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(54) **WOODEN WINDOW OR DOOR ASSEMBLY WITH AN EXTERNAL COVERING**

(57) The invention relates to a window or door assembly comprising a relatively narrow wooden profiled frame (7) provided with an external aluminium or plastic covering (4), a relatively narrow wooden profiled sash (5) with a glazing unit (3) having an internal pane (3d) and an external pane (3a), a sealing arrangement and a fitting arrangement, wherein said internal pane (3d) is coplanar with the internal side of said wooden frame (7). In order to achieve material savings while maintaining an excellent thermal insulation and improved aesthetics of such a window or door said wooden sash (5) is fixed between said internal pane (3d) and said external pane (3a) of said glazing unit (3), wherein said internal pane (3d) of

said glazing unit (3) extends outside beyond the periphery of said wooden sash (5) forming a projection (2) that abuts the internal surface of said wooden frame (7) and thus covers the internal space between said wooden sash (5) and said wooden frame (7), while said external covering (4) extends inside beyond the periphery of said wooden frame (7) forming a projection that covers the external space between said wooden sash (5) and said wooden frame (7), and the total width (1) of said wooden frame (7) and said external covering (4) is close to the width of said glazing unit (3) along the line perpendicular to said glazing unit (3).

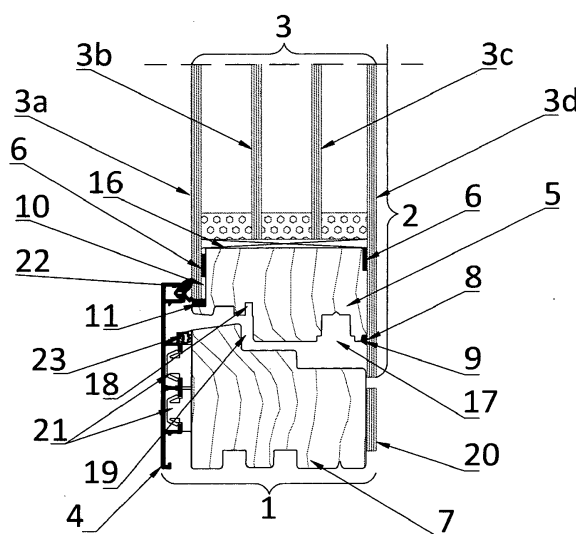


Fig. 1

Description

[0001] The present invention relates to a window or door assembly comprising a wooden frame provided with an external aluminium or plastic covering, a wooden sash with a glazing unit, a sealing arrangement and a fitting arrangement, which is apt for being employed in construction industry.

Background of the Invention

[0002] Various window or door assemblies known from the state of art have wooden frames and wooden sashes, both provided with external aluminium coverings. Since in this case both the frame and the sash have a relatively complicated construction, this results in an increased use of wood and thus in an increased production costs.

[0003] Patent publication PL401780 discloses a wooden window provided with an aluminium covering mounted at the external side of the window. The edges of a glazing unit are projected above a groove formed in a sash and additionally adhere to an insulation covering fastened at the external side of the sash. The second insulation covering is fastened at the external side of the window to the window frame. The insulation coverings are employed in order to improve thermal insulation.

[0004] Other known window assemblies have frameless constructions with glazing units fastened to an insert located between the panes and made of plastic.

[0005] Patent publication EP2436865 discloses a window in which the total thickness of a glazing unit equals the thickness of a window sash. The sash is entirely frameless, wherein the interior panes of the glazing unit are glued to a plastic insert located between the outermost panes that completely encompass the insert. The window frame is shifted on both sides relative to the sash, so that the total width of a window is relatively large. The shift of the frame relative to the sash also enforces an employment of a specific seal system between the sash and the window frame as well as an employment of specific fittings. The window frame is made of wood, aluminium, plastic or a combination thereof.

[0006] A similar window is known from the publication EP2816187 disclosing a frameless window sash, wherein the internal and the external panes in this window are glued to an insert located between them. The internal pane is coplanar with the outermost surface of the window frame. The window frame is covered at the external side of the window by aluminium covering which closes the space between the sash and the window frame.

