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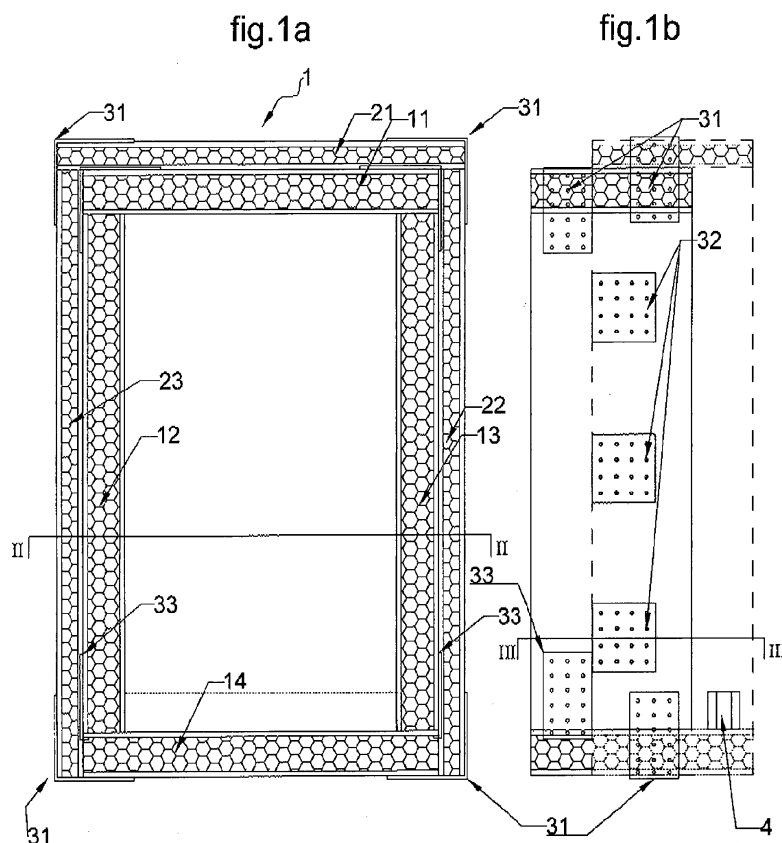
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(54) **DOUBLE WOODEN FRAME PRESSED WITH INSULATING MATERIAL FOR HEAT INSULATION AND SOUND-PROOFING OF BUILDINGS**

(57) A double frame or double structures, in pressed wood, with additional insulating material, for the thermal and acoustic isolation of buildings; this double frame or

double structure includes an external load-bearing frame and an internal telescopically adjustable frame.



Description

Technical field of the invention

[0001] The invention refers to a double wooden frame pressed and coupled with insulating material.

The Prior Art

[0002] Insulating frames on the market today are constructed using agglomerates and assembled with profiles in aluminium, an absorption-free material and a thermal and acoustic conductor par excellence.

[0003] Unlike the invention, they do not have a double frame formed by an external insulated load-bearing frame and an insulated internal subframe, adjustable telescopically, which together with the window may contain in order; a mosquito net, window guides for roller blinds, blinds, shutters, swivelling and blackout louvres, without totally compromising the resolution of the thermal bridge around the perimeter of the window opening.

[0004] Furthermore, common insulated frames are not made of wood, a material which permits, where necessary, the insertion of threaded bushings, for example to support the hinges for the blind holders, for cladding in marble, wood, rendering, or supplied with the window pre-installed, so as to speed up and assist the different design requirements.

[0005] In addition, the types of existing frames have a standardized size and are adapted to the construction, but are not custom built for the dwelling they are to be used in.

Scope of the invention

[0006] The aim of the invention is precisely to remedy all the drawbacks previously highlighted, providing the following advantages, which are unobtainable with other types of existing frames.

[0007] An advantage resulting from the invention is the ease of attachment of the double structure according to the present invention, to any type of window opening, using metal angle brackets or plates, which are pre-drilled and screwed to the wooden frame and masonry. The number of plates or brackets is directly proportional to the dimensions of the opening, normally numbering from eight to ten.

[0008] Another advantage is provided by the fastening system and the sealing of the soffit which has been specially designed to prevent both crushing due to the weight of the threshold if, for example, this is in marble, and the natural subsidence that occurs with the passage of time.

[0009] A further advantage is the fact that the soffit, completely crossing the width of the vertical jambs of the external load-bearing frame or structure, prevents the process of water rising within these, which in turn having been secured and sealed over, ensure improved sealing against atmospheric agents.

[0010] Another advantage is the possibility of fastening with a sealant and screwing down the thermal threshold directly above the soffit so that it is perfectly hidden beneath the window.

[0011] In fact, it is in this critical position where the thermal bridge is most difficult to resolve.

[0012] Another advantage of the present invention is the type of material used for the construction of the double frame jambs. As we know, wood is an excellent construction material, breathable and with a determined grade of moisture absorption, which often dries before reaching saturation. This characteristic greatly reduces the possibility of water formation on the internal surface of the masonry rendering. A further advantage of the double wooden frame according to the present invention is the possibility of screwing down any support hinges for shutters or blinds directly, for example, without having to create special extended brackets to reach the fastenings on the brickwork or stone masonry, creating a thermal bridge for every single metal plate or bracket, with all the resulting negative consequences such as the lowering of the internal temperatures of the walls or the formation of water.

[0013] A further advantage of the invention is the ductility, the practicality and the ease of working with a wood product. In fact, it may be clad or finished using marble, tuff, stone, wood or rendering or supplied with the window already applied, thereby meeting the requirements both of the customer and the design choices.

Brief description of the drawings

[0014] The advantages stated above and others will be more evident from the perspective drawings and from subsequent descriptions, given by way of non-limiting examples of some preferred forms of using of the invention:

Figure 1a shows a frontal external schematic view of the double frame consisting of an external insulated load-bearing frame and an internal subframe or internal insulated frame according to the present invention, in particular the external load-bearing frame.

Figure 1b is a schematic side view of the double frame, partially transparent, in particular the external load-bearing frame of figure 1a;

Figure 2a is a horizontal section view of the double structure of figure 1a, according to the outline plan II-II;

Figure 2b is a horizontal section view of a portion of the double structure of figure 1b, according to the outline plan III-III;

Figure 3a shows a frontal internal schematic view of the double frame consisting of an external insulated load-bearing frame and an internal subframe or internal insulated frame according to the present invention, in particular the internal insulated frame.

Figure 3b is a schematic side view of the double frame, partially transparent, in particular the internal insulated frame of figure 3a;

Figure 4a is a horizontal section view of the double structure of figure 3a, according to the outline plan IV-IV;

Figure 4b is a horizontal section view of a portion of the double structure of figure 3b, according to the outline plan V-V;

Figures 5 and 6 are horizontal section view of details of the double structure according to the present invention, which illustrate a resolution of the thermal bridge, also in the event of the insertion of accessories against the window;

Figures 7 and 8 illustrate a vertical section of a thermal threshold fastened above the soffit with window positioned and sealed abode;

Figure 9 illustrates a vertical section of a design example of the double structure according to the invention with the inclusion of a mosquito net;

Figures 10a, 10b and 10c are horizontal section view of a detail of the double frame according to the impression which illustrates some hinges for the shutters and blinds screwed to the wood structure according to the present invention;

Figures 11 and 12 illustrate, respectively, horizontal sections of the designs with marble or rendering finish;

Figures 13, 14 and 15 illustrate, respectively, a horizontal section of the double frame and possible positioning of the window flush with the inner wall, a horizontal section of the double frame with sizing and possible central positioning of the window, and the horizontal section of the double frame with sizing and a possible more external positioning of the window; Figures 16 and 17 illustrate a horizontal section of an example of the double structure according to the present invention, with the window already installed before positioning.

Description of the preferred embodiments of the invention

[0015] With reference to the attached figures, a double frame is illustrated, defined also as a double structure, according to the present invention, for the placing of windows or similar in the masonry.

[0016] The double frame is made of wood, pressed and coupled with an additional insulating material, for thermal and acoustic insulation and is particularly suitable for masonry in brick, stone and wood.

