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(54) INSULATION MOUNTING PROFILE AND METHOD FOR MANUFACTURING OF INSULATION MOUNTING PROFILES

ISOLIERBEFESTIGUNGSPROFIL UND VERFAHREN ZUR HERSTELLUNG EINES ISOLIERBEFESTIGUNGSPROFILS

PROFILÉ DE MONTAGE D'ISOLATION ET PROCÉDÉ DE FABRICATION DE PROFILÉS DE MONTAGE D'ISOLATION

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EP 3 387 205 B1

Description

[0001] The subject matter of the invention is an insulation mounting profile, which is designed to create fastening systems and thermal insulation of windows and doors. It is usually placed in the insulation area of all kinds of buildings, including multi- family buildings, single-family buildings, as well as public buildings, livestock buildings and farm buildings.

[0002] The subject matter of the invention is also a method for manufacturing of unified insulation mounting profiles, which can easily be used for manufacturing of individualized insulation mounting profiles, tailored to individual needs of investors.

[0003] There are many solutions for mounting profiles and fastening systems, as well as thermal insulation of windows, doors and facades.

[0004] Known from Polish description of the invention with the application number P.294954 (pub. BUP No. 26/1993 of 27 December 1993) is the solution entitled "The method for making contacts between the window and the wall, and the thermal insulation element for the application of this method". The invention presented herein solves the problem of elimination of thermal bridges at contacts between the window and the wall. The method involves placing the thermal insulation element in the location of the horizontal contact between the window and the wall, which is also the external sill. The thermal insulation element is made of a thermal insulation material in the form of a narrow board, having a trapezoidal shape in the cross section. On the surface of the thermal insulation material of the element is placed a thin layer of plastic with a mesh.

[0005] Known from another Polish description of the utility model with the application number W.101801 (publ. BUP No. 14/1996 of 8 July 1996) is the solution entitled "The element for the installation of aluminum windows with the thermal separation". The subject matter of the utility model presented herein is the element for the installation of aluminum windows with the thermal separation, as well as tilt and turn windows in freestanding construction containers. The element for the installation of aluminum windows with the thermal separation is a monolithic moulding made of the wall and the wail of edges juxtaposed at a right angle, while the relationships between the wall to the wall at particular sizes are expressed by the following ratios: 1.6 to 1.19 to 1 and 2.3 to 1, most preferably 1.9 do 1. The wall has through fixing hollows, and the window with the element is fixed to the window opening by a screw element. Known from another Polish description of the utility model with the application number W.115579 (publ. BUP No. 02/2007 of 22 January 2007) is the solution entitled. The angular element of the thermal insulation housing". The angular element of the thermal insulation housing presented herein comprises a base and a side wall, made of a thermal insulation board, where between two stiffening linings is placed a layer of the thermal insulation material. The base and the side wall are connected to each other to form the angular bent edge at the connection point. The angular element has on the opposite face edges the longitudinal seal protrusions on the one side, and the longitudinal seal socket on the other.

[0006] Known from another Polish description of the utility model with the application number W.119897 (publ. BUP No. 21/2012 of 8 October 2012) is the solution entitled "The steal profile reinforcing windows and doors with the thermal insert". The reinforcing steel profile with the thermal insert for manufacturing of windows and doors of PVC profiles, constituting a steal upper and side element, separated by a rolled thermal insert, is characterized by the fact that the upper element has a bend forming the protrusion and the socket made between the double and single bend of the protrusion, where is placed the thermal insert by one end, located in the socket of the side element by the other end, formed between the double and single bend of the protrusion, wherein the vertical arm of the side element has a protrusion.

[0007] The document WO2015/043719 discloses an insulating mounting profile for mounting and supporting window or door frames according to the preamble of claim 1.

[0008] The purpose of the invention is to develop such a mounting profile, which will enable the creation of the entire fastening system and the thermal insulation of windows, doors and glass facades, as well as enable and at least facilitate their assembly, regardless of the shape and regardless of the type of the wall, in which are made the holes built using the developed profile. The purpose of the invention is also to develop an efficient method for manufacturing of the insulating mounting profile.

[0009] The essence of the insulating mounting profile for mounting and supporting window or door frames lies in the fact that it is an angle brackets made of any material, preferably steel or composite with high density, which can carry loads of up to 450 kg/m2 and which is supplemented by an adhering foam. They constitute an essential part of the insulating mounting profile and are covered with a layer of resin, and then with a layer of fiber and the profile is equipped with anchors.

[0010] Preferably, in the insulating mounting profile the angle bracket has the shape of the letter "L".

[0011] Preferably, the angle bracket and the foam create a compact, basic part of the profile with the cross-section of a right-angled triangle.

[0012] Preferably, the foam is made of a foamed polypropylene with a cellular structure; is preferably made up of a linear polymer or a branched polymer or a side-chain polymer or a multi-branched polymer or a star polymer or a ladder polymer or a cross-linked polymer or a cyclic polymer or a catetane polymer or a ratexan polymer or a dendrimeric polymer, and especially a floral sponge, a polystyrene, a styrodur, or a polyurethane with a density from 15 kg/m2 to 450 kg/m2, foamed PVC or other plastics, such as: ABS, PE, PP, or compressed wood chips or other material combined with polyurethane,

[0013] Preferably, resin is epoxy resin, urea resin or polyurethane.

[0014] Preferably, the layer of fiber is glass fiber, carbon fiber or resin-impregnated fiber.

[0015] Preferably, the basic part of the insulating profile is fixed to the supplementing foam, preferably made of one of the materials, from which the adhering foam is made.

[0016] Preferably, the profile has sockets, which are equipped with plugs. Preferably, the profile is an appropriately shaped profile, forming the window sill, i.e. the sill profile.

[0017] Preferably, the plugs have two layers - the outer layer of the plug is a membrane, preferably EPDM or Winflex, while the inner layer is an adhesive, and in addition, optionally the plug is protected from sticking with a siliconized paper.

[0018] The method for manufacturing of the insulating mounting profile is defined in claim 11 and it is performed as a result of successively taken steps:

- selected components are collected from containers to the composite, and
- in the component mixing unit is produced a component from which are casted blocks in molds, intended for cutting sill profiles, preferably are casted ready profiles, for example, with reinforcing elements already placed in them at once, taking the form of angle brackets, or densified elements,
- then, elements are cut, or cut off, and dust is removed (at the working station, as shown in Fig. 15).
- cut elements are passed through the drawing die (at the working station, as shown in Fig. 16), in which they are coated with resin or its equivalent, and then
- these elements are passed through the drawing die (at the working station, as shown in Fig. 17), in which they are coated with fiber, after application of which the hardness of their surface is fixed,
- optionally, resin is then tainted in any color.

[0019] The developed insulating mounting profile is made of materials that have been used so far in completely different fields, of polymers (including the floral sponge, i.e. of polyurethane with short polymer chains), which in combination with resins exhibit surprising, hitherto unknown properties, perfectly suitable for the use in construction.

[0020] The solution according to the invention allows a simple and quick installation of windows, doors and glass facades eliminating thermal bridges, previously formed at the place of their installation. The developed insulating mounting profile can reduce structural components used so far in the installation of windows and doors, because it can be a separate structural component, which alone carries significant loads. This is possible thanks to the materials used, whose properties have not been yet applied in construction at all - or were only used for other purposes. Both, due to the properties of the materials used, as well as due to the characteristics of the profile structure - there was obtained an unexpectedly favorable distribution of stresses in the profile and in the entire beam, which allows to achieve the maximum strength with extremely low expenditure of materials and use of materials, which excellent technical parameters have not been used so far. The developed profile is extremely light after coating with glass fiber, or carbon fiber, or after soaking with resin - is extremely tough, and yet exhibits excellent thermal insulation properties.

[0021] It is worth noting the properties of carbon fibers, the use of which is provided in the developed invention. These fibers, which are formed as a result of the controlled pyrolysis of polyacrylonitrile and other organic polymers, consist almost entirely of stretched carbon structures, chemically similar to graphite. Their highly organized structure confers a high mechanical strength, and the fact that they consist almost entirely of graphite makes them infusible and chemically resistant These fibers have been used so far as a construction material in many laminates, but have never been used to strengthen the structures of mounting profiles for window and door openings (also glass fibers or resins have not been used so far for this purpose). Carbon fibers are currently used mainly to reinforce yacht sails and to improve the properties of the material of which tents are made.

[0022] The developed structure eliminates the need for placing windows or doors in the wall opening; these elements can be installed outside the wall, so that the thermal insulation is directly fed to the window or the door. As a result, the solution according to the invention eliminates any thermal bridges, which are created so far when connecting the windows and the doors with the wall face.

[0023] The invention has led to the development of an extremely strong profile, which makes it possible to limit the additional structural elements in the building, because the profile plays their role alone and replaces them.

[0024] The method according to the invention, i.e, the method for manufacturing of insulating mounting profiles as defined in claim 11, provides for the organization of a deliberate and extremely easily organized technological cycle that enables both the manufacture of highly customized and even most complex profiles, as well as simple and standardized profiles.

[0025] The subject matter of the invention is shown in the example of the performance in the drawings, where Fig. 1 - shows an axonometric view of the cross section through two juxtaposed profiles, where in one of them the steel angle bracket is used, Fig. 2 - shows an axonometric view of the cross section through the profile using the angle bracket made of densified mass, Fig. 3 - shows an axonometric view of the cross section of the profile using a different angle bracket made of densified mass,

Fig. 4 - shows a horizontal module of the profile, while Fig. 5 - shows a vertical module of the profile with properly positioned plugs, Fig. 6 - shows a horizontal module of the profile with another installation method, using anchors, Fig. 7 - shows an arched module of the profile, Fig. 8 - shows an example of the insulation of the round window frame, using circular arc modules of the profile, Fig. 9 - shows an axonometric view of the cross section through the profile, where in addition the sill profile is used in a shape forming the window sill, while the drawings Fig. 10, Fig. 11 Fig. 12, Fig. 13 and Fig. 14 - show an axonometric view of profiles, with which sill profiles of another type are also juxtaposed, then Fig. 15 - shows the cleaning stage of the cut sill profile from particles of contaminants, which precedes the coating stage of the sill profile made using the method presented in the developed method, Fig. 16 - shows the method for coating of the sill profile with resins, Fig. 17 - shows a device for applying glass fiber or its equivalent to the sill profile, and finally Fig. 18 - presents an axonometric view of the cross section through the profile, which is covered at the bottom and on the side with a thick layer of the insulation material.