[0007] All the above described constructions feature a common disadvantage of a relatively large width of a window which in turn induces an increase of material costs and difficulties in obtaining good thermal insulation parameters.

[0008] Therefore the object of the present invention was to provide a wooden window or door assembly that would enable to achieve material savings while maintain-

ing an excellent thermal insulation and improved aesthetics of such a window or door.

Summary of the Invention

[0009] According to the present invention there is provided a window or door assembly comprising a wooden frame provided with an external aluminium or plastic covering, a wooden sash with a glazing unit having an internal pane and an external pane, a sealing arrangement and a fitting arrangement, wherein said internal pane is coplanar with the internal side of said wooden frame, characterized in that said wooden sash is fixed between said internal pane and said external pane of said glazing unit, wherein said internal pane of said glazing unit extends outside beyond the periphery of said wooden sash forming a projection that abuts the internal surface of said wooden frame and thus covers the internal space between said wooden sash and said wooden frame, while said external covering extends inside beyond the periphery of said wooden frame forming a projection that covers the external space between said wooden sash and said wooden frame, and the total width of said wooden frame and said external covering is close to the width of said glazing unit along the line perpendicular to said glazing unit.

[0010] Preferably said internal pane and said external pane of said glazing unit are coupled with said wooden sash by means of plastic adhesive.

[0011] Said wooden sash is preferably provided at the side of said internal pane and/or at the side of said external pane with groove(s) for embedding a seal(s) or profiled slats, preferably provided with channel(s) for embedding seal(s).

[0012] Some preferred embodiments of the window or door assembly according to the present invention comprise an elastic spacer disposed between said wooden sash and said glazing unit.

[0013] Said wooden sash may be preferably provided with at least one channel for embedding at least one interior pane of said glazing unit.

[0014] Alternatively said wooden sash may be preferably provided with two rabbets for embedding interior panes of said glazing unit.

[0015] Preferably the window or door assembly comprises additional strips made of transparent material fixed circumferentially at the internal side of said wooden frame beyond the periphery of said internal pane of said glazing unit.

[0016] Preferably the window or door assembly of the present invention comprises clips for fastening said external covering disposed at the external side of said wooden frame.

[0017] Preferably the window or door assembly of the present invention comprises a seal disposed between said external covering and said external pane.

[0018] Preferably the window or door assembly of the present invention comprises a seal disposed between

said wooden frame and said external covering.

[0019] Furthermore, the areas of adherence of said internal pane and said external pane of said glazing unit to said wooden sash and/or of said strips to said wooden frame are preferably masked by means of paint or foil having a covering colour.

[0020] The window or door assemblies according to the present invention feature a high degree of thermal insulation in a result of an employment of wooden elements in the sash and in the frame, along with an appropriate seal system. They ensure material savings in a result of an employment of narrow wood profiled sections for the sash and the frame. Furthermore, the invention provides an aesthetic improvements by providing the sash that is coplanar with the frame and by an employment of the same material at the internal side of the assembly. Panes of the sashes, in the areas of adherence thereof to the frames, may be circumferentially painted or may comprise self-adhesive cover labels that improve decorative effect of a window or door assembly and may be produced in various colors and patterns. A choice of an appropriate coloring on the glass strip of a window or door assembly frame additionally improves a visual effect of such a window or door assembly.

Brief description of drawings

[0021] The invention shall be described and explained below in reference to its preferred embodiments and in the connection with the attached drawings wherein:

Fig. 1 shows a cross-sectional view of the first embodiment of a window or door assembly according to the present invention,

Fig. 2 shows a cross-sectional view of the second embodiment of a window or door assembly according to the present invention,

Fig. 3 shows a cross-sectional view of the third embodiment of a window or door assembly according to the present invention,

Fig. 4 shows a cross-sectional view of the fourth embodiment of a window or door assembly according to the present invention, and

Fig. 5 shows a cross-sectional view of the fifth embodiment of a window or door assembly according to the present invention.

Brief description of preferred embodiments

[0022] A wooden window or door assembly of the present invention comprises a wooden frame 7 and a wooden door or sash 5 of a relatively narrow profiles. The sash 5 surrounds a glazing unit 3 comprising an external pane 3a and an internal pane 3d.

