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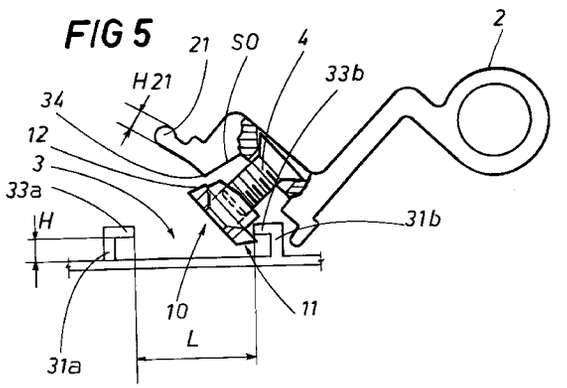
(54) Anchoring element for metal fittings.

(57) The anchoring element (1) for metal fittings can be used to secure an accessory (2) to a metal profile (30) with a seat defined by two moulded trims (31a, 31b), creating a "C"-shaped profile (3) ; the base of the accessory consists of two parts (21, 22) which extend lengthways, [the height (H21) of the first (21) not exceeding the height (H) of the profile (3) and designed to be inserted in the seat (3) and] defining an oblique internal angle (SO) with an edge (34) ; the anchoring element (1) has a first tooth (11) whose height (H11) does not exceed that of the profile (3) ; the anchoring element (1) has, on the side opposite the first tooth (11), an angled surface (P1), to be fitted against the oblique surface (SO), and a second tooth (12) which fits against the oblique surface (SO) ; the element (1) corresponding to the first tooth (11) has a bevel (13) to allow the element (1) to be inserted in the seat (3), by inserting the first tooth (11) beneath the second tab (33b), then inserting the lower section (21) of the accessory (2).

FIG 5



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The present invention relates to an anchoring element for metal fittings, which can be used to secure accessories or parts to the metal profiles of fittings, for example, the hinges which connect the fixed frame to the mobile frame.

Attachment of the said parts to the structure of the fixed and mobile frames on metal fittings is one of the factors which considerably increases the costs relative to the installation of this type of fitting, in terms of both the time and care required for such operations.

This problem is more evident in those cases in which, for example, the fittings open inwards/outwards only, where attachment of the hinge is a major part of the fitting installation operation as a whole.

The two halves of the hinge are normally fixed, one on the fixed frame and the other on the mobile frame, directly on the metal profiles which form the two frames using self-tapping screws. Such a solution is unsuitable, since the mobile wing cannot be adjusted once fitted and, moreover, heavy wings are not provided with sufficient support.

Another method envisages working on the profile to allow the hinge to be fitted, by making two through-holes in the former and inserting in these holes screws to be tightened in plugs on the inside of the profile, that is to say, on the side of the profile opposite that facing the half-hinge; however, this solution requires, above all as regards the fixed frame, working to be carried out before installing the frame in the door or window light.

A further variation is the use, for fixing the hinge to the frame of the fitting (even after installation of the fixed frame) of grooves formed by parallel pairs of trims or mouldings on the metal profiles, with tabs which protrude towards each other; the said trims or mouldings forming a kind of channel with a "C"-shaped cross-section, the shorter sides forming symmetrical, opposing "L"-shaped sections. This solution uses a "conventional" type of plug, which can be attached using screws to a particular type of hinge, with shaped lower section designed to fit into a corresponding section of the plug, on a convex surface; gradual tightening causes the plug to slide along the convex surface, so that a longitudinal portion of the plug, then a portion of the hinge base are inserted in the two "L"-shaped sections.

This solution, although allowing hinges to be fitted to frames with channels of different shapes, necessitates the use of a particular hinge designed for the profile in question; with this method, use of the majority of hinges is impossible, as is use of parts in general which employ the same fixing method, since such parts or accessories do not normally have the said convex surface.