[0026] As shown in the drawings, an essential structural element of the developed insulating mounting profile is the angle bracket 1, with the shape of the letter "L", made of any material, preferably steel or composite with a high density, that can carry loads even up to 450 kg/m2. The angle bracket 1 supplemented with the adhering foam 2 form a compact, basic part of the profile with the cross section of a right-angled triangle. The foam 2 can be made of any plastic, preferably of foamed polypropylene having a cellular structure. The foam 2 can be:

- a linear polymer (a polymer, in which main chains are straight and do not have any branches, e.g. high density polyethylene or teflon), a branched polymer (a polymer, in which main chains are branched), a side-chain polymer (a polymer, in which short, side chains are regularly or irregularly distributed along the main chain), a multi-branched polymer (a polymer, in which there are many multi branches and it is not possible to distinguish the chain), a star polymer (a polymer, in which from a single central point there go few or several "arms", which are conventional linear chains), a ladder polymer (a polymer, which consists of two parallel main chains, periodically connected with short side chains to the entire or partial form, if the side forming the framework is broken in some places), a cross linked polymer (a polymer, which forms a dimensional, continuous network, such that it is no longer possible to distinguish single particles, which are divided into high and low density cross linking), a cyclic polymer (a polymer, in which instead of linear particles are arranged large cyclic particles), a catetane polymer (a polymer resembling connected links of the chain, in which cyclic portions merge to form a long polymer chain), a ratexan polymer (with the so-called shashlik structure, in which short cyclic particles were "strung" on the polymer chain), a dendrimeric polymer (a polymer, in which the particles from one chain spread to another, and from them to another and there is formed a dendrimetric structure resembling a tree) especially
  - made of the floral sponge, i.e. polyurethane with short chains,
  - made of styrofoam (soft or hard),
  - made of styrodor,
  - made of polyurethane having a density from 15 kg/m2 to 450 kg/m2,
  - made of foamed PVC, or
  - made of other plastics, such as ABS, PE, PP, or
  - made of compressed wood chips or other material, combined with polyurethane.

[0027] The basic part of the developed insulating mounting profile, consisting of the angle bracket 1 with the adhering foam 2, is covered with the layer of resin 4, for example, with epoxy resin, urea resin or polyurethane resin, and the layer of glass fiber 5, carbon fiber or fiber impregnated with resin. To such prepared, basic part of the insulating mounting profile is installed the supplementing foam 3, made, for example, of one of the materials, of which the adhering foam 2 is made. The supplementing foam 3, along with the previously prepared basic part of the profile, is covered with the layer of resin 4, and then with the layer of fiber 5. Resin 4 may be then tainted in any color.

[0028] The installation of the profile to the wall opening or to the wall face is facilitated by sockets 6, which are made in the course of manufacturing of the profile. Sockets 6 are the holes that allow easy insertion of screws, and thus installation of the insulating mounting profile to the wall face.

[0029] In order to protect sockets 6, and thus installation points, there are used plugs 7. Plugs 7 have two layers - the outer layer of the plug 7 is a membrane, preferably EPDM or Winflex, while the outer layer is an adhesive, thanks to which plugs 7 are installed to the insulating mounting profile. In the course of manufacturing of the profile, plugs 7 are partially adhered to the profile, while on the other part the plug 7 is protected from adhering with a siliconized paper. Plugs 7 are adhered to the profile in such a way as to leave free access to the slot 6, and hence ensure easy installation of the profile to the wall. After installation of the profile, it is sufficient to remove the adhesive protection, which usually comprises a silicone paper, and stick the remainder of the plug 7, and thus protect sockets 6 and installation elements, for example, from the penetration of moisture from the outside.

[0030] The developed insulating mounting profile can be also installed to the wall using anchors 8.

[0031] With an unexpected achievement of extremely favorable strength and insulation parameters, arising from the use in the construction of the profile of the ma-

terials, which so far have never been used for the installation of windows and are known and used in horticulture - the developed insulating mounting profile can be formed in any manner (as shown in Figure 4, 5, 6 and 7). This allows the use of the developed profile for easy installation of windows and doors of any shape, according to the user's individual needs. In the course of the installation of windows, any mounting profile can have an appropriately formed shape to further create the window sill.

[0032] The profile is also a structural element and an element of thermal insulation and given an appropriate shape of the profile it can also be a window sill, i.e. the sill profile 9.

[0033] The method according to the invention is performed as a result of successively taken steps:

- selected components are collected from containers to the composite, and
- in the component mixing unit is produced a component from which are casted blocks in molds, intended for cutting sill profiles 9, alternatively ready profiles are casted, for example, with reinforcing elements placed in them at once, taking the form of angle brackets 1, or densified elements,
- then, elements are cut, or cut off, and dust is removed (at the working station, as shown in Fig. 15).
- cut elements are passed through the drawing die (at the working station, as shown in Fig. 16), in which they are coated with resin 4 or its equivalent, and then
- these elements are passed through the drawing die (at the working station, as shown in Fig. 17), in which they are coated with fiber 5, after application of which the hardness of their surface is fixed,
- optionally, resin 4 is then tainted in any color.

List of elements

[0034]

1. angle bracket,
2. adhering foam,
3. supplementing foam,
4. resin,
5. fiber,
6. socket,
7. plug,
8. anchor,
9. sill profile.

Claims

1. The insulating mounting profile for mounting and supporting window or door frames is comprising an angle bracket (1) made of any material, preferably steel or composite with a high density, that can carry loads even up to 450 kg/m2, said angle bracket (1) being complemented by an adhering foam (2), said angle bracket (1) and adhering foam (2) together forming forming the basic part of the insulating mounting profile and said insulating mounting profile being equipped with anchors (8), **characterised in that** said basic part is covered with a layer of resin (4), and a layer of fiber (5).

2. The insulating mounting profile according to the claim 1, the insulating mounting profile is **characterized in that** the angle bracket (1) has the shape of the letter "L".

3. The insulating mounting profile according to the claim 1 or the claim 2, the insulating mounting profile is **characterized in that** the angle bracket (1) and the foam (2) form a compact, basic part of the profile with the cross section of a right-angled triangle.

4. The insulating mounting profile according to the claim 1, the claim 2 or the claim 3, the insulating mounting profile is **characterized in that** the foam (2) is made of a foamed polypropylene having a cellular structure, it is preferably a linear polymer or a branched polymer or a side-chain polymer or a multi-branched polymer or a star polymer or a ladder polymer or a cross linked polymer or a cyclic polymer or a catetane polymer or a ratexan polymer or a dendrimeric polymer, and especially a floral sponge, a polystyrene, a styrodur, or a polyurethane having a density from 15 kg/m2 to 450 kg/m2, a foamed PVC or other plastics, such as ABS, PE, PP, or compressed wood chips or other material connected with polyurethane.

5. The insulating mounting profile according to the claim 1, the claim 2, the claim 3 or the claim 4, the insulating mounting profile is **characterized in that**, for example, resin (4) is epoxy resin, urine resin or polyurethane resin.

6. The insulating mounting profile according to the claim 1, the claim 2, the claim 3, the claim 4 or the claim 5, the insulating mounting profile is **characterized in that** the layer of fiber (5) is glass fiber, carbon fiber or resin-impregnated fiber.

7. The insulating mounting profile according to the claim 1, the claim 2, the claim 3, the claim 4, the claim 5 or the claim 6, the insulating mounting profile is **characterized in that** the base part of the insula-

tion mounting profile is fixed to the supplementing foam (3), preferably made of one of the materials, from which the adhering foam (2) is made.

8. The insulating mounting profile according to the claim 1, the claim 2, the claim 3, the claim 4, the claim 5, the claim 6, or the claim 7, the insulating mounting profile is **characterized in that** it has sockets (6), which are preferably equipped with plugs (7).

9. The insulating mounting profile according to the claim 1, the claim 2, the claim 3, the claim 4, the claim 5, the claim 6, the claim 7, or the claim 8, the insulating mounting profile is **characterized in that** it is a properly shaped profile forming the sill, that is the sill profile (9).

10. The insulating mounting profile according to the claim 9, the insulation mounting profile is **characterized in that** plugs (7) have two layers - the outer layer of the plug (7) is a membrane, preferably EPDM or Winflex, while the inner layer is an adhesive, and in addition, optionally the plug (7) protected from adhering with a siliconized paper.

11. The method for manufacturing of the insulating mounting profile for mounting and supporting window or door frames according to any of the claims 1-10, which is performed as a result of successively taken steps:

- selected components are collected from containers to the composite, and
- in the component mixing unit is produced a component from which are casted blocks in molds, intended for cutting sill profiles (9), alternatively ready profiles are casted, for example, with reinforcing elements already placed in them at once, taking the form of angle brackets (1), or densified elements,
- then, elements are cut, or cut off, and dust is removed (Fig. 15).
- cut elements are passed through the drawing die (Fig. 16), in which they are coated with resin (4) or its equivalent, and then
- these elements are passed through the drawing die (Fig. 17), in which they are coated with fiber (5), after application of which the hardness of their surface is fixed.
- optionally, resin (4) is then tainted in any color.

Patentansprüche

1. Das isolierende Montageprofil zum Montieren und Tragen von Fenster- oder Türrahmen besteht aus einem Befestingungswinkel (1) aus einem beliebigen Material, vorzugsweise Stahl oder Verbundwerkstoff mit einer hohen Dichte, der Belastungen von bis zu 450 kg / m2 aufnehmen kann, besagter Winkel (1) wird ergänzt durch einen anhaftenden Schaum (2), wobei der Winkel (1) und der anhaftende Schaum (2) zusammen den Grundbestandteil des isolierenden Montageprofils bilden und das isolierende Montageprofil mit Ankern (8) ausgestattet ist, **dadurch gekennzeichnet, dass** das Grundteil mit einer Harzschicht (4) und einer Faserschicht (5) bedeckt ist.

2. Isolierendes Montageprofil nach Anspruch 1, wobei das isolierende Montageprofil **dadurch gekennzeichnet ist, dass** der Befestigungswinkel (1) die Form des Buchstabens "L" hat.

3. Isoliermontageprofil nach Anspruch 1 oder Anspruch 2, wobei das Isoliermontageprofil **dadurch gekennzeichnet ist, dass** der Winkel (1) und der Schaum (2) ein kompaktes Basisteil des Profils mit dem Querschnitt eines rechtwinkligen Dreiecks.

4. Isolierendes Montageprofil nach dem Anspruch 1, dem Anspruch 2 oder dem Anspruch 3, wobei das isolierende Montageprofil **dadurch gekennzeichnet ist, dass** der Schaum (2) aus einem geschäumten Polypropylen mit einer zellularen Struktur besteht, wobei es sich vorzugsweise um ein lineares Polymer handelt oder ein verzweigtes Polymer oder ein Seitenkettenpolymer oder ein mehrfach verzweigtes Polymer oder ein Sternpolymer oder ein Leiterpolymer oder ein vernetztes Polymer oder ein cyclisches Polymer oder ein Katetanpolymer oder ein Ratexanpolymer oder ein dendrimeres Polymer und insbesondere ein Blumenschwamm, ein Polystyrol, ein Styrodur oder ein Polyurethan mit einer Dichte von 15 kg / m2 bis 450 kg / m2, ein geschäumtes PVC oder andere Kunststoffe wie ABS, PE, PP oder komprimierte Holzspäne oder ein anderes Material, das mit Polyurethan verbunden ist.

