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54 **Frame.**

57 In order to clamp the frame (2) securely to a wall edge (5), the frame (2) has clamps, a gripping bracket (9) whereof has a screwed piece which is connected to two clamping pieces (14).

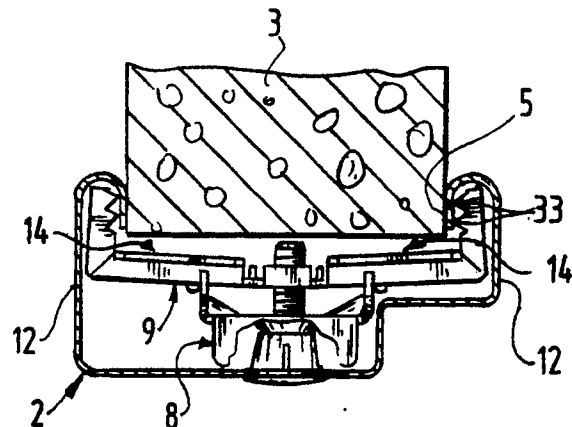


FIG. 4

EP 0 399 590 A2

FRAME

The invention relates to a frame, comprising at least one substantially U-shaped frame profile gripping around a wall edge and at least one clamping device, which clamping device comprises:

- a substantially U-shaped gripping bracket whereof in each case one of two legs clamps on one of the two flanges of the frame profile;
- a bridging piece supporting with two outer ends relative to the gripping bracket; and
- a screw connection acting between bridging piece and gripping bracket.

Such a frame is known from the Italian patent specification 1127936. A deformable gripping bracket is therein welded to a deformable bridging piece. Much force is required to deform the assembly of gripping bracket and bridging piece in principle welded together as a closed tube. Much manual force is therefore needed to effect the required clamping of the frame profile onto the wall edge.

With the stated known frame the gripping bracket and the bridging piece both have a breadth which is slightly greater than the breadth of the wall edge. They occupy a lot of space within the frame profile so that the frame profile must have broad flanges.

The invention has for its object to provide a frame of the type referred to in the preamble wherein a better fixed clamping of the frame profile on the wall edge can be effected with similar or even less manual force. To this end the frame according to the invention has the feature that the gripping bracket has a screwed piece which is connected to two clamping pieces; that the bridging piece is arranged between the frame profile and the gripping bracket; and that the bridging piece grips at an interval from the screwed piece onto the clamping pieces between the screwed piece and the free ends of the clamping pieces.

The invention further provides a frame whereof the frame profile can have narrower flanges because the bridging piece extends only over a length which is situated within the space of a recess of the frame present next to a groove.

With frames it is usual to attach the clamping devices positioned on the frame profiles before they are transported to a building site. To this end the frame profiles are for example deformed close to the clamping devices so that each clamping device is for instance enclosed between two deformations of the frame profile.

The present invention provides a frame wherein additional deformations of the frame profiles for the positioning of the clamping devices are not necessary. For this purpose according to the

invention a frame comprising at least one substantially U-shaped frame profile gripping around the wall edge wherein at least one clamping device is present to clamp the frame profile fixedly onto a wall edge has the feature that the clamping device is provided with a fixing sleeve which fixes the clamping device relative to an operating opening arranged in the frame profile.

Mentioned and other features of the invention will become apparent from the description following hereinafter of embodiments of frames according to the invention.

