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(54) Casement structure.

(57) A casement structure is provided with double glass panes (1, 2) which are placed at a distance from each other by means of a strip (3) disposed at the periphery, wherein the glass panes (1, 2) and the intermediate piece (3) are provided on all sides with a seal (6) on which a casement profiled section (5) is disposed, on which casement profiled section mounting means can be disposed for the fitting and mounting.

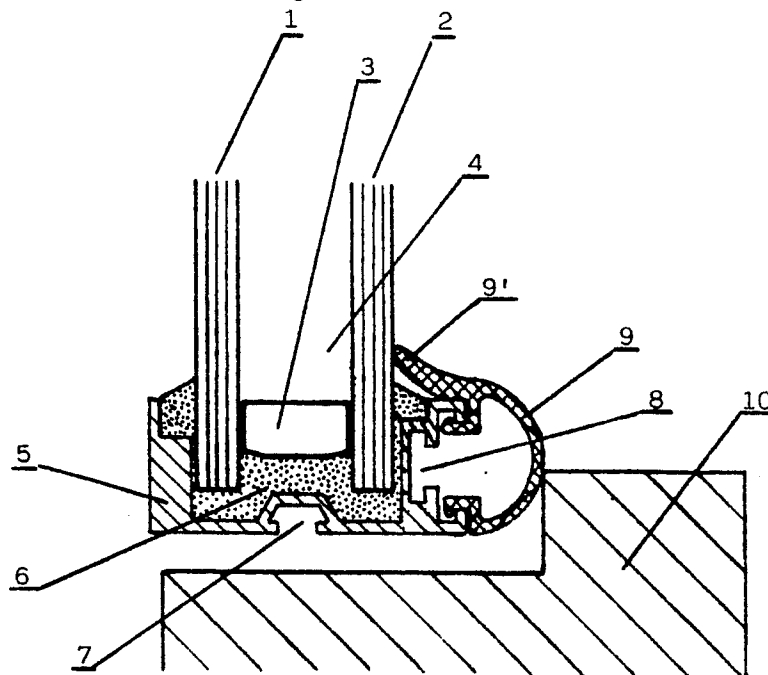


fig. 1

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CASEMENT STRUCTURE

The invention relates to a casement structure with double glass panes which are placed at a distance from each other by means of a strip disposed at the periphery.

Such casement structures are generally known and are used, in particular, for heat and sound insulation. The component glass plates are usually mounted at a distance by means of a strip provided at the periphery using a glueing agent. In order to prevent condensation in the space between the two glass plates, there is usually provided, in said strip, a moisture-absorbing agent which is in communication with the space between the glass plates by means of a joint or of holes. On the outside, the glass panel is often additionally provided with a metal or plastic strip which is joined to the glass panel by means of a cement or other sealing material, as a result of which an additional sealing is obtained.

When double glazing is used, high requirements are imposed on the mechanical strength of the total structure of the window or casement, in particular if it is constructed as a rotating window. It is known that double panes have, in particular, a high mechanical strength if one or both panes are manufactured of hardened glass. Panes of hardened glass have, however, the disadvantage that they are relatively heavy and, in addition, very expensive. It is, furthermore, impossible to provide any corrections in addition during the mounting of hardened glass. In their turn, said heavy panes again require strong or reinforced structures of the frames in which the glass is fitted and in particular at the position of the hinges and locks. Dutch patent application 7802883 describes window or door structures having double panes of hardened glass, the fittings to be used being mounted directly on a double pane.

Various solutions have been proposed to make cheaper structures with double casements, stress being placed in particular on structures manufactured from materials which require no maintenance or little maintenance such as aluminium or certain plastics. In Dutch patent 156,477 it is stated that casements of plastic and aluminium are relatively expensive at the cornered joints and that strengths problems arise with securing the hinges and locks so that said casements are not suitable for a rapid and cheap mass production. In said patent a glass panel provided with a profiled strip having a flange situated at right angles to the plane of the pane is proposed as a solution to this problem, through which draw bars are fitted. The hinges and locks for the glass panel are mounted on one or more of the draw bars.

The object of the present invention is to provide a new casement structure with double glass panes which has at least the same strength as similar structures already in existence and which, in addition, can be manufactured and mounted in a simpler manner so that it is excellently suitable for mass production.