[0017] The double wooden structure or double frame is insulated with an insulating material both internally and externally with total resolution of the thermal bridge. The double structure, according to the present invention, includes an external insulated load-bearing frame, positioned outside the masonry opening, and is made of wood.

[0018] The double structure according to the invention also includes a part, referred to as an internal subframe or insulated internal frame, positioned on the internal side of the opening itself. The internal frame according to the present invention is equipped with telescopic adjustment, is insulated and isolated, as is the external load-bearing frame, and avoids the thermal bridge around the entire perimeter of the masonry opening, window opening or patio door.

[0019] As stated, this double structure or double frame includes:

- An insulated load-bearing frame in wood, with closed perimeter 1, consisting of a top cross member or in upper external use 11, two external vertical jambs 12, 13 and a soffit in lower use 14 (as illustrated in fig.1a),
- an insulated internal subframe or an internal insulated frame 2, adjustable telescopically, which is positioned on internal side of the masonry opening.

[0020] The insulated internal frame 2 is made up of two jambs 22, 23 and a top cross member or in upper use 21. The fourth lower side of the internal subframe 2 is closed off by the soffit 14 (as illustrated in fig.3a). In particular, the two vertical jambs of the internal frame are fastened on the sides or laterally to the lower element or soffit 14.

[0021] The two vertical jambs 22, 23 of the internal frame 2 are used to close off the lower side of the internal adjustable frame when fastened to the lower soffit 14.

[0022] The internal adjustable frame 2 is fastened to the external load-bearing frame 1 forming the double wood structure with closed perimeter according to the invention.

[0023] The external top cross member 11 and the lower soffit 14 of the external load-bearing frame 1 both pass through with respect to the external vertical jambs 12, 13.

[0024] Therefore, as will become evident, the double structure according to the present invention is a closed perimeter and insulated with insulating material around its entire perimeter.

[0025] The soffit 14 is positioned below the external vertical jambs 12, 13 of the external load-bearing frame and is joined laterally to the internal subframe 2 (as shown from fig.1a to 4b and fig. 7-8).

[0026] The double frame further comprises first brackets or corner plates 31. The first brackets or corner plates 31 are set to an angle of 90°, and may be made of metal and screwed, allowing assembly of the external insulated load-bearing frame 1 and the internal subframe 2.

[0027] The double frame further comprises second brackets or corner plates or anchors 32. These second brackets, corner plates or anchors 32 are set to an angle of 90°, and may be made of metal and screwed laterally to the jambs of the external load-bearing frame 1 allowing fastening of this structure to the masonry.

[0028] The double frame has third brackets or plates or "L" shaped hinge brackets in metal or steel 33 used

to avoid crushing of the soffit 14 and/or avoid structural subsidence. Therefore, the external vertical jambs 12, 13 are supported by the third brackets in steel 33.

[0029] The double structure according to the invention is then sealed and assembled with these corner brackets 31, with these anchors 32 and with these third brackets 33.

[0030] The double frame includes a thermal threshold 4 with thermal break, which is fastened above the soffit 14 and thermally separates the external sill from internal sill or from the flooring in the case of a patio door (example fig. 7-8).

[0031] The thermal threshold 4 is provided for the thermal separation between the inside and the outside and is sealed against atmospheric agents.

[0032] The wooden structure of the frame permits the insertion, in the required position, of the hinges 5 for the blinds or shutters (shown in fig. 10).

[0033] In one embodiment of the invention, the double structure according to the invention, in particular the external load-bearing frame 1, comprises threaded bushings 5 for hinges for shutter or blinds, screwed into the external vertical jambs 12, 13 and free of contact with the masonry.

[0034] The double frame may be rendered, finished in marble, stone or clad and finished with other materials. Some examples of these possible finishes are illustrated in fig. 12.

[0035] In another version of the invention, the double frame may be provided with the insertion of meshes and rendering angles 6 to avoid splitting and scoring. (examples in fig. 11 and 12).

[0036] If requested, the double frame may also be supplied with the window pre-installed (example in fig. 16, 17).

[0037] As mentioned, the external load-bearing frame comprises first angle brackets 31 for assembly of the double frame. The size and number of the first brackets vary according to the dimensions of the load-bearing frame.

[0038] There are also second angle brackets or anchors 32 for fastening to the masonry.

[0039] The load-bearing frame according to this invention comprises third brackets 33 intended to avoid crushing of the soffit downwards.

[0040] Figure 1a also shows a soffit 14 positioned under the vertical jambs of the external insulated load-bearing frame.

[0041] Figure 2a shows the horizontal section of the external insulated load-bearing frame and the insulated internal subframe. The variable sizing (D) of the external jambs and internal insulated sub-frame is highlighted, and how the latter can be adjusted (according to the direction of the arrows shown) depending on the size of the window and fittings installed or which can be inserted in the load-bearing frame itself.

[0042] Figure 3a is a prospective schematic frontal view of the inside of the structure of the insulated internal

subframe.

[0043] The soffit 14 to its sides or ends is resting on the subframe.

[0044] Figure 4a shows a horizontal section of the external insulated load-bearing frame and the insulated internal subframe. Also in this figure, the variable sizing (D) of the external jambs and internal sub-frame is highlighted, and how the latter can be adjusted (according to the direction of the arrows shown) depending on the size of the window and fittings installed or which can be inserted in the window itself.

[0045] Figures 5 and 6 illustrate a resolution of a thermal bridge in the case of positioning window 7 and also in the case of insertion of accessories against the window, such as roller blinds 8, mosquito nets 9, guides for roller blinds 8, blinds or shutters. In fact, it is noted that the subframe is adjustable and insulated with insulation material to the entire thickness of the window and the inserted accessories.

[0046] The double structure may include a package of windows complete with roller blinds 8 and mosquito net 9 or guides for roller blinds and mosquito nets, positioned in the rebate formed by the joint between the structure of the external load-bearing frame 1 with the inside of the internal adjustable subframe 2.

[0047] Figures 7 and 8 illustrate a vertical section of a thermal threshold 4 fastened above the soffit 14 with window positioned and sealed above. The exact position of the thermal threshold will depend upon the thickness of the window and its accessories. Once completed, the thermal threshold 4 is completely covered by the window. In this way, the thermal bridge is resolved even in the most critical position of the window opening.

[0048] Figure 9 illustrates a vertical section of a design example with the inclusion of a mosquito net 9.

[0049] The present invention may include further hinges 5 for shutters and blinds (shown in Fig. 10) screwed to the wood structure and therefore free of extended brackets, which if fastened to the masonry create localised thermal bridges.

[0050] Figures 11 and 12 illustrate horizontal sections of the designs with marble or rendering finish respectively. The external structural jambs and the subframe, sized correctly, must take into consideration the thickness of the external coating for a higher performing energy classification.

[0051] Figures 11 and 12 show the insertion of mesh and rendering angles 6. These supports are indispensable to prevent splitting and scoring near the support of the rendering between non-homogeneous materials.

[0052] Figure 13 illustrates a horizontal section with sizing of the double frame and positioning of the window flush with the inner wall; Figure 14 illustrates a horizontal section with sizing of the double frame and central positioning of the window, while Figure 15 shows the horizontal section with sizing of the double frame and a more external positioning of the window.

[0053] Lastly, Figures 16-17 show the horizontal sec-

tions of an example of a double frame with the window pre-installed 7 before positioning.

[0054] It is obvious that thicknesses, variations in size and type of materials used for the construction of the double frame, may vary without departing from the protective scope of the invention which is defined by the following claims.

Claims

1. Double structure in wood, for the placement of windows or similar in masonry, including:

an external insulated load-bearing frame, in wood, with closed perimeter (1), including a top cross member (11), two external vertical jambs (12, 13) positioned beneath the cross member, and a lower soffit (14);

an internal insulated frame, in wood, adjustable telescopically (2) including an internal top cross member (21) and two internal vertical jambs (22, 23), in which these two internal vertical jambs (22, 23) are used to or configured to close the lower side of the internal adjustable frame when fastened to the lower soffit (14) or to the sides of this lower soffit (14) or to close, when fastened to the sides of the lower soffit (14), the lower side or at the bottom of the internal insulated frame (2);

the internal adjustable frame (2) being fastened to this external load-bearing frame (1) forms this double structure in wood with closed perimeter; this double structure in wood is sealed and assembled with angle brackets (31) and includes metal anchors for fastening to the masonry (32), these external vertical jambs (12, 13) are supported by steel brackets (33) used to avoid crushing of the said lower soffit (14) and structural subsidence.

