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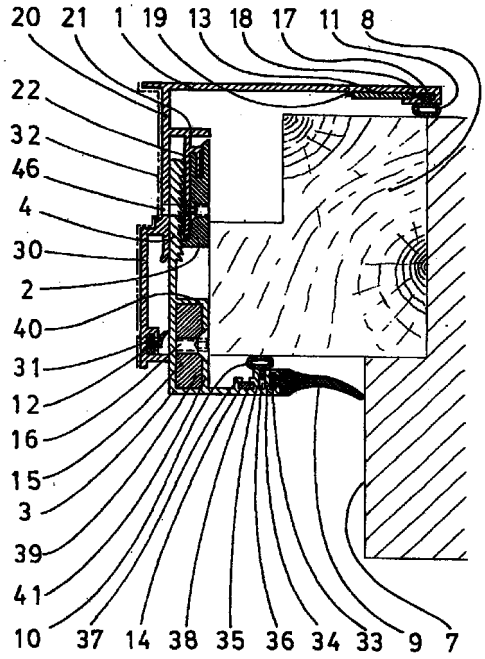
(54) FRAME SYSTEM FOR STEELWORK

(57) Frame system for metal joinery, designed to replace any type of window by others, preferably in aluminium, without the need for masonry work and retaining the existing frame, with the additional option of placing a preliminary frame in the course of new building work in order to place the invention, characterized by the fact that basic sections (1 and 3) are fixed to the frame placed during building work and attached to each other by means of a spring catch (2), itself fixed onto basic section (1) while the outside basic section (3) on the other hand is anchored to the spring catch by means of its notching (4).

Fig. 1



EP 1 096 095 A1

Description

[0001] The present description refers, as its title indicates, to a frame system for metal joinery, designed to replace all types of windows by others, preferably in aluminium, without the need to remove the window frames of wood or other types of material, with the additional option of placing a preliminary frame in the course of new building work in order to place the invention later.

[0002] At the present time, for the replacement of joinery work in wood or other material by items manufactured in extruded aluminium, it is necessary to remove the frames inserted during the construction of the building, in order to plaster in a new frame, thus requiring the hiring of the services of a plasterer.

[0003] In view of the need to resort to a plasterer, or in any case to have to undertake work on the masonry, the replacement of deteriorated windows by other more innovative models is often discarded because, over an above the problems posed by having to remove the embedded frames, the financial aspect must also be considered as this operation is far from cheap.

[0004] In order to resolve these problems the present invention has been designed comprising two basic sections, between the wings of which the frame of wood or any other material is anchored, with the positioning between the two sections being assured by means of a spring catch, which allows the insertion of one section into the other until a sufficient amount of pressure is achieved against the wooden frame, but without any possibility of it loosening. The airtightness between the inserted section and the pre-existing frame and the jamb is achieved by means of the corresponding elastic sections. Optionally, the basic interior section could incorporate the frame attaching to the corresponding window.

[0005] The present invention to replace wooden or other types of window by aluminium windows shows many advantages over the system of removing the embedded window frames as with a simple system of metal sections attached to a frame it is possible to avoid replacement, thus evidently reducing the final cost of the building work as, in addition to the elimination of the need for a plasterer, it also avoids the need to do any work on the masonry, with the additional advantage of saving time since it is not necessary to wait for materials to set or dry, installation is instantaneous and there is no need to redo paintwork.

[0006] In order to understand the object of the present invention better, the attached plan has been drawn up to illustrate a preferred practical implementation of the same. In the said plan:

Figure 1 shows a cross-section of the invention under discussion.

Figure 2 shows a similar cross-section to the foregoing one with a supplementary section for frames of different thickness.

Figures 3 shows a cross-section similar to the foregoing ones with the inclusion of a section of insulating material.

Figure 4 shows a front view from the inside of the room with the details of an angle piece, with the possibility of identifying by a dotted line the interior alignment angle of the mitred edges.

Figure 5 shows a front view from the outside of the details of the angle, with the possibility of identifying by a dotted line the exterior alignment angle of the mitred edges as well as the angled fixing bracket.

Figure 6 shows an enlarged detail of the fixing device between the two basic sections.

Figure 7 shows the cross-section of the decorative section closing against the jamb.

Figure 8 is similar to the previous one with less height.

Figure 9 shows the cross-section of the airtight section sealing against the existing frame.

Figure 10 shows the cross-section of a section similar to the one above with a different fixing system.

Figure 11 shows the cross-section of the airtight section sealing between the basic sections.