Moreover, profiles from different series vary in size, in the sense that the depth and width of the afore-mentioned "C"-shaped channels differ in the various series of profiles; the said difference in size is very important, since it affects not only the distance between the two trims or mouldings which define the channel, but also the distance between the said opposing tabs (that is to say, the "L"-shaped end section of the "C"-shaped channel). For such reasons, the profiles are divided into series marked and named with the said distances, which, for example, may vary from a series that envisages the distance between the trims as 14 mm and the distance between the tabs as 10 mm, and a series which envisages the values 18 and 14 mm respectively for the said distances.

These differences in profile series are not borne well by the connections between the two sections of the plug-half hinge accessory; in the sense that the said connections are "rigid", so that the plugs and hinges are generally "dedicated" to one type of profile only, and cannot be used on other profile series.

The object of the present invention is, therefore, to overcome the drawbacks mentioned above.

The present invention, as described in the claims, resolves the problem of providing an anchoring device for metal fittings, which can be used with accessories or parts to be attached to profiles, without requiring that the accessories have a particular shape, allowing metal profiles of various sizes to be fitted with an anchoring element for metal fittings, which can be used to secure an accessory to a metal profile with a seat defined by two trims forming a "C"-shaped profile; the base of the accessory consists of two parts which extend lengthways, the height of the first not exceeding the height of the profile and designed to be inserted in the seat, defining an oblique internal surface with an edge; the anchoring element has a first tooth, whose height does not exceed that of the profile; the anchoring element, on the side opposite the first tooth, has an angled surface, designed to fit against the oblique surface, and a second tooth which fits against the oblique surface; the part corresponding to the first tooth has a bevel, to allow insertion of the element in the seat, by inserting the first tooth under the second tab, then the lower section of the accessory.

One of the advantages of this anchoring element is that it can be used on profiles of different sizes, without requiring parts specially designed for the specific dimensions of the profile to which it must be fitted. A further advantage is the fact that the accessories or parts can be fitted to the frame even after it has been installed.

The advantages and specifications of the present invention will now be described in detail, by way of example, with the aid of the accompanying drawings, in which:

- figures 1 and 2 are, respectively, a perspective schematic front and side elevation of the present invention;
- fig. 3 is a perspective schematic front view of

the invention, positioned to allow the attachment of an accessory;

- fig. 4 is a schematic plan view of the invention, with certain parts omitted better to reveal others, two sections of the profile to which two half accessories are fitted using two anchoring elements made according to the present invention;
- fig. 5 is a partial schematic plan view, illustrating a half-hinge as it is fitted to a profile using an anchoring element made according to the present invention;
- fig. 6 is a schematic plan view with certain parts omitted better to reveal others, illustrating an example of the present invention, attached to a half-hinge, on a profile, upon completion of installation;
- fig. 7 is a schematic front view with certain parts omitted better to reveal others, illustrating an example of the present invention, attached to a half-hinge, following fitting on a profile;
- fig. 8 is a schematic plan view with certain parts omitted better to reveal others, illustrating two secticns of a profile, to which two half accessories are attached using two anchoring elements, providing a further example of the application of the present invention;
- figures 9 and 10 are schematic plan views with certain parts omitted better to reveal others, and with enlarged details, providing further examples of the application of the present invention.

With reference to the accompanying drawings, the invention relates to an anchoring element 1 for metal fittings, which can be used to attach an accessory or part 2 to a metal profile 30 on the fitting.

The accompanying drawings illustrate examples of use with a hinge 2 consisting of two halves; obviously, if the accessory to be fitted to the profile is of different length, the length of the element 1 will vary, depending on requirements.

The profile 30 has at least one lengthways seat 3, defined by two parallel, opposing trims 31a, 31b with "L" or "T"-shaped profile, each having at least one tab 33a, 33b which protrudes in the direction of the opposite trim 31b, 31a. This creates a "C"-shaped profile or seat 3, whose width L is the same as the distance between the trims 31a, 31b and height H is the same as the height of the trims themselves.