According to the invention, said object is achieved by a casement structure with double glass panes which are placed at a distance from each other by means of a strip disposed at the periphery, which structure is characterized in that the glass panes and the intermediate piece are provided on all sides with a seal on which casement profiled section mounting means can be disposed for the fitting and the mounting of the casement profiled section. The seal is, for example, an elastic joint with good adhesive properties, for example a cement.

Preferably, sliding pieces are used as mounting means which fit into the casement profiled section and can be fixed at any desired height without drilling having to be carried out for this purpose. The sliding pieces are, preferably, of metal, more particularly aluminium, but some plastics which are within the scope of those skilled in the art are also suitable.

The casement profiled section is, preferably, constructed in a manner such that a sealing element can be mounted therein, that the casement structure according to the invention forms a closing joint within ample tolerances with the surrounding structure such as a door or window in which the casement structure is mounted. In addition, said sealing element preferably serves also as a cold bridge insulation. The sealing element is preferably of rubber or of a plastic with good elastic properties. In order to obtain a continuous seal, the sealing elements are usually welded to each other at the corners.

At the height of the positions at which the mounting means are disposed, a recess may be disposed in the sealing elements through which the fixing means are disposed. To maintain the cold bridge insulation, a small insulating cap is preferably disposed over the mounting means.

The casement structure according to the embodiment is preferably constructed with double panes of unhardened glass, but, if desired, hardened glass can also be used.

According to a particular embodiment of the invention, the casement structure is produced by disposing a cement on the periphery of the glass panel consisting of two panes with the spacing strip disposed between them and pressing the frame

profiled section directly onto it. In this manner a very expedient production of the casement structure takes place as a result of which said structure is not only qualitatively very satisfactory but, in addition, lends itself excellently to mass production.

The invention will be described below on the basis of diagrammatic drawings of some exemplary embodiments which, however, form no limitation to the invention whatsoever.

Figure 1 shows in a cross-section a double glass casement according to the invention, provided, inter alia, with a casement profiled section and a sealing element.

Figure 2 shows a similar casement profiled section as in Figure 1, with a pinless hinge disposed thereon.

Figure 3 shows a side view of the casement profiled section and a type of pinless hinge other than shown in Figure 2.

Figures 4a and 4b each show a cross-section of a sealing element which can be mounted on a casement profiled section according to Figure 1.

Figure 5 shows a joining piece which can be mounted on a casement profiled section according to Figure 1 and on which the fitting may be disposed.

Figure 6 shows a small insulating cap for the joining piece according to Figure 5.

Figure 7 shows an overall drawing of a casement profiled section according to Figure 1 with a sealing element according to Figure 4a disposed thereon, a mounting block according to Figure 5 and an insulating cap according to Figure 6.

In said Figures, a casement structure according to the invention is shown which consists of the glass panes 1 and 2, which are held at a distance from each other by the strip 3. Said strip is preferably glued to the two glass panes in a manner such that a sealed air-filled insulating space 4 is formed between the glass panes. The strip 3 is preferably a hollow profiled section which is preferably bent in the corners but may be provided, for example, also with angle irons in the corners. Usually a drying means is provided in the space 4 in order to prevent condensation between the glass panes. Said drying means may very suitably be provided in the hollow profiled section of the strip 3, it being necessary, of course, for said profiled section to be provided with slots or small holes to allow the drying means to come into contact with the air in the space 4.

The glass panes 1 and 2 and the spacing piece 3, which together form a glass panel, are surrounded by a casement profiled section 5 and joined thereto by means of a joint 6. Said joint consists, for example, of a cement, elastomer rubber or similar material, with which both a good

additional sealing of the space 4 and a sound mounting of the casement profiled section 5 on the glass panel can be achieved. Preferably, a cement is used.

