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(54) **WINDOW**

FENSTER

FENETRE

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EP-A- 0 563 030
CH-A- 423 179
NO-B- 123 816

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Description

[0001] The object of the invention is a window comprising a built-in frame which defines a window opening, at least one window pane which is fitted into the window opening and which window pane is fitted with hinged support members by which the window pane can be opened and closed, and a flexible draft preventer in the built-in frame to seal the gap between the built-in frame and the edge of the window pane.

[0002] In conventional window structures, which at present are most commonly used, window panes are attached to a framing, a window architrave, and several windows provided with such framing are then installed in the built-in frame, generally, to be turned. Generally, the draft preventing arrangement comprises a draft preventer between the architrave and the built-in frame, and the architrave and, correspondingly, the built-in frame comprise clamping and locking members which are used to clamp the architrave against the built-in frame. Solutions are also possible which employ two architraves sealed against each other and only one of them is sealed against the built-in frame. This structure requires a great many fittings.

[0003] One prior art reference of this kind is EP 563 030 A1, which discloses a fixed arrangement where the window pane can be installed fixedly in a plastic architrave which in turn can be installed fixedly in a built-in frame. This construction cannot be opened or closed repeatedly.

[0004] As an alternative to traditional window solutions, so-called prefabricated element pane solutions have been developed, in which units are manufactured which consist of several window panes which are tightly attached to each other by the edges thereof. Depending on the application and the implementation, thermal or selective pane packages or hermetically sealed panes are often referred to. The elements or packages are fully integral and the panes cannot be separated from each other.

[0005] Sometimes, argon or krypton are used as filling gas between the panes instead of dry air. This kind of prefabricated element panes are often used in industrial and office buildings which are provided with effective air conditioning which is designed with the intent that the windows are not opened. In this case, the prefabricated element panes are attached and sealed permanently in place. There are also solutions where such prefabricated element panes are attached to conventional window architraves, so that they can be opened.

[0006] From CH 423 179 it is known a window structure without any architraves. This structure includes a built-in frame with a special, draft preventer with drape assists installed in it However, this construction is fixed. It cannot be opened or closed. Thus it cannot be used in windows, which should be opened and closed repeatedly.

[0007] A window comprising the features of the preamble of claim 1 is shown in NO 123816 B.

[0008] The purpose of the invention is to provide a solution which yields an improved window pane which can be a simple window pane with or without an architrave, or a prefabricated element pane consisting of several layers of glass, and the draft prevention between the built-in frame surrounding it.

[0009] The window according to the invention is characterised in that the draft preventer comprises a groove defined by parallel edgings to which the edge of the window pane can be fitted so that the edgings that come against the pane constitute draft prevention for both the outer and the inner side of the pane, while the edging on the side of the window where the pane opens to is arranged to bend so that when the pane is opened and closed, the edge of the pane is allowed to slide past the edging,

[0010] The window according to the invention which contains a built-in frame the inner surface of which defines a window opening, and one or more window panes intended to be placed into the opening, thus also contains a draft preventer which is attached to the built-in frame for at least one window pane and which has dimensions and a shape that correspond to the edge of the window pane so that the window pane can be fitted directly into the draft preventing means in the built-in frame so that the window pane can be opened, whereby it is not fitted into the draft preventing means and closed, whereby it is fitted into the draft preventing means.

[0011] In the window according to the invention, the edging of the draft preventer conforms to the turning movement of the edge of the pane. whereby, when the window is opened, the edge of the pane pushes the edging away from its front so that the edge of the pane is allowed to slide past the edging, whereupon the edging returns to its original shape. Correspondingly, when the window is closed, the edge of the pane pushes the edging aside from its front so that the edge goes to the groove behind the edging, whereby the edging returns to its original shape in which it works as a draft preventer placed against the window. When the window is opened and closed, a suitable tool, such as a spoon-like tool, can be used if needed. The sealing is improved if the edging is shaped in place to curve toward the window pane located in the groove of the draft preventer.

[0012] One preferred embodiment of the invention is characterised in that it comprises support members in the built-in frame which support the window pane and that the edge of the window pane is loosely fitted into the draft preventer in the built-in frame so that no considerable pressure is exerted on the bottom of the groove of the draft preventer by the edge of the pane. Such a window has advantageous sound-proofness because the window panes are loosely fitted into the built-in frame with the aid of the draft preventer, and, supposedly, this flexible securing to the built-in frame effectively attenuates the vibration of the pane. The structure has no air slots either, through which sound could travel. Re-

garding thermal insulation capacity, the structure is also advantageous compared with the traditional solution because there is a much smaller number of junctions and sealing points between the different parts. Slight shifting of the structures does not impair the sealing, either, because the structure allows a small amount of movement between the pane and the draft preventer without the sealing being changed. The window pane can preferably be supported by its lower edge with the aid of one or more supporting pieces between the lower edge of the pane and the built-in frame. The support can be arranged very smoothly and the built-in frame can be supported, with respect to the wall structure, at about the same points, whereby the solution is very stable and will not cause torsion or stress on any part.

[0013] Alternatively, the window pane can be installed in the built-in frame to be turned on hinges, whereby the above-mentioned advantages are also accomplished.

[0014] One advantage of the solution according to the invention is that the window panes are easy to replace. The user can replace certain panes, for example, by selective panes or tinted panes very easily and with low cost as compared with the traditional or the prefabricated element pane solution.