The accessory or part 2, in this case a half-hinge, has a base consisting of two parts 21, 22 which extend lengthways creating a concave section C, the height H21 of the first 21 not exceeding the height H of the profile 3, designed to be inserted in the seat 3 beneath a first tab 33a and defining an oblique internal surface SO with an edge 34.

In the examples illustrated in figures 3, 4 and 5, and in the half-hinge shown at the top of figure 8, the height H21 of section 21 does not exceed the height H of the profile 3, said section 21 to be inserted in the seat 3, beneath a first tab 33a.

In the example illustrated by the lower half-hinge in figure 8, section 21 is only partially inserted in the seat 3; in the drawing, the seat 3 is shown to the left of the tab 33a which is represented by a continuous or broken line to illustrate respectively the greater or lesser width of the seat 3.

Screws 4 are envisaged for bringing together the element and the accessory 2, and are inserted in corresponding seats 41 with complementary threading on the element 1 and accessory 2, and passing through the holes 24 in the accessory 2.

The length and configuration of the anchoring element 1 is largely cuneiform, with an upper surface 9 designed to fit against the accessory 2 and a lower surface or base 10 to be fitted against the section of profile which lies between the two trims 31a, 31b.

The anchoring element has a first tooth 11, which extends crosswise and lengthways along the anchoring element 1, with height H11 not exceeding that of the profile 3.

On the side opposite the first tooth 11, the anchoring element 1 has an angled surface P1, designed to fit against the oblique surface SO of the hinge 2, the angle of P1 complementing that of the oblique surface.

The angled surface P1 of the anchoring element 1 has an angled profile, shaped to define a second tooth 12, designed to fit against the aforementioned oblique surface SO of the accessory 2.

Moreover, corresponding to the first tooth 11, the element has a bevel 13 which extends along the length of the anchoring element 1, designed to allow insertion, as illustrated in figure 5, of the element 1, loosely attached to the accessory 2, in the seat 3, by inserting the first tooth 11 beneath the second tab 33b, then said first lower section 21 of the accessory 2.

On the upper surface 9, corresponding to an edge 15 which marks the top of the angled surface P1, the element 1 has a second bevel 14, which extends lengthways along the anchoring element 1, intended to allow said upper surface 9 to be angled without interfering with the accessory 2, when the first tooth 11 is inserted beneath the second tab 33b.

As can be seen in figures 1, 3 and 7, the anchoring element 1 can be fitted with a pair of appendages or tabs 16 which extend lengthways on the external face of the element itself, their length approximating to the distance L between the element 1 once positioned on the fitting and a section 39 of the fitting 30 itself, the tabs designed to allow precise positioning by resting the free end of one of said tabs 16 on the section 39 of fitting. In those cases in which the accessory to be fitted cannot make direct contact with

the fitting, for example, when, as illustrated in figure 7, there is a seal 38 which should not be adjusted corresponding to the lower traverse, the tabs 16 allow correct positioning of the element 1, by simply attaching the element to the profile 30.

Each of the said appendages or tabs 16 may have a protruding end 17 set at a right angle to the longitudinal axis A of the anchoring element 1, so as to create a grip for the anchoring element 1 and a means of squaring the position of the element itself on a section 39 of the fitting, which in figure 7 is represented by the lower traverse.

As shown in figures 9 and 10, which have enlarged details of cross-sections of the anchoring element 1, in addition to the example shown in figure 8, the seats 41 for the screws 4 may be set at various angles to the body of the element 1.

In these figures, the accessory is a hinge and the angle of the seat 41 to the base 10 of the element 1 may vary according to the angle α defined, on the hinge 2, by the section 25 nearest to the hinge pivot and the section 26 on which the fixing holes 24 are envisaged.