In the drawings in schematic form:

fig. 1 shows a broken away perspective view of a frame according to the invention;

fig. 2 shows on a larger scale a broken away perspective view of detail II from fig. 1;

fig. 3 and 4 show on a larger scale a section along line III-III from fig. 1 respectively before and after fixed clamping of a frame profile;

fig. 5 shows on a larger scale a perspective view of the disassembled clamping device of the frame of fig. 1;

fig. 6 and 7 show perspective views of the fitted clamping device of fig. 5 viewed in opposing directions;

fig. 8 shows on a larger scale a perspective broken away view of detail VIII from fig. 2 in disassembled state;

fig. 9 shows a section along line IX-IX from fig. 8 in mounted position;

fig. 10 and 11 show sections corresponding with fig. 3 and 4 respectively and relating to another frame according to the invention;

fig. 12 shows a perspective view of the clamping device of fig. 10 and 11;

fig. 13 shows a broken away perspective view of yet another frame according to the invention; and

fig. 14 shows on a larger scale a section along line XIV-XIV in fig. 13.

Fig. 1 shows a frame 1 whereof frame profiles 2 are clamped fixedly to wall edges 3 by means of clamping devices 4.

The frame profile 2 is substantially U-shaped, has two flanges 12 with edges 5 bent over gutter-like and has a groove 6 for receiving a door edge. Adjoining this groove 6 the frame profile 2 has a recess 7 wherein is arranged a bridging piece 8 of a clamping device 4 which also further comprises U-shaped gripping bracket 9 two legs 10 of which grip in the gutter-like edges 5. As shown particularly in fig. 5-7, the bracket 9 has a U-shaped section practically along its entire length and has therefore a considerable bending strength. The

bracket 9 is provided with indentations 12 at the corners. The bracket 9 has three elements, namely a screwed piece 13 and two clamping pieces 14 bent over in an L-shape and mutually connected via two deformable bracket pieces 15 arranged on either side of the screwed piece 13. At the location of these deformable bracket pieces 15 the flanges 17 of the U-shaped bracket profile are cut away while the body 18 has also been subjected to local stamping out 19 at that position.

The body 18 further has two protuberances 20 which serve as stop. The screwed piece 13 has a threaded hole 21. The bridging piece 8 has a middle piece 22 with U-shaped profile and two support pieces 24 which are connected to the middle piece 22 via corners 26 reinforced by hollowed portions 25. The support pieces 24 each have a cut-away portion 27 wherewith they grip freely pivoting around the U profile-shaped clamping pieces 14 and therein stop against the protuberances 20.

From the outside a socket head screw 30 is inserted through a central hole 31 of the middle piece 22 and screwed into the threaded hole 21. As fig. 3 and 4 show, the gripping bracket 9 is deformed by tightening the socket head screw 30 and by deformation of the deforming pieces 15 so that clamping pieces 14 optionally provided with teeth 33 clamp the edges 5 fixedly against the wall edge 3 with considerable force. The portions of the clamping pieces 9 adjoining the deforming pieces 15 further have extra reinforcing edges 34.

As is to be seen in fig. 3, 4, 8 and 9 the socket head screw 30 can be accessed with a hexagonal spanner via an operating opening 36 of the frame profile 2 wherein is arranged a fixing sleeve 37 of elastic plastic. The fixing sleeve 37 has a groove 38 for receiving the edge 39 of the operating opening 36 and further axial slits 40 for deformation during assembly.

When the clamping device 4 is pushed with the socket head screw 30 onto its position opposite the operating opening 36 the fixing sleeve 37 is pushed into the operating opening 36 by deforming this radially, making use therein of the conical outer surface 43, while the head 44 of the socket head screw 30 falls into the internal conical bore 45. The frame profile 2 is transported to the building site with the thus positioned clamping device 4. After clamping the frame profile 2 in place on a wall edge 3 the fixing sleeve 37 is closed off by means of a cover 47 of elastic material, the edge 48 whereof clamps behind an inner edge 49 of the fixing sleeve 37.

The embodiment of the clamping device 54 in fig. 10-12 is identical to the clamping device 4, with the understanding that with the clamping device 54 practically the entire space of the recess 7 adjoin-

ing the groove 6 is used for accommodating the bridging piece 58, which has a greater length. In the clamping position the long bridging piece 58 can support over a considerable length against the inner side of the frame profile 2. The screwed piece 13 has a rolled screw thread and is deformable around the screw 30. The clamping pieces 14 of the gripping bracket 59 are reinforced with a pressed recess 61 running over the bend 60.