According to a special embodiment of the invention, the cement sealing and joint 6 is disposed on the periphery of the glass panel, after which the casement profiled section 5 is pressed directly onto it. In this manner, a very firm mounting of the casement profiled section around the glass panel is obtained, as a result of which the casement structure has a high strength. To increase the strength, the casement profiled section is preferably provided with corner joints, for example of steel which are preferably glued onto the casement profiled section. Hinges and locks can therefore also be disposed on the casement profiled section without any difficulty. According to this embodiment, the cement is preferably disposed amply on the glass panel, as a result of which it can flow when the casement profiled section 5 is pressed onto all sides of the glass panel. It has proved very expedient in this connection to construct the parts 5' of the casement profiled section somewhat conically (see Figure 2). It will be clear that the dimensions of the casement profiled section 5 should be chosen so that a good abutting and strong mounting on the glass panel is obtained.

According to a preferred embodiment of the invention the casement profiled section 5 also has the recesses 7 and 8, with which hinges and locks and sealing elements can be mounted. Figure 1 shows the sealing element 9 which preferably consists of a deformable material such as rubber, neoprene and PVC. In this manner, the casement structure according to the invention can be mounted in a good sealing manner, for example in the frame style 10. The sealing element 9 preferably also has a lip 9' which presses against the pane 2, as a result of which both a cold bridge insulation and an aesthetic finish are obtained. It has proved expedient to dispose the corner joints of the casement profiled sections below the sealing element.

If desired, the profiled section may also be constructed with only one of the two recesses. The recesses may also have a shape other than as shown in the Figures, such as, for example a swallow tail, with which the same object is achieved. Such variants all lie within the scope of those skilled in the art and are also included in the invention now described.

Figure 2 shows a cross-section of a casement profiled section 5 provided with the recesses 7 and 8 in which the mounting of a hinge 11 is shown. Said hinge can be disposed in the recess 7 and is mounted by means of screw 12, if desired initially in a sliding manner, and then fixed at the desired position. In the embodiment shown, it is not neces-

sary to drill holes and it is sufficient to tighten up screw 12. Hinge 11 is a pinless hinge which is to be preferred for mounting on the casement structure according to the invention. Many other types of hinges may, however, also be used.

In addition to the conical parts 5' already discussed, the casement profiled section 5 has, in the embodiment of Figure 2, also has angular parts 13 with which good centering of the glass panel is obtained.

Figure 3 shows another embodiment of a hinge in perspective. According to this embodiment, the hinge 11 is mounted by means of the section 14 in a sliding manner in the recess 7 of the casement profiled section 5 and then fixed with the screws 15 at the desired position.

Figures 4a and 4b show each again a sealing element 9 provided with a lip 9' and a deformable body 9". Besides, Figure 4b shows in a preferred embodiment a second lip 9''' through which an additional and optimal sealing is effected.

Figure 5 shows a general-purpose joining piece which, on the one hand, is mounted by means of parts 17 and the screws 18 in and around the recess 8 of the casement profiled section 5 and on which, on the other hand, the fittings (latching, width adjustment devices, etc.) can be mounted. The mounting of the joining piece 16 on the casement profiled section 5 takes place in a manner corresponding to that described for the hinge of Figure 2. For mounting the fittings, advantageous use can be made of the recesses 19 in which, for example, slide nuts may be disposed.

Figure 6 shows an insulating cap which can be pushed over the general-purpose joining piece 16. In the embodiment shown, the cap 20 is provided with the recesses 21 so that the cap must first be pushed over the joining piece and the fittings then mounted.

Figure 7 shows in cross-section both a sealing rubber 9 and a joining piece 16 on the casement profiled section 5 according to the invention. This illustrates clearly the versatility of the system. The joining piece 16 is disposed by means of the parts 17 at the desired position in the casement profiled section 5 and fixed by means of the screws 18. The fittings can be disposed on said general-purpose joining pieces 16, for example, by means of one or more slide nuts 22 which are able to slide in the recess 19 and can be fixed at the desired position. An insulating cap 20 may be disposed on the joining piece 16.

The joining piece may be disposed both separately on the casement profiled section 5 and in combination with the sealing element 9. In the last case, the sealing element can easily be removed at the desired position by cutting it away, for example, completely or partially over the width of the

joining piece. The joining piece can then be mounted and fixed, after which the fittings can be mounted, optionally in combination with, or preceded by the mounting of an insulating cap 20.

Claims

1. Casement structure with double glass panes which are placed at a distance from each other by means of a strip disposed at the periphery, characterized in that the glass panes and the intermediate piece are provided on all sides with a seal on which a casement profiled section is disposed, on which casement profiled section mounting means can be disposed for the fitting and mounting.