5. Isoliermontageprofil nach Anspruch 1, Anspruch 2, Anspruch 3 oder Anspruch 4, wobei das Isoliermontageprofil **dadurch gekennzeichnet ist, dass** beispielsweise Harz (4) Epoxidharz, Urinharz oder Polyurethanharz ist.

6. Isolierendes Montageprofil nach Anspruch 1, Anspruch 2, Anspruch 3, Anspruch 4 oder Anspruch 5, wobei das isolierende Montageprofil **dadurch gekennzeichnet ist, dass** die Faserschicht (5) Glasfaser, Kohlefaser oder Kunstharzimprägnierte Faser ist.

7. Isoliermontageprofil nach dem Anspruch 1, dem Anspruch 2, dem Anspruch 3, dem Anspruch 4, dem Anspruch 5 oder dem Anspruch 6, wobei das Isoliermontageprofil **dadurch gekennzeichnet ist,**

dass das Basisteil des Isoliermontageprofils am Ergänzungsschaum befestigt ist (3), vorzugsweise aus einem der Materialien, aus denen der anhaftende Schaum (2) besteht.

8. Isolierendes Montageprofil nach Anspruch 1, Anspruch 2, Anspruch 3, Anspruch 4, Anspruch 5, Anspruch 6 oder Anspruch 7, wobei das isolierende Montageprofil **dadurch gekennzeichnet ist, dass** es Buchsen (6) aufweist, die vorzugsweise mit Steckern (7) ausgestattet sind.

9. Isoliermontageprofil nach Anspruch 1, Anspruch 2, Anspruch 3, Anspruch 4, Anspruch 5, Anspruch 6, Anspruch 7 oder Anspruch 8, wobei das Isoliermontageprofil **dadurch gekennzeichnet ist, dass** es sich um ein ordnungsgemäß geformtes Profil, das die Schwelle bildet, d. h. das Schwellenprofil (9).

10. Isoliermontageprofil nach Anspruch 9, wobei das Isoliermontageprofil **dadurch gekennzeichnet ist, dass** Dübel (7) zwei Schichten aufweisen - die äußere Schicht des Dübels (7) ist eine Membran, vorzugsweise EPDM oder Winflex, während die innere Schicht ein Klebstoff ist und zusätzlich optional ist der Dübel (7) vor dem Anhaften mit einem silikonisierten Papier geschützt.

11. Verfahren zur Herstellung des isolierenden Montageprofils zum Montieren und Tragen von Fenster- oder Türrahmen nach einem der Ansprüche 1 bis 10, das als Ergebnis aufeinanderfolgender Schritte durchgeführt wird:

- ausgewählte Komponenten werden von Behältern zum Verbund gesammelt und
- in der Komponentenmischanlage wird eine Komponente hergestellt, aus der Blöcke in Formen gegossen werden, die zum Schneiden von Schwellerprofilen (9) bestimmt sind. Alternativ werden fertige Profile gegossen, beispielsweise mit Verstärkungselementen, die bereits auf einmal in Form eines Winkels (1) darin angeordnet sind oder verdichtete Elemente,
- dann werden Elemente geschnitten oder abgeschnitten und Staub entfernt (Abb. 15).
- Die geschnittenen Elemente werden durch die Ziehmatrize (Abb. 16) geführt, in der sie mit Harz (4) oder einem gleichwertigen Material beschichtet werden, und dann
- werden diese Elemente durch die Ziehmatrize (Abb. 17) geführt, in der sie mit einer Faser (5) beschichtet werden, nach deren Aufbringung die Härte ihrer Oberfläche fixiert wird.
- Gegebenenfalls wird dann Harz (4) in irgendeiner Farbe befleckt.

Revendications

1. Le profilé de montage d'isolation pour le montage et le support des châssis de fenêtre et de porte est constitué d'une cornière (1) fabriquée à partir de quelconque matériau, de préférence l'acier ou tout composite à haute densité, capable de porter des charges jusqu'à 450 kg/m2, ladite cornière (1) est complétée par la mousse adhésive (2), formant ensemble la base du profilé de montage d'isolation, ledit profilé de montage d'isolation étant équipé d'ancrages (8), est **caractérisé en ce que** ladite base est couverte d'une couche de résine (4) et d'une couche de fibre (5).

2. Le profilé de montage d'isolation, conformément à la revendication 1, est **caractérisé en ce que** la cornière (1) a la forme de la lettre « L ».

3. Le profilé de montage d'isolation, conformément à la revendication 1 ou à la revendication 2, est **caractérisé en ce que** la cornière (1) et la mousse (2) forment une partie de base compacte du profilé avec la section transversale d'un triangle rectangle.

4. Le profilé de montage d'isolation, conformément à la revendication 1, à la revendication 2 ou à la revendication 3, est **caractérisé en ce que** la mousse (2) est constituée de mousse de polypropylène présentant une structure cellulaire, s'agissant de préférence d'un polymère linéaire ou un polymère ramifié ou un polymère à chaînes latérales ou un polymère multi-ramifié ou un polymère en étoile, ou un polymère échelle, ou un polymère réticulé, ou un polymère cyclique, ou un polycaténane ou un polymère ratexan ou un polymère dendrimère, en particulier une éponge florale, un polystyrène, un styrodur ou un polyuréthane ayant une densité de 15 kg/m2 à 450 kg/m2, une matière PVC moussée ou une autre matière plastique, telle que ABS, PE, PP, ou des copeaux de bois comprimés ou un autre matériau combiné au polyuréthane.

5. Le profilé de montage d'isolation, conformément à la revendication 1, à la revendication 2, à la revendication 3 ou à la revendication 4, est **caractérisé en ce que**, par exemple, la résine (4) soit une résine époxy, une résine d'urine ou une résine de polyuréthane.

6. Le profilé de montage d'isolation, conformément à la revendication 1, à la revendication 2, à la revendication 3, à la revendication 4 ou à la revendication 5, est **caractérisé en ce que** la couche de fibre (5) soit de fibre de verre, de fibre de carbone ou de fibre imprégnée de résine.

7. Le profilé de montage d'isolation, conformément à

la revendication 1, à la revendication 2, à la revendication 3, à la revendication 4, à la revendication 5 ou à la revendication 6, est **caractérisé en ce que** la partie de base du profilé de montage d'isolation est fixée à la mousse complémentaire (3) constituée, par exemple, de l'un des matériaux à partir desquels la mousse adhésive (2) est réalisée.

8. Le profilé de montage d'isolation, conformément à la revendication 1, à la revendication 2, à la revendication 3, à la revendication 4, à la revendication 5, à la revendication 6, ou à la revendication 7, est **caractérisé en ce qu'**il possède des prises (6), qui sont de préférence dotées de fiches (7).

9. Le profilé de montage d'isolation, conformément à la revendication 1, à la revendication 2, à la revendication 3, à la revendication 4, à la revendication 5, à la revendication 6, à la revendication 7 ou à la revendication 8, est **caractérisé en ce qu'**il constitue un profilé correctement façonné formant le seuil, constituant un profilé de seuil (9).

10. Le profilé de montage d'isolation, conformément à la revendication 9, est **caractérisé en ce que** les fiches (7) sont revêtues de deux couches - la couche supérieure de la fiche (7) est une membrane, de préférence EPDM ou Winflex, alors que la couche inférieure est adhésive, et facultativement, la fiche (7) peut être également protégée par du papier siliconé pour l'empêcher d'adhérer.

11. La méthode de fabrication du profilé de montage d'isolation pour monter et soutenir les cadres de porte ou fenêtre est conforme à toutes les revendications 1-10, respectant les différentes étapes réalisées successivement:

- Les composants sélectionnés sont recueillis des récipients pour former le composite, et
- dans l'unité de mélange, un composant est produit, à partir duquel sont moulés les blocs, destinés au façonnage des profilés de seuil (9), mais il se peut également que des profilés finis soient moulés, par exemple, en y plaçant des éléments renforçants, donnant la forme d'une cornière (1), ou des éléments densifiés,
- Les éléments sont, ensuite, coupés ou tranchés et les résidus sont enlevés (Fig. 15).
- Les éléments découpés passent à travers la matrice d'étirage (Fig. 16), dans laquelle ils sont enduits de résine (4) ou de tout autre équivalent, et
- ces mêmes éléments passent ensuite à travers la matrice d'étirage (Fig. 17), dans laquelle ils sont enduits de fibre (5), l'application de ladite fibre donnant la fermeté à la surface.
- Facultativement, la résine (4) peut être peinte de n'importe quelle couleur.