The frame profile 2 in fig. 10 and 11 has an S-shaped edge 63 with an anchoring edge 64 penetrating into the surface of the wall edge 3. The fixing sleeve 66 has elastic, outward protruding clip hooks 67 which grip behind a hole edge 68.

In the use of the clamping device 4 the flanges 12 of the frame profile 2 do not have to be broad because the inner space of the frame profile 2 is well utilized so that considerable variations of the size of the door opening of the wall can be accommodated in the window profile 2 as a wall edge 3 penetrating to a greater or lesser extent into the clamping device 4.

The clamping device 74 in fig. 13 has two separate clamping pieces 75 and 76 which hook into one another by means of a hinge 77 and are swivelled toward one another by means of a socket head screw 30 for clamping a frame profile 2 to a wall edge. The socket screw head 30 is again enclosed in a conical bore 45 of a fixing sleeve 37.

Claims

1. Frame (1), comprising at least one substantially U-shaped frame profile (2) gripping around a wall edge and at least one clamping device (4), which clamping device (4) comprises:

- a substantially U-shaped gripping bracket (9) whereof one of two legs (10) grips in each case onto one of the two flanges (80) of the frame profile (2);

- a bridging piece (8) which supports with two ends (24) relative to the gripping bracket (9); and

- a screw connection (30) acting between bridging piece (8) and gripping bracket (9),

characterized in that the gripping bracket (9) has a screwed piece (13) which is connected to two clamping pieces (14);

that the bridging piece (8) is arranged between the frame profile (2) and the gripping bracket (9); and that the bridging piece (8) grips at an interval from the screwed piece (13) onto the clamping pieces (14) between the screwed piece (13) and the free ends of the clamping pieces (14).

2. Frame (1) as claimed in claim 1, **characterized in that** at least one of these clamping pieces (14) is connected via a deformable bracket piece (15) to the screwed piece (13).

3. Frame (1) as claimed in claim 1 or 2, **characterized in that** the bridging piece (8) extends only over a length lying within the space of a recess (7) of the frame profile (2) present adjoining a groove (6).

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4. Frame (1) as claimed in claim 1, 2 or 3, **characterized in that** the screwed piece (13) is connected on either side to a clamping piece (14) via a deformable bracket piece (15).

5. Frame (1) comprising at least one substantially U-shaped frame profile (2) gripping around a wall edge (3), wherein at least one clamping device (4) is present for clamping the frame profile (2) fixedly onto a wall edge (3), **characterized in that** the clamping device is provided with a fixing sleeve (37) which fixes the clamping device (4) relative to an operating opening (36) of the frame profile (2).

