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(54) **A WINDOW WITH A SCREENING DEVICE**

FENSTER MIT BEHANG

FENÊTRE AVEC UN DISPOSITIF D'ÉCRAN

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Description

[0001] The invention relates to a window for a building comprising a pane element, which includes a first sheet element intended to face the exterior and a second sheet element intended to face the interior of a building in the mounted state, said sheet elements, such as sheets of glass, being separated by one or more spacer members, and comprising a screening device for screening the pane element, said window being intended for use in residential, office or industrial buildings. The invention further relates to a method for making such a window.

[0002] When providing vertical windows as well as roof windows with screening devices such as shutters or roller blinds, these devices are usually secured to a window frame by means of mounting brackets fastened to the frame by means of screws. Though it has proven very efficient this method suffers from a number of disadvantages, among others the large number of different parts to be kept in stock for mounting different kinds of screening devices and the fact that dismounting leaves screw holes in the frame.

[0003] It is therefore the object of the invention to provide a window, where a screening device may be mounted without the need for specialized mounting brackets and without compromising the appearance of the frame in case of later dismounting.

[0004] This is achieved with a window according to claim 1 and a method according to claim 10 where the pane element is surrounded by a moulded border element, which at least partially encases the edge of at least one sheet element, and where the screening device is mounted in the border element.

[0005] Windows with moulded sash frames are known, for example from GB1243889, and a window with a moulded border element is known from EP 0 384 462 A2, but these publications are not concerned with the provision of screening devices.

[0006] When mounting the screening device in a border element all of the necessary attachments means, guiding rails and operating members may thus be associated with the border element, leaving the actual frame uninterrupted. If wishing to add, remove or change the screening device, the entire module consisting of the pane, the border element and the screening device may be changed.

[0007] The screening device may be a louver shutter, a roller shutter, a roller blind, a Venetian blind or the like arranged on the exterior of the window.

[0008] It may serve as a sun screening, but may also serve blackout or burglar retardant purposes.

[0009] In this context the term "frame" covers both stationary and moveable frames including traditional sashes. Furthermore, the term includes such elements, which includes other elements as well, and the pane module may be used with any type of window regardless of the number of frames forming part of the window.

[0010] The term "encase" should not be understood as if the border element encloses or embraces the entire edge of the pane; the mere contact between surfaces of the border element and pane may give a sufficient attachment.

[0011] When using conventional thermo panes and the like, the border element may encase the edge of the pane entirely. Other types of panes, however, have projecting edges that may be used for the attachment of the border element. One example is step unit panes, where the edge of one of the glass sheet elements projects over the edge of the other and over the spacer members. The border element may then be attached to the edge of the projecting sheet element.

[0012] The border element may encases all edges of at least one sheet element or only some of them. Encasing all edges gives a particularly good hold of the pane element, but it may be advantageous to leave one or more edges of at least one of the sheet element free to give room for the screening device.

[0013] The optimal mode of encasement also depends on the type of screening to be mounted in the border element.

[0014] Regardless of the pane type the sheet elements may be parallel to each other, as is most commonly the case, or one may be inclined in relation to the other so that the distance between them vary. This latter kind of pane has particularly good sound insulating properties and the principle may also be applied to three-sheet panes to thereby achieve an even better sound-proofing. Similarly the screening device need not be arranged in parallel to any of the sheet elements.

[0015] Pane elements are usually rectangular, but other shapes such as square, circular, semi-circular or trapezoidal may also be used.

[0016] By serving as a seat for the screening device the border element takes over functions that have hitherto been associated with the frame or frames of the window thereby allowing a simpler construction of the frame elements. This again entails that the frame elements may be less specialized and may therefore be used for a larger number of different windows, which in turn simplifies manufacturing processes.

[0017] The border element may be provided with one or more projecting parts serving for the attachment of the screening device wherein the border element has a part projecting over the exterior surface of the exterior sheet element substantially perpendicularly to the plane of the pane, the screening device being mounted on said projecting part. The projecting part may have an angular shape, one leg projecting substantially perpendicularly to the plane of the pane and the other being substantially parallel to the plane of the pane, pointing towards the centre of the pane. In this way the projecting part forms a groove, which may serve as guide rail for a roller shutter or the like. Projections may also be provided in the interior side of the window.