[0015] According to a particularly preferred embodiment of the invention, the window comprises at least one frameless window pane fitted into the window opening in the built-in frame. Since there are no architraves, material is saved as well as the material and the equipment which in the traditional solution are needed to secure and seal the pane to the architrave. Similarly, the equipment and the material as well as a great many of the fittings that are needed to seal and clamp the architrave and the built-in frame together are saved. The hinge solution can also be simpler than in traditional windows. Savings are also accomplished in the manufacture, as stages of operation relating to the saved parts are omitted.

[0016] The window solution according to the invention offers many alternatives to the arrangement of manufacture. The window can be made complete and secure in its place in the prefabricated element pane manufacturing plant. In this case, the built-in frame can be part of the mould when the prefabricated element pane is cast. One preferred alternative is to manufacture the window from a "structural kit". The materials and parts needed can then be purchased from different manufacturers and transported separately to the site, which makes the transport more economical. A company that manufactures windows can as well deliver pre-treated materials and parts to the manufacturing site, such as a construction site. Some parts can be cut to size and some parts can be delivered by the metre. The built-in frames, for example, can be delivered as pieces which are cut to size and pre-treated for jointing. and which are then jointed on the manufacturing site. The draft preventer(s) can be delivered in metres and the window panes preferably as panes that are prefabricated to size and, possibly, provided with mounting holes for hinges or pivot journals. The window according to the invention can as well be fabricated so that the factory manufactures the windows from the parts and materials in its storage and delivers them to the object of use in an assembled form. The manufacture of the window solution according to the invention will not tie up large amounts of capital and a lot of factory space. The window according to the invention is also considerably easier and cheaper to manufacture in a shape that deviates from the normal than other solutions.

[0017] In the following, the invention is described in detail with reference to the appended drawings in which:

Fig. 1 is a schematic view of one embodiment of the window according to the invention as viewed, on the one hand, from the inside of the window and, on the other hand, as a schematic sectional view along a plane that runs through the turning points of the window pane,

Fig. 2 shows another embodiment of the window according to the invention as a schematic vertical side projection,

Fig. 3 similarly shows another embodiment of the window according to the invention, containing an air conditioning arrangement,

Fig. 4 is a schematic horizontal side projection of one embodiment of the window according to the invention,

Fig. 5 is a schematic view of one possible angular structure of the built-in frame of the window according to the invention,

Fig. 6 is a schematic view of one embodiment of the draft preventing means included in the window according to the invention, and

Fig. 7 shows another alternative draft preventer of the window according to the invention.

[0018] In Fig. 1, the window opening consisting of built-in frame 1 converges outwards and it has draft preventing means 3a and 3b attached thereto for the inner and the outer window panes 4a and 4b, respectively. In the case of the figure, outer window 4b is closed and, thus, fitted into draft preventer 3b. Inner window 4a is opened and resting on hinges 14a. To the right in the side projection, hinges 14a and 14b are shown schematically in the upper built-in frame, the pivot journals of the hinges being placed in the corresponding recesses in the built-in frame. The lower built-in frame shows schematically draft preventing means 3b and 3a, and the figure shows, at draft preventing means 3a, how the draft preventer bends elastically, according to the inven-

tion, so that window 4a can be opened at it.

[0019] Fig. 2 shows in detail but still schematically one embodiment of the window according to the invention as a vertical side projection. The window includes three window panes 4a, 4b, and 4c, of which the first two are fitted into respective draft preventers 3a and 3b which are attached to the built-in frame so that they can be detached. At present, in this embodiment, strip 5, 6 made of aluminium profile is installed to the outer surface of the built-in frame in a conventional manner, the outermost window 4c being fitted into draft preventer 3c which is attached to the strip so that it can be detached. Reference number 7 indicates an external sill. A space for a shutter blind is reserved for in built-in frame 1 in the manner indicated by reference number 9. Covering strip 8 conceals the joint between the built-in frame and the wall and the draft preventers of the innermost window panes inside the window. Draft preventers 3a and 3b are attached, in a detachable manner, to respective grooves 21a and 21b formed to the built-in frame, and draft preventer 3c is attached, in a detachable manner, to a respective groove 22 formed in the aluminium strip.

[0020] Fig. 2 shows a one-part draft preventer solution, comprising brushes on the surface that comes against the edge of the window pane to provide several contact surfaces and, therefore, better sealing and a more flexible fit between the pane and the draft preventer. There are impediments in the part that comes to groove 33 of draft preventer 3, preventing the draft preventer from sliding away from the groove. Edging 34 of the draft preventer that comes against the inner surface of the pane is rendered more flexible than edging 35 that comes against the outer surface, and when the pane is opened, it is released from the draft preventer groove by using, for example, a suitable spoon-like tool.

[0021] Correspondingly, Fig. 3 shows a schematic elevation view of an embodiment of the window according to the invention which comprises an air conditioning arrangement, among other things. In other respects, the structure shown in Fig. 3 is similar to the one shown in Fig. 2 except that the second pane 10, as viewed from the inside, is selective glass and, in addition to this, includes an air conditioning arrangement. This is comprised of apertures 23 for replacement air formed to strip 11 of the sill piece, which air is further allowed to pass through filtering element 12 and openings 24 and 26 in the aluminium strip and space 25 to the space between the two outer windows 10 and 4c. From this space, the replacement air is allowed to pass to the inside of the window through replacement air holes 13 made in built-in frame 1.