2. Double structure in wood according to claim (1) including a thermal threshold(4) for the thermal separation between the interior and the exterior, fastened above the soffit (14) of the external frame (1) and sealed against atmospheric agents.

3. The double structure according to claim 1, in which the external load-bearing frame (1) includes threaded bushings (5) for hinges for shutter or blinds, screwed into the external vertical jambs (12, 13) and free of contact with the masonry.

4. Double structure in wood according to claim 1, including a mesh and rendering angles (6), anti-splitting and anti-scoring.

5. Double structure in wood, according to claim 1, in-

cluding a pre-installed window (7) for quick assembly on site.

6. Double structure in wood according to claim 5, in which the said window is positioned flush with the internal wall, centred in the wall or with a more external positioning.

7. Double structure according to claim 1, including a package of windows complete with roller blinds (8) and mosquito net(9), or window guides for the roller blinds and mosquito net, positioned in the rebate formed by the joint of the stated external load-bearing frame (1) with the said internal adjustable frame (2).

8. Double structure in wood according to claim 1, in which the external top cross member (11) and the stated lower soffit (14) of the external load-bearing frame, pass through with respect to the external vertical jambs (12, 13).

Double structure in wood according to claim 1, in which the external top cross member (11) and the lower soffit (14) are positioned and secured respectively above and below the external vertical jambs (12, 13).

fig.1a

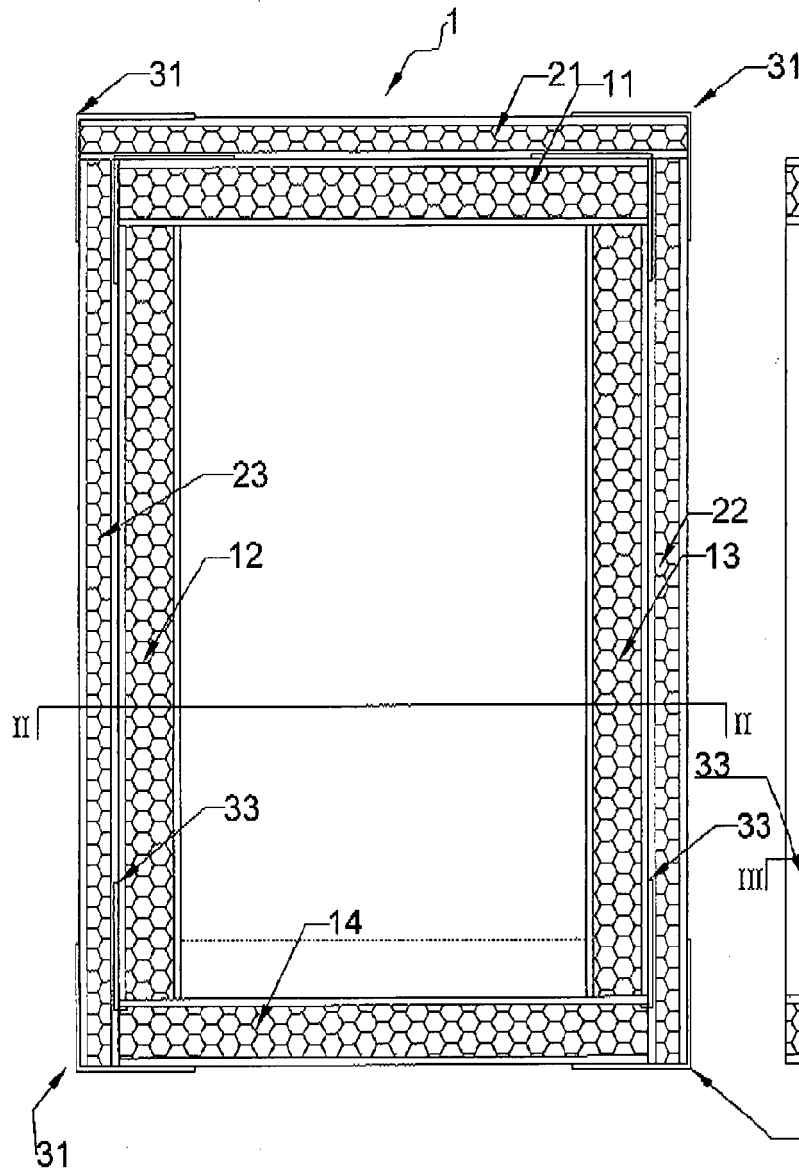


fig.1b

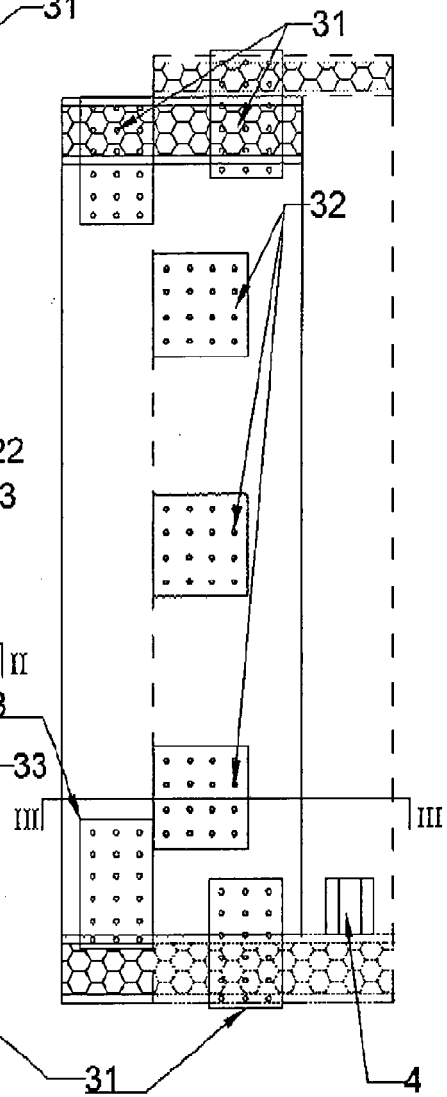


fig.2a

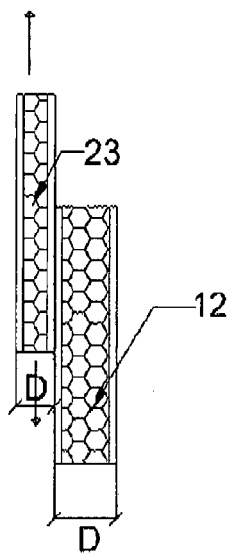
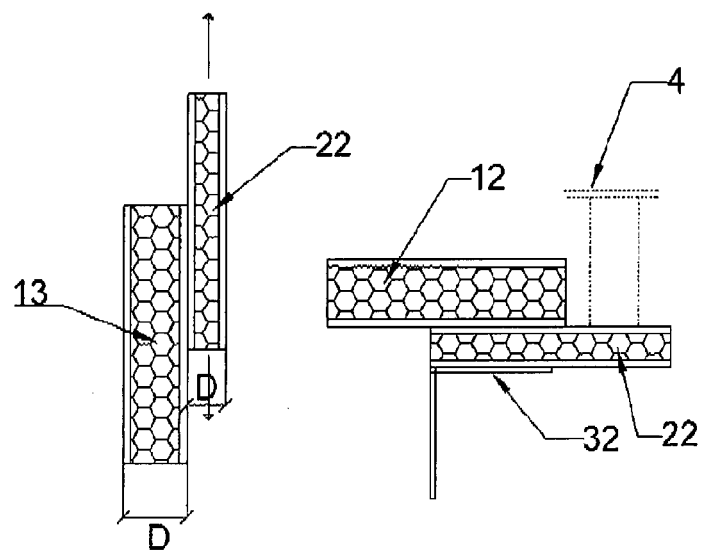