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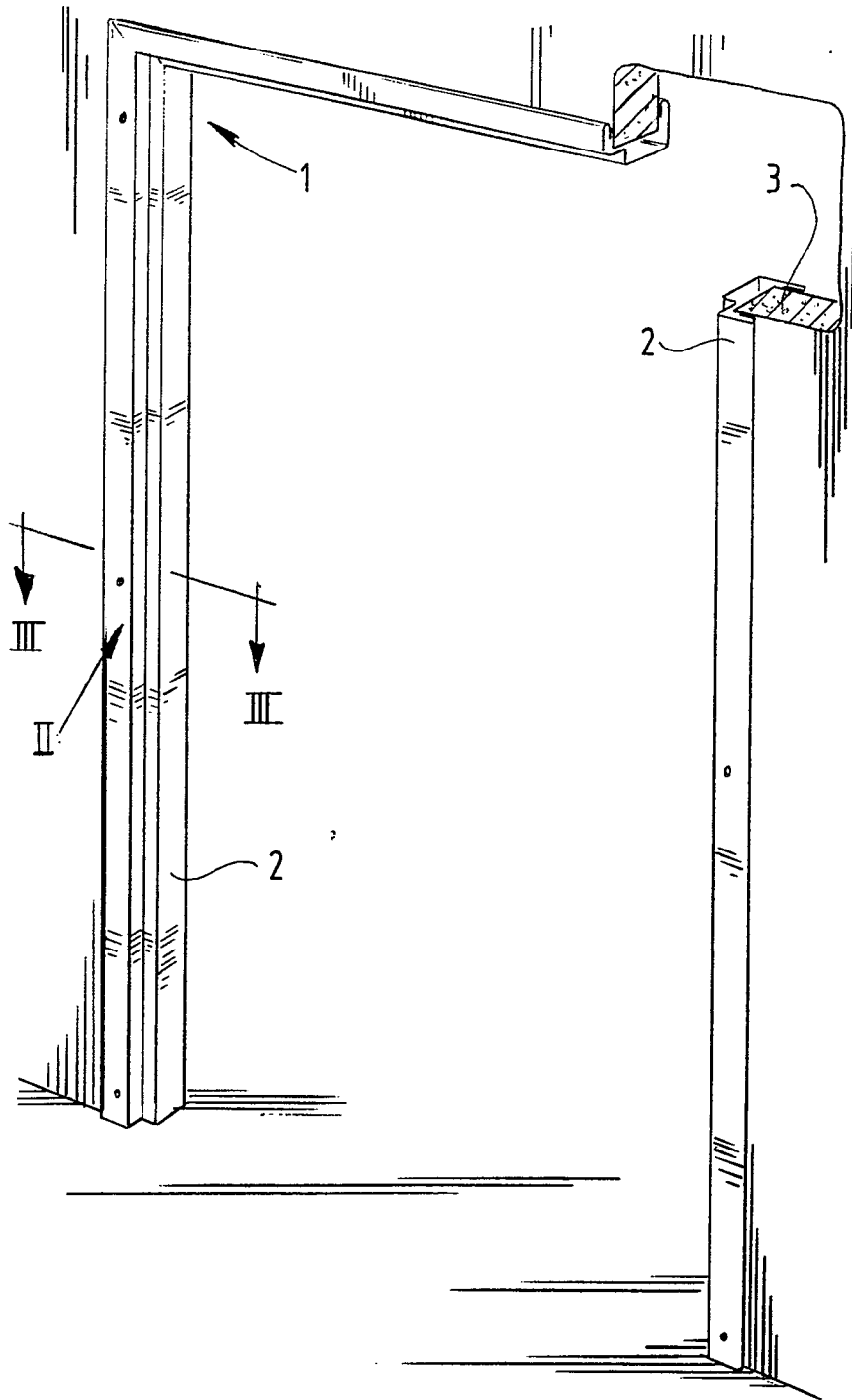