[0007] The frame system for metal joinery work referred to in the present invention, as can be seen in the figures mentioned above, incorporates a basic interior section (1), which is associated with the spring catch (2) in such a way that, when the outside basic section (3) is inserted the three sections are anchored by means of the notching (4) without any possibility of coming loose unless the screw (5) is unscrewed so as to release the flange (6) of the spring catch (2). Once the basic sections (1) and (3) have been fixed to the frame, the airtightness or sealing of the jamb (7) against the frame (8) is achieved through the contribution of the decorative section (9) and the sealing section (10), both inserted in the end of the outside basic section (3), whereas the sealing of the inside basic section (1) is achieved through the sealing section (11), following the final placement of the sealing section (12) between the basic sections (1) and (3). In order to assure the alignment between the faces of the basic sections (1) and (3), a fixing bracket (13) has been placed inside the mitred angles with an adjustment so that it prevents any misalignment, just as another fixing bracket (14) has been placed on the outside of the frame in order to align the outside faces. In addition, towards the inside of the frame an anchor bracket (15) has also been planned in each angle, held in place by means of the countersunk screw (16).

[0008] The basic inside section (1) with laminated sides comprises a horizontal wing on the right end of which there is a lip pointing inwards, containing a channel (17) in a half dovetail shape in which the sealing section (11) is housed, contributing with the inner wall (18) of this channel (17) together with the lip (19) to the formation of a hole inside which the fixing bracket (13) is

inserted. From the left end of the horizontal wing there is a vertical downward wing with the top half (20) offset inwards, with a horizontal lip (21) provided towards the upper and inside tip of the said upper half (20), from which lip a vertical wall (22) descends approximately halfway until it reaches the height of the offset or approximate midpoint of the vertical wing in order to provide between the said vertical wall (22) and its opposite wing, also vertical, a relatively deep channel (23) in which the notching (4) belonging to outside basic section (3) will be housed. From the vertical wall (22) and towards its upper end, there emerges a small horizontal lip (24) from which descends a small, also vertical, wall (25) separated in such a way from its opposite wall (22) that there is a channel (26), at the same time as an angled overhang (27) is created in the external angle formed by the aforesaid lip (24) and the aforesaid wall (25). To improve the introduction of the notching (4) into the channel (23), it is planned to provide an extension (28) of the upper half (20) with a flared tip (29). The vertical wing of the basic section (1) to which we are referring has at the end of its lower half (30) an inner channelling (31) in the form of a vertically arranged half-dovetail inside which the sealing section (12) is located. The appropriate anchorage points will be determined on the front faces (32), depending on the type of window chosen in each case, with the option of locating the extruded window frame in this area.

[0009] The outside basic section (3) of a laminated construction similar to basic section (1) comprises a vertical wing on the upper end of which the notching (4) is located whereas on the end of its horizontal wing another channelling (33) is located vertically in the shape of a semi-dovetail, inside which the decorative section (9) is housed, with a small channelling (36) having been left between the vertical wall (34) of the channelling (33) and the wall (35) in order to house the sealing section (10), at the same time as the aforesaid wall (35) together with the opposite lug (37) define another channelling (38) in the shape of a semi-dovetail, in this case to house the alignment bracket (14). The inside angle between the wings of the basic section (3) to which we are referring contains a chamber (39) defined between the horizontal (40) and vertical (41) walls, with the anchoring fixing bracket (15) located inside the aforesaid chamber (39) and held in place by several countersunk screws (16).

[0010] The multiple spring catches (2) arranged at intervals along the inside basic section (1) and on its vertical wall (22) have a narrow semi-rectangular cross-section on the upper end of which there is a channel (42) defined between the walls (43 and 44) which is slightly thicker and higher than the previous one and containing towards the inside a lip which is anchored in place on the angled overhang (27) belonging to the basic section (1). The lower end of the spring catch (2) that we are describing contains a flange (6) which overhangs the general thickness in order to meet up with the notching (4) of the basic section (3) for which it provides anchorage, thus also ensuring the fixation of the spring catch (2) to the basic section (1) by means of the wall (43) inserted into the channel (26).

[0011] For the hypothetical case of having to dismantle the window and therefore the frame being described, the spring catch (2) has been designed with a screw (5) on its inside, inserted in such a way that its head is opposite the vertical wall (22) of the basic section (1) at the same time as the end of its head is housed without sticking out from its neighbouring drill hole (45), while the upper end (20) of the vertical wing also has a small drill hole (46), logically located opposite, with the task of acting as a guide for access by the appropriate key to reach the screw (5) in order to turn the same leftwards and provide for the separation of the flange (6) outwards and therefore the release of the spring catch so as to recover partly or in its entirety the material used in the device.