2. Casement structure according to Claim 1, characterized in that the glass panes 1 and 2 and the spacing panes 1 and 2 and the spacing piece 3, which together form a glass panel, are surrounded by a casement profiled section 5 and joined thereto by means of a sealing joint 6.

3. Casement structure according to Claim 2, characterized in that the casement profiled section is equipped with corner joints.

4. Casement structure according to one or more of the preceding claims, characterized in that the casement profiled section is equipped with one or more recesses in the longitudinal direction in which hinges and locks and/or sealing elements can be mounted.

5. Casement structure according to one or more of the preceding claims, characterized in that the casement profiled section is equipped with a sealing element 9, essentially consisting of a lip 9' and a deformable body 9".

6. Casement structure according to one or more of the preceding claims, characterized in that the casement profiled section is equipped with a general-purpose joining piece 16, on which, if desired, an insulating cap 20 is disposed.

7. Casement structure according to Claim 6, characterized in that the casement profiled section is equipped with the joining piece 16, the cap 20 and the sealing element 9.

8. Method for manufacturing a casement structure with double glass panes which are placed at a distance from each other by means of a strip disposed at the periphery, characterized in that a sealing is disposed on the periphery of the glass panes and the spacing piece and a frame profiled section is then directly pressed onto it, on which frame profiled section there can be disposed mounting means for the fitting and the mounting.