FIG.1

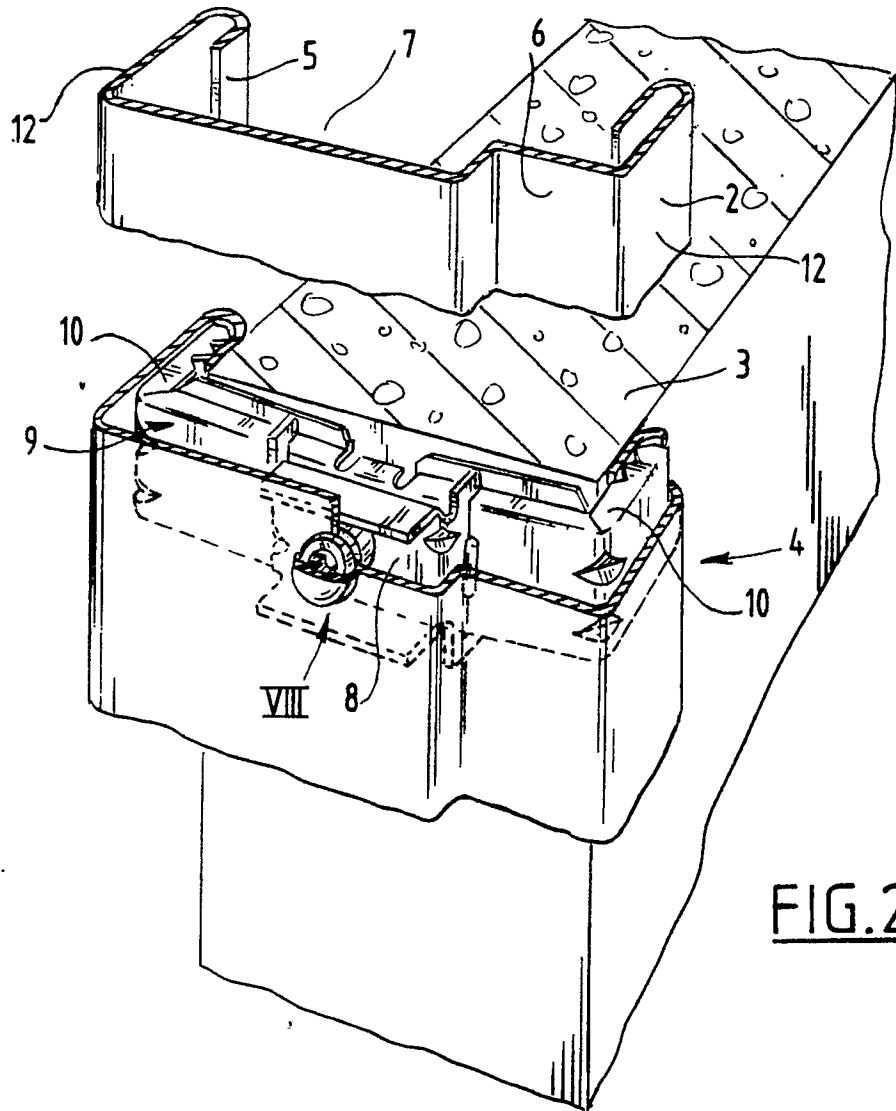


FIG. 2

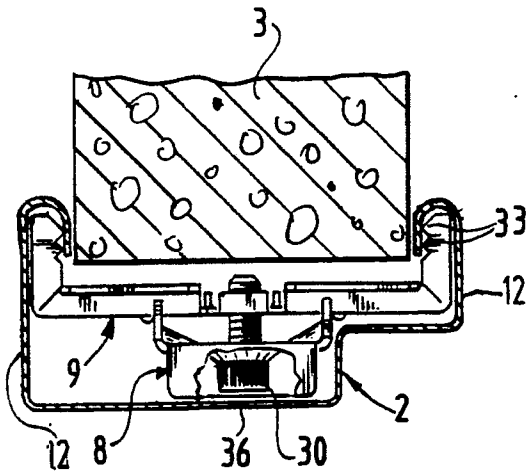