[0012] Depending on the dimensions of the frame to which the present invention is attached, it has been planned to include on the outside basic section (3) the supplementary section (47) inside its channelling (36) in order to provide variable adaptation of this supplement to the sealing section (11).

[0013] Optionally, the inside basic section (1) may be defined in two halves, in other words the horizontal wing (48) and vertical wing (49), between which the insulating section (50) is inserted, with two opposing channels (51) having been planned on both the left end of the horizontal wing (48) and the upper end of the vertical wing (49) in a semi-dovetail shape, into which the aforesaid insulating section (50) will be anchored, with its more or less rectangular cross-section running parallel to the upper and lower bases as well as its outside and inside edges, in which a perpendicular rib (52) of a medium height has been inserted towards the centre at the same time as four small overhangs (53) have been defined in the four angles formed between the bases and the side pieces in order to be inserted into the above-mentioned channels (51) as a retention system.

[0014] The decorative section (9) of flexible material contains a fixing base (54) with an inverted T-shaped cross-section which is housed in the channel (33) corresponding to the basic section (3). The seating base (55) has a considerably greater width than the fixing base (54), with its width gradually reducing radially in a first section before its sides continue in a gradually converging straight line, with a maximum height finally capped radially. Optionally, the height can be reduced at the same time as its central core is cut out in a triangular shape (56).

[0015] The sealing section (10) comprises a cylindrical tube of flexible material (57) containing an appendix (58) with a larger radial finish.

[0016] The sealing section (11) also based on a cylindrical tube (59) contains an appendix (60) shaped as an inverted T. The sealing section (12) comprises a

quarter arc (61) from the lower end of which an appendix (62) descends in the shape of an inverted T.

[0017] Having sufficiently described the nature of the present invention, as well as the manner of implementing the same, it only remains for us to add that it is possible to introduce changes of shape, material, arrangement in the invention as a whole or in the parts comprising the same, providing that such alterations do not substantially vary the nature of the invention claimed below.

Claims

1. Metal joinery frame system, designed to replace all types of windows without having to remove the existing frame nor carry out any masonry work, characterized by the fact that it comprises basic sections (1 and 3), anchored by means of the spring catch (2) and with brackets (15) helping to strengthen the angles, at the same time as the alignment of the faces is achieved through the assistance of other internal (13) and external (14) brackets, with the entire device being sealed by means of the sealing sections (10, 11 and 12) and the decorative section (9).

2. Metal joinery frame system as per the preceding claim characterized by the fact that the inside basic section (1) with laminated walls contains a horizontal wing on the right end of which an overhang has been placed internally, containing a channel in the shape of a semi-dovetail to house the sealing section (11), with the inside wall (18) of the said channel (17) and the lip (19) assisting in the creation of a hole inside which a bracket (13) will be housed. From the left end of the aforesaid horizontal wing a vertical wing hangs down and this is offset inwards in its top half (20), with an overhang (21) having been arranged horizontally on its upper end and internally, from the midpoint of which a vertical wall (22) descends to reach the height of the offset, thus providing a relatively deep channel (23) between the aforesaid wall (22) and its opposing wing, also vertical, and the said channel will house the notching (4) belonging to the outside basic section, with a small horizontal lip (24) emerging from the upper end of the aforesaid vertical wall (22) from which a small wall (25) descends also vertically and separated from its opposing wall (22), producing a channel (26), while an angular overhang (27) is formed in the outside angle created by the aforementioned lip (24) and the said wall (25), with plans for an extension (28) of the upper part (20), the end (29) of which is defined as flared, at the same time as a channel (31) in the shape of a semi-dovetail has been placed in the vertical wing of the basic section (1) in its lower half (30), inside which the sealing section (12) is placed.

3. Metal joinery frame system as per the preceding claims characterized by the fact that the basic section (3) of laminated walls comprises a vertical wing, on the upper end of which is located the notching (4) while on the end of its horizontal wing there is a vertically-located channel (33) in the shape of a semi-dovetail, inside which the decorative section (9) is held, with a small channel (36) having been designed between the vertical wall (34) of the channel (33) and the wall (35) in which to house the sealing section (10), at the same time as the said wall, in collaboration with its opposite lug (37) provides for another channel in the shape of a semi-dovetail inside which the alignment bracket (14) is placed, while a chamber (39) has been prepared in the inside angle formed by the wings of the outside basic section (3) being described, said chamber (39) being defined between the horizontal (40) and vertical (41) walls and inside the said chamber (39) the location of the fixing bracket (15), held in place by means of the use of several countersunk screws (16).