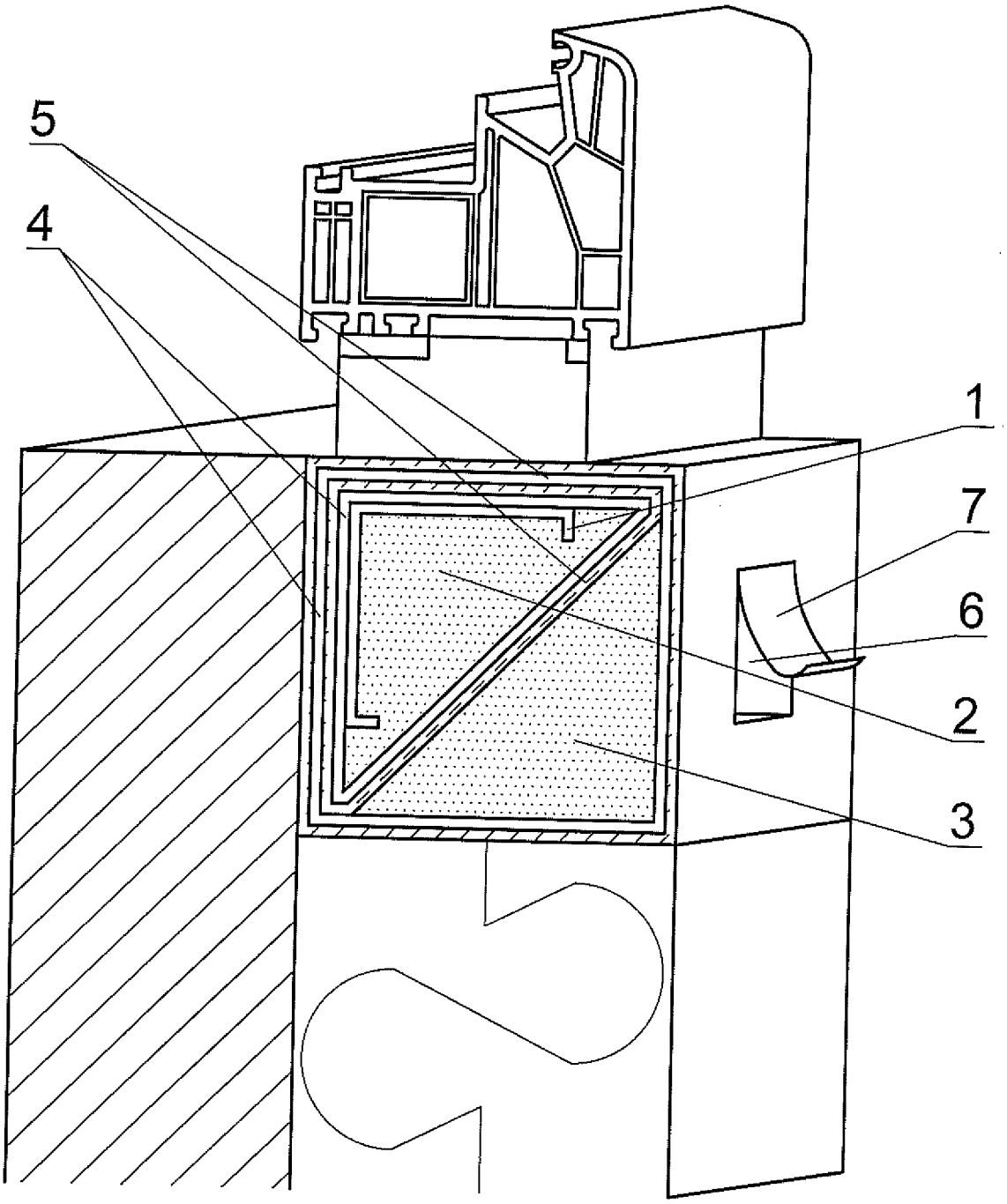

Fig. 1

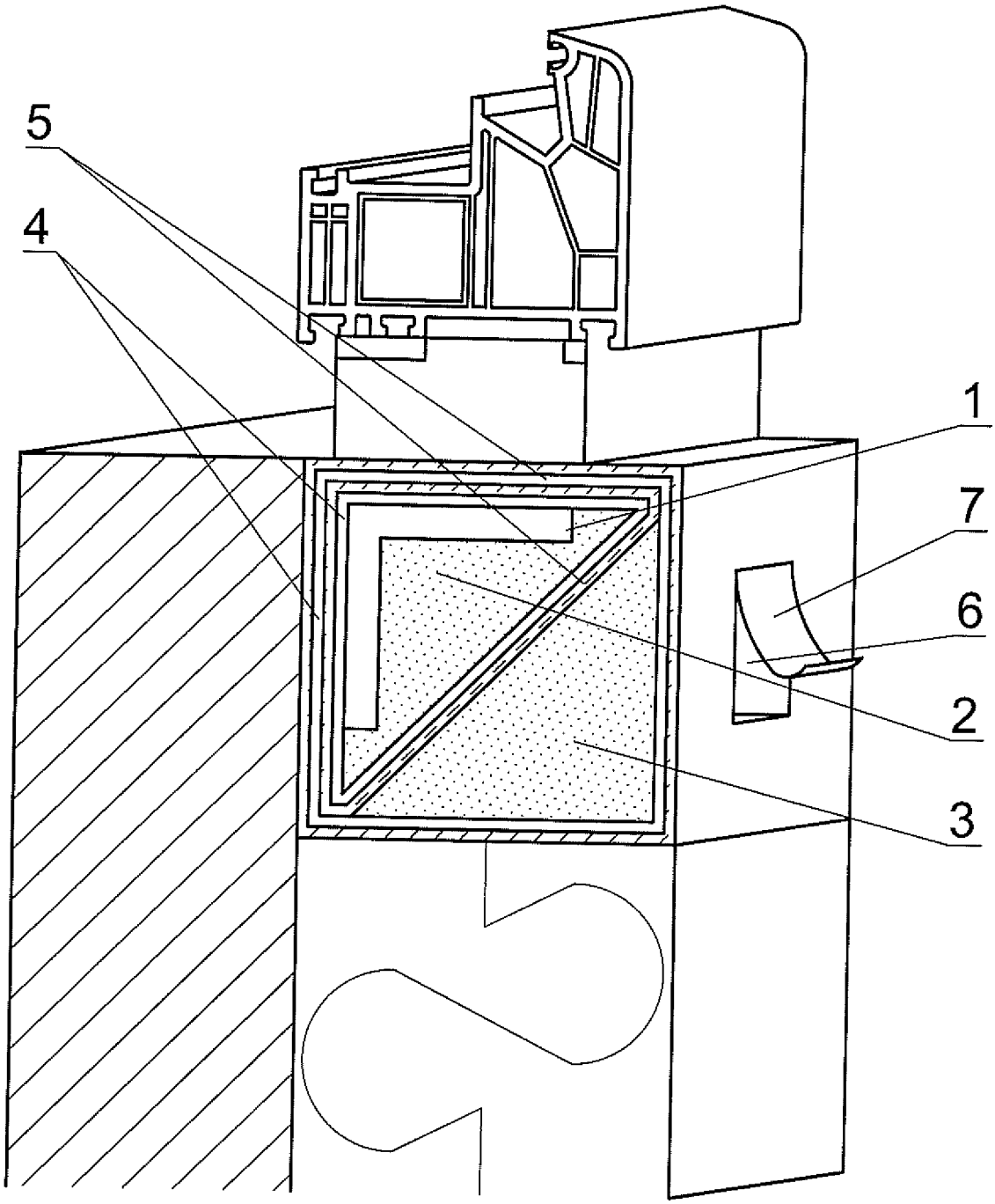

Fig. 2

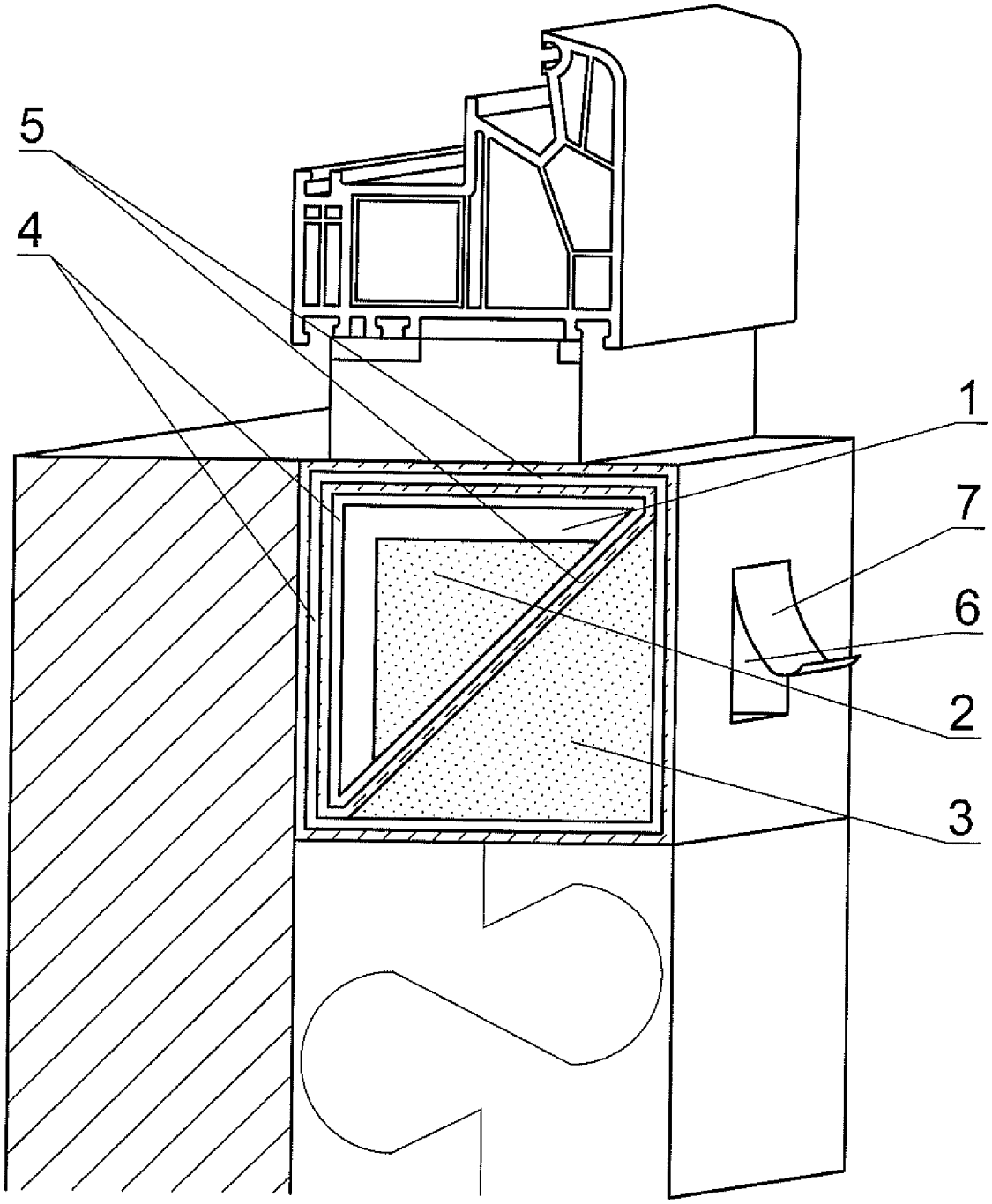

Fig. 3

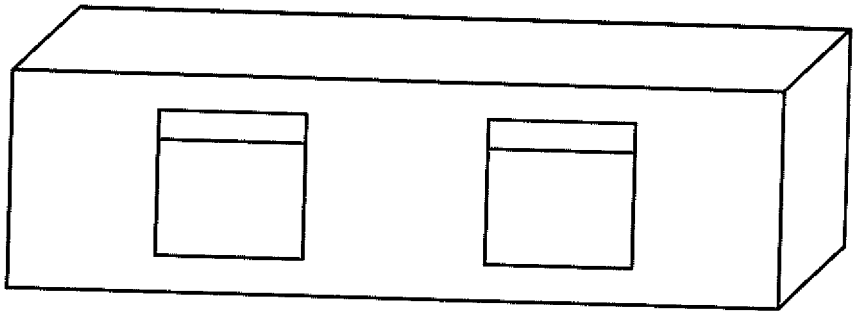

Fig. 4