FIG. 3

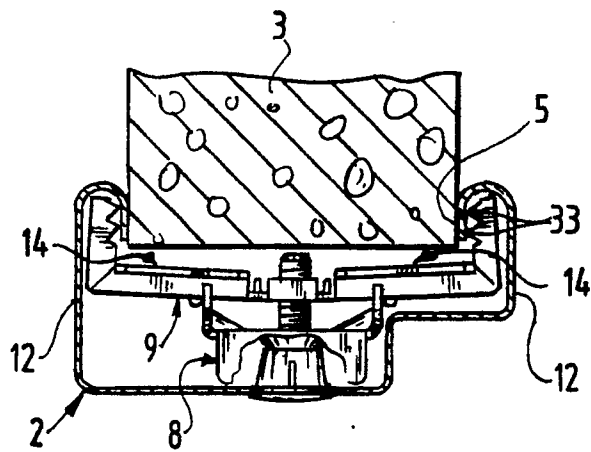
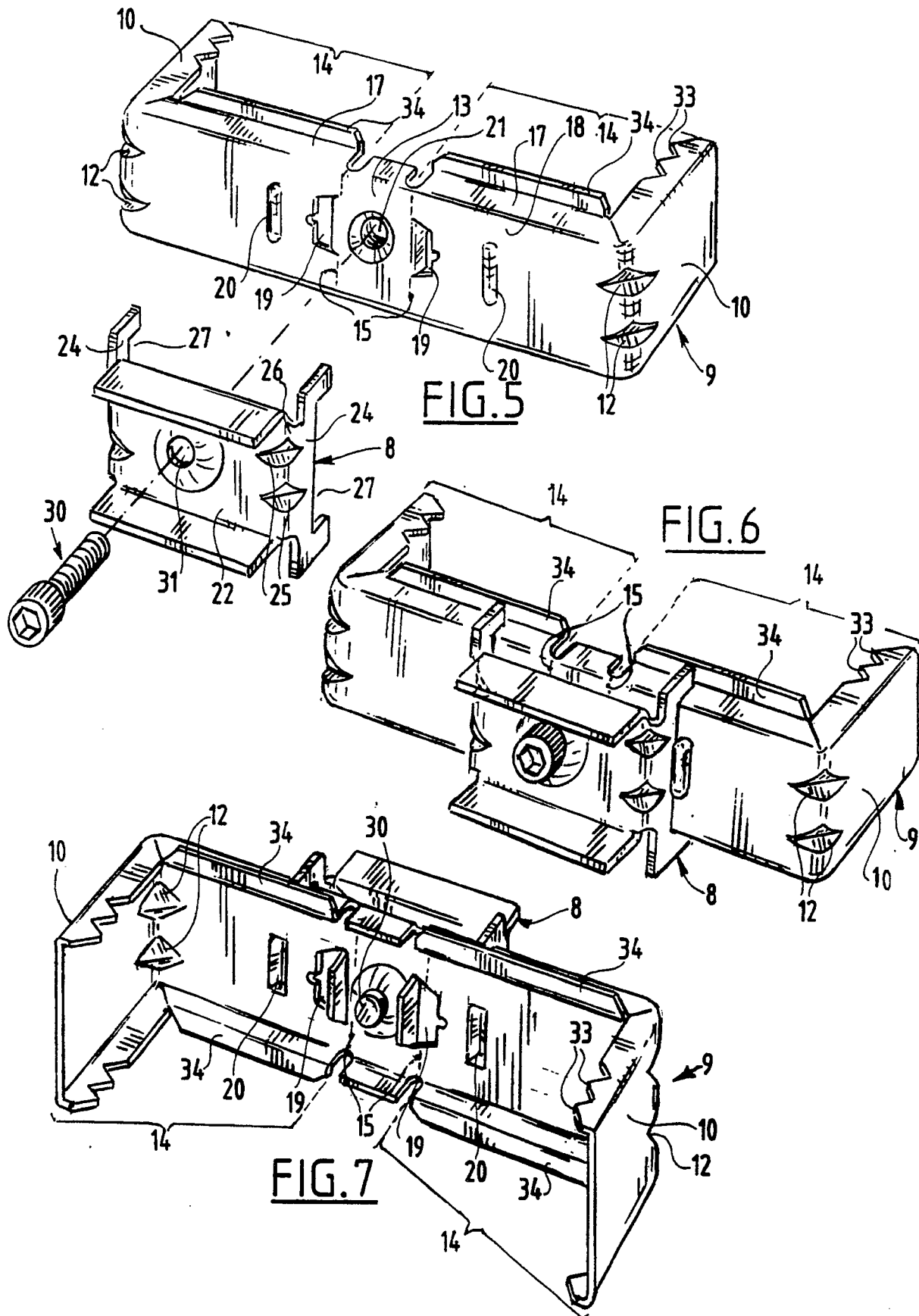