4. Metal joinery frame system as per the preceding claims characterized by the fact that the multiple spring catches (2) spaced out along the inside basic section (1) and along its vertical wall (22) form a narrow semi-rectangular cross-section on the upper end of which there is a channel (42) defined between the two walls (43 and 44) the second of which is slightly thicker and higher than the first and containing towards the inside a lip which is anchored in place on the angled overhang (27) belonging to the basic section (1). The lower end of the spring catch (2) is designed to contain a flange (6) which overhangs the general thickness in order to meet up with the notching (4) of the basic section (3) for which it provides anchorage, thus also ensuring the fixation of the spring catch (2) to the basic section (1) by means of the wall (43) inserted into the channel (26).

5. Metal joinery frame system as per the preceding claims characterized by the fact that for the dismantling of the frame the spring catch (2) has been designed with a screw (5) on its inside, inserted in such a way that its head is opposite the vertical wall (22) of the basic section (1) coinciding with another drill hole in which to house the cylindrical head of the said screw (5), while the upper end (20) of the vertical wing also has a small drill hole (46), also located opposite the abovementioned drill hole.

6. Metal joinery frame system as per the preceding claims characterized by the fact that a supplementary section (47) may optionally be inserted in the channel (36) of the basic section (3) and that this supplementary section of variable shape would

constitute the sealing section (11).

7. Metal joinery frame system as per the preceding claims characterized by the fact that the basic section (1) may optionally be defined in two halves, namely the horizontal wing (48) and the vertical wing (49), between which the insulating section (50) is inserted, with opposing channels (51) having been planned in each case on both the left end of the horizontal wing (48) and the upper end of the vertical wing (49) in a semi-dovetail shape, into which the aforesaid insulating section (50) will be anchored, with its more or less rectangular cross-section in which a rib (52) of a medium height has been inserted on one of the sides and towards the centre at the same time as four small overhangs (53) have been defined in its four angles.

8. Metal joinery frame system as per the preceding claims characterized by the fact that the decorative section (9) produced in flexible material contains a fixing base (54) with an inverted-T cross-section at the same time as the seating base (55) of greater width gradually reduces radially in a first section before its sides continue in a gradually converging straight line, with a maximum height at which both sides are finally capped radially, with optionally, the height being reduced at the same time as its central core is cut out in a triangular shape (56).

9. Metal joinery frame system as per the preceding claims characterized by the fact that the sealing section (10) comprises a cylindrical tube of flexible material (57) containing an appendix (58) with a larger radial finish.

10. Metal joinery frame system as per the preceding claims characterized by the fact that the sealing section (11) comprises a cylindrical tube (59) containing an appendix (60) in the shape of an inverted T.

11. Metal joinery frame system as per the preceding claims characterized by the fact that the sealing section (12) comprises a quarter arc (61) from the lower end of which an appendix (62) descends in the shape of an inverted T.

12. Metal joinery frame system as per the preceding claims characterized by the fact that the notching (4) of the basic section (3) and its corresponding vertical wing may optionally form part of a preliminary frame.