fig.2b



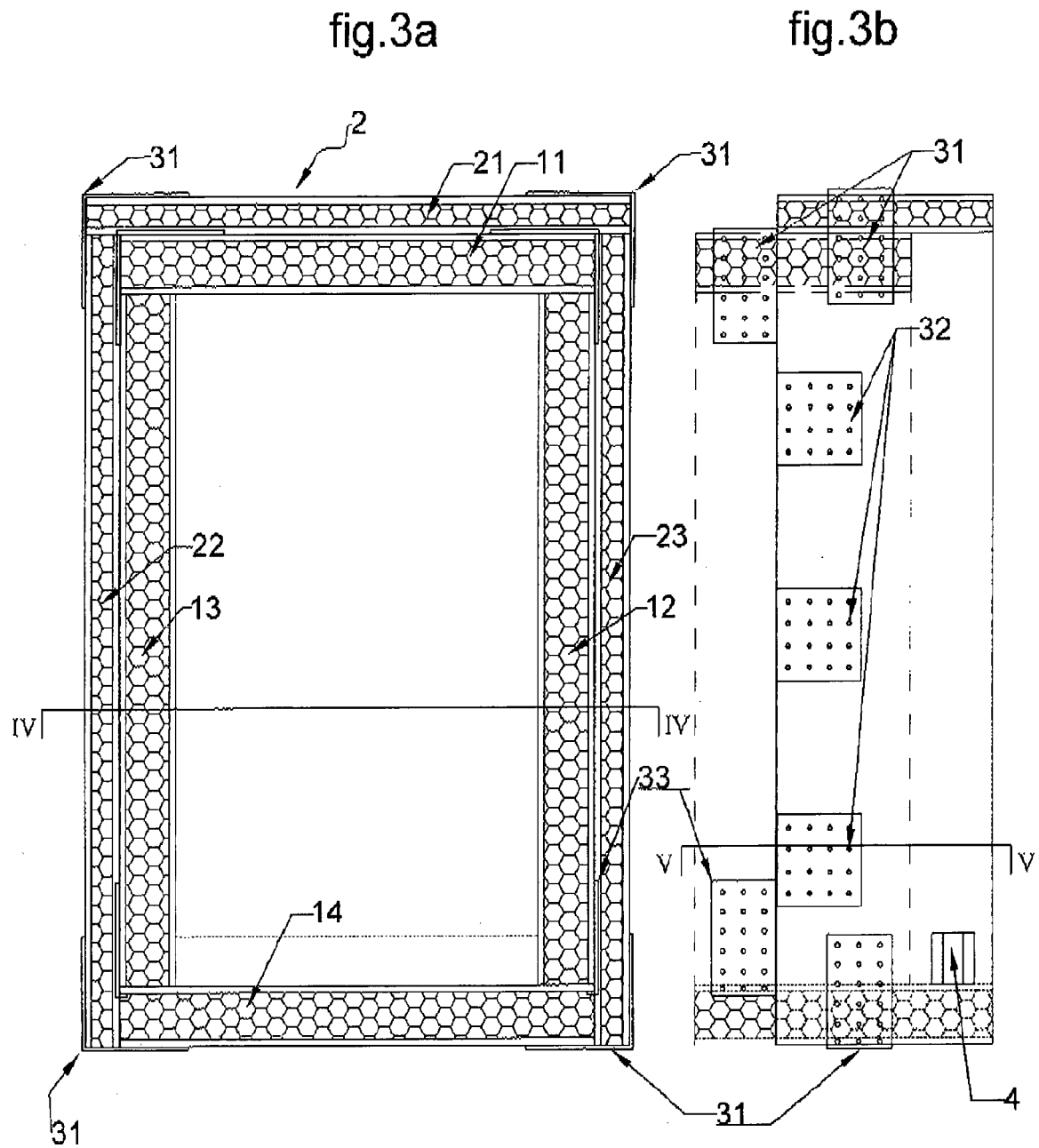


fig.4a

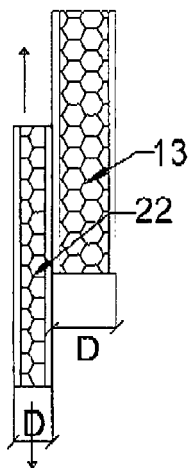


fig.4b

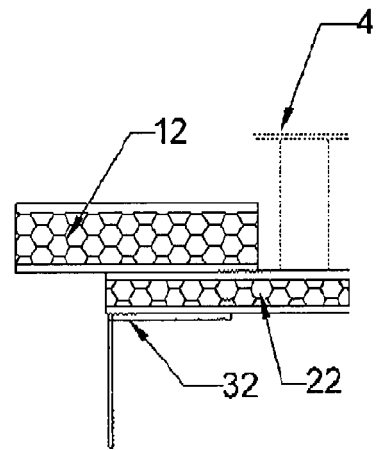
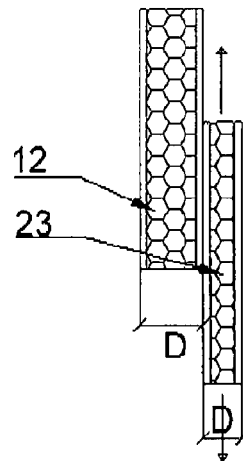