FIG. 4



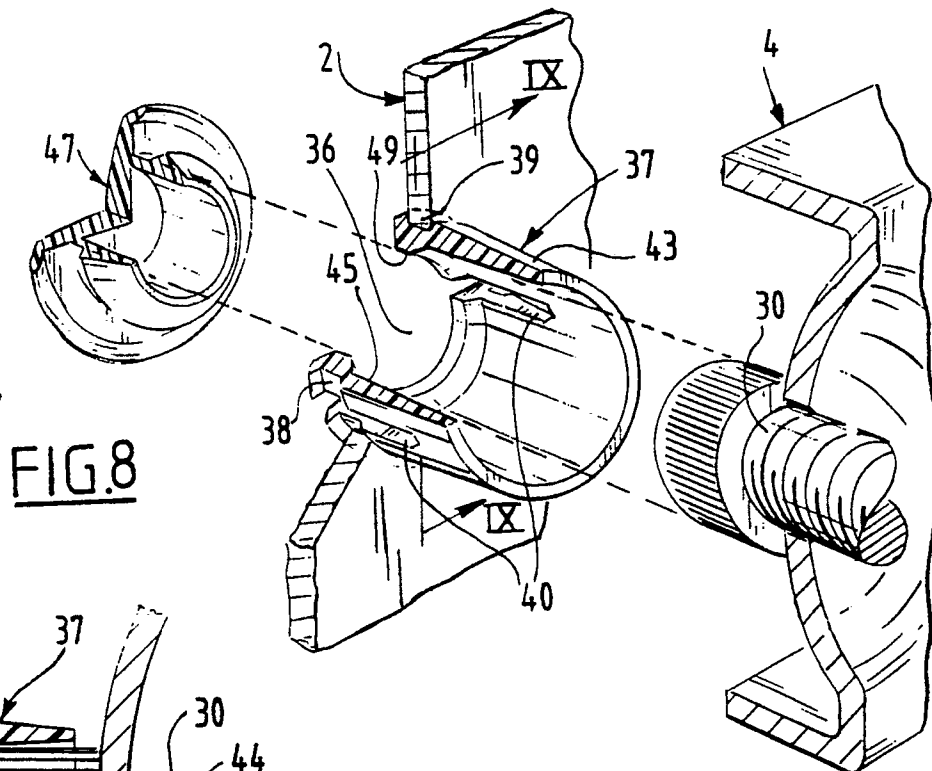


FIG. 8

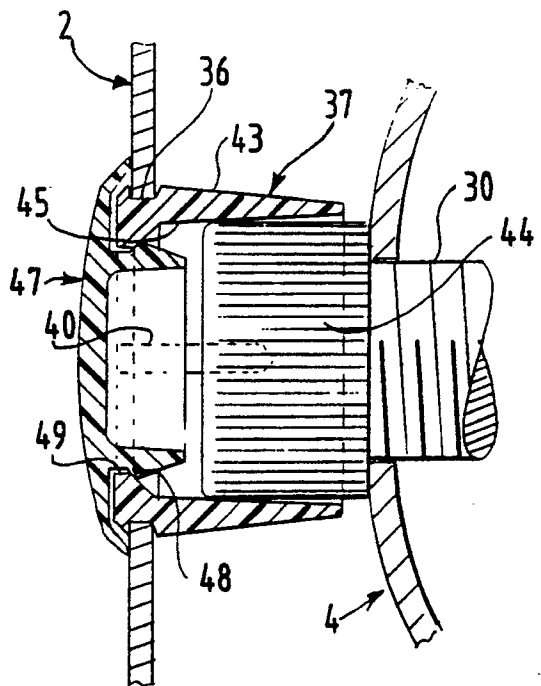


FIG. 9