[0023] The expressions "external", "external side of the window assembly", etc. are to be understood in the context of the present invention as depicting those components or parts of components of the window assembly

that are visible from or face the external side or outside of a building. Similarly the expressions "internal", "internal side of the window assembly", etc. are to be understood in the context of the present invention as depicting those components or parts of components of the window assembly that are visible from or face the internal side or inside of a building.

[0024] An external aluminium or plastic covering 4 is additionally mounted to the wooden frame 7 at the external side of the window assembly. A wooden sash 5 has, as shown in a cross-sectional view, two sides which are parallel relative to the external pane 3a and the internal pane 3d of the glazing unit 3 and to which these panes 3a and 3d are joined by means of plastic adhesive 6.

[0025] The internal pane 3d extends beyond the periphery of the wooden sash 5 forming a projection 2 that abuts the internal surface of the wooden frame 7 and thus closes or covers the space between the wooden sash 5 and the frame 7. At the external side of the window assembly the external covering 4 extends beyond the periphery of the wooden frame 7 forming a projection that abuts the external pane 3a and thus covers the external space between the wooden sash 5 and the wooden frame 7.

[0026] In all embodiments of the wooden window or door assembly of the present invention the total width 1 of the wooden frame 7 and the external covering 4 is close to the width of the glazing unit 3 along the line perpendicular to the glazing unit 3. More precisely the width of the wooden frame 7 substantially corresponds to the width of the glazing unit 3.

[0027] In the first embodiment depicted in Fig. 1 the glazing unit 3 is a four-pane unit comprising two interior panes 3b and 3c. A groove 8 for embedding a silicone seal 9 is formed in the wooden sash 5 at the side of the internal pane 3d. At the side of the external pane 3a, in the wooden sash 5 a groove 10 for embedding a silicone seal 11 is formed, or, in a different embodiment depicted in Fig. 2, a groove 12 is formed for embedding a profiled slat 13 in which a channel 14 for embedding a seal 15 is formed. An elastic spacer 16 is disposed between the upper part of the wooden sash 5 and the glazing unit 3. A channel 17 for embedding fittings (not shown) such as hinges, locks, etc. and a channel 18 for embedding a circumferential seal 19 are formed in the wooden sash 5 at the side of the frame 7. In the embodiment provided with the profiled slat 13, the circumferential seal 19 is fastened to the profiled slat 13.

[0028] Glass strips 20 (or strips made of different material fulfilling requirements, in particular strips made of transparent material) are glued at the internal side of the wooden frame 7. The strips 20 are painted or covered, which provides an additional decorative effect and shades junction areas.

[0029] Clips 21 for fastening the external covering 4 are fastened at the external side of the wooden frame 7. The external covering 4 is separated from the external pane 3a by means of a seal 22. Additionally a seal 23 is

located between the wooden frame 7 and the external covering 4.

[0030] In the third and fourth embodiments depicted respectively in Figs. 3 and 4, channels 24 are located in the wooden sash 5 for embedding the interior panes 3b, 3c, wherein the remaining elements of the window assembly shown in Fig. 3 are the same as in the first embodiment, and the remaining elements of the window assembly shown in Fig. 4 are the same as in the second embodiment, i.e. the elements comprise the groove for the profiled slat 13.

[0031] In a further window assembly embodiment, rabbets 25 are formed at both sides in the wooden sash 5, wherein the interior panes 3b, 3c adhere to the side surfaces of the rabbets. The remaining window elements in this embodiment are the same as in the second embodiment.

[0032] For a skilled technician it is obvious that the illustrated and described embodiments of the window and door assemblies may be employed as various partitions in construction industry including doors or windows of balconies, terraces, indoor applications, etc.

[0033] Obviously, many modifications and variations of the present invention are possible in the light of the above teachings and may be practiced otherwise than as specifically described still being covered by the scope of the appended claims.