[0018] The projections are preferably moulded as an integral part of the border element, but may also be pro-

vided in the form of fittings attached to or embedded in the moulded border members. Such fittings may be made from plastic, metal or composites and may have the advantage of increasing the moment of inertia and the flexural strength of the border member to which it is added. Fittings may also constitute hinges, locking assemblies, reception means for receiving screws and other fastening means, current carriers, holders for claddings and/or coverings etc.

[0019] By using appropriate fittings, where the screening device may be easily attached and detached, it will possible to provide a pick-and-click system where the any type of screening may be attached to any border element. This will enable any particular demand as regards colour, insulation properties, sound dampening etc. to be met and to easily replace a screening device if it is broken or if merely desiring a change of colour.

[0020] The border members constituting the border element and corresponding in number to the number of edges on the pane may be of different designs depending on the different demands. If, for example, the border element is provided with a projection, the projection on the lower member of the border element may be provided with drain holes or interruptions or a part of the border element may be left without the feather. Similarly projections for guiding a screening device are normally only needed along the sides of the window.

[0021] The border element is preferably made from a thermoplastic, preferably from polyurethane or polyolefin. Other suitable materials include thermoplastic materials such as PVC, PE or PP, a thermoplastic elastomeric (TPE) and thermoset elastomer materials such as ethylene propylene diene monomer (EDPM). Reaction injection moulding (RIM) or low pressure moulding may be used for the manufacture.

[0022] In the following, the invention will be described in further detail with reference to the drawing in which:

Fig. 1 is a perspective view of a window according to the invention, and

Figs. 2 and 3 are cross sectional views showing two different embodiments of the side members of the border element and frame.

[0023] One embodiment of a window according to the invention is shown in Fig. 1. The window may be installed either vertically or inclined in the façade or the roof of any residential, office or industrial building. It comprises a pane in the form of pane element 1, a border element 2, a frame 3 and a screening device 4. The pane 1 and the screening device 4 are attached to the border element 2, which is again attached to the frame 3. The pane and/or screening device may be in contact with the frame, but are not attached directly thereto.

[0024] The pane element 1 may be a conventional type pane, where all glass sheets have identical size and shape, or may be step units, where the different glass sheets have different height and/or width so that one sheet projects over another at least at one edge thereof. Also, a combination of several pane elements arranged side-by-side in a single border element may be used, which may for example be advantageous when using vacuum panes that are difficult to make in larger sizes.

[0025] The pane element will usually be composed of monolithic glass elements. In this context the term "monolithic glass" covers annealed glass, tempered glass, laminated glass, wired glass, figured or patterned glass as well as other types of glass that are used in conventional panes. Even if referred to as being made from glass, it is to be understood that Plexiglas (also known as Perspex) or any other sheet element, transparent or not, which is suited for the particular use of the window, may also be employed, including luminescent materials. The glass may have coatings on one or both sides. The cavity between the sheet elements may be filled with dry air, gas such as Ar, Kr or Xe, or with gas mixtures suitable for improving the insulating properties of the pane by reducing its U value. A vacuum pane may also be used as may a pane with a layer of aerogel filling the space between the sheet elements.

[0026] Attachment of the encasing plastic, preferably polyurethane, of the border element to the glass sheet element is achieved purely by the adhesive properties of the plastic. The adhesion is established during the moulding process. To achieve good adhesion the areas of attach-ment may be covered by a mask and/or be primed. The mask may be a ceramic coating, UV hardening lacquer, a one- or two-component lacquer or any other suitable material. If using a suitable priming material such as for instance Carlofon Schwarzprimer (EFTEC DV 990) with additional UV blocking properties, this may also serve as a masking.

[0027] In the embodiment shown the screening device 4 is arranged on the exterior side of the window and comprises a cassette 41 with an opening 42 through which a roller blind 43 comes out. Other types of screenings, such as roller shutters, may also be used and they may also be arranged on the interior side of the window. One window may of course include more than one screening device and they may serve other purposes than sun screening, e.g. keeping insect out or preventing unauthorized entry.

[0028] As will be described in detail later, the border element is provided with the necessary means for attachment and operation of the screening device. In the embodiment shown in Fig. 1 this would imply means for attachment of the cassette, guiding and retention means for keeping the roller blind close to the pane and a passage for a operation cord or a wire to an electric operator.