fig.5

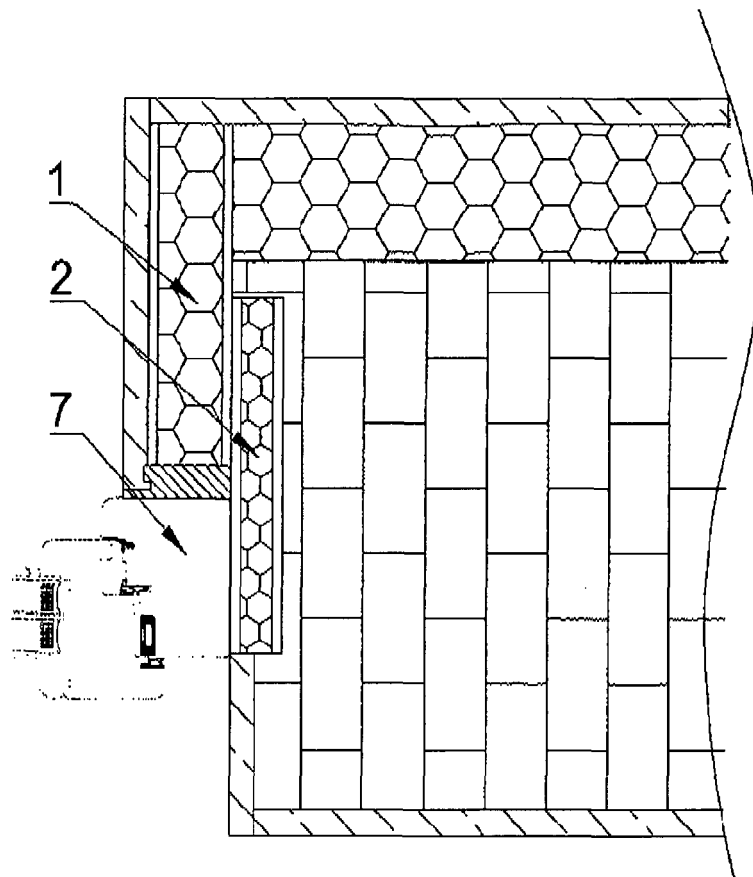


fig.6

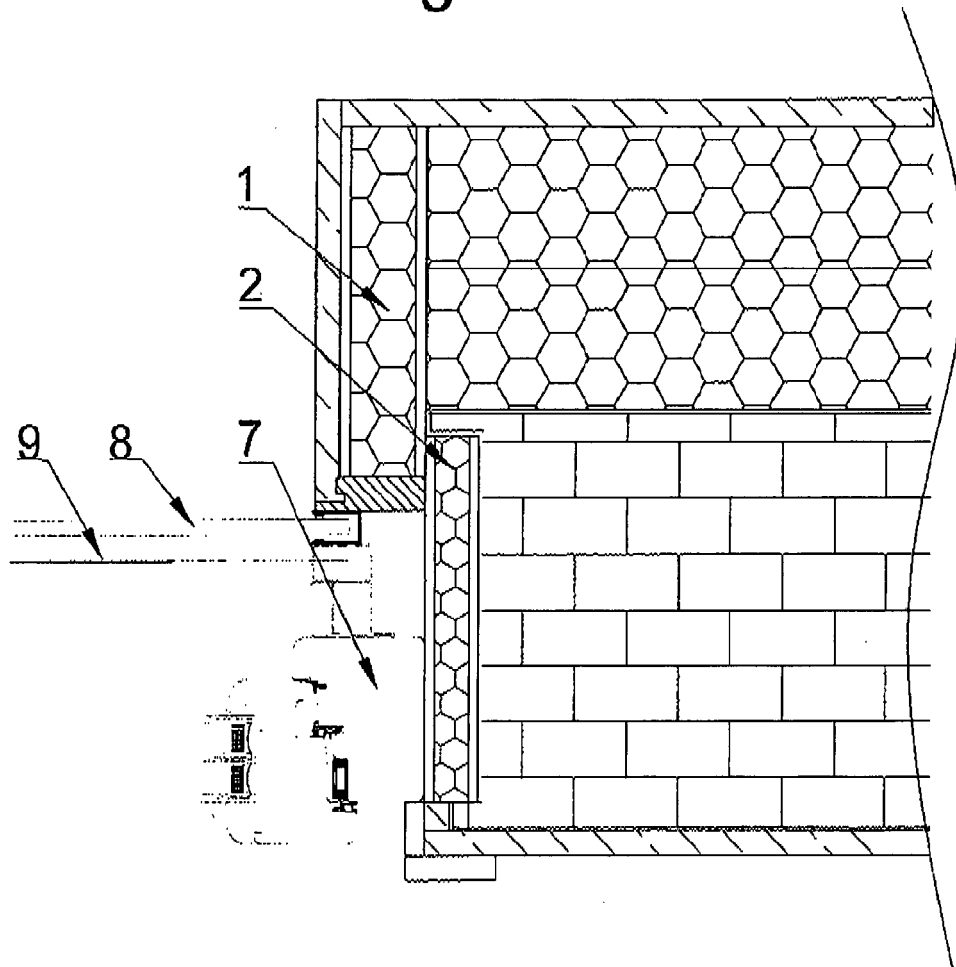


fig.7

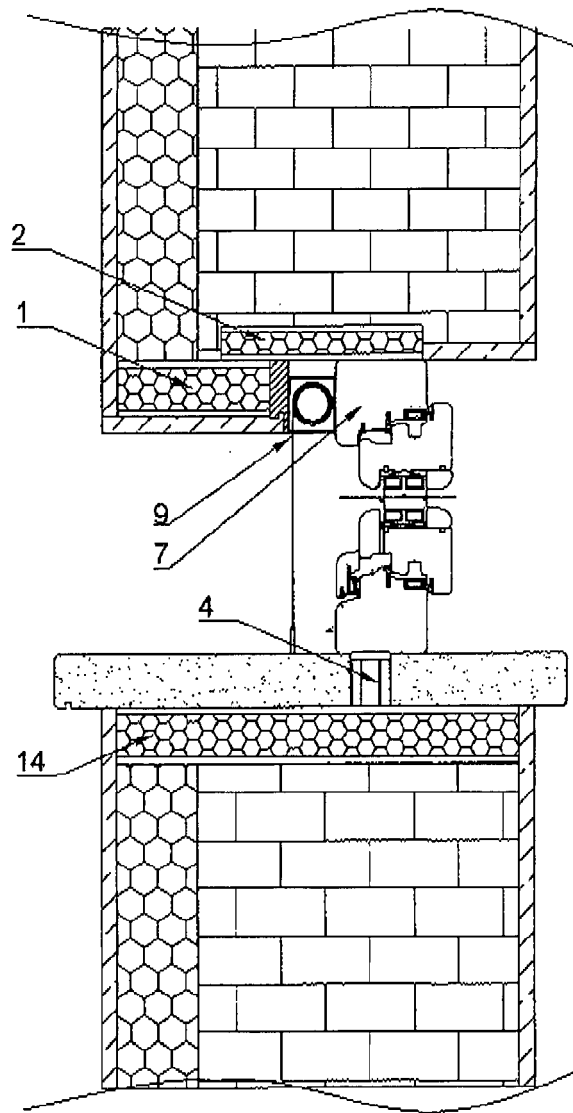
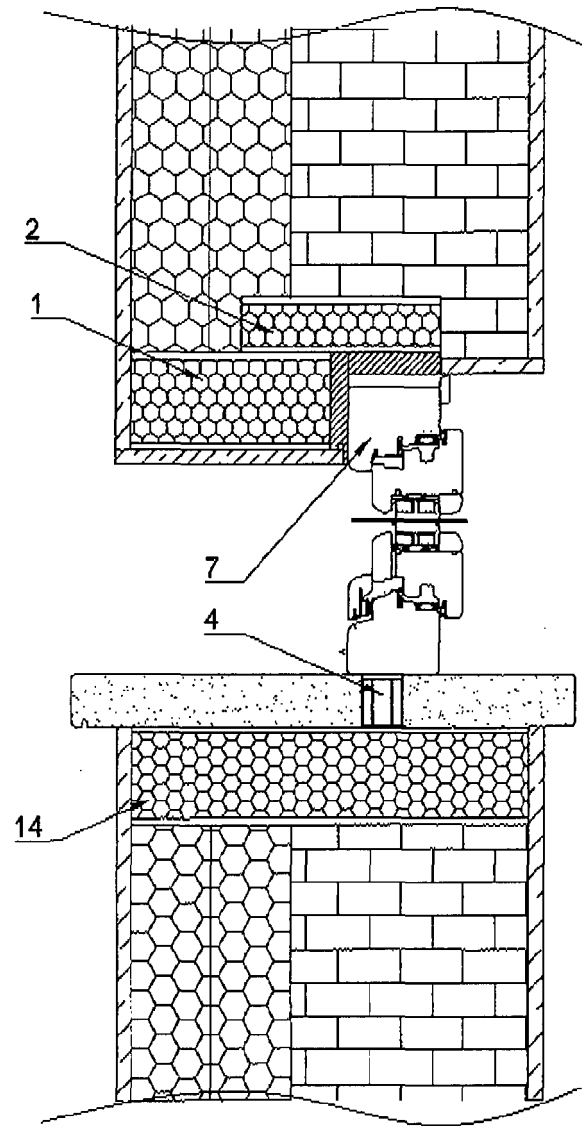