[0022] It is conceivable that window solutions like those in Figs. 2 and 3 could include, for example, electric warming placed in the built-in frame between the two innermost windows, which could be used to keep the inner surface of the window nice and warm, at about room temperature. There are heating cables available at present, which can be installed in wood, and even a cable which works like a thermostat and adjusts the temperature. This kind of a solution would be very advantageous as compared, for example, with solutions where a laminated glass has a layer which works as a heating resistor and where electricity must then be conducted, through the architrave, to the electrodes at the ends of the pane. Similarly, a lighting fixture could be placed in the space in the built-in frame. Naturally, both the said heating and the lighting arrangement can be implemented in structures other than the window structures according to the invention.

[0023] Fig. 4 shows one embodiment of the window according to the invention in a schematic, horizontal side projection along the plane where there are the hinges on which the window panes can be turned in the built-in frame. The disposition of the panes and the draft prevention solutions correspond to that presented in connection with Fig. 2. Hinge 15 is for window pane 4a and hinges 14b and 14c, respectively, for window panes 4b and 4c. Hinges 14b and 14c are attached to vertical built-in frames 17 with respective pilot taps 27b and 27c. The hinges are structured like the so-called pivot hinges, and the fitting of the pivot journal to the hinge in them is loose, whereby the hinge will not prevent the pane from settling and fitting to the draft preventer. The hinges can be attached to the pane, for example, by screw fastening with the aid of holes drilled in the pane, and the attachment can be secured with friction material or glue. Hinge 15 of the innermost window 4a is attached to the inner surface of built-in frame 17 with pilot taps or screws 28, and hinge 29 is fitted here in the same connection, being attached to the frame formed by covering strip 8 of the inner side with screws 30, and the frame can be opened and closed, supported by hinge 29 to open the window panes. Reference number 16 indicates the magnetic locking of the covering strip frame. As the figure shows, the window panes decrease from the inside to the outside. This is necessary in order to be able to open all the window panes properly. Furthermore, Fig. 4 shows an example of locking piece 20 which, after window pane 4c is closed and fitted into draft preventer 3c, is placed in counterpart 31 in built-in frame 17, which has a dovetail-like slot hole. There can be several locking pieces for each window pane.

[0024] Fig. 5 illustrates one possible manufacturing and assembling method of the built-in frame. The end of built-in side frame 17 is cut to the shape of the inner surface of built-in upper frame 1 in the manner indicated by reference number 32. Built-in side frame 17 comprises holes for anchor nuts 19 and built-in upper frame 1 and, respectively, built-in side frame 17 comprise holes for screws 18 which are used to attach the comers to each other with the aid of a so-called screw/anchorage connection. The built-in frame can be made of wood or plastic or any other suitable material.

[0025] Fig. 6 shows one embodiment of the draft preventing means included in the window according to the invention, in which the draft preventer consists of sev-

eral parts. Draft preventer 31 is placed in groove 21 which is formed in built-in frame 1, the draft preventer comprising edgings and a space for the edge of window pane 4 between the edgings. In this case, draft preventer 31 is of relatively stiff material, keeping the edge of the window pane well in place. Inside the space constituted by draft preventer 31, there is another, softer draft preventer 32 which can be, as in the figure, for example, a sealing strip with a round cross-section. Softer draft preventer 32 improves the sealing property of the draft preventer solution.

[0026] Fig. 7 is a cross-section of a ribbon-type draft preventer 3 of the window according to the invention, comprising groove 33 for the edge of window pane 4, and edgings 34, 35 which are compressed against the inner and outer sides of the pane on both sides of the groove. Edging 34 on the inner side of the pane is shaped so that it curves towards the pane. Edging 35 on the outside of the pane is two-piece so that it forms two sealing lines against the surface of the pane. Pane 4 preferably rests on hinges in built-in frame 1, whereby the pane is in a "floating" state in the draft preventer and the edge of the pane is off the bottom of groove 33.

[0027] The window pane in the window according to the invention, at least in larger windows, is preferably prestressed or laminated glass or another glass solution which is tougher than the conventional window pane. The edges of the window are preferably ground and, when being ground, they can be rounded or bevelled in a suitable manner to make it easier to fit them into the draft preventer and, correspondingly, to detach them from the draft preventer. Since prestressing typically makes the strength of the glass multiple, a normal thickness of 4 mm is generally good enough for the prestressed glass, but in larger windows, in particular, the pane may well be much thicker. The edges of the window panes can also be protected or coated. It is also conceivable that, in the solution, instead of the window pane, a prefabricated element pane or a similar element consisting of several panes is placed in the draft preventer which is secured to the built-in frame.

[0028] The draft preventer is preferably an integral, slotted sealing strip manufactured to a certain size of a window opening and with comer pieces already attached thereto. The draft preventer can also be manufactured from a sealing which is delivered by the metre, whereby proper tools should be available for making the angle joints. As shown in the examples of Figs. 2, 3, and 4, one preferred structure and lay-out of the draft preventer is one which strongly supports, from the outside, the window pane placed in it. The draft prevention solutions presented here include a draft preventer which comprises a groove for the edge of the window pane, but it is also possible that the draft preventer is made of two parts so that the window pane is first fitted in place in the one draft preventer half, to which thereafter is attached, with the aid of some kind of a dovetail framing or the like, a strip that seals the window pane from the inside. Suitable sealing materials include conventional sealing materials, such as various kinds of rubber and silicone. It is obvious that the draft prevention solution can be implemented in various ways with respect to both its securing to the built-in frame and with respect to the part which receives the edge of the window pane.

