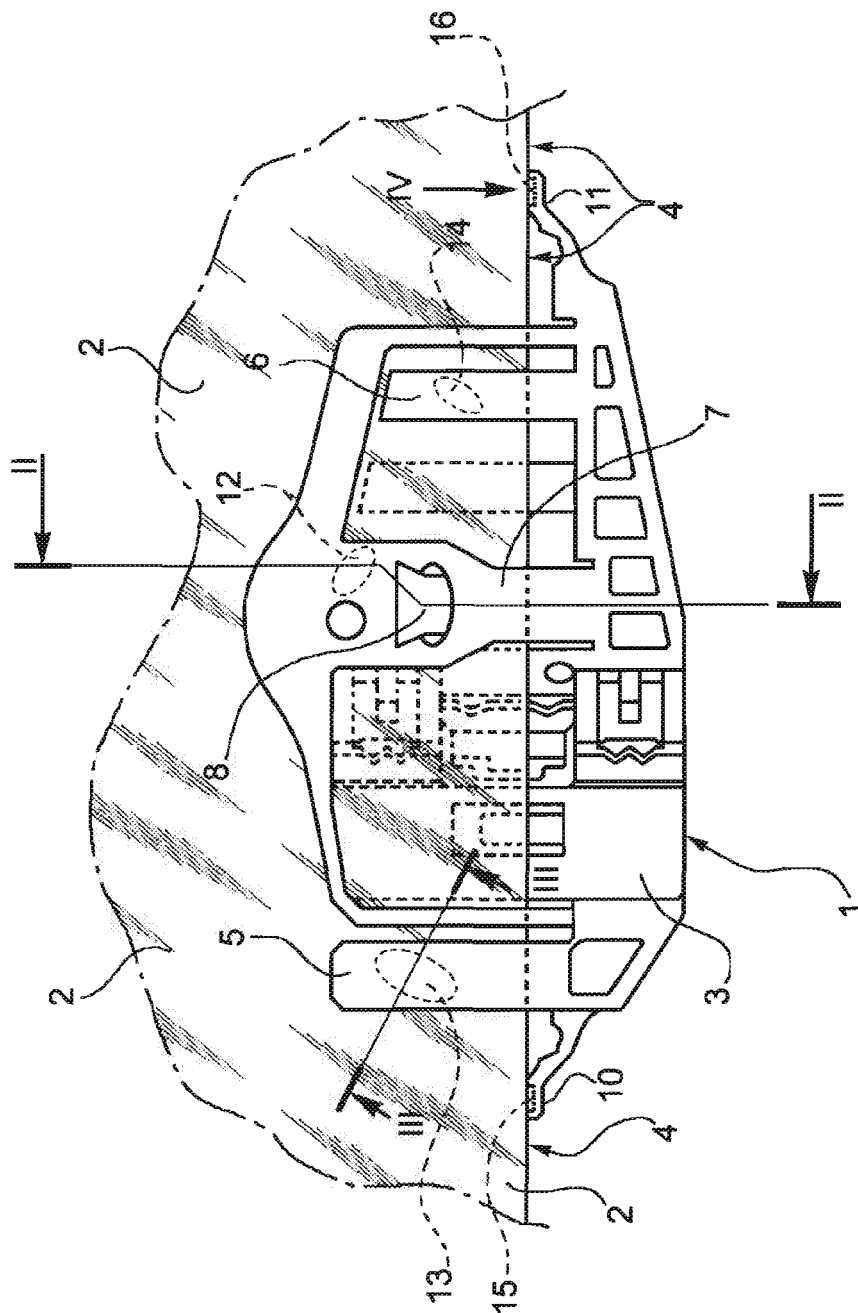


FIG. 3

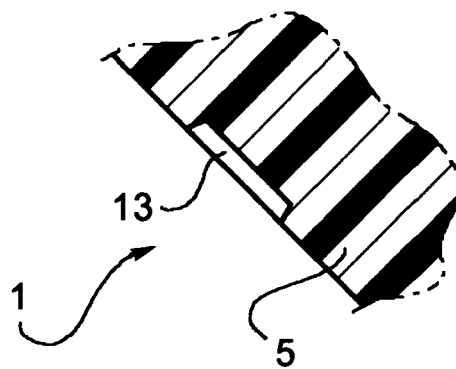
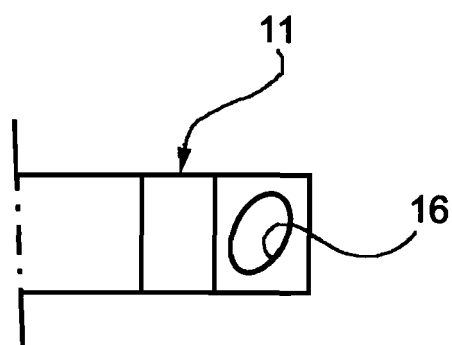


FIG. 4





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 12 0490

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 095 317 A (FORD MOTOR CO) 29 September 1982 (1982-09-29) * page 1, line 72 - line 78 * -----	1,3	INV. B60J1/17 E05F11/38
X	GB 2 313 873 A (NIFCO INC [JP]) 10 December 1997 (1997-12-10) * page 9, line 15 - page 10, line 3 * -----	1	
X	EP 1 094 187 A1 (ELCO TEXTRON INC [US]) 25 April 2001 (2001-04-25) * paragraph [0029] * -----	1	
X	DE 200 17 247 U1 (BROSE FAHRZEUGTEILE [DE]) 14 December 2000 (2000-12-14) * page 7 * -----	1	
A	EP 0 208 237 A1 (IVECO FIAT [IT]) 14 January 1987 (1987-01-14) * page 3, line 26 - page 4, line 27 * -----	1	
A	DE 36 24 118 A1 (FLACHGLAS AG [DE]) 21 January 1988 (1988-01-21) * column 3, line 42 - line 52 * -----	1,2	TECHNICAL FIELDS SEARCHED (IPC)
A	DE 100 05 759 A1 (VOLKSWAGEN AG [DE]) 16 August 2001 (2001-08-16) * column 3, line 67 - column 4, line 37 * -----	1	B60J E05F
The present search report has been drawn up for all claims			
Place of search Berlin		Date of completion of the search 22 February 2007	Examiner Standring, Michael
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 12 0490

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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22-02-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2095317	A	29-09-1982	DE 3110914 A1 14-10-1982
		FR 2502231 A1 24-09-1982	
GB 2313873	A	10-12-1997	CN 1172032 A 04-02-1998
		JP 9323542 A 16-12-1997	
		US 5987820 A 23-11-1999	
EP 1094187	A1	25-04-2001	AT 262640 T 15-04-2004
		CA 2314797 A1 18-04-2001	
		DE 60009227 D1 29-04-2004	
		DE 60009227 T2 03-03-2005	
		ES 2218070 T3 16-11-2004	
		JP 2001152740 A 05-06-2001	
DE 20017247	U1	14-12-2000	NONE
EP 0208237	A1	14-01-1987	DE 3663487 D1 29-06-1989
		IT 1182481 B 05-10-1987	
DE 3624118	A1	21-01-1988	NONE
DE 10005759	A1	16-08-2001	NONE