[0029] The border element 2 is preferably made from polyurethane by moulding around the pane element so that edges of one or both sheet elements are encased in the moulding material. In the embodiment shown, the border element 2 surrounds the entire border of the pane element, but it is to be understood that it may also be U-shaped surrounding the pane on three of its four sides

or that separate elements may be used on each side leaving the corners of the pane free. Similarly it is to be understood that windows with other geometrical configurations, i.e. semi-circular or triangular, are also conceivable.

[0030] In this embodiment the frame 3 is stationary, but it is to be understood that the border element could also be mounted on a moveable frame, also known as a sash, mounted in the stationary frame. Any suitable material, such as wood, plastic, polyurethane or polyurethane with a wooden core, can be used for the manufacture of the frame.

[0031] The border element 2 and possibly also the frame 3 may be produced by using any suitable moulding technique, but injection moulding, e.g. reaction injection moulding (RIM), is preferred. When using the RIM process, current-carrying components, plastic or metal components contributing to strength and stiffness, screws etc. may be embedded in the moulding material. Furthermore, the RIM process allows the integration of details such as sealings.

[0032] Reaction injection moulding (RIM) is a process that is well known per se. During moulding, a two-component curing polyurethane is mixed in the mould containing the pane to be encased. In the mould a pressure of approximately 6 to 10 bar is obtained during the curing process. The cured module is ready to be handled within approximately 45 to 60 seconds. During the RIM process itself the temperature of the material and the mould lies between 80 and 110°C depending on the configuration of the mould and whether the polyurethane used is of the aromatic or the aliphatic kind. Depending on the kind of polyurethane used different Shore A hardnesses may be obtained. In the example polyurethane having a cured hardness of 60-90 Shore A may be used.

[0033] A cassette for a screening device as the one 41 shown in Fig. 1 may wholly or partly be moulded as a part of the border element 2 or it may be connected to the border element by means of any detachable or undetachable connecting means. Examples of detachable connecting means are screws, nails and other mechanical connection means, e.g. a click-system. Examples of undetachable connecting means are glue and adhesives or the cassette may be provided with a fitting that is embedded in the border element during moulding thereof.

[0034] As may be seen in Fig. 2 the upper or exterior face of the border element 2, may be provided with a projecting feather 1012, preferably running along the entire length of the border element. This feather serves as a guide for the roller shutter (not shown) keeping is from sliding over the edge of the window under the influence of strong winds. When the pane module is used with a window having a moveable frame mounted in a stationary frame, the feather will also prevent water from running from the outer surface of the pane into the space between the two frames (not shown). At the lower end of the window the feather is not needed for the guiding purpose and can therefore be left out or interrupted to allow rainwater and the like to drain off unobstructed.

[0035] Means for operating the screening device may be provided inside of the border element embedded in the moulding material. An example of this is the provision of a current-carrying component 108 providing an electrical connection between an operator motor and solar energy collector (not shown) in the pane element and an electrical window opener, a roller shutter, a light source, a display showing meteorological information, a sensor used for controlling ventilation or the like. Other examples are the provision of optical fibres or a passage for a curtain cord.

[0036] An embedded member may also be used for providing a pre-stressing of the border element, which may counteract harmful stresses on the pane caused by wind suction. Such influences are particularly pronounced with roof windows mounted in inclined roof surfaces and in the case of centre-hung windows primarily affect the lowermost half of the pane, which is being dragged outwards and upwards. This causes compressive stresses on the pane, which may eventually cause it to break. By embedding a tensioned cable in the material of the border element during moulding, a compressive force corresponding to the force of the tensioning will be applied to the material of the border element. Only wind forces, which are greater than the force of the tensioning, will thus cause stresses on the pane. The pre-stressing of the border element can of course be applied to the entire border element, but can also be limited to those border members, where it is most needed. As will be apparent to those skilled in the art, the pre-stressing may also be achieved in other ways, e.g. by tensioning the fitting 33 or by applying a pre-stressed member (not shown) at level with or above the outer surface of the pane. A similarly effect could also be achieved by locally increasing the stiffness of the material of the border element, thus not actually causing a pre-stressing but instead increasing its resistance to bending.

[0037] As may be seen in Fig. 3 the feather 1012 may be provided with a flange 119 projecting substantially in parallel with the pane 1 in a direction towards the centre of the window. The feather 1012 and the flange 119 thus form a groove 118, which may serve as a guiding rail for roller shutters or the like (not shown). A metal rail (not shown) may be provided in the groove for protecting the material of the border element, feather and flange from wear, but if these are made from a sufficiently strong material, the rail may be left out.