[0029] In addition to the fact that a relatively stiff draft preventer as such supports the window pane, the window according to the invention can comprise support pieces located between the lower edge of the window pane and the built-in frame. They can be, for example, neck journals placed in the recesses in the built-in frame, extending through the draft preventer to the lower edge of the window or, inside the draft preventer, to the vicinity of the same. It is clear to those skilled in the art that the means which allow the window pane to be secured directly to the built-in frame so that it can be turned, can also be implemented in many other ways than what is presented above. The pivot hinges can be located in various ways and the solution may very well consist of other than the pivot hinge.

[0030] The invention can vary within the limits of the appended Claims.

Claims

1. A window comprising a built-in frame (1, 2, 17) which defines a window opening, at least one window pane (4, 10) which is fitted into the window opening and which window pane is fitted with hinged support members by which the window pane can be opened and closed, and a flexible draft preventer (3, 31) in the built-in frame to seal the gap between the built-in frame and the edge of the window pane, **characterised in that** the draft preventer (3, 31) comprises a groove (33) defined by parallel edgings (34, 35) into which the edge of the window pane (4) can be fitted so that the edgings that come against the pane constitute draft prevention for both the outside and the inside of the pane, the edging (34) on that side of the window pane to which the pane opens being arranged to bend so that, when the pane is opened and closed, the edge of the pane can slide past the edging.

2. A window according to Claim 1, **characterised in** comprising support members in the built-in frame (1, 2) to support the window pane (4), and that the edge of the window pane is loosely fitted into the draft preventer (3, 31) in the built-in frame so that no considerable pressure is exerted by the edge of the pane to the bottom of the groove (33) of the draft preventer.

3. A window according to Claim 2, **characterised in** comprising one or more support pieces placed between the lower edge of the window pane and the

built-in frame.

4. A window according to any of the preceding Claims, **characterised in that** the window pane (4, 10) is installed in the built-in frame (1, 2, 17) with the aid of hinges (14a, 14b) so that it can be turned.

5. A window according to any of the preceding Claims, **characterised in that** the said edging (34) of the draft preventer (3) located on the opening side of the window pane (4, 10) is more flexible than the edging (35) on the other side of the pane.

6. A window according to any of the preceding Claims, **characterised in that** the draft preventer (3) consists of an integral sealing strip which comprises a groove for the edge of the window pane (4, 10).

7. A window according to any of Claims 1 to 5, **characterised in that** the draft preventer (3) consists of two parallel, ribbon-type parts which are located against each other and which are compressed against the outer and the inner sides of the window pane (4).

8. A window according to any of the preceding Claims, **characterised in that** another, softer draft preventer (32) is placed in the groove of the draft preventer (31).

9. A window according to Claim 8, **characterised in that** the said second draft preventer (32) is a sealing strip with an annular cross-section.

10. A window according to any of the preceding Claims, **characterised in that** the groove (33) of the draft preventer (3) comprises one or more brushes located against the edge of the pane (4).

11. A window according to any of the preceding Claims, **characterised in** comprising at least one frameless window pane (4, 10) fitted into the window opening in the built-in frame (1, 2, 17).

12. A window according to Claim 11, **characterised in that** the edge of the window pane (4, 10) is bevelled or rounded.

13. A window according to Clam 11 or 12, **characterised in that** the edge of the window pane (4, 10) is protected or coated.

14. A window according to any of Claims 1 to 10, **characterised in that** the window pane fitted into the window opening in the built-in frame (1, 2, 17) consists of an integral prefabricated element pane comprising several layers of glass.

15. A window according to any of the preceding Claims, **characterised in** comprising several window panes (4a, 4b, 4c) and that the inner surface of the built-in frame (1, 2, 17) is shaped so that the window opening in the vicinity of the outer window pane (4b, 4c) is smaller than in the vicinity of the inner window pane (4a, 4b).

Patentansprüche

1. Fenster mit einem Einbaurahmen (1, 2, 17), der eine Fensteröffnung umschlließt mit zumindest einer Fensterscheibe (4, 10), die in die Fensteröffnung eingepaßt ist und die in gelenkige Halteglieder eingepaßt ist, mittels der die Fensterscheibe zu öffnen und zu schließen ist und mit einer flexiblen Zugluftvsperre (3, 31) in dem Einbaurahmen zum Dichten des Spaltes zwischen dem Einbaurahmen und der Kante der Fensterscheibe,
dadurch gekennzeichnet,
dass die Zugluftsperre (3, 31) eine Nut (33) umfaßt, die durch parallele Einfassungen (34, 35) definiert ist und in die die Kante der Fensterscheibe (4) so eingesetzt werden kann, dass die Einfassungen, die an der Fensterscheibe zur Anlage kommen, eine Zugluftsperrung auf beiden Seiten, der Innenseite ebenso auf der Außenseite, der Fensterscheibe bewirken, wobei die Einfassung (34) auf der Seite der Fensterscheibe, nach der die Fensterscheibe zu öffnen ist, angeordnet ist, um sich so zu biegen, dass, wenn die Fensterscheibe geschlossen bzw. geöffnet ist, die Fensterscheibe hinter die Einfassung gleiten kann.

2. Fenster nach Anspruch 1, **gekennzeichnet durch** Stützglieder am Einbaurahmen (1, 2) zum Stützen der Fensterscheibe (4) und **dadurch**, dass die Kante der Fensterscheibe lose in die Zugluftperre (3, 31) im Einbaurahmen eingesetzt ist, sodass ein angemessener Druck von der Kante der Scheibe auf den Boden der Nut der Zugluftsperre ausgeübt wird.

3. Fenster nach Anspruch 2, **gekennzeichnet durch** das Enthaltensein eines oder mehrerer Stützstücke in der Anordnung zwischen der unteren Kante der Fensterscheibe und dem Einbaurahmen.