Fig. 1

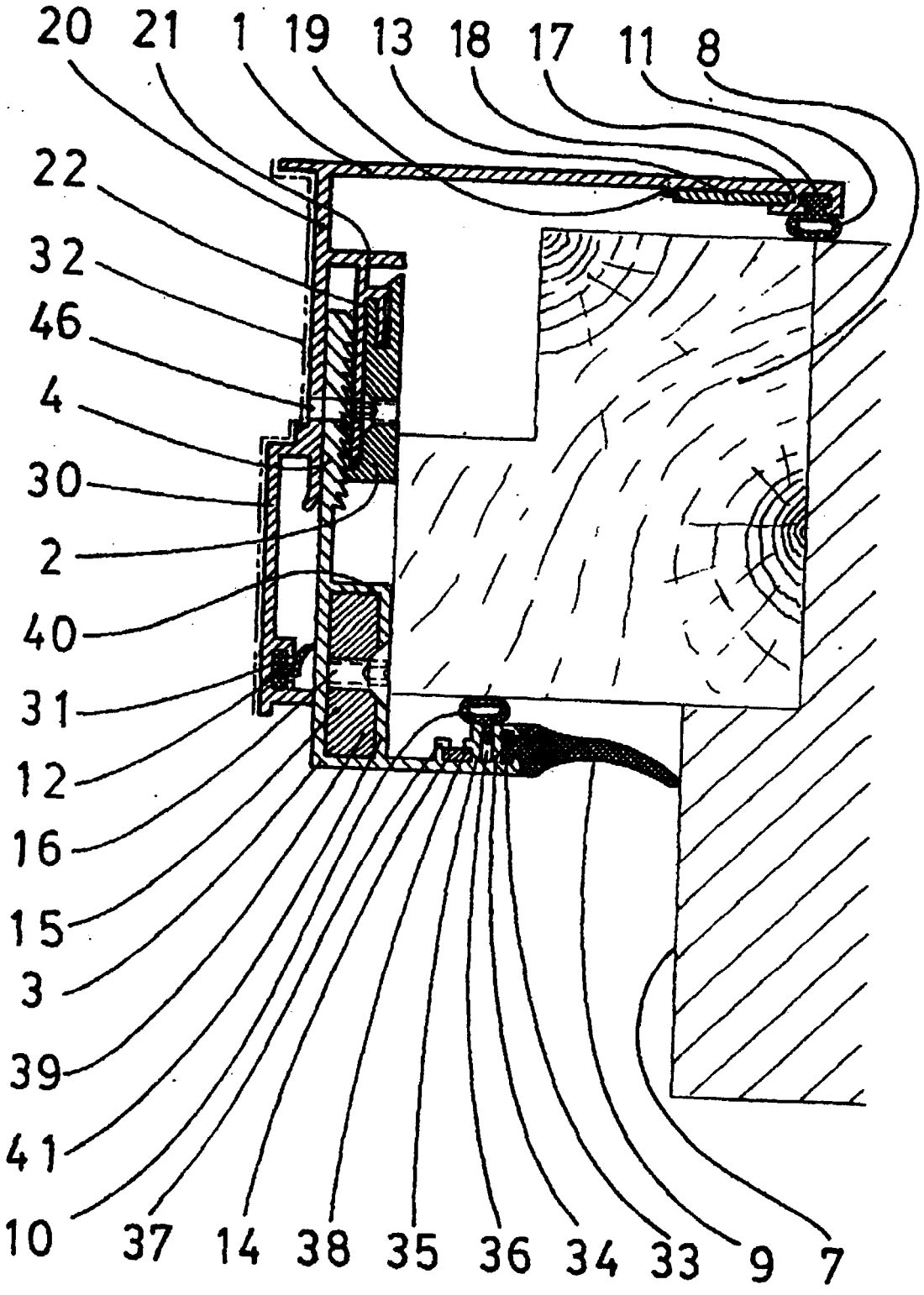

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Fig. 2