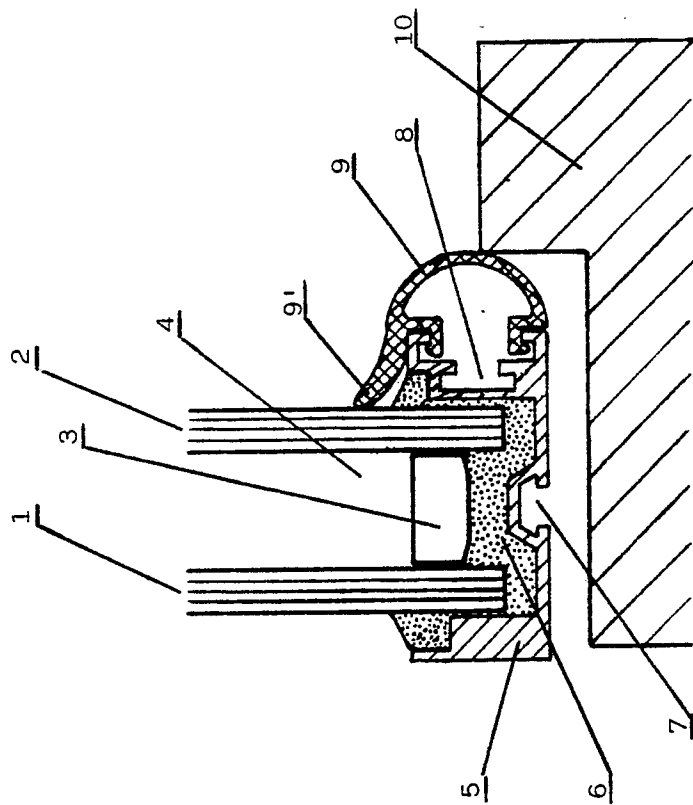


fig. 1

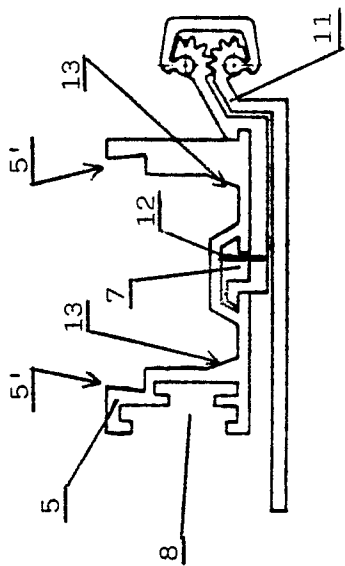


fig. 2