List of reference numerals

[0034]

1. width (of the wooden frame 7 along with the covering 4)
2. projection
3. glazing unit
 - 3a. external pane
 - 3b. interior pane
 - 3c. interior pane
 - 3d. internal pane
4. external covering
5. wooden sash
6. plastic adhesive
7. wooden frame
8. groove (for the seal 9)
9. seal
10. groove (for the seal 11)
11. seal
12. groove (for the profiled slat 13)
13. profiled slat
14. channel (for the seal 15)
15. seal
16. elastic spacer
17. channel (for fittings)
18. channel (for circumferential seal 19)
19. circumferential seal
20. strips made of transparent material
21. clips (for fastening external covering 4)

22. seal
23. seal
24. channel (for interior panes 3b, 3c)
25. rabbet (for interior panes 3b, 3c)

Claims

1. A window or door assembly comprising a relatively narrow wooden profiled frame (7) provided with an external aluminium or plastic covering (4), a relatively narrow wooden profiled sash (5) with a glazing unit (3) having an internal pane (3d) and an external pane (3a), a sealing arrangement and a fitting arrangement, wherein said internal pane (3d) is coplanar with the internal side of said wooden frame (7), **characterized in that** said wooden sash (5) is fixed between said internal pane (3d) and said external pane (3a) of said glazing unit (3), wherein said internal pane (3d) of said glazing unit (3) extends outside beyond the periphery of said wooden sash (5) forming a projection (2) that abuts the internal surface of said wooden frame (7) and thus covers the internal space between said wooden sash (5) and said wooden frame (7), while said external covering (4) extends inside beyond the periphery of said wooden frame (7) forming a projection that covers the external space between said wooden sash (5) and said wooden frame (7), and the total width (1) of said wooden frame (7) and said external covering (4) is close to the width of said glazing unit (3) along the line perpendicular to said glazing unit (3).
2. The window or door assembly according to Claim 1, **characterized in that** said internal pane (3d) and said external pane (3a) of said glazing unit (3) are coupled with said wooden sash (5) by means of plastic adhesive (6).
3. The window or door assembly according to Claim 1, **characterized in that** said wooden sash (5) is provided at the side of said internal pane (3d) with at least one groove (8) for embedding a seal (9).
4. The window or door assembly according to Claim 1, **characterized in that** said wooden sash (5) is provided at the side of said external pane (3a) with at least one groove (10) for embedding a seal (11).
5. The window or door assembly according to Claim 1, **characterized in that** said wooden sash (5) is provided at the side of said external pane (3a) with at least one groove (12) for embedding a profiled slat (13).
6. The window or door assembly according to Claim 5, **characterized in that** said profiled slat (13) is provided with at least one channel (14) for embedding

a seal (11).

7. The window or door assembly according to Claim 1,
characterized in that it comprises an elastic spacer
(16) disposed between said wooden sash (5) and
said glazing unit (3). 5
8. The window or door assembly according to Claim 1,
characterized in that said wooden sash (5) is pro-
vided with at least one channel (24) for embedding 10
at least one interior pane (3b, 3c) of said glazing unit
(3).
9. The window or door assembly according to Claim 1,
characterized in that said wooden sash (5) is pro- 15
vided with two rabbets (25) for embedding interior
panes (3b, 3c) of said glazing unit (3).
10. The window or door assembly according to Claim 1,
characterized in that it comprises strips (20) made 20
of transparent material fixed circumferentially at the
internal side of said wooden frame (7) beyond the
periphery of said internal pane (3d) of said glazing
unit (3). 25
11. The window or door assembly according to Claim 1,
characterized in that it comprises clips (21) for fas-
tening said external covering (4) disposed at the ex-
ternal side of said wooden frame (7). 30
12. The window or door assembly according to Claim 1,
characterized in that it comprises a seal (22) dis-
posed between said external covering (4) and said
external pane (3a). 35
13. The window or door assembly according to Claim 1,
characterized in that it comprises a seal (23) dis-
posed between said wooden frame (7) and said ex-
ternal covering (4). 40
14. The window or door assembly according to Claim 1
or 10 , **characterized in that** the areas of adherence
of said internal pane (3d) and said external pane (3a)
of said glazing unit (3) to said wooden sash (5) and/or
of said strips (20) to said wooden frame (7) are 45
masked by means of paint or foil.