[0038] The feather and flange may also be provided in the form of a metal profile or the like embedded in the border element, possibly contributing to the strength and stiffness of the border element. To increases its moment of inertia an I-shaped profile may be used.

[0039] To providing an even better guiding the flange it additionally provided with a nose 117. At its edges the screening device may then be provided with knobs or beads, which are so large, that they cannot pass the opening between the nose 117 and the flange 119. The

flange 119 may also decline towards the surface of the pane 1.

[0040] The nose 117 will function as a bearing surface for the screening device, keeping it from coming into contact with the pane 1 at its edges and may additionally serve as a spacer keeping the screening device at a distance above the pane. A space between the pane and the screening device may for example serve ventilating purposes or keep the screening device from being pressed into contact with the pane under the influence of wind. A similar result may be achieved with an embodiment having a groove formed between a shelf (not shown) on the border element and the flange 119. Further, it is to be understood, that the dimensions of noses, projections, feathers, flanges etc. in relation to the remaining parts of the border element need not be as depicted in the figures.

[0041] Here, the border element has been described as having one or two projecting noses or flanges, but more can be provided if necessary. This may for example be the case if wishing to combine more pane elements such as for example a single-sheet pane arranged at a distance above a two-sheet pane. An extra nose corresponding to the one 117 shown in Fig. 3 may then be used for keeping the distance between the two panes.

[0042] A screening device in the form of lamellas, which may be rotated about their own length axis but are otherwise stationary, also known as a louvre shutter, may also be mounted in the border element 2. In this case the groove 118 need not extend over the entire length of the border element as it would when used with a type of screening device that can be pulled up and down. In stead a number of openings can be provided corresponding to the number of lamellas, said openings housing end members of the lamellas. The openings are preferably provided in the form of bushings encased in the border element on each side of the window, said bushing serving the same functions as the rail arranged in the groove as described above. The bushings should preferably be replaceable. A border element having openings or indentations suitable for receiving the ends of the lamellas directly may, however, also be used, particularly in designs where the border element itself is easily replaceable.

[0043] In this the flange 119 has been described as contributing to the guiding and/or attachment the screening device, but it may also serve a merely more passive role, where it is only intended as a safety to retain the screening device in the unlikely event that its connection to the border element should fail.

[0044] In this the nose 117 and flange 119 has been depicted as being a moulded integral part of the border element, but it should be understood that they may also be formed by fittings, such as aluminium rails, embedded in or attached to the moulded border element.

[0045] All functional units described in the above need not be present at the same time in the different embodiments of the border element.

[0046] In the above, the pane module has been described as either constituting a sash in itself or as constituting an element to be coupled to a further element to constitute a sash, in the sense that the sash is openable. The sash could also be fixed, i.e. not openable in the traditional sense but connected to a traditional frame. Furthermore, it would be possible to integrate the sash and the frame into a single element, or to form the sash as a traditional window frame for connection to the roof structure. All of these interpretation could be applied to the term "frame" within the context of the present application.

[0047] Furthermore, it is conceivable to make use of other configurations of the pane element. For instance, there may be more than two sheets of glass, and the sheets need not to be plane and/or parallel with each other.

Claims

1. A window for a building comprising a pane element (1), which includes a first sheet element (102) intended to face the exterior and a second sheet element (104) intended to face the interior of a building in the mounted state, said sheet elements, such as sheets of glass, being separated by one or more spacer members (103), and comprising a screening device (4) for screening the pane element, **characterized in that** the pane element (1) is surrounded by a moulded border element (2), which at least partially encases the edge of at least one sheet element (102, 104), and that the screening device (4) is mounted in the border element at the exterior face thereof.

2. A window according to claim 1, **characterized in that** the screening device (4) is a louver shutter, a roller shutter, a roller blind (43), a Venetian blind or the like.

3. A window according to any of the preceding claims, **characterized in that** the border element (2) has a part (1012) projecting over the exterior surface of the exterior sheet element (102) substantially perpendicularly to the plane of the pane (1), the screening device (4) being mounted on said projecting part.