4. Fenster nach einem beliebigen der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass die Fensterscheibe (4, 10) in dem Einbaurahmen mit Hilfe von Gelenken (14a, 14b) eingebaut ist, sodass sie gedreht werden kann.

5. Fenster nach einem beliebigen der vorhergehenden Ansprüche,

dadurch gekennzeichnet,
dass die genannte Einfassung (34) der Zugluftsperre (3),
die auf der Öffnungsseite der Fensterscheibe (4, 10) angeordnet ist, elastischer ist als die Einfassung (35) auf der anderen Seite der Scheibe.

6. Fenster nach einem beliebigen der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass die Zugluftsperre (3) aus einem fortlaufenden Dichtungsstreifen besteht, der eine Nut für die Kante der Fensterscheibe (4, 10) aufweist.

7. Fenster nach einem beliebigen der Ansprüche 1 bis 5,
dadurch gekennzeichnet,
dass die Zugluftsperre (3) aus zwei parallelen bandartigen Teilen besteht, die einander zugekehrt angeordnet sind und die gegen die äußere bzw. die innere Seite der Fensterscheibe angepreßt werden.

8. Fenster nach einem beliebigen der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass eine andere, weichere Zugluftsperre (32) in der Nut der Zugluftsperre (31) angeordnet ist.

9. Fenster nach Anspruch 8,
dadurch gekennzeichnet,
dass die genannte zweite Zugluftsperre (32) ein Abdichtungsstreifen mit einem kreisförmigen Querschnitt ist.

10. Fenster nach einem beliebigen der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass die Nut (33) der Zugluftsperre (3) eine oder mehrere Bürsten enthält, die gegen die Kante der Scheibe (4) gerichtet angeordnet sind.

11. Fenster nach einem beliebigen der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass es zumindest eine rahmenlose Fensterscheibe (4, 10) enthält, die in die Fensteröffnung in einem eingebauten Rahmen (1, 2, 17) eingesetzt ist.

12. Fenster gemäß Anspruch 11,
dadurch gekennzeichnet,
dass die Kante der Fensterscheibe abgekantet oder gerundet ist.

13. Fenster nach Anspruch 11 oder 12,
dadurch gekennzeichnet,
dass die Kante der Fensterscheibe (4, 10) geschützt oder beschichtet ist.

14. Fenster nach einem beliebigen der vorhergehenden Ansprüche 1 bis 10,
dadurch gekennzeichnet,
dass die in einen Einbaurahmen (1, 2, 17) eingesetzte Fensterscheibe aus einem einstückig vorgefertigten Scheibenelement aus mehreren Glasschichten besteht.

15. Fenster nach einem beliebigen der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass mehrere Fensterscheiben (4a, 4b, 4c) vorgesehen sind und dass die innere Fläche des Einbaurahmens (1, 2, 17) so konturiert ist, dass die Fensteröffnung in der Nähe der äußeren Fensterscheibe (4b, 4c) kleiner als in der Nähe der inneren Fensterscheibe (4a, 4b) ist.

Revendications

1. Fenêtre comprenant un cadre encastré (1, 2, 17) qui définit une ouverture de fenêtre, au moins une vitre de fenêtre (4, 10) qui est ajustée dans l'ouverture de fenêtre et laquelle vitre de fenêtre est ajustée à l'aide d'éléments de support articulés au moyen desquels la vitre de fenêtre peut être ouverte et fermée, et un coupe-bise flexible (3, 31) dans le cadre encastré pour sceller l'intervalle entre le cadre encastré et l'arête de la vitre de fenêtre, **caractérisée en ce que** le coupe-bise (3, 31) comprend une rainure (33) définie par des bordures parallèles (34, 35) dans laquelle l'arête de la vitre de fenêtre (4) peut être ajustée de sorte que les bordures venant contre la vitre forment une barrière contre les courants d'air à la fois pour 1a vitre extérieure et pour la vitre intérieure, la bordure (34) du côté de la vitre de fenêtre sur lequel s'ouvre la vitre étant disposé de manière à plier de telle manière que, lorsque la vitre est ouverte et fermée, l'arête de la vitre peut coulisser le long de l'arête.

2. Fenêtre selon la revendication 1, **caractérisée par** le fait de comprendre des éléments de support dans le cadre encastré (1, 2) pour supporter la vitre de fenêtre (4), et en ce que l'arête de la vitre de fenêtre est ajustée de manière lâche dans le coupe-bise (3, 31) dans le cadre encastré de sorte qu'aucune pression démesurée ne soit exercée par l'arête de la vitre sur la partie inférieure de la rainure (33) du coupe-bise.

3. Fenêtre selon la revendication 2, **caractérisée par** le fait de comprendre une ou plusieurs pièces de support placées entre l'arête inférieure de la vitre de fenêtre et le cadre encastré.

4. Fenêtre selon l'une quelconque des revendications

précédentes, **caractérisée en ce que** la vitre de fenêtre (4, 10) est installée dans le cadre encastré (1, 2, 17) à l'aide de charnières (14a, 14b) de manière à pouvoir tourner.

5. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ladite bordure (34) du coupe-bise (3) située du côté d'ouverture de la vitre de fenêtre (4, 10) est plus flexible que la bordure (35) de l'autre côté de la vitre.

6. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le coupe-bise (3) est constitué d'une bande d'étanchéité intégrée comprenant une rainure pour l'arête de la vitre de fenêtre (4, 10).