fig.8



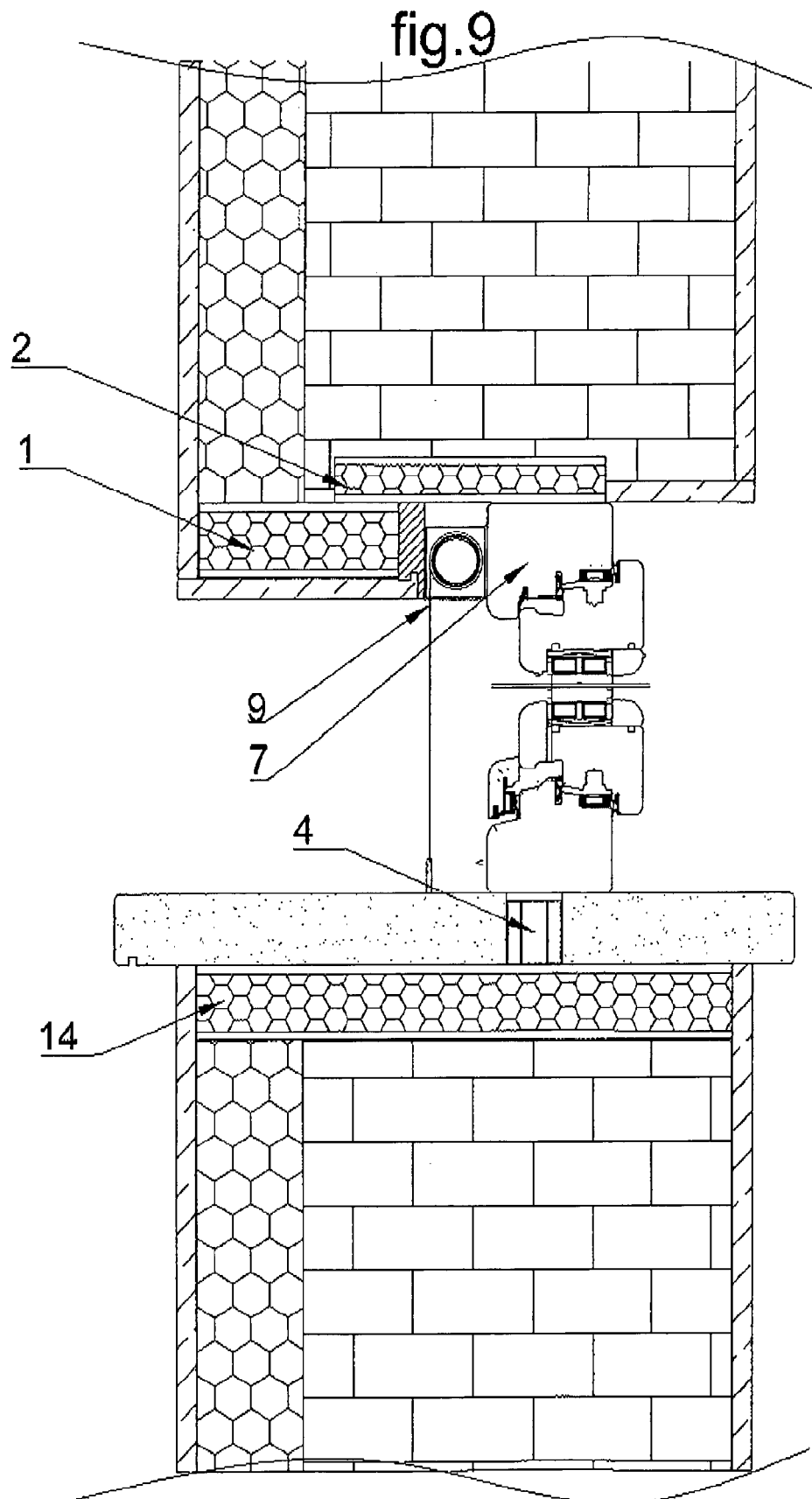


fig.10a

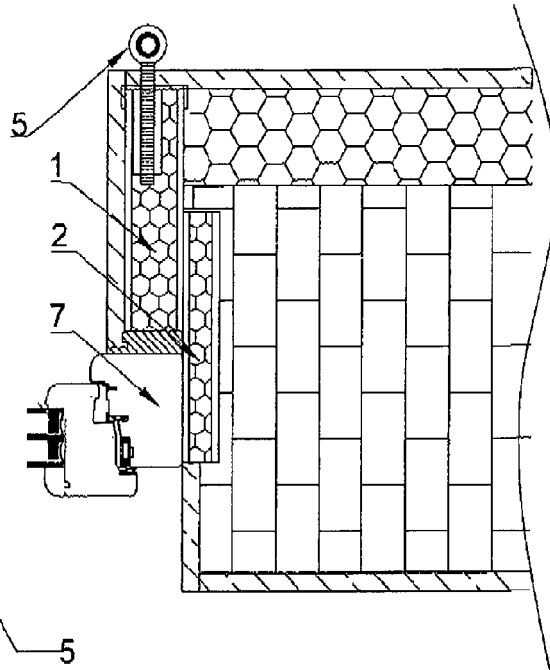


fig.10b

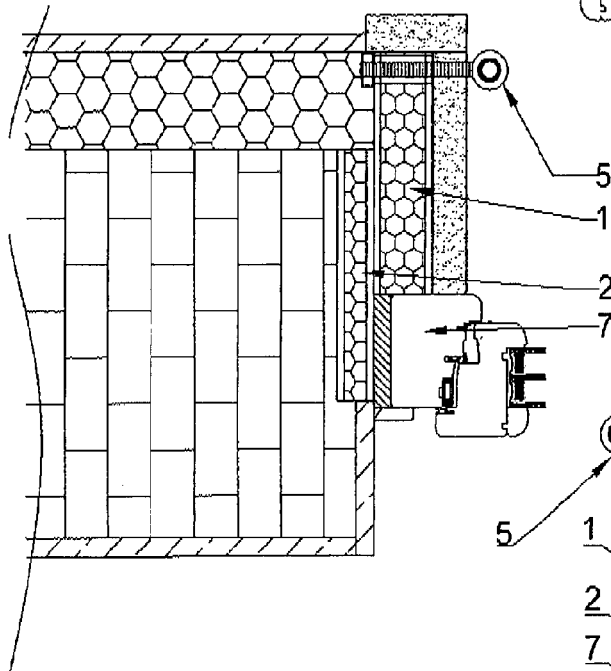


fig.10c

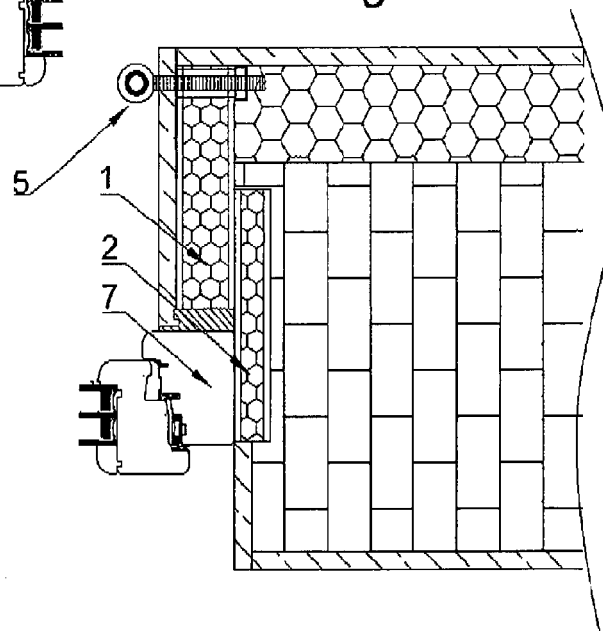


fig. 11

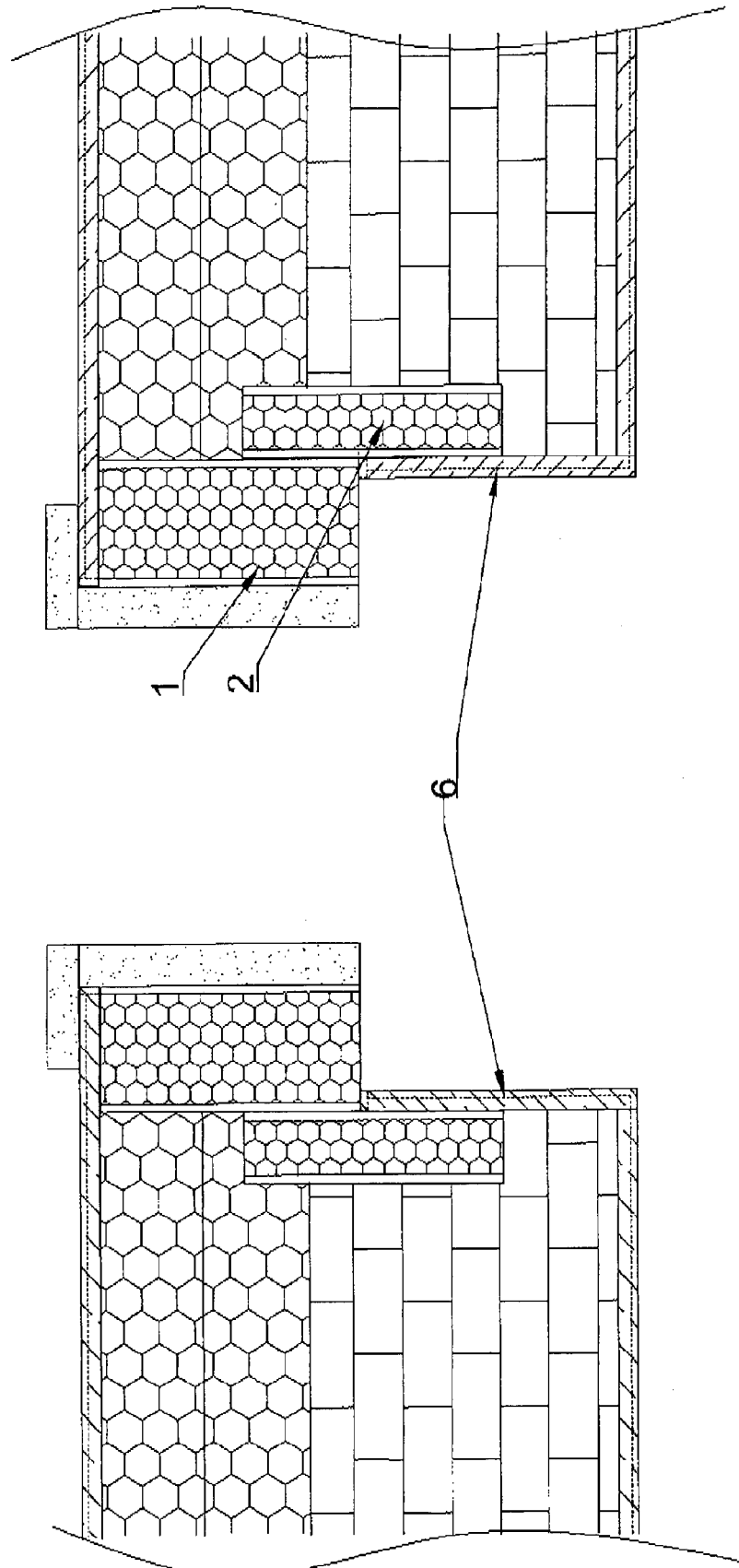


fig.12

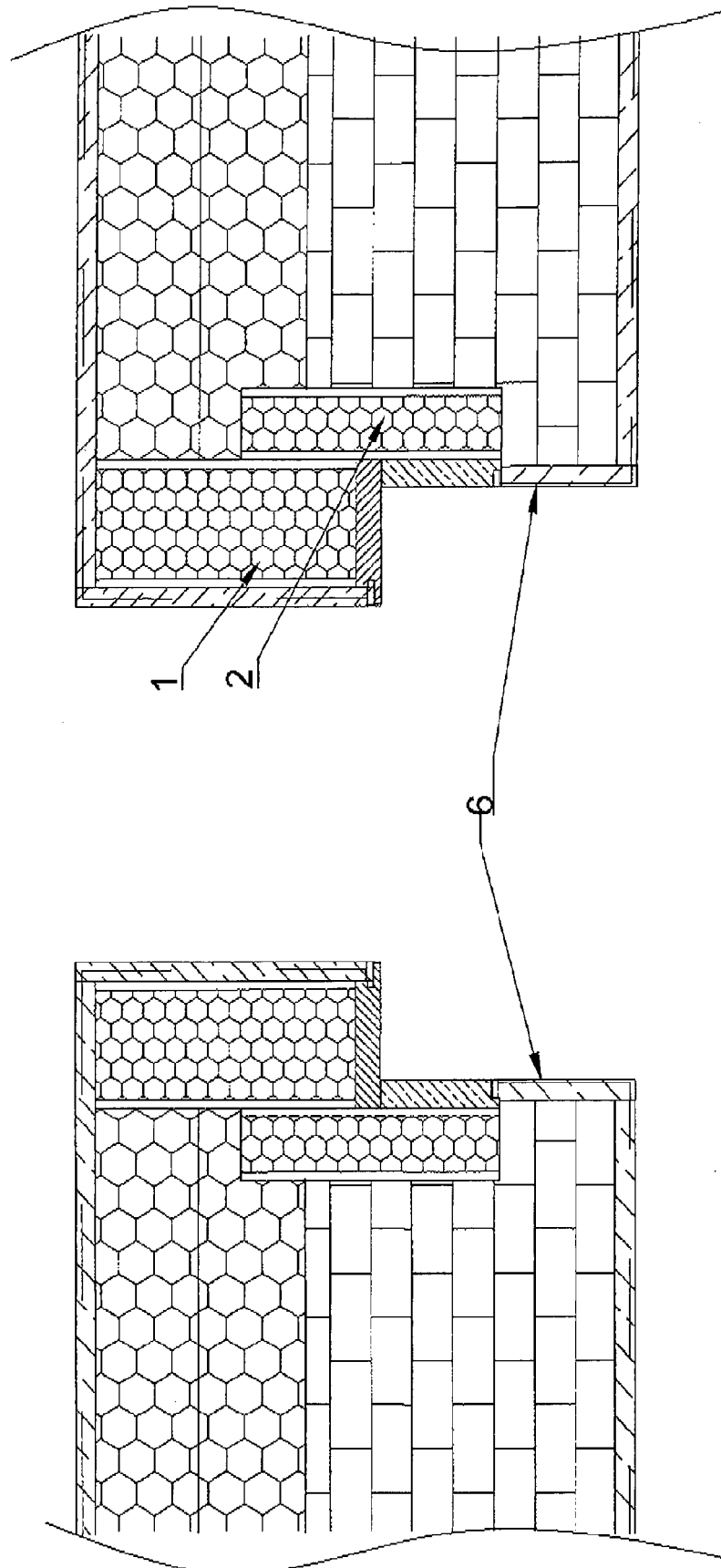


fig.13

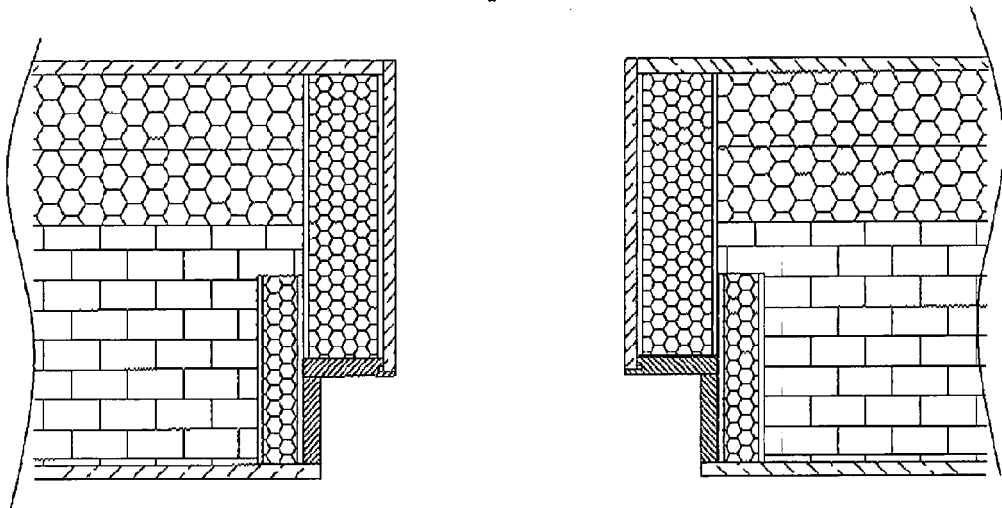


fig.14

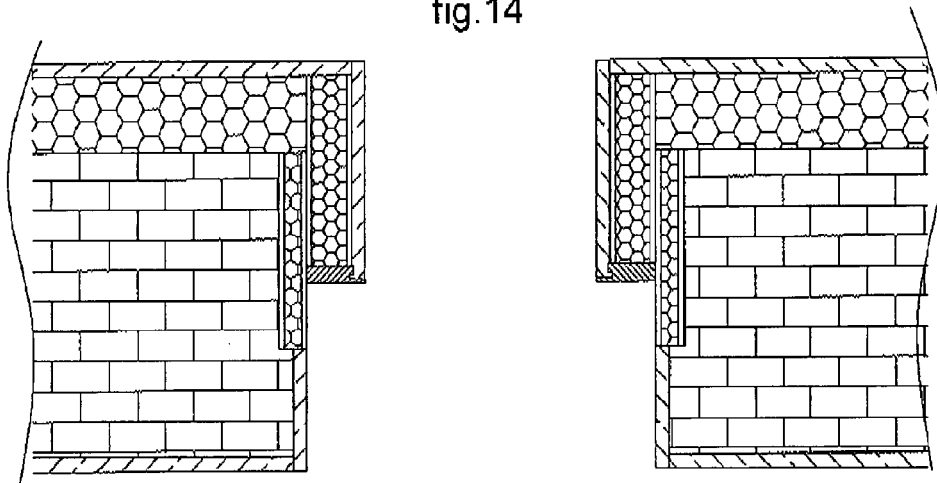


fig.15

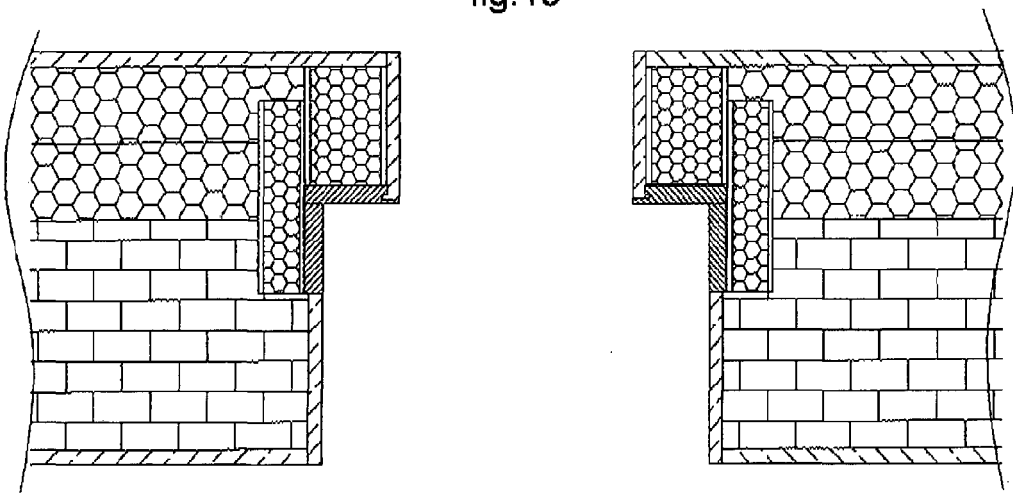