4. A window according to claim 3, **characterized in that** the projecting part (1012) has an angular shape, one leg projecting substantially perpendicularly to the plane of the pane (1) and the other (117, 119) being substantially parallel to the plane of the pane, pointing towards the centre of the pane.

5. A window according to claim 4, **characterized in that** the projecting part (1012) forms a groove (118), which serves as a guide rail for a roller shutter or the like .

6. A window according to any of claims 3-5, **characterized in that** the projecting part is part of a fitting embedded in the border element (2).

7. A window according to any of the preceding claims, **characterized in that** the border element (2) consists of a number of border members corresponding to the number of edges on the pane (1) and that at least two border members are of different designs.

8. A window according to any of the preceding claims, **characterized in that** the border element (2) is made from plastic, preferably from polyurethane.

9. A window according to any of the preceding claims, **characterized in that** the border element (2) is provided by reaction injection moulding (RIM) or low pressure moulding.

10. A method for making a window for a building, said window comprising a frame, a sash and a pane (1), said sash being moveable in relation the frame and carrying the pane, said pane including at least two sheet elements, such as sheets of glass, a first sheet element (102) of the pane being intended to face the exterior and a second sheet element (104) being intended to face the interior of a building in the mounted state, **characterized in** the following steps:

    providing the pane (1) with a moulded border element (2), so that the border element surrounds the pane, at least partially encasing the edge of at least one sheet element (102, 104), and so that said pane and border element forms a pane module,
    attaching the pane module to the sash,
    providing the exterior face of the border element with means for carrying at least one screening device (4),
    mounting the screening device in the border element at the exterior face thereof.

Patentansprüche

1. Fenster für ein Gebäude mit einem Scheibenelement (1), das ein erstes flächiges Element (102), das vorgesehen ist, im montierten Zustand nach außen zu weisen, und ein zweites flächiges Element (104) umfasst, das vorgesehen ist, im montierten Zustand zum Inneren eines Gebäudes zu weisen, wobei die flächigen Elemente, wie beispielsweise Glasscheiben, durch ein oder mehrere Abstandselemente (103) voneinander getrennt sind, und das eine Abschirmeinrichtung (4) zum Abschirmen des Scheibenelements aufweist, **dadurch gekennzeichnet, dass** das Scheibenelement (1) durch ein geformtes Begrenzungselement (2) umgeben ist, das zumindest teilweise die Kante wenigstens eines flächigen Elements (102, 104) umschließt, und dass die Abschirmeinrichtung (4) in dem Begrenzungselement an der äußeren Fläche davon angebracht ist.

2. Fenster nach Anspruch 1, **dadurch gekennzeichnet, dass** die Abschirmeinrichtung (4) eine Markise, ein Rollladen, ein Rollo (43), eine Jalousie oder Ähnliches ist.

3. Fenster nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Begrenzungselement (2) einen Teil (1012) hat, der über die äußere Oberfläche des äußeren flächigen Elements (102) im Wesentlichen senkrecht zu der Ebene der Scheibe (1) vorsteht, wobei die Abschirmeinrichtung (4) an dem vorstehenden Teil angebracht ist.

4. Fenster nach Anspruch 3, **dadurch gekennzeichnet, dass** der vorstehende Teil (1012) eine winklige Form hat, wobei ein Schenkel im Wesentlichen senkrecht zu der Ebene der Scheibe (1) vorsteht und der andere (117, 119) im Wesentlichen parallel zu der Ebene der Scheibe ist, wobei er zur Mitte der Scheibe weist.

5. Fenster nach Anspruch 4, **dadurch gekennzeichnet, dass** der vorstehende Teil (1012) eine Nut (118) bildet, die als eine Führungsschiene für einen Rollladen oder Ähnliches dient.

6. Fenster nach einem der Ansprüche 3 bis 5, **dadurch gekennzeichnet, dass** der vorstehende Teil ein Teil eines Beschlags ist, der in das Begrenzungselement (2) eingelassen ist.

7. Fenster nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Begrenzungselement (2) aus einer Anzahl von Begrenzungsteilen besteht, die der Anzahl von Kanten der Scheibe (1) entspricht, und dass wenigstens zwei Begrenzungsteile einen unterschiedlichen Aufbau haben.

8. Fenster nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Begrenzungselement (2) aus Kunststoff, vorzugsweise Polyurethan, hergestellt ist.