7. Fenêtre selon l'une quelconque des revendications 1 à 5, **caractérisée en ce que** le coupe-bise (3) est constitué de deux parties parallèles de type ruban qui sont placées l'une contre l'autre et qui sont comprimées contre les côtés intérieur et extérieur de la vitre de fenêtre (4).

8. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'**un autre coupe-bise plus tendre (32) est placé dans la rainure du coupe-bise (31).

9. Fenêtre selon la revendication 8, **caractérisée en ce que** ledit second coupe-bise (32) est une bande d'étanchéité présentant une coupe transversale annulaire.

10. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la rainure (33) du coupe-bise (3) comprend une ou plusieurs brosses situées contre l'arête de la vitre (4).

11. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée par** le fait de comprendre au moins une vitre de fenêtre sans cadre (4, 10) ajustée dans l'ouverture de fenêtre dans le cadre encastré (1, 2, 17).

12. Fenêtre selon la revendication 11, **caractérisée en ce que** l'arête de la vitre de fenêtre (4, 10) est biseautée ou arrondie.

13. Fenêtre selon la revendication 11 ou la revendication 12, **caractérisée en ce que** l'arête de la vitre de fenêtre (4, 10) est protégée ou porte un revêtement.

14. Fenêtre selon l'une quelconque des revendications 1 à 10, **caractérisée en ce que** la vitre de fenêtre ajustée dans l'ouverture de fenêtre dans le cadre encastré (1, 2, 17) est constituée d'un élément de vitre préfabriqué intégré comprenant plusieurs couches de verre.

15. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée par** le fait de comprendre plusieurs vitres de fenêtre (4a, 4b, 4c) et en ce que la surface intérieure du cadre encastré (1, 2, 17) est formée de manière à ce que l'ouverture de fenêtre au voisinage de la vitre de fenêtre extérieure (4b, 4c) soit plus petite qu'au voisinage de la vitre de fenêtre intérieure (4a, 4b).