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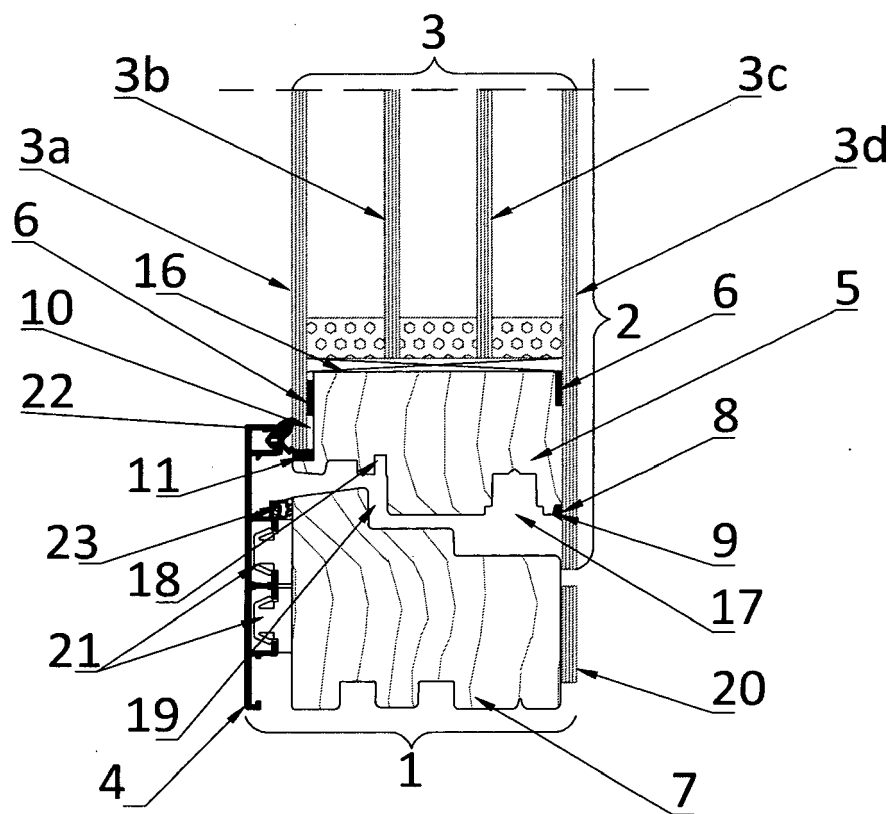