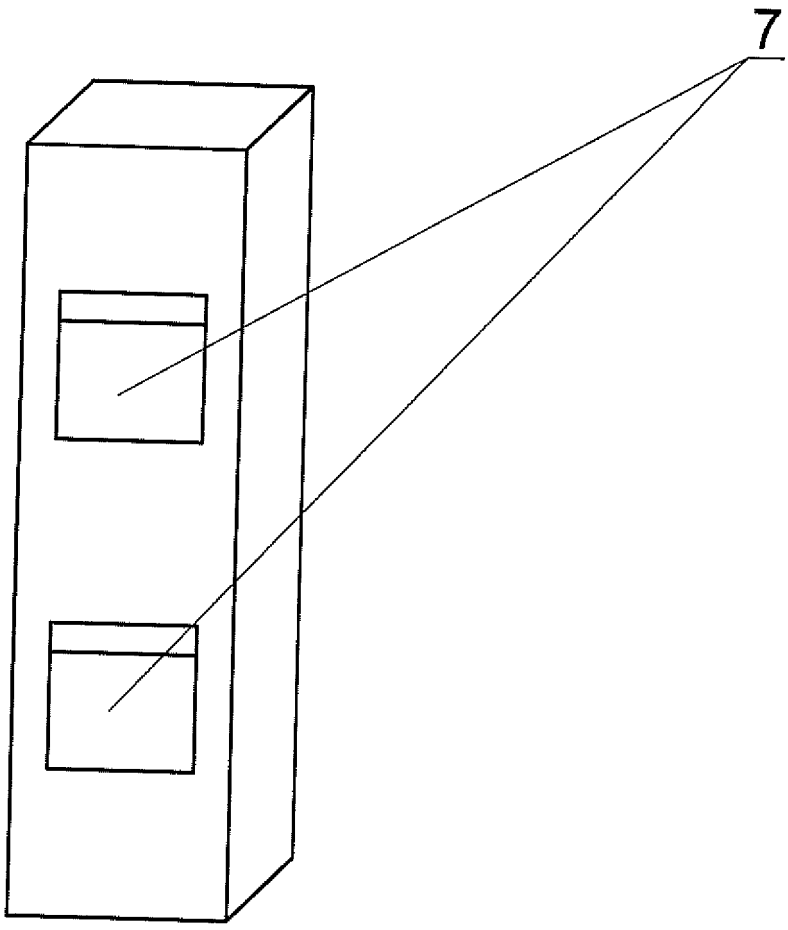

Fig. 5

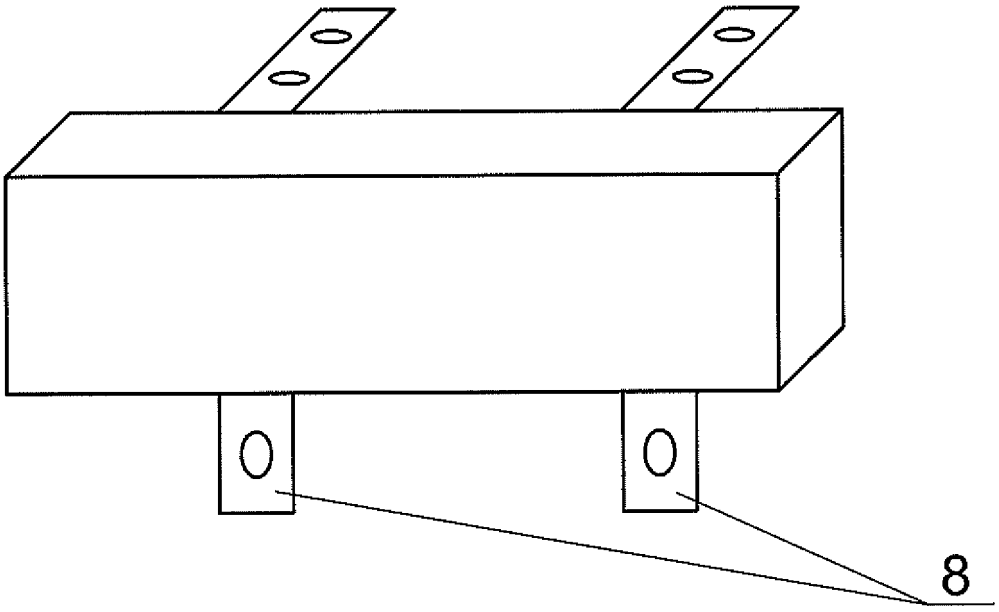

Fig. 6

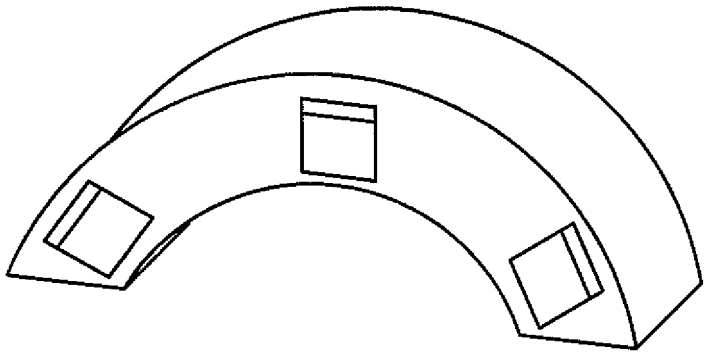

Fig. 7

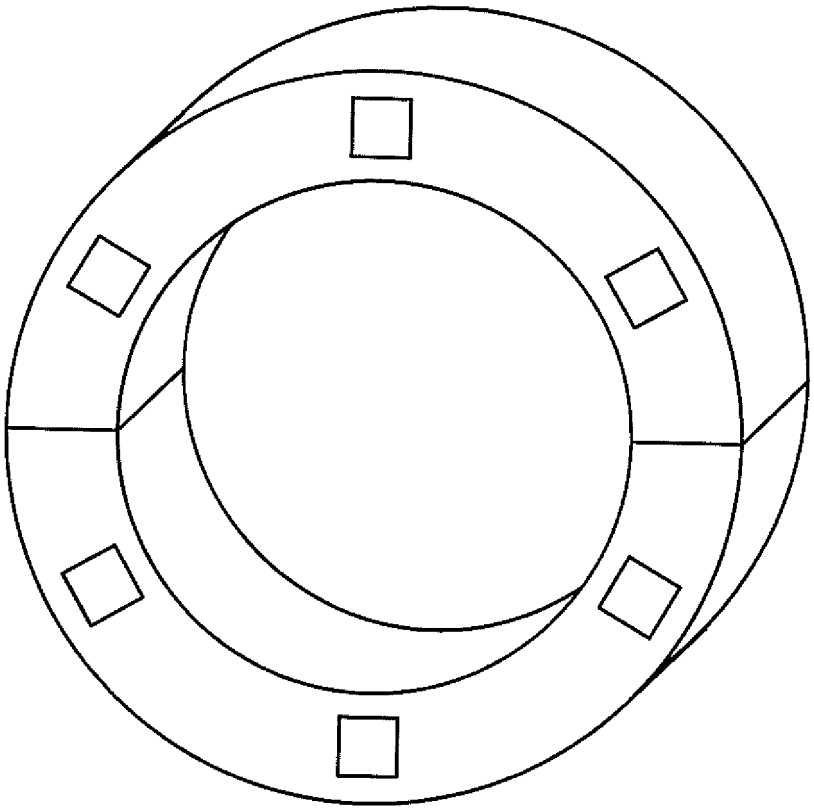

Fig. 8