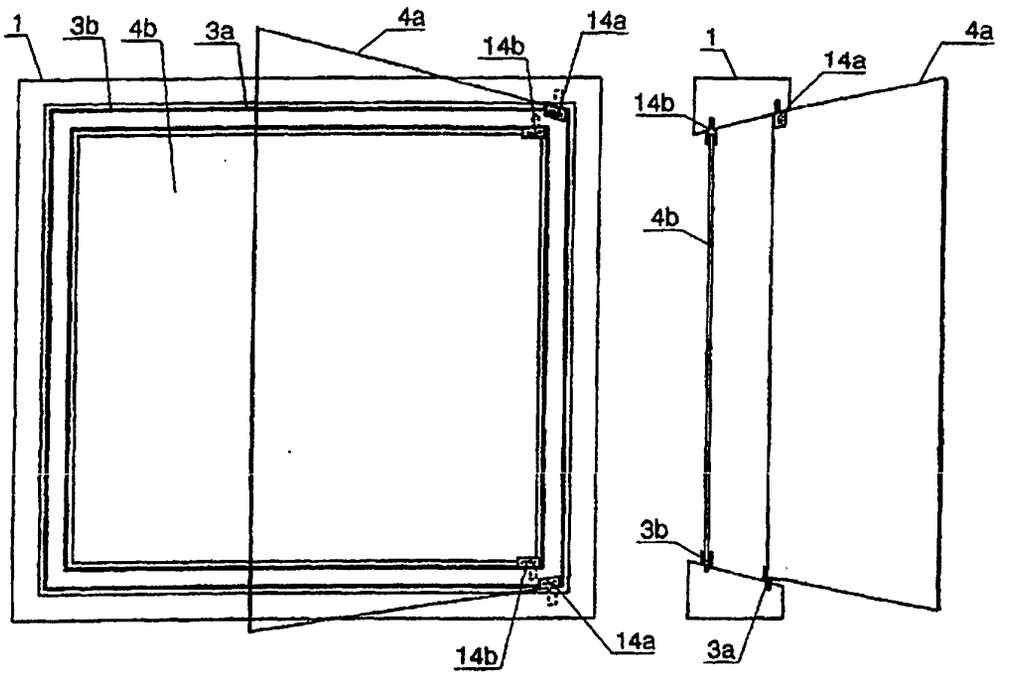

1
3b
4b
3a
4a
14b
14a
14b
14a
1
14a
4a
14b
4b
3b
14a
3a

Fig. 1

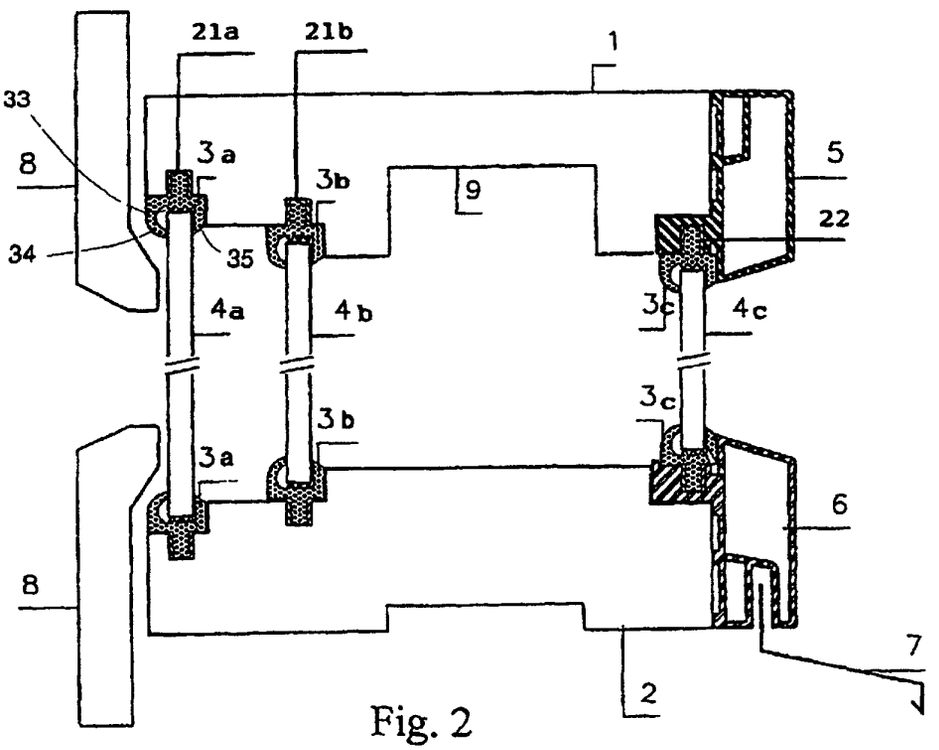

21a
21b
1
33
8
3a
3b
9
5
22
34
35
4a
4b
3c
4c
3c
3b
3a
6
8
7
2

Fig. 2

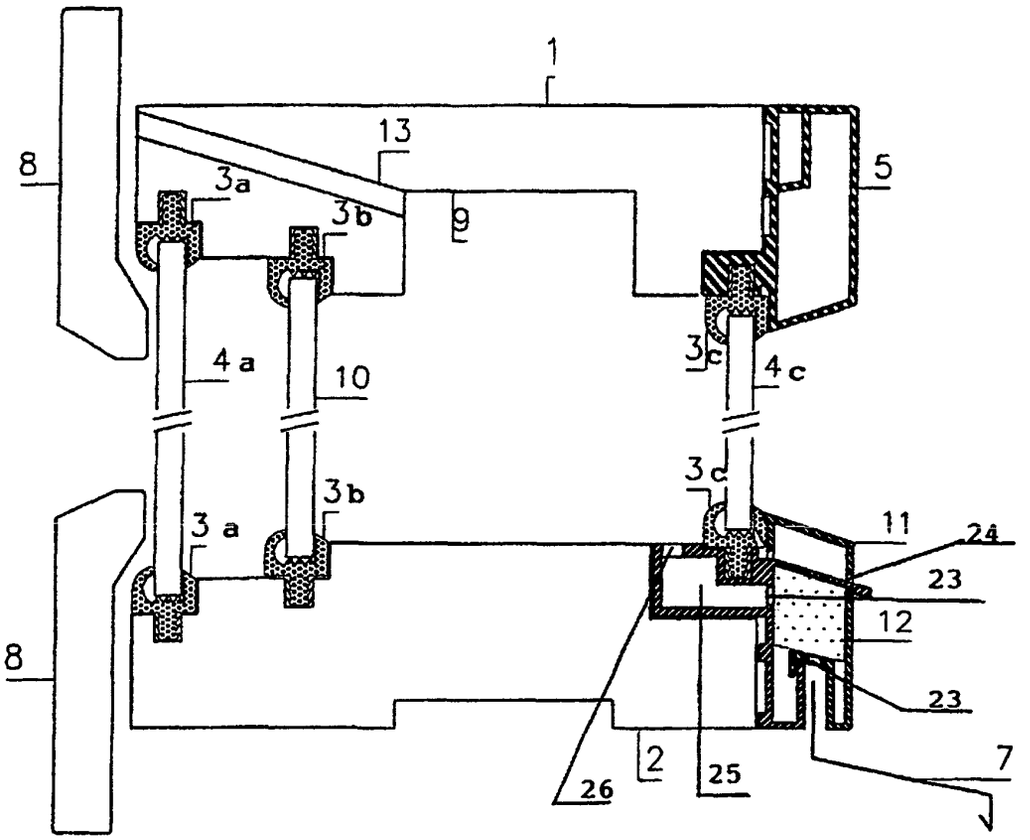

1
13
8
3a
3b
9
5