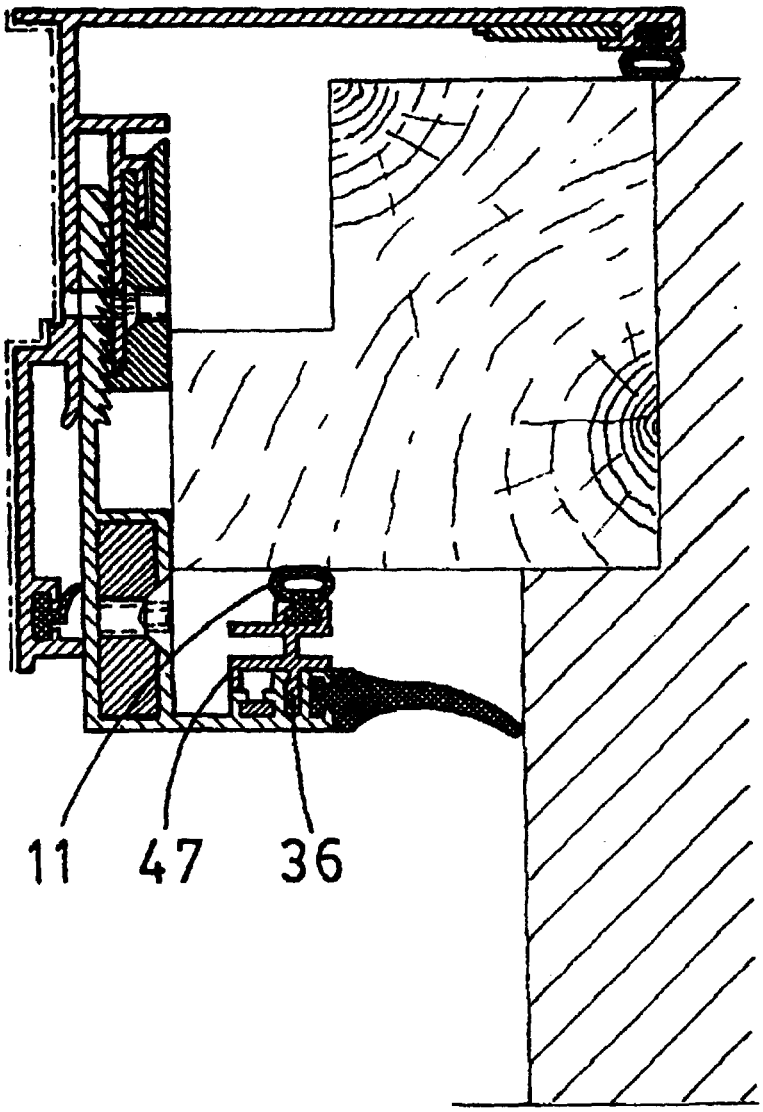
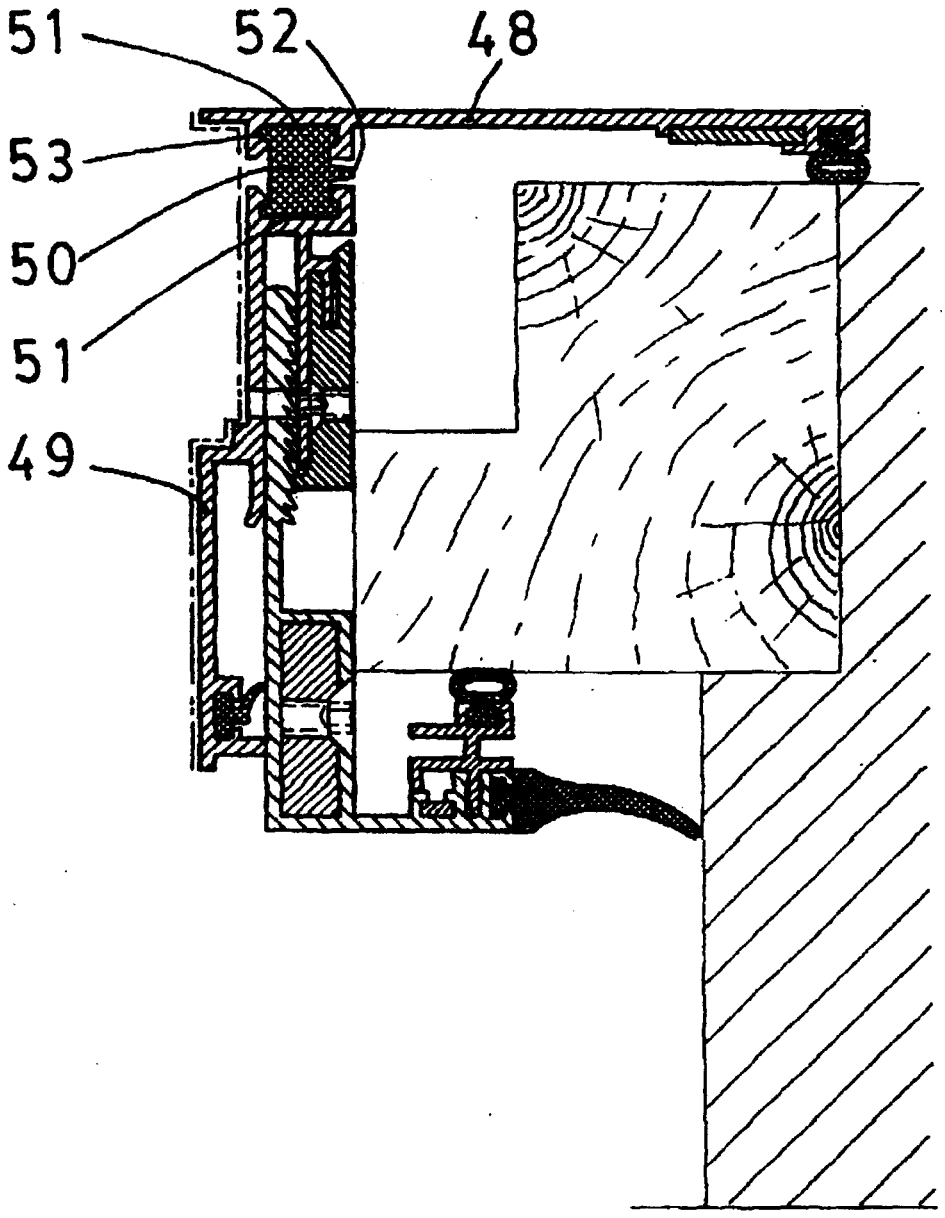