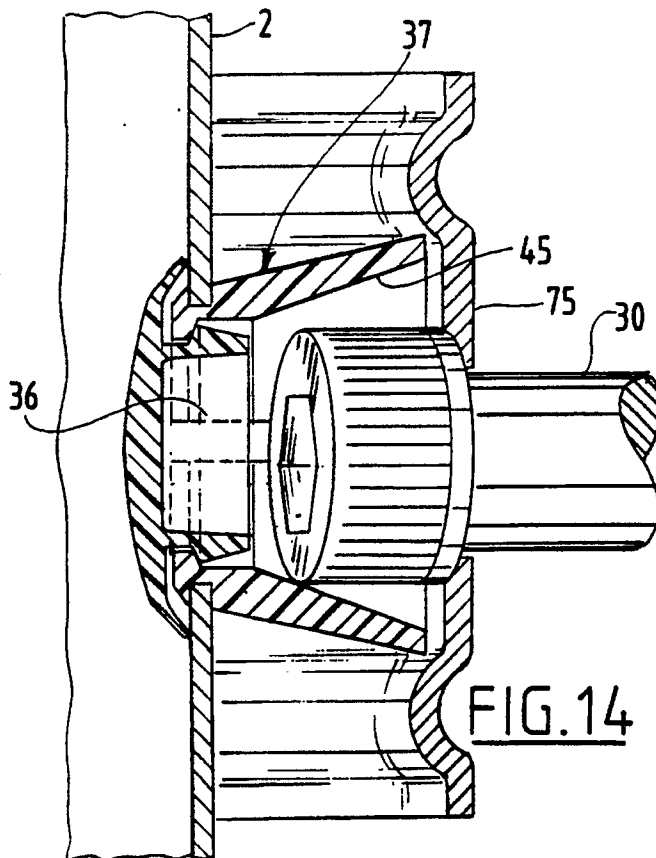


FIG. 14

FIG.10

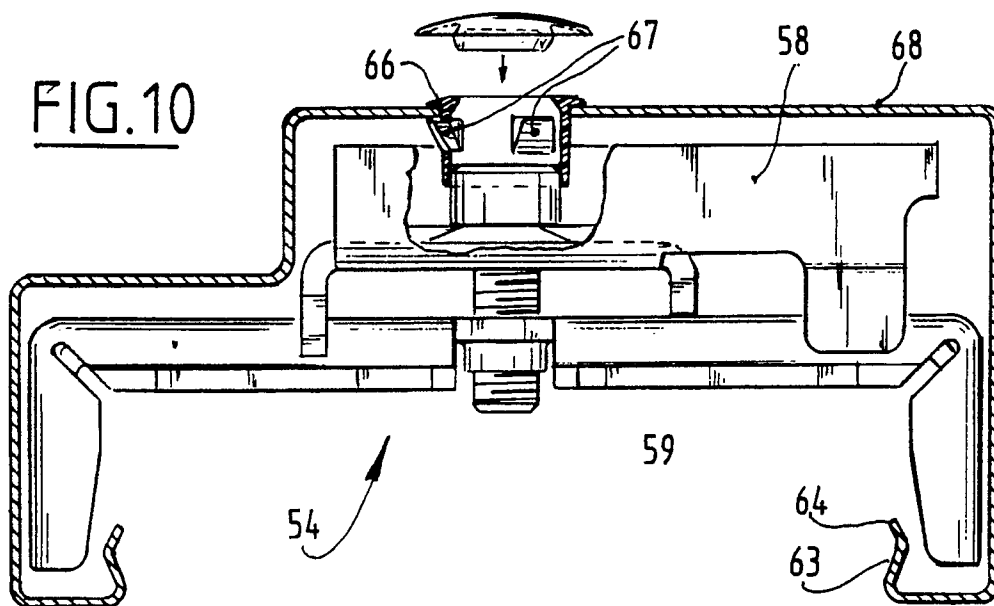


FIG.11