4a
10
3c
4c
3b
3a
3c
11
24
23
12
8
23
2
7
26
25

Fig. 3

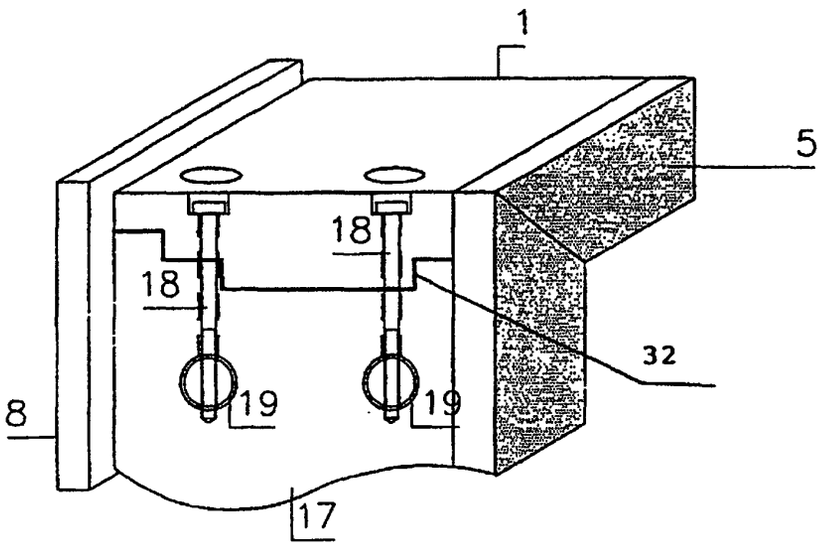

1
5
18
18
32
8
19
19
17

Fig. 5

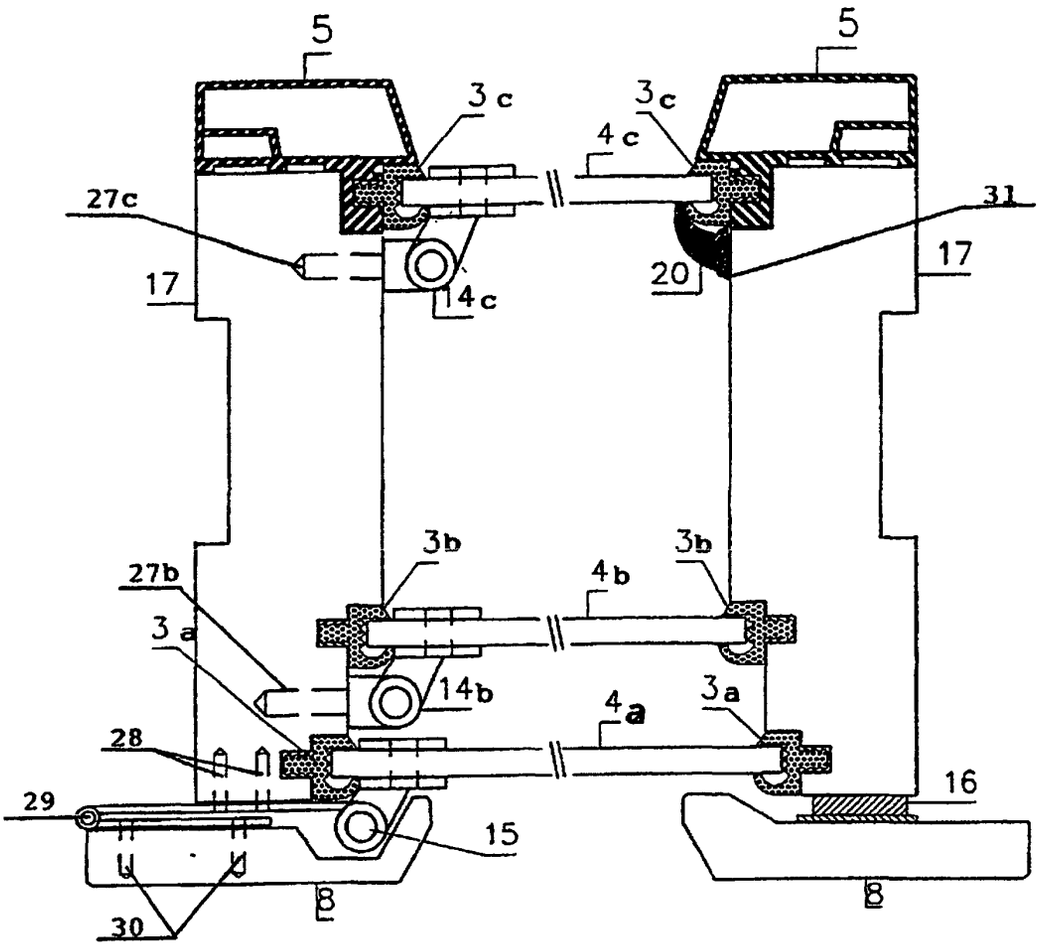


Fig. 4

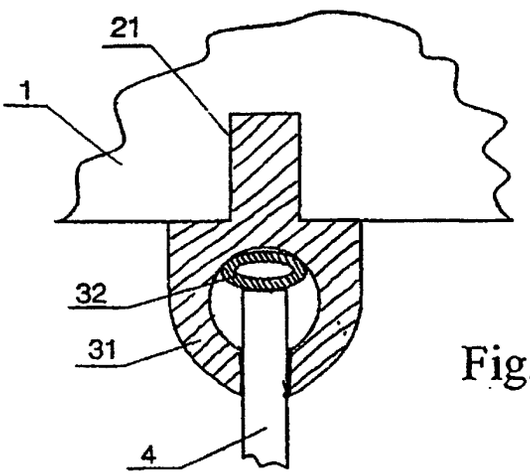


Fig. 6

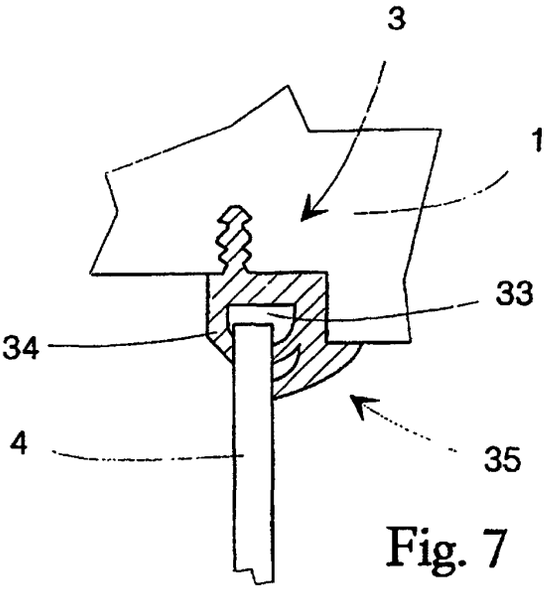


Fig. 7