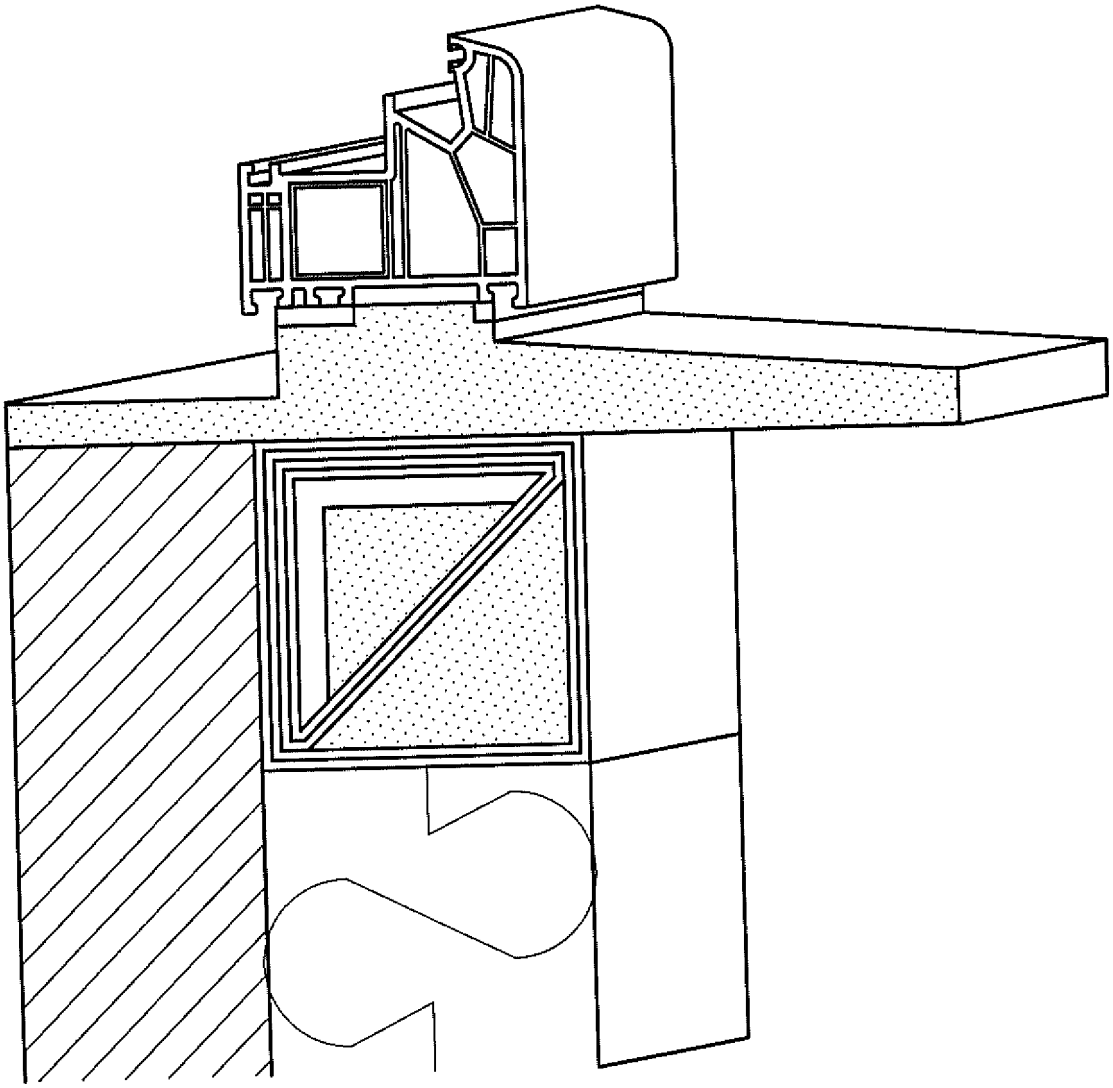

Fig. 9

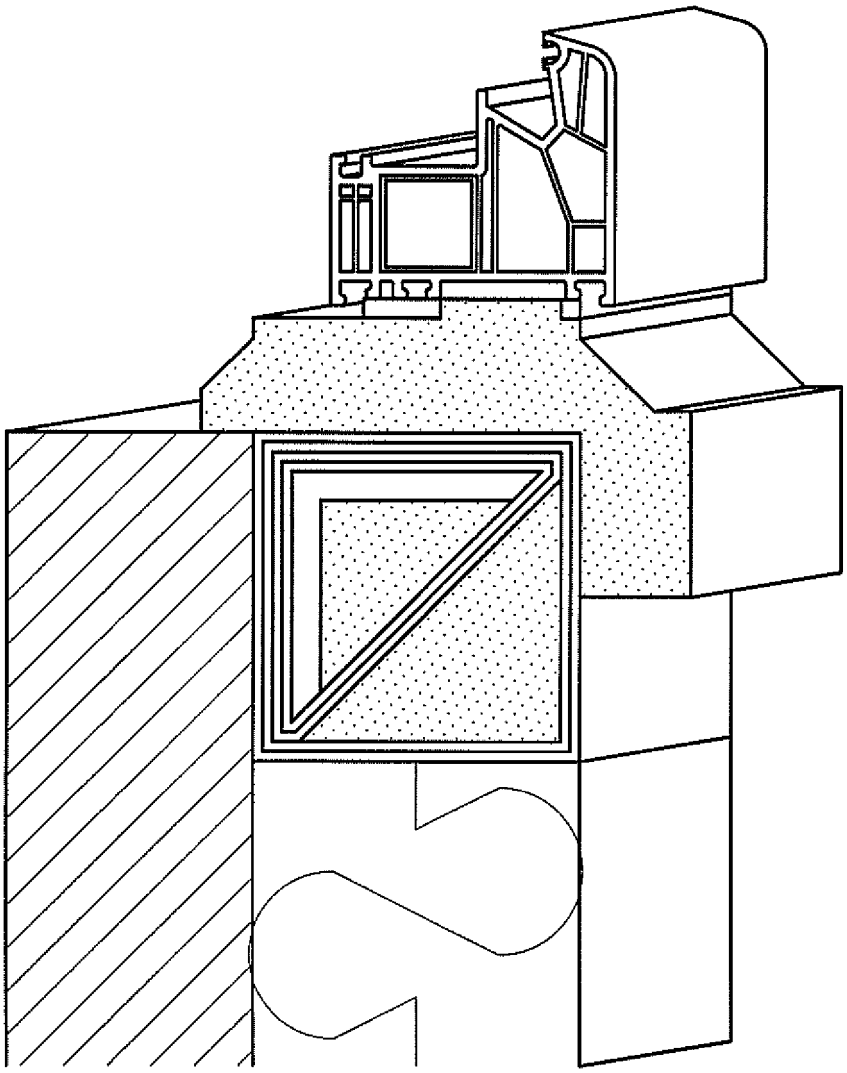

Fig. 10

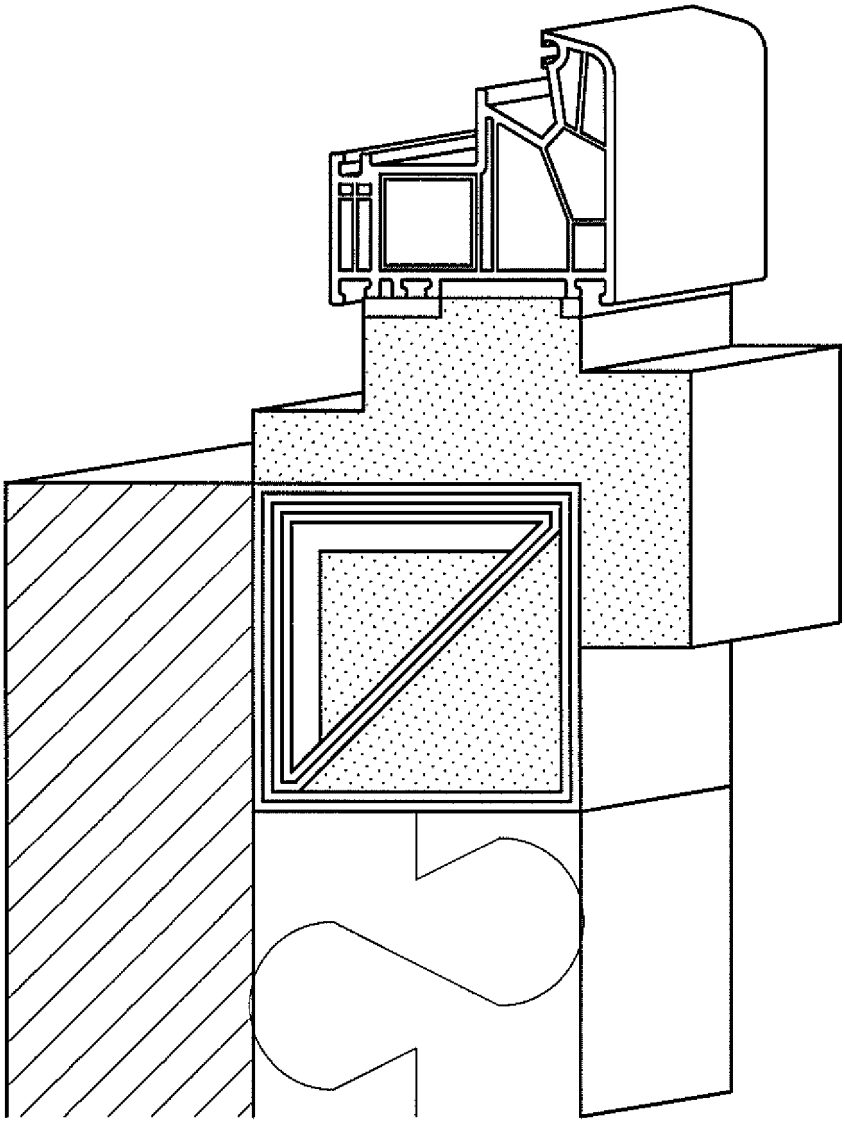

Fig. 11

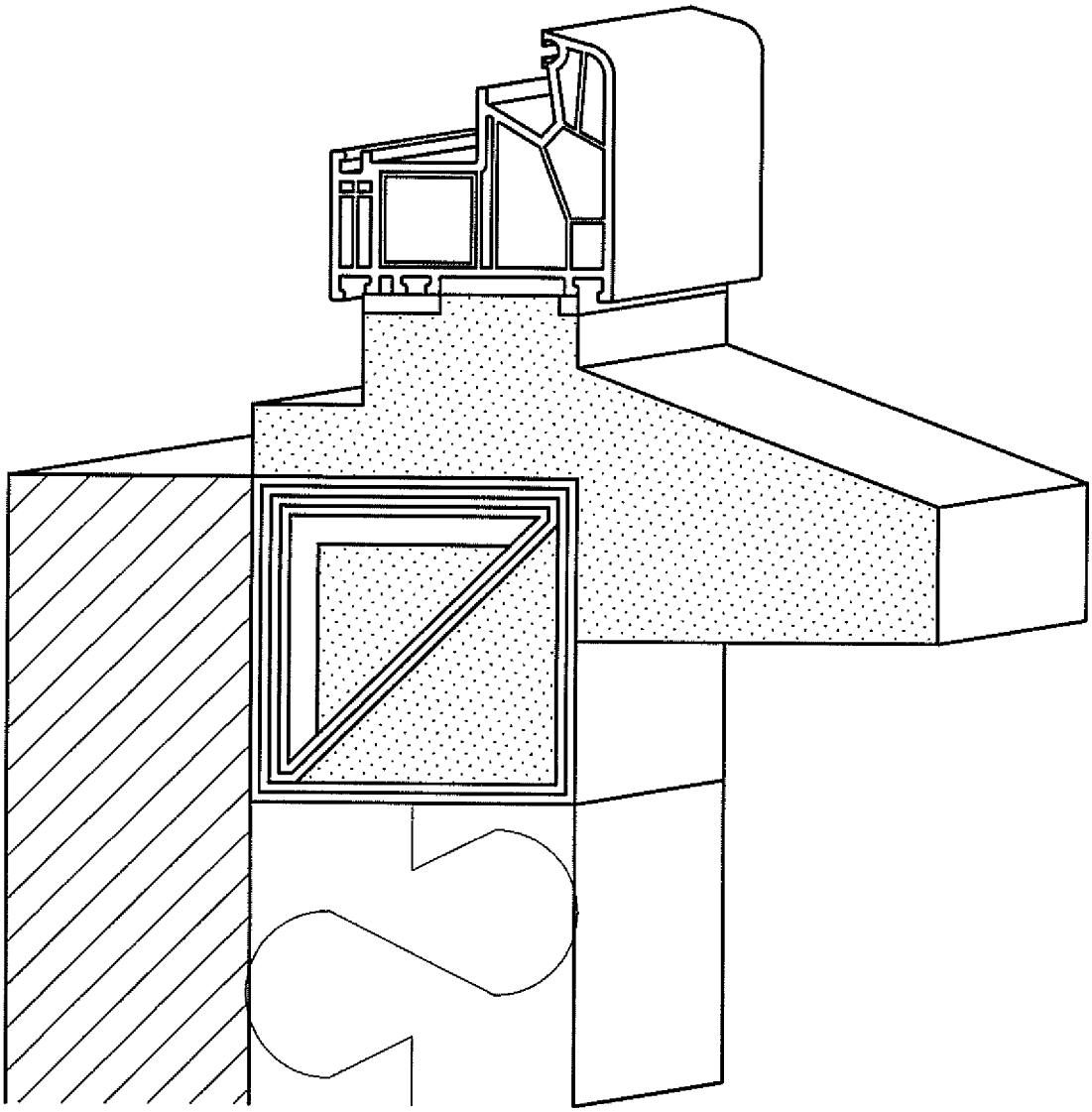

Fig. 12