Fig. 3



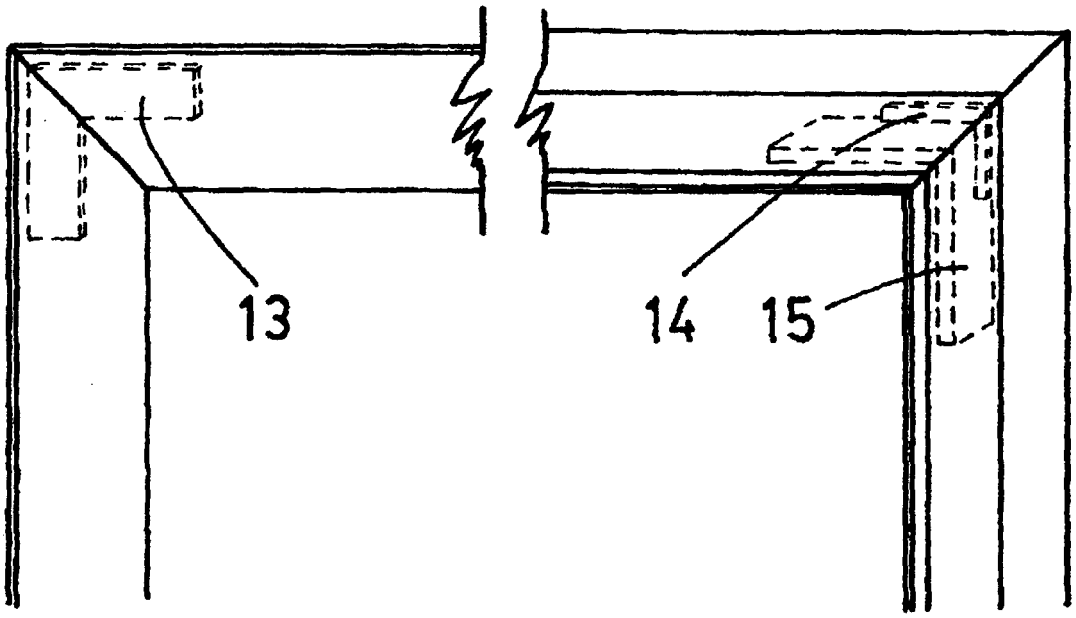


Fig. 4

Fig. 5

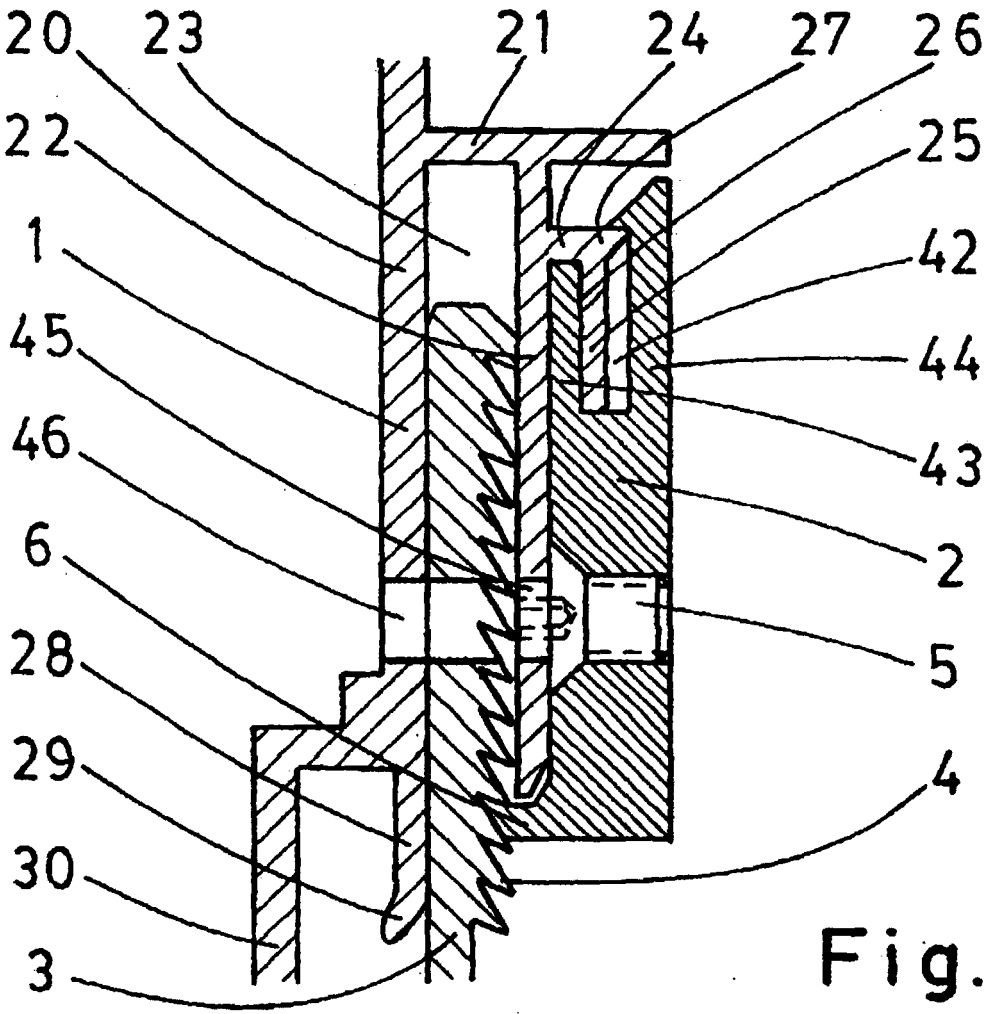


Fig. 6

Fig.7

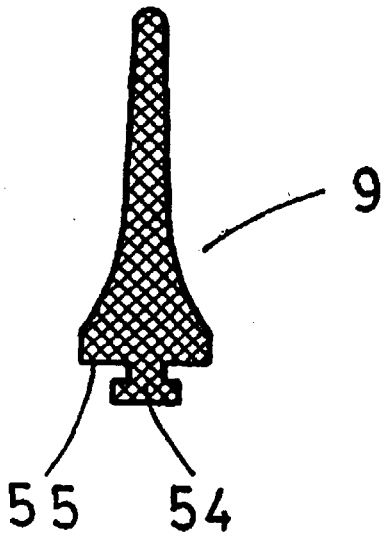


Fig.8

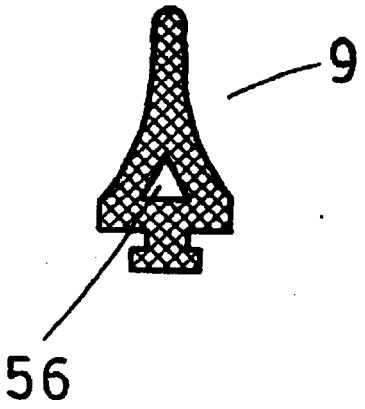


Fig.9

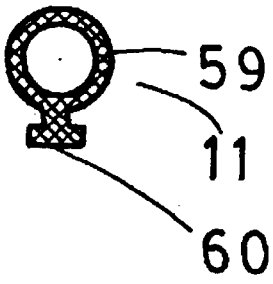


Fig.10

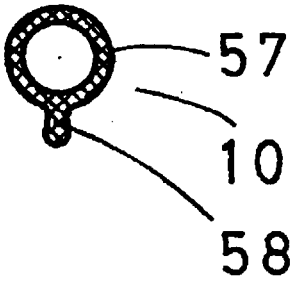
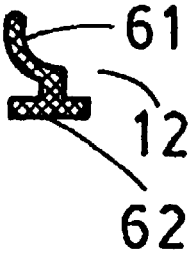


Fig.11



INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 00/00027

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 E06B 1/34, E06B 1/64

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E06B 1/34, E06B 1/62 1/64, ECLA E06B 1/34C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI, MISTRAL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 2524539 A (DYNAMIT NOBEL AG.), 22 December 1976 (22.12.76) abstract and figures	1,2,3,8
A	DE 2338199 A (ALFEMO & BILSTEIN), 06 February 1975 (06.02.75) abstract and figures	1,2,3
A	GB 1437197 A (ALFEMO & H.W.PAHL), 26 May 1976 (26.05.76) page 2, line 115 – page 4, line 52; figures	1,2,3
A	GB 1370532 A (ALFEMO & H.W. PAHL) 16 October 1974 page 2, line 1-97; figures	1,8
A	FR 2719079 A (SEPA) (S.A.) 27 October 1995 (27.10.95) abstract and figures	1,8
A	GB 2109850 A (TECHNAL FRANCE) 08 June 1983 (08.06.83)	1

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
22 May 2000 (22.05.2000)	30 May 2000 (30.05 2000)
Name and mailing address of the ISA/ S.P.T.O. Facsimile No.	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 00/00027

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Form PCT/ISA/210 (extra sheet) (July 1992)