9. Fenster nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Begrenzungselement (2) durch Reaktionsspritzgussformen (RIM) oder Niederdruckformen bereitgestellt wird.

10. Verfahren zum Herstellen eines Fensters für ein Gebäude, wobei das Fenster einen Rahmen, einen Flügel und eine Scheibe (1) umfasst, wobei der Flügel beweglich in Bezug auf den Rahmen ist und die

Scheibe trägt, wobei die Scheibe wenigstens zwei flächige Elemente umfasst, beispielsweise Glasscheiben, wobei ein erstes flächiges Element (102) der Scheibe vorgesehen ist, im montierten Zustand nach außen zu weisen, und ein zweites flächiges Element (104) vorgesehen ist, im montierten Zustand zum Inneren eines Gebäudes zu weisen, **gekennzeichnet durch** die folgenden Schritte:

Bereitstellen der Scheibe (1) mit einem geformten Begrenzungselement (2), so dass das Begrenzungselement die Scheibe umgibt, wobei es die Kante von wenigstens einem flächigen Element (102, 104) wenigstens teilweise umschließt, und so dass die Scheibe und das Begrenzungselement ein Scheibenmodul bilden,
Befestigen des Scheibenmoduls an dem Flügel,
Versehen der äußeren Fläche des Begrenzungselements mit Mitteln zum Halten von wenigstens einer Abschirmeinrichtung (4),
Montieren der Abschirmeinrichtung in dem Begrenzungselement an der äußeren Fläche davon.

Revendications

1. Fenêtre destinée à un immeuble, comportant un élément de vitrage (1), lequel comprend un premier élément en plaque (102) conçu pour faire face vers l'extérieur et un second élément en plaque (104) conçu pour faire face, à l'état monté, à l'intérieur d'un immeuble, lesdits éléments en plaque, tels que des plaques de verre, étant séparés par un ou plusieurs éléments d'écartement (103), et comportant un dispositif d'écran (4) pour occulter l'élément de vitrage, **caractérisée en ce que** l'élément de vitrage (1) est entouré par un élément de bordure moulé (2), lequel s'emboîte, au moins en partie, avec le bord d'au moins un élément en plaque (102, 104), et **en ce que** le dispositif d'écran (4) est monté dans l'élément de bordure au niveau de sa face extérieure.

2. Fenêtre selon la revendication 1, **caractérisée en ce que** le dispositif d'écran (4) est un volet à vantail, un volet roulant, un store roulant (43) un store vénitien ou analogue.

3. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élément de bordure (2) comporte une partie (1012) faisant saillie sur la surface extérieure de l'élément en plaque extérieur (102), essentiellement de façon perpendiculaire au plan du vitrage (1), le dispositif d'écran (4) étant monté sur ladite partie en saillie.

4. Fenêtre selon la revendication 3, **caractérisée en ce que** la partie en saillie (1012) présente une configuration angulaire, une première branche s'avançant de façon essentiellement perpendiculaire vers le plan du vitrage (1) et l'autre (117, 119) étant essentiellement parallèle au plan du vitrage, pointant vers le centre du vitrage.

5. Fenêtre selon la revendication 4, **caractérisée en ce que** la partie en saillie (1012) forme une rainure (118), laquelle sert de rail de guidage pour un volet roulant ou analogue.

6. Fenêtre selon l'une quelconque des revendications 3 à 5, **caractérisée en ce que** la partie en saillie fait partie d'un ajustage logé dans l'élément de bordure (2).

7. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élément de bordure (2) est constitué d'un certain nombre de pièces de bordure correspondant au nombre de bords sur le vitrage (1) et **en ce que** au moins deux pièces de bordure sont de modèles différents.

8. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élément de bordure (2) est constitué de matière plastique, de préférence, de polyuréthane.

9. Fenêtre selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élément de bordure (2) est fourni par moulage par injection et réaction (RIM) ou par moulage sous basse pression.