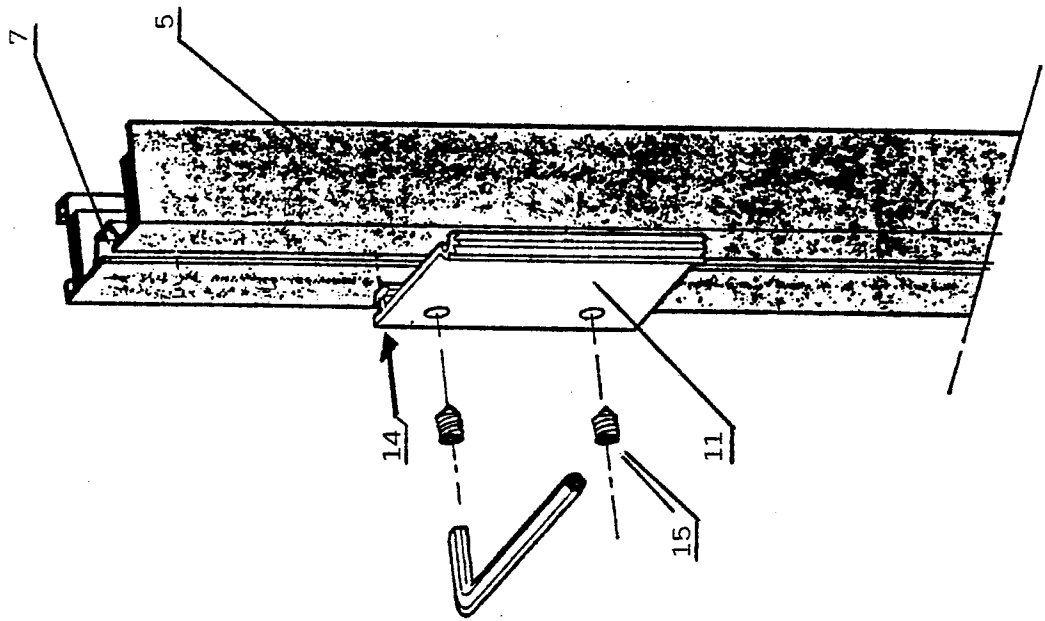


fig. 3

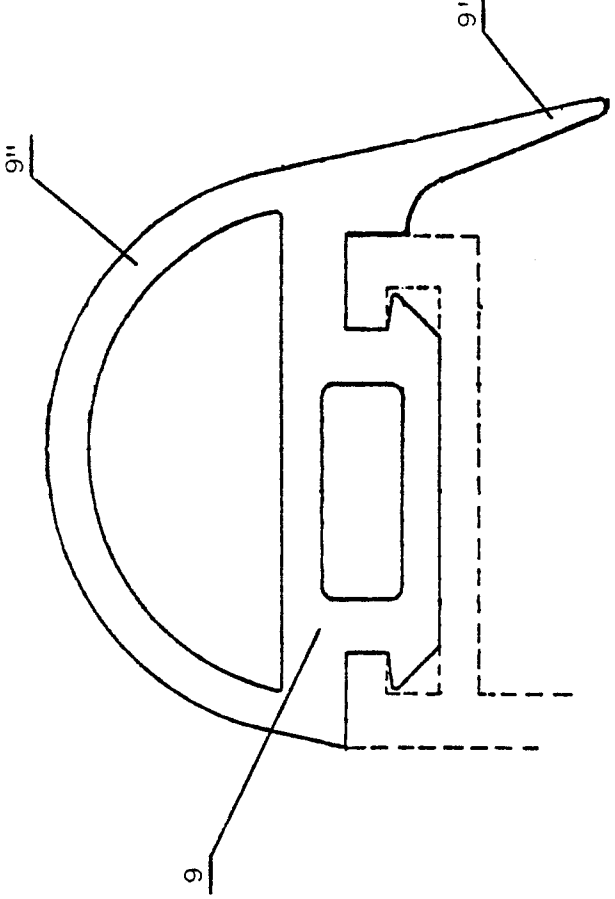
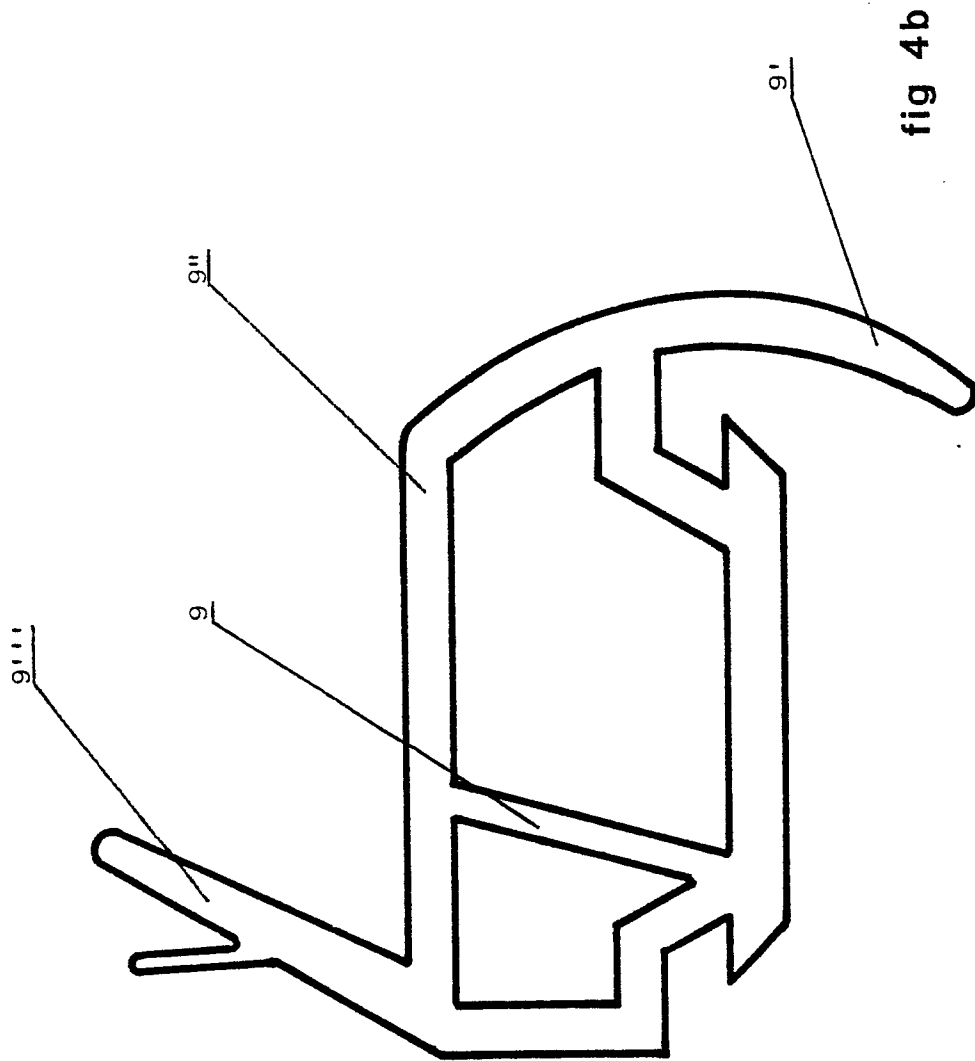