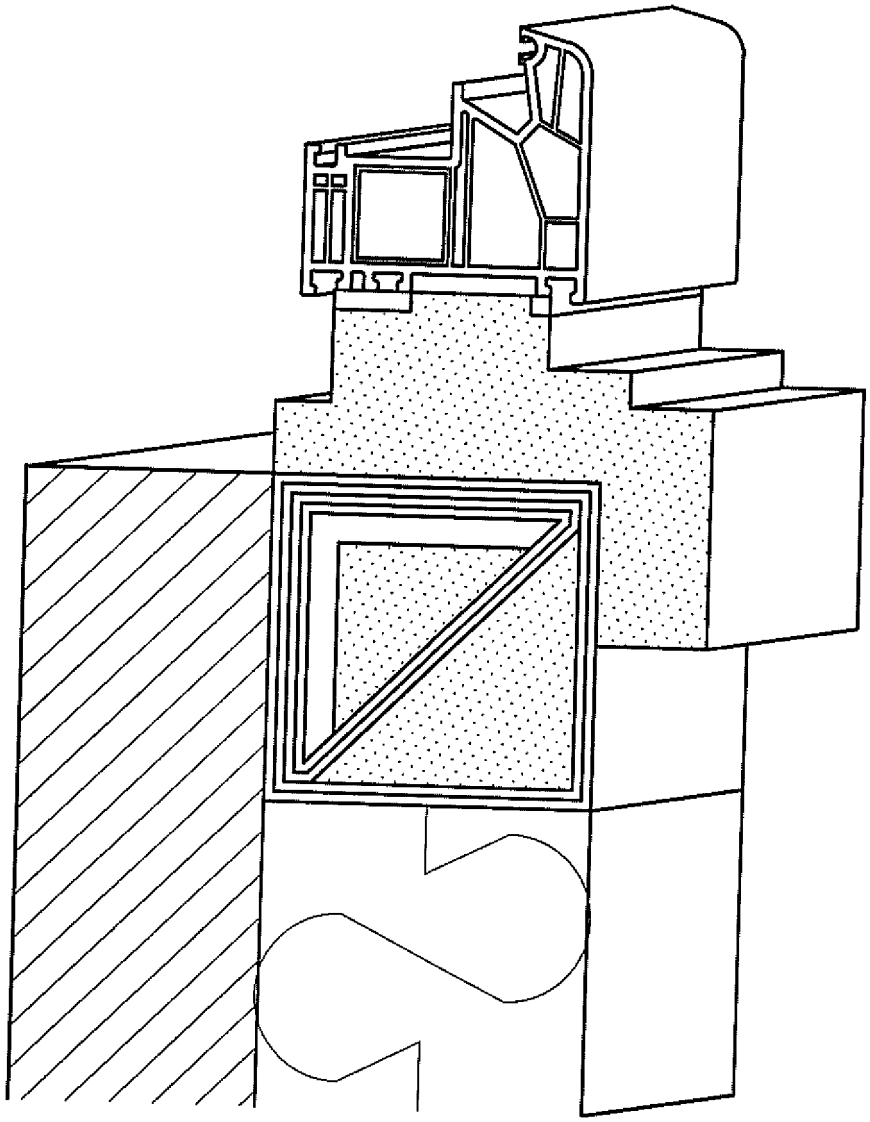

Fig. 13

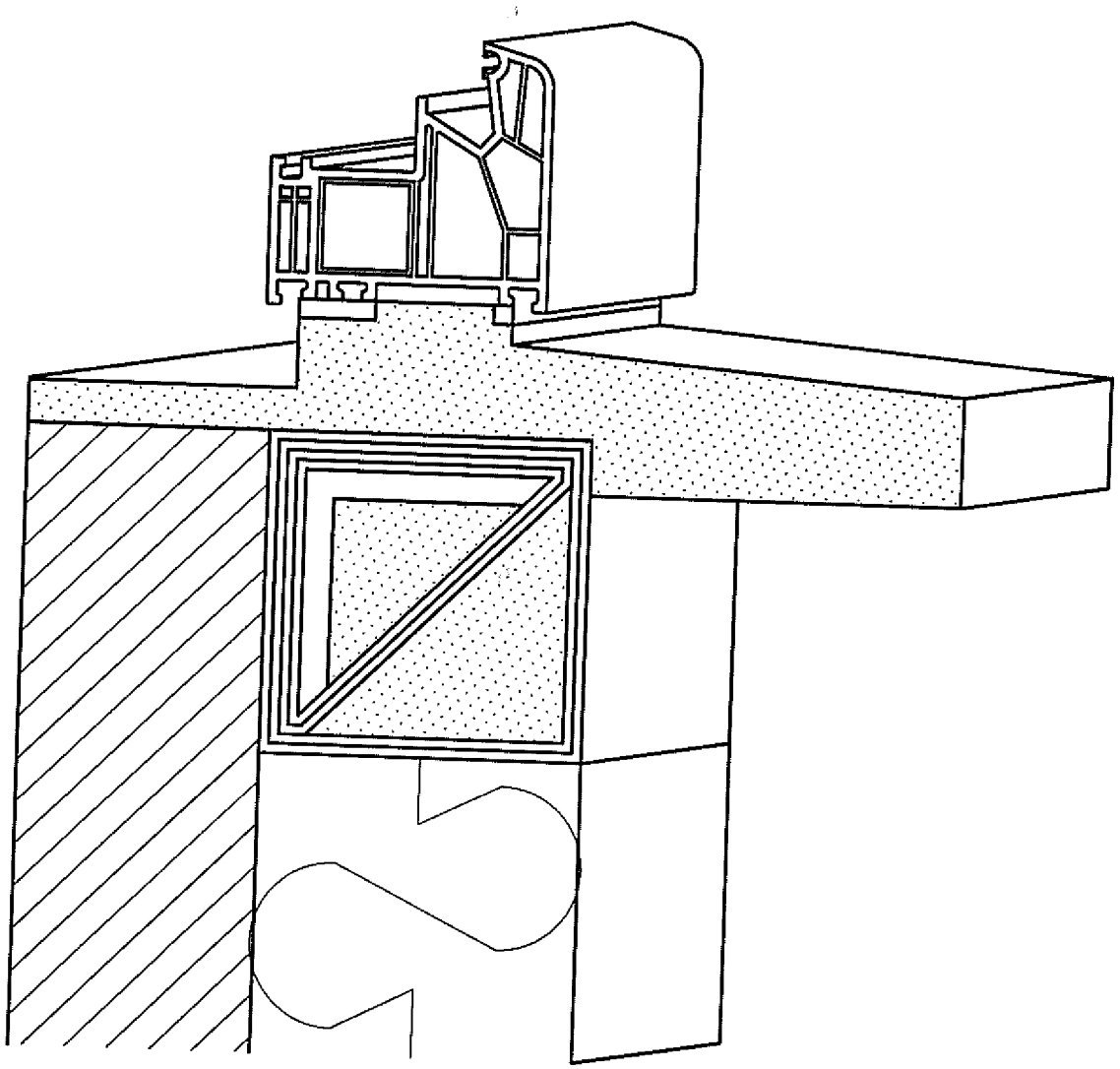

Fig. 14

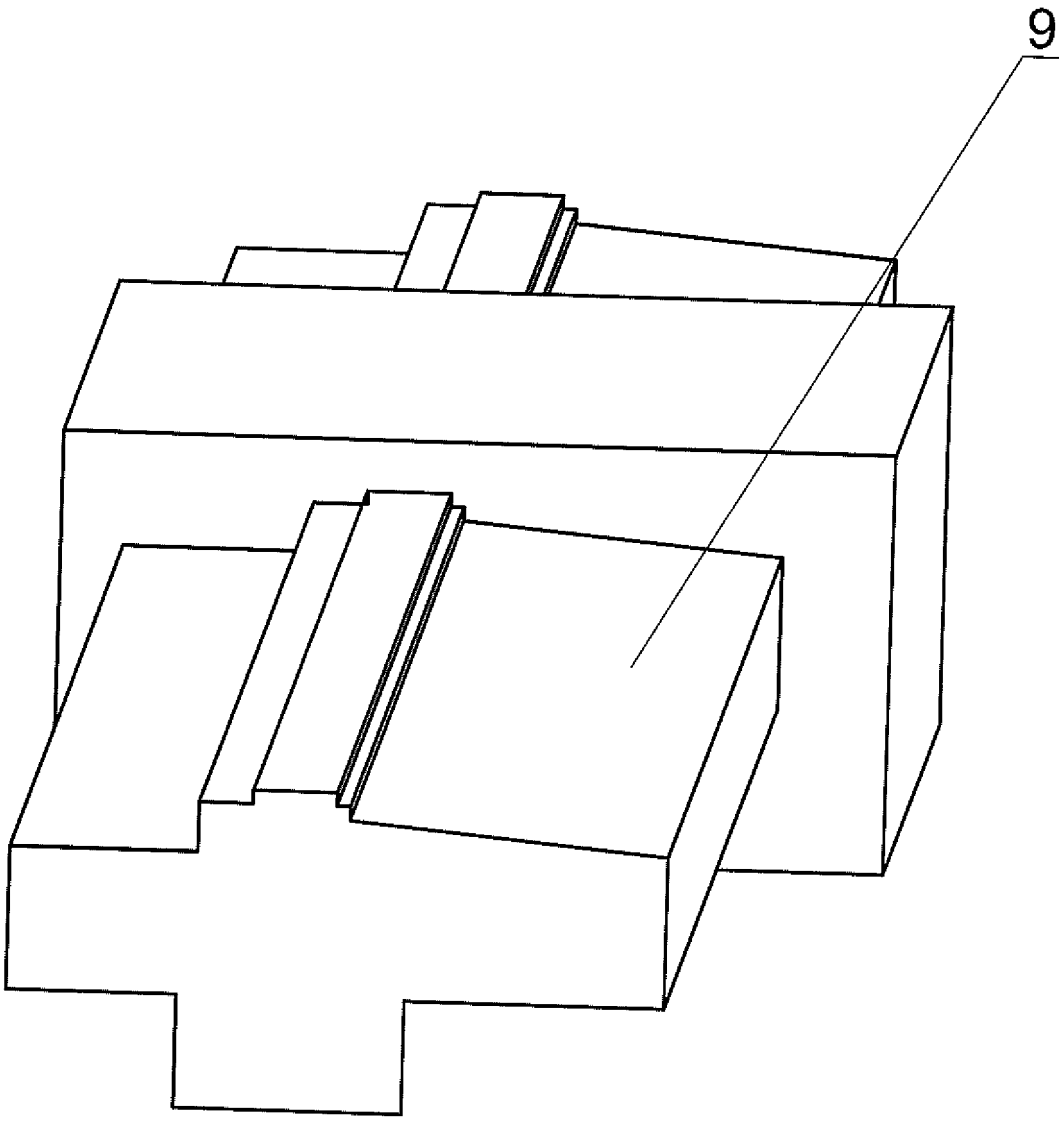

Fig. 15

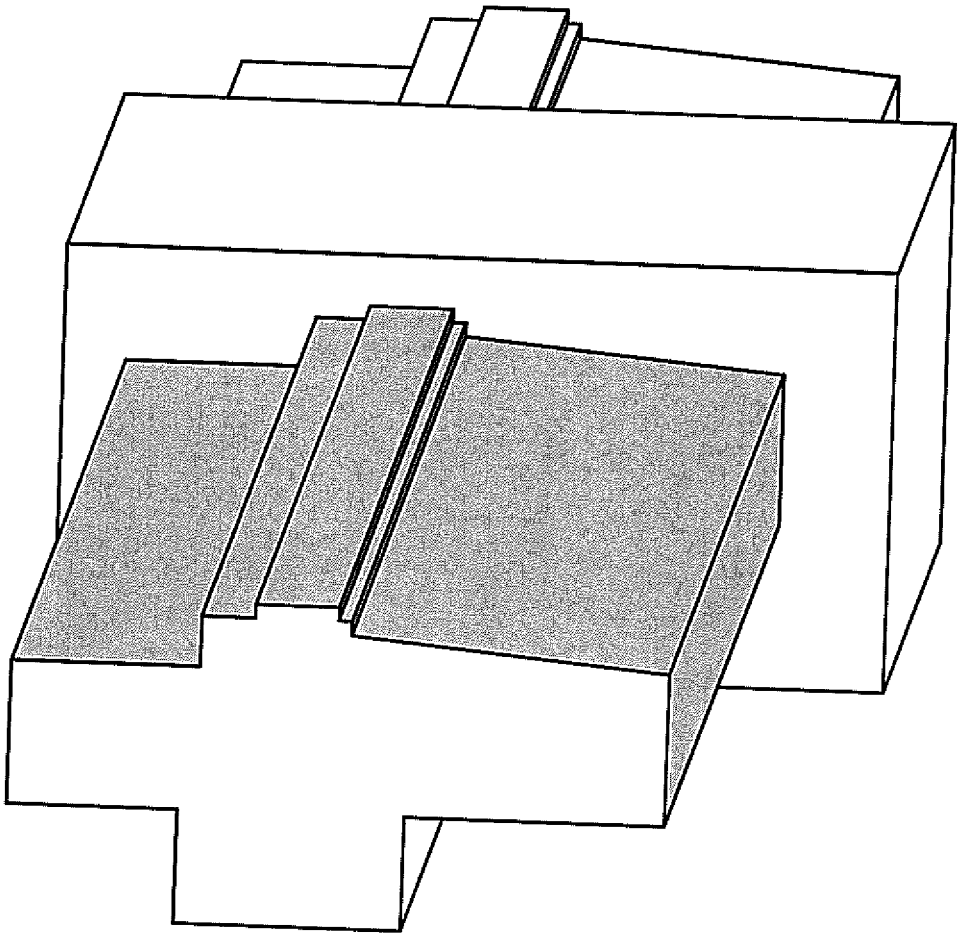