10. Procédé de fabrication d'une fenêtre destinée à un immeuble, ladite fenêtre comportant un cadre, un châssis et un vitrage (1), ledit châssis étant mobile par rapport au cadre et supportant le vitrage, ledit vitrage comprenant au moins deux éléments en plaque, tel que des plaques de verre, un premier élément en plaque (102) du vitrage étant conçu pour faire face vers l'extérieur et un second élément en plaque (104) étant conçu pour faire face vers l'intérieur d'un immeuble, à l'état monté, **caractérisé par** les étapes suivantes :

fournir le vitrage (1) avec un élément de bordure moulé (2), de façon que l'élément de bordure entoure le vitrage, emboîtant, au moins en partie, le bord d'au moins un élément en plaque (102, 104), et de façon que ledit vitrage et l'élément de bordure forment un module de vitrage,
fixer le module de vitrage au cadre,
doter la face extérieure de l'élément de bordure de moyens de support d'au moins un dispositif d'écran (4),
monter le dispositif d'écran dans l'élément de bordure au niveau de sa face extérieure.

Fig. 1

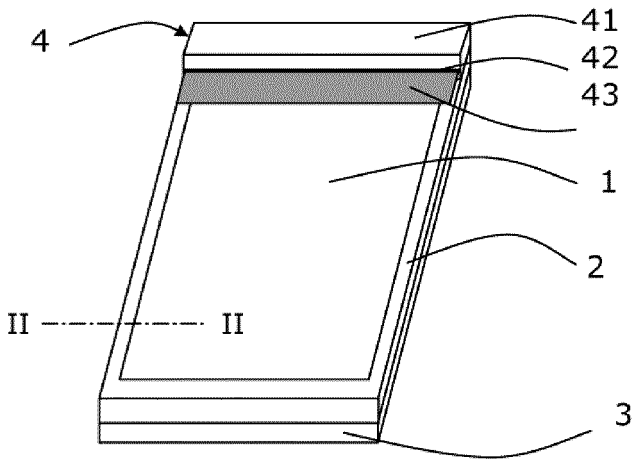


Fig. 2

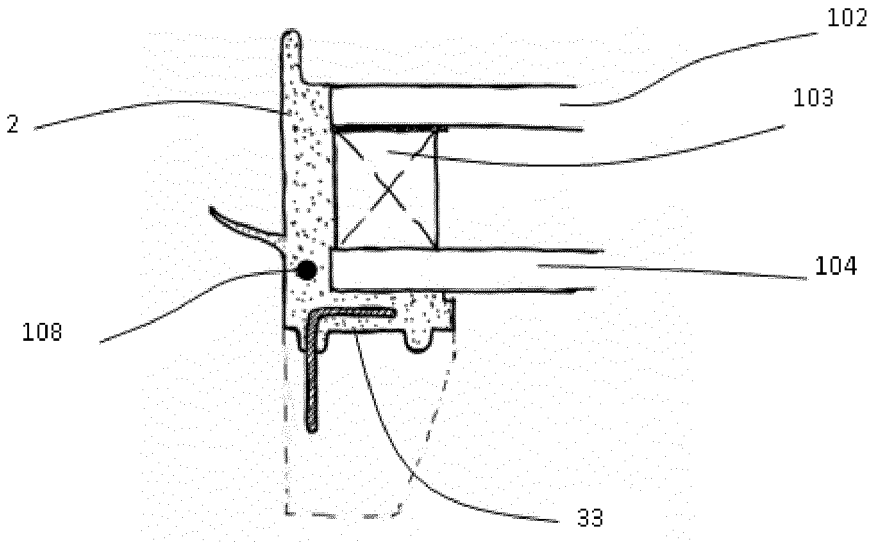
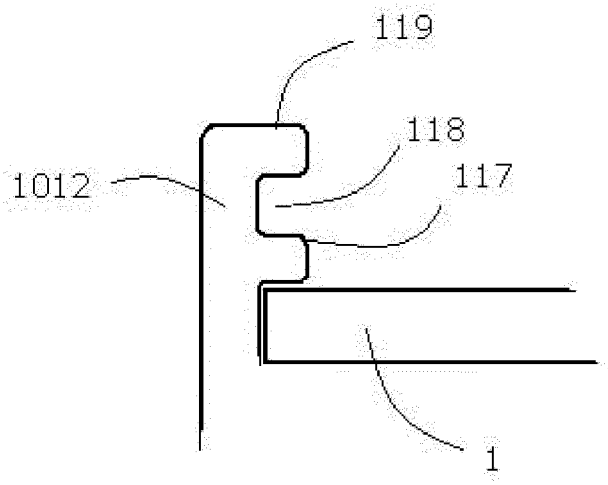


Fig. 3



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- EP 0384462 A2 **[0005]**