fig. 4a



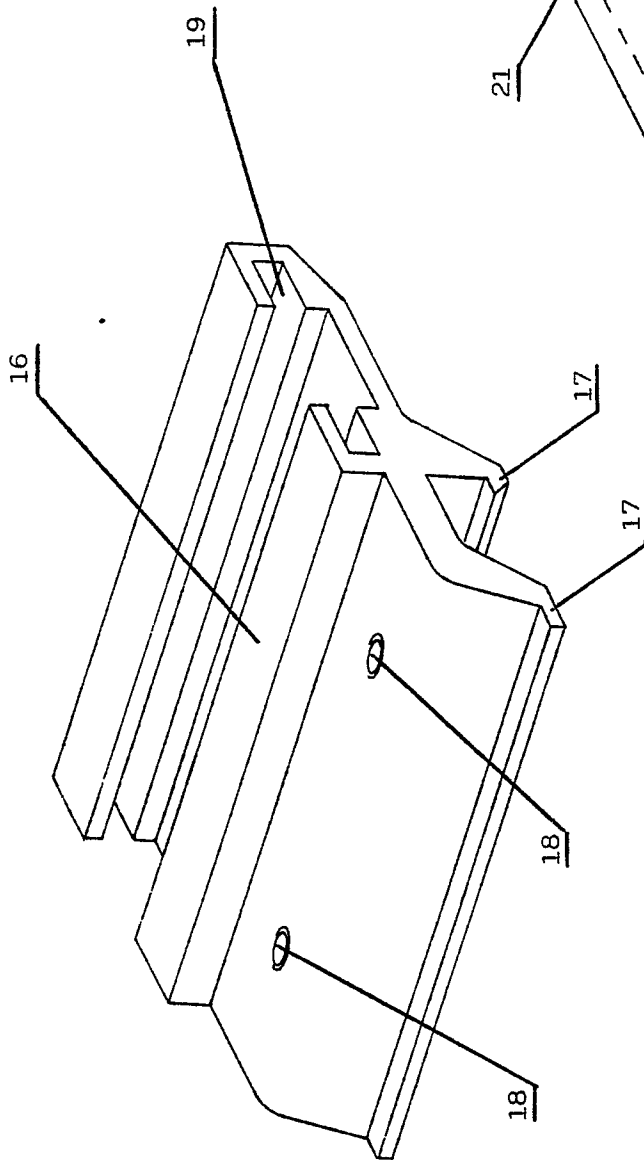


fig. 5

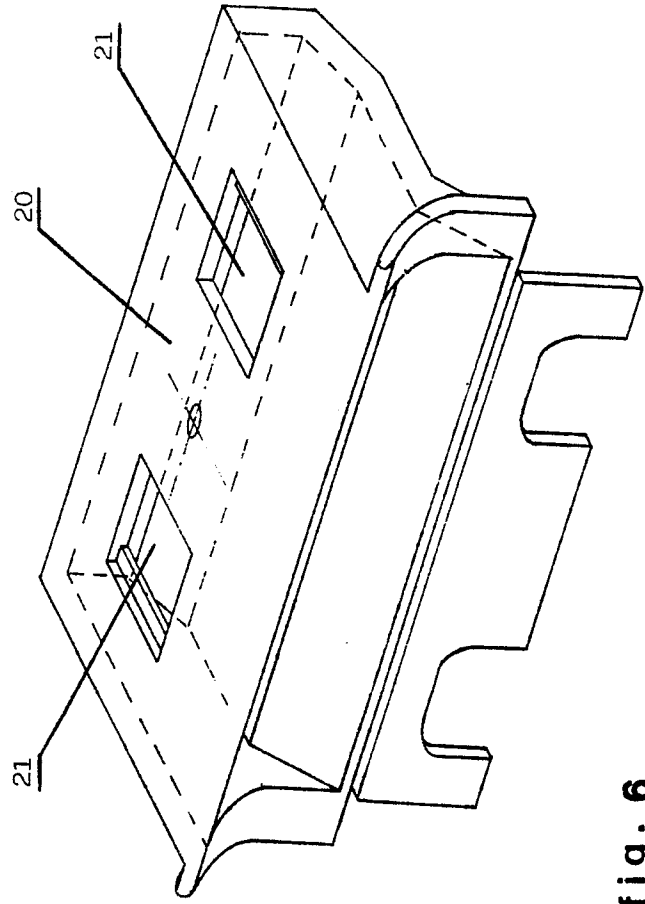


fig. 6

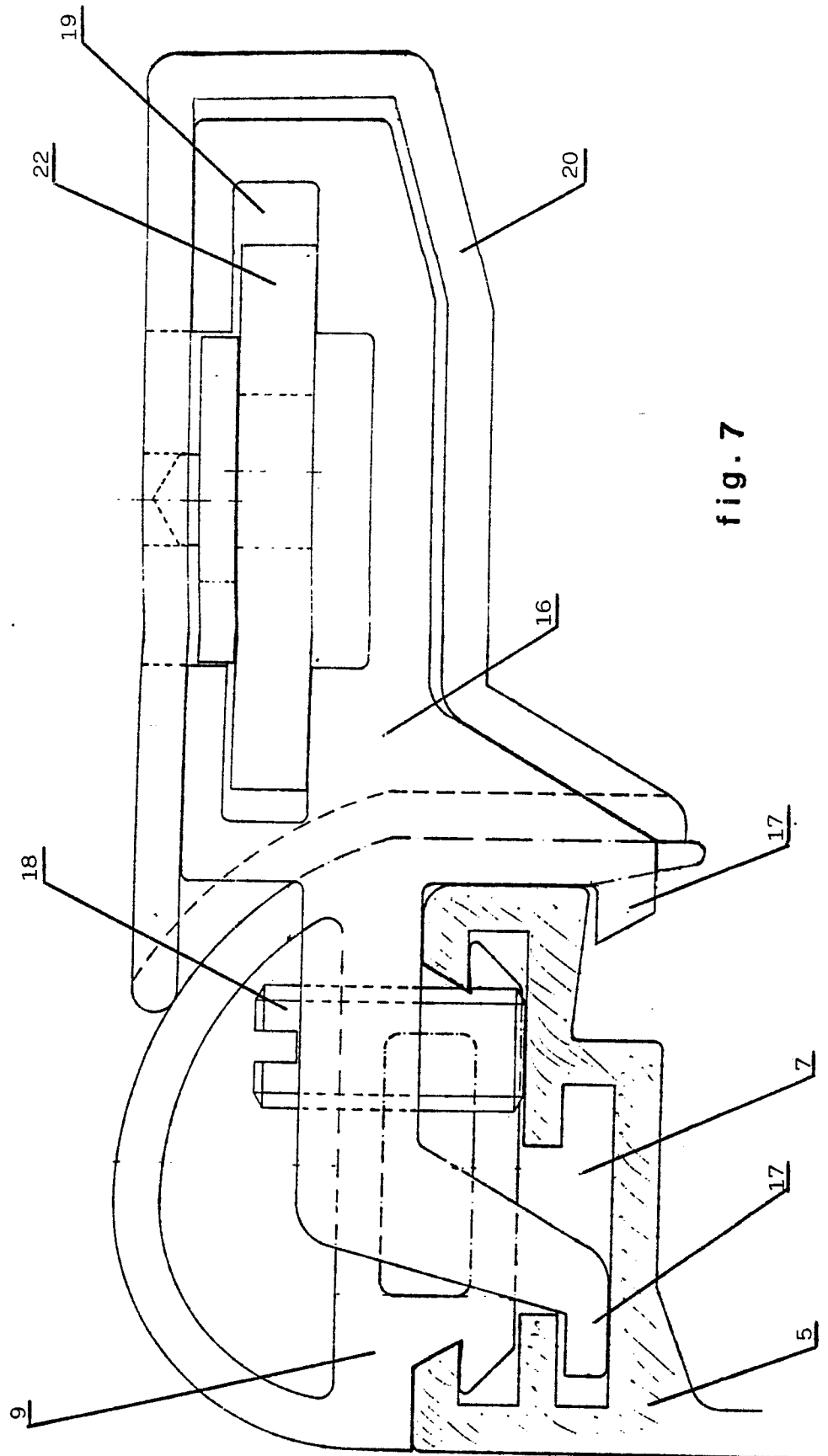


fig. 7



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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
X	FR-A-2 484 010 (ALAZARD) * Page 5, line 24 - page 6, line 25; page 7, lines 6-22; figure 1 * ---	1-4	E 06 B 3/24 E 06 B 3/66
X	DE-A-2 235 858 (FRANK) * Page 5, line 3 - page 13, line 17; page 15, line 8 - page 18, line 6; figures 1-7 * ---	1-4,5,8	
X	DE-A-2 513 172 (SAINT-GOBAIN) * Page 4, line 9 - page 6, line 22; figures 1-6 * ---	1,2,4	
A	DE-A-2 300 358 (SCHÖNINGER) * Page 4, line 7 - page 5, line 26; figures 1,2 * ---	5-7	
A	GB-A-1 156 831 (MATHES) * Page 2, lines 68-94; figures 3,4 * ---	6	
A	US-A-3 896 589 (MITCHELL) * Column 6, line 66 - column 7, line 35; figures 1-3 * -----	6	TECHNICAL FIELDS SEARCHED (Int. Cl.4) E 06 B E 05 D E 05 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 06-01-1988	Examiner DEPOORTER F.
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