Fig. 16

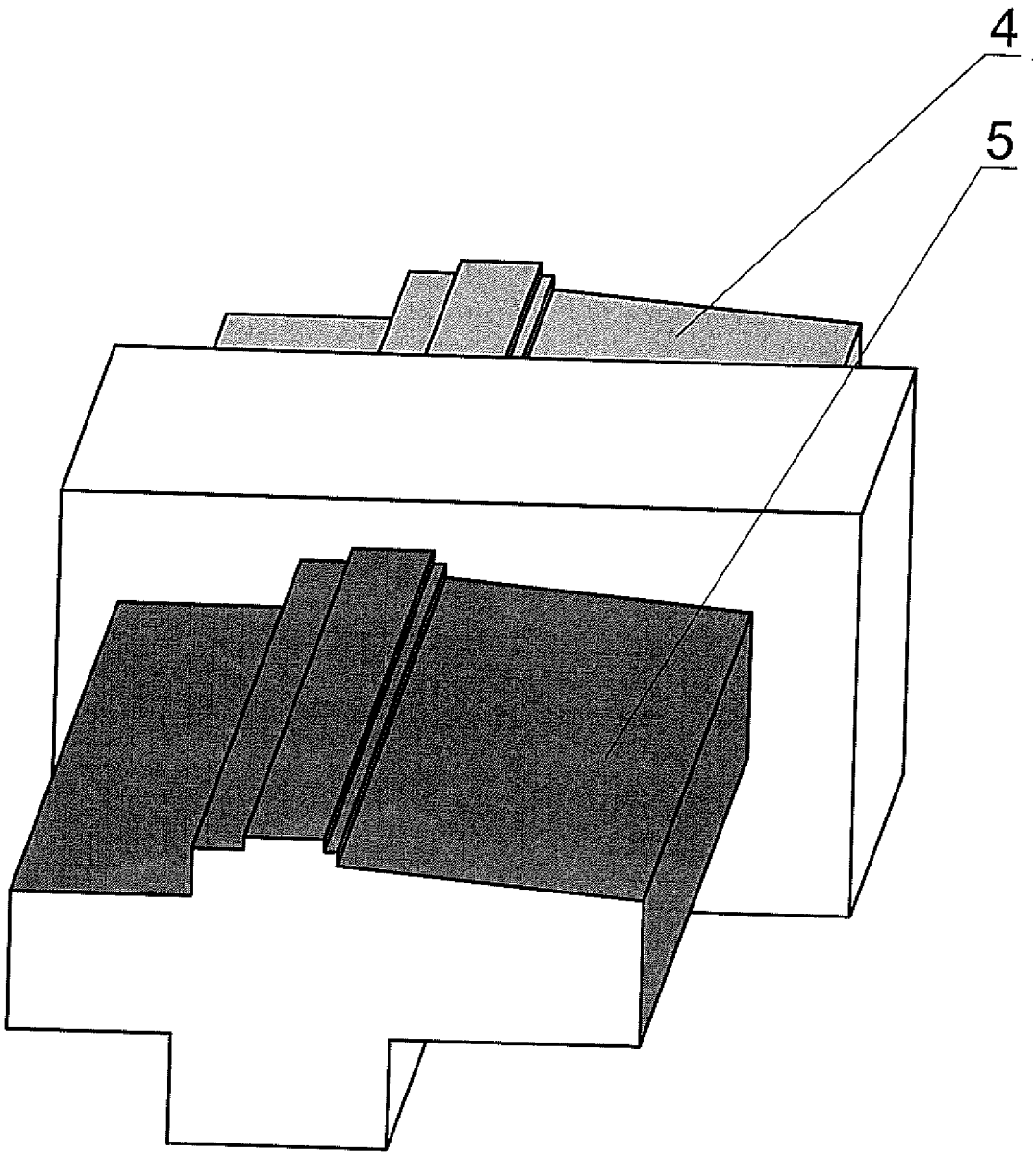

Fig. 17

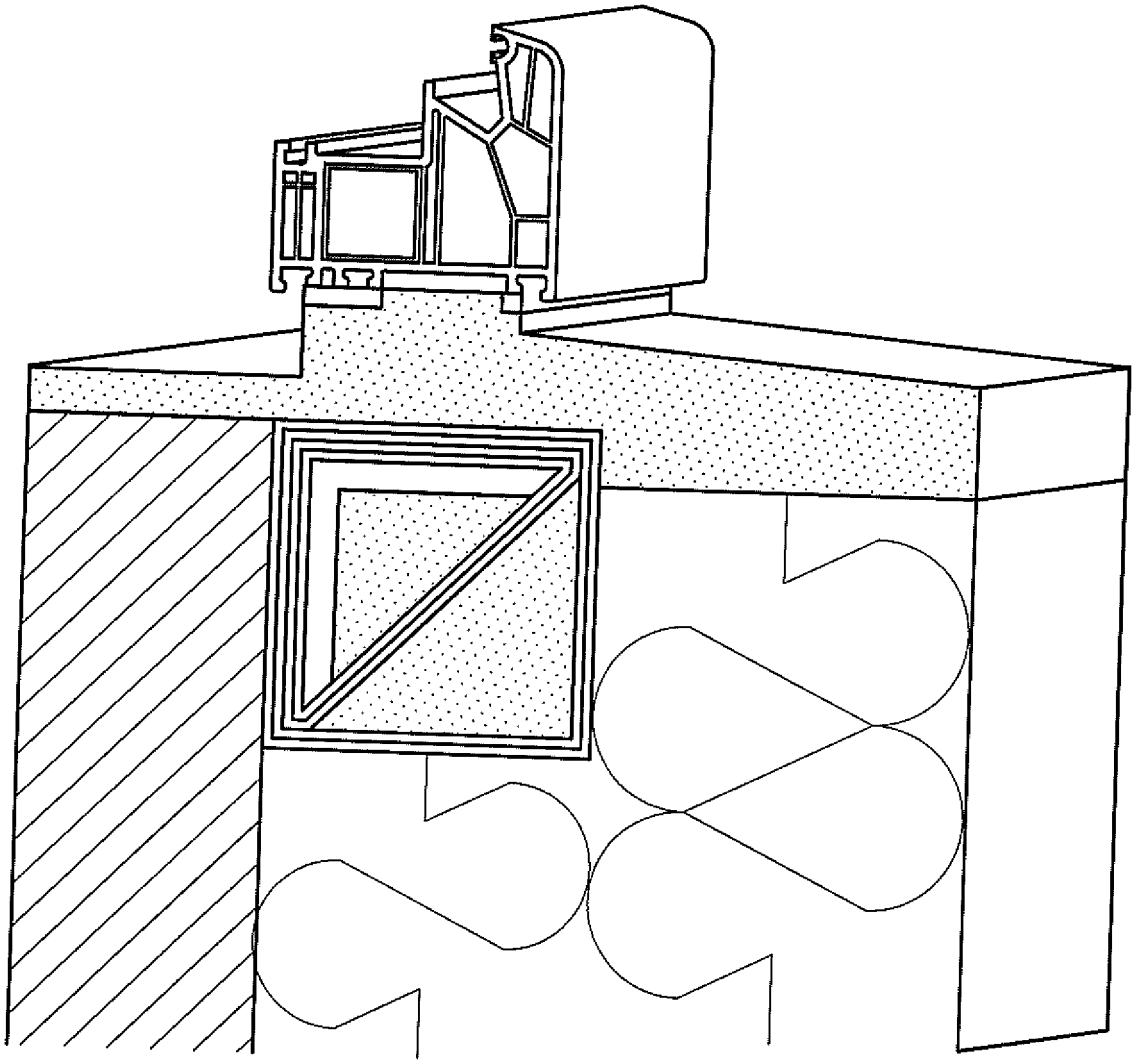

Fig. 18

REFERENCES CITED IN THE DESCRIPTION

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