fig.16

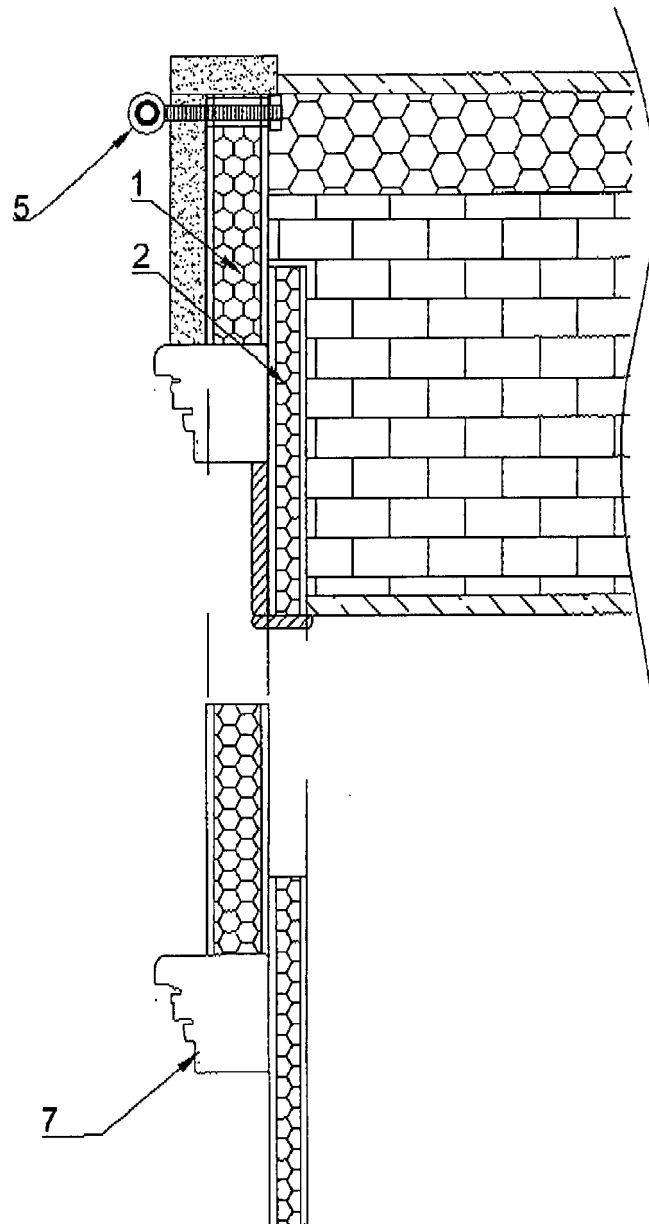
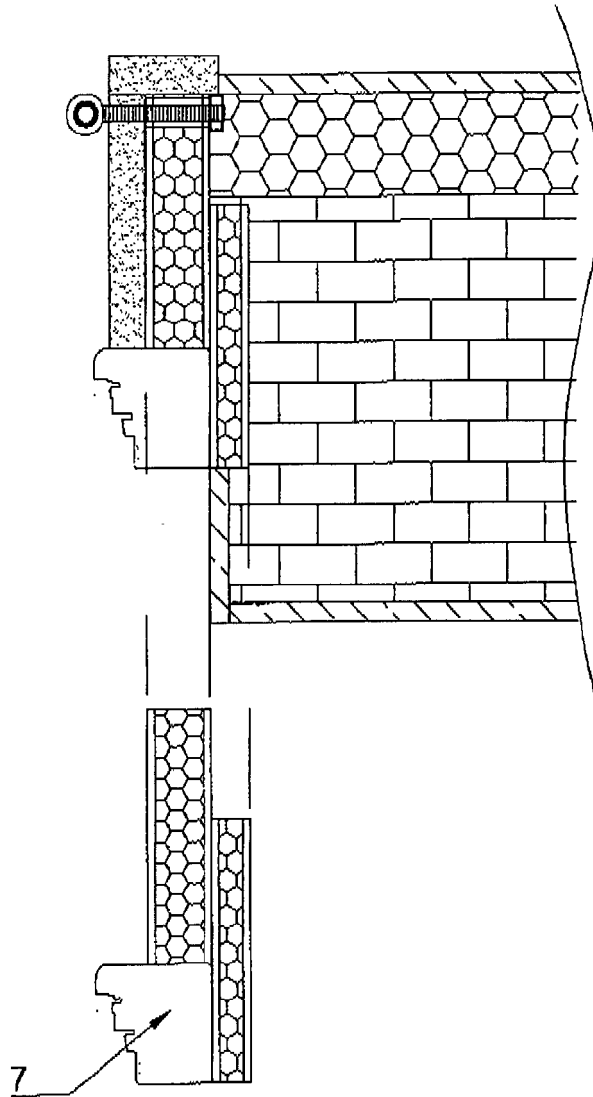


fig.17





EUROPEAN SEARCH REPORT

Application Number
EP 15 00 1512

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	NL 1 026 230 C1 (DOORNENBAL CAREL GUSTAAF [NL]) 22 November 2005 (2005-11-22) * page 4, line 20 - line 21; figure 1 * * page 5, line 29 - line 31 *	1-9	INV. E06B1/02 E06B1/70
A	FR 2 593 850 A1 (LAMBERT SARL GEORGES [FR]) 7 August 1987 (1987-08-07) * page 5, line 21 - line 24; figures 1-3 *	1-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 24 September 2015	Examiner Jülich, Saskia
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

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

EP 15 00 1512

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
NL 1026230	C1	22-11-2005	NONE
FR 2593850	A1	07-08-1987	NONE

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82