Fig. 1

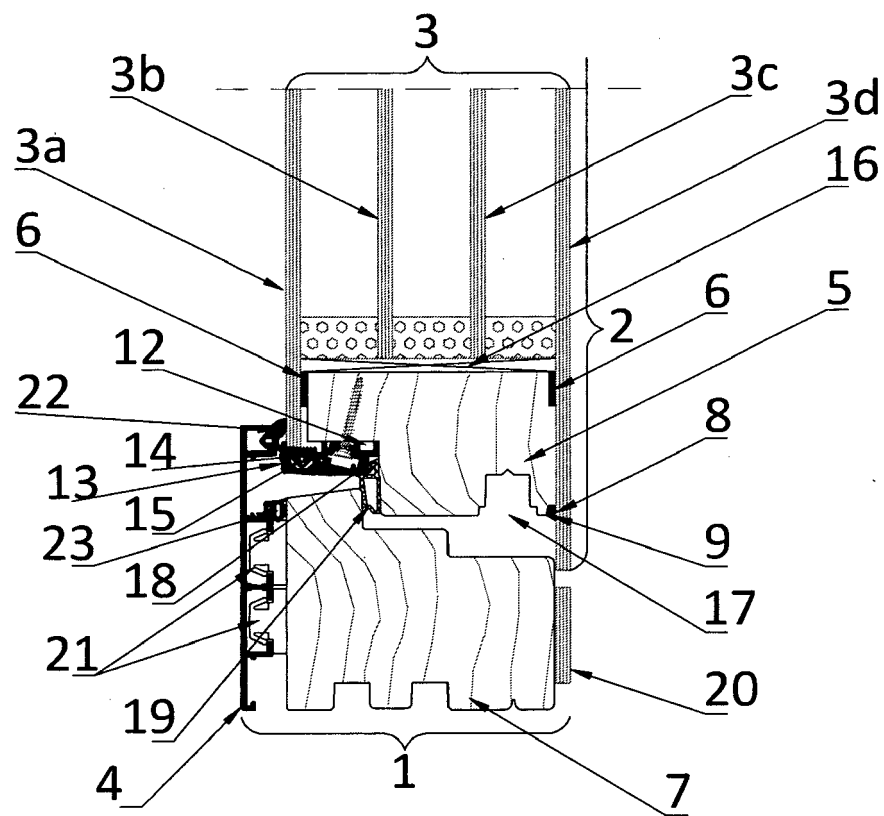


Fig. 2

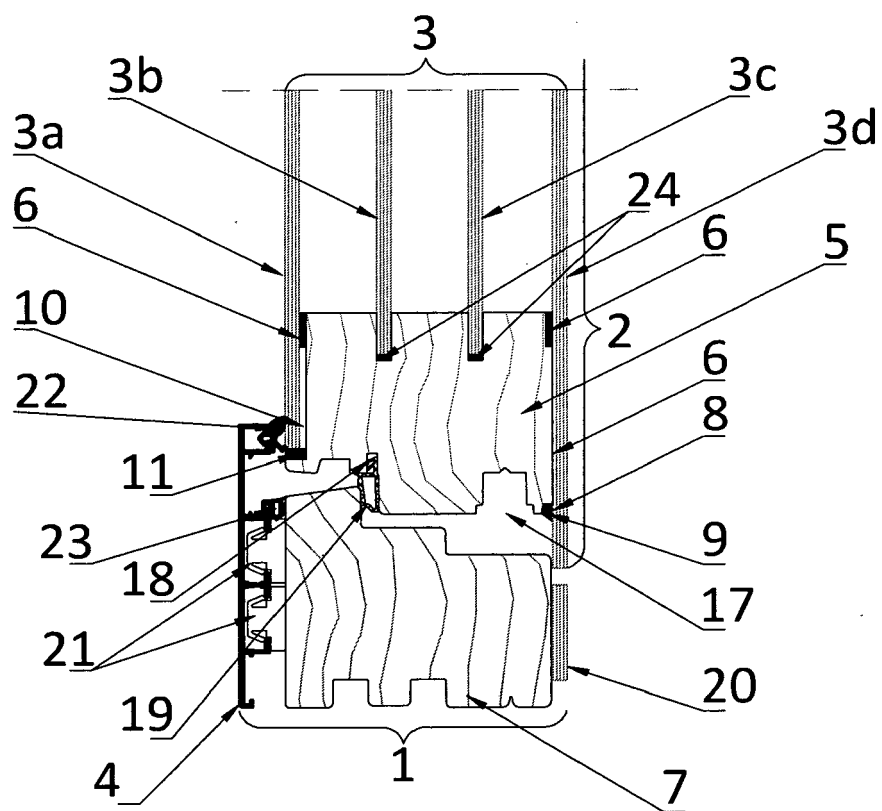


Fig. 3

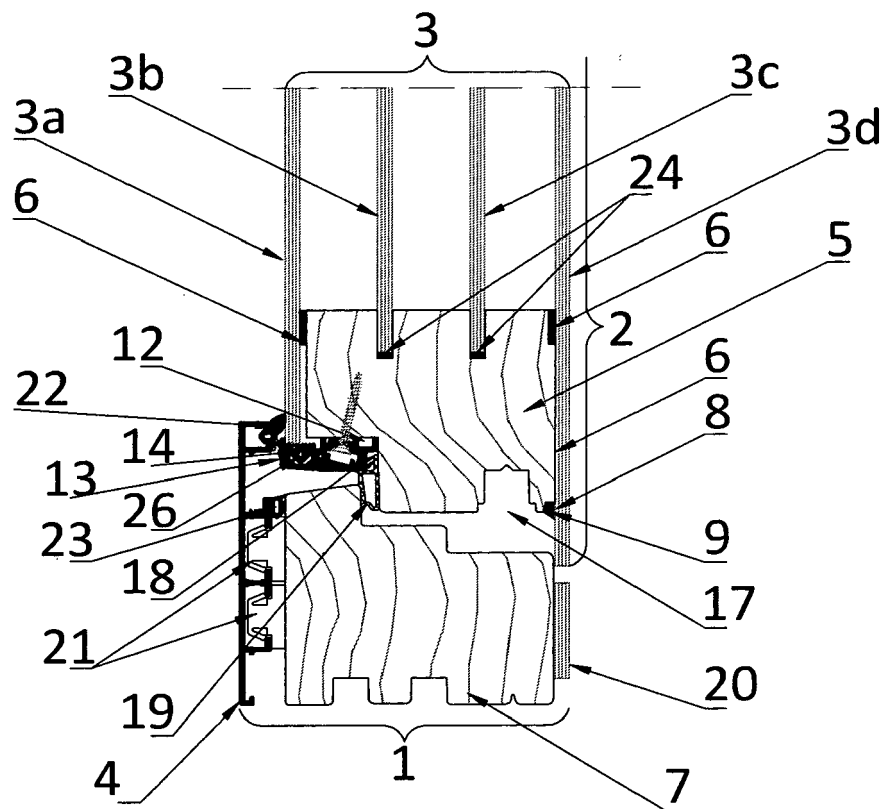


Fig. 4

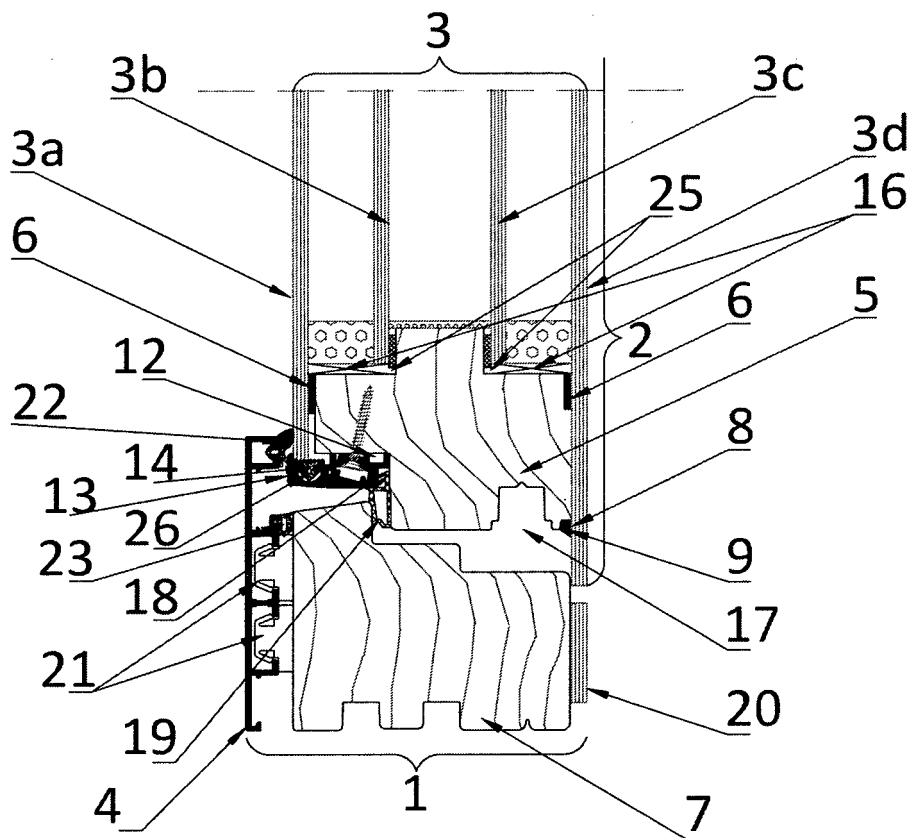


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 17 00 0582

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			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 27 June 2017	Examiner Cobusneanu, D
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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