In the example in figure 10, the angle formed by sections 25 and 26 is equivalent to 90°, therefore, the angle α' formed by the X axis of the seats 41 with respect to the plane formed by the base 10 of the element 1 is a right-angle. In the example in figure 9, where angle β formed by the two sections is greater than 90°, a corresponding angle β' is envisaged between the X axis of the seats 41 and the plane formed by the base 10 of the element 1 (in the example, angle β' is supplementary to angle β). Moreover, in the example in figure 10, the bevel 13 of the first tooth 11 is rounded.

Claims

1) An anchoring element (1) for metal fittings, of the type used to attach an accessory or part (2) to a metal profile (30) on the fitting itself; said profile (30) has at least one seat (3) which extends lengthways and is formed by two parallel, opposing trims (31a, 31b), with "L" or "T"-shaped profile, each having at least one tab (33a, 33b) which protrudes in the direction of the opposite tab (33b, 33a), so that the profile of said seat (3) is approximately "C"-shaped, with width (L) equivalent to the distance between the said trims (31a, 31b) and height (H) equivalent to the height of the trims themselves; said accessory or part (2) has a base consisting of two sections (21, 22) which extend lengthways and form a concave section (C) [the height (H21) of the first (21) not exceeding the height (H) of said seat (3), said section to be inserted in the seat (3) beneath a first tab (33a) and] with one edge (34) forming an oblique internal surface (SO); having screws (4) to bring together the element and the accessory (2); the length and configuration of the anchoring element (1) is largely cuneiform, with an upper surface (9) designed to fit against the accessory (2) and a lower surface or base (10) to be fitted against the section of profile which lies between the two trims (31a, 31b); said anchoring element (1) has a first tooth (11) which extends crosswise and lengthways along the element (1), with height (H11) not exceeding that of the profile (3); on the side opposite the first tooth (11), the anchoring element (1) has an angled surface (P1), designed to fit against the oblique surface (SO) of the accessory (2), the angle of (P1) complementing that of the oblique surface; characterized in that the angled surface (P1) of the anchoring element (1) has an angled profile shaped to define a second tooth (12), designed to fit against the aforementioned oblique surface (SO) of the accessory (2) and, corresponding to the first tooth (11), the anchoring element (1) has a bevel (13) which extends along the length of the anchoring element (1), designed to allow insertion of the element (1), loosely attached to the accessory (2), in the seat (3), by inserting the first tooth (11) beneath the second tab (33b), then said first lower section (21) of the accessory (2).

2) Anchoring element as in claim 1, characterized in that said element (1), on said upper surface (9), corresponding to an edge (15) defining the top of the angled surface (P1), has a second bevel (14) which extends lengthways along the anchoring element (1), intended to allow said upper surface (9) to be angled without interfering with the accessory (2), when the first tooth (11) is insertec beneath the second tab (33b).

3) Anchoring element as in claim 1, characterized in that said anchoring element (1) has a pair of appendages or tabs (16) which extend lengthways on the external face of the element itself, their length approximating to the distance (D) between the element (1) once positioned on the fitting and a section (39) of the fitting (30) itself, the tabs designed to allow precise positioning by resting the free end of one of said tabs (16) on the section (39) of fitting

4) Anchoring element as in claim 3, characterized in that each of the said appendages or tabs (16) has a protruding end (17) set at a right angle to the longitudinal axis (A) of the anchoring element (1), so as to create a grip for the anchoring element (1) and a means of squaring the position of the element itself (1) on a section (39) of the fitting.

5) Anchoring element as in claim 1, in which said screws (4) fit into the seats (41) on the anchoring element (1), and corresponding holes (24) for fixing to the profile are envisaged on a section (26) of the accessory (2), characterized in that said seats (41) extend along an axis (X) which defines an angle (α', β') to said lower surface or base (10) of the anchoring element (1), the function of the angle (α, β) being defined by said section (26) for fixing to the profile to-

gether with an adjacent section (25) of the accessory (2), designed to engage with another accessory which may be attached to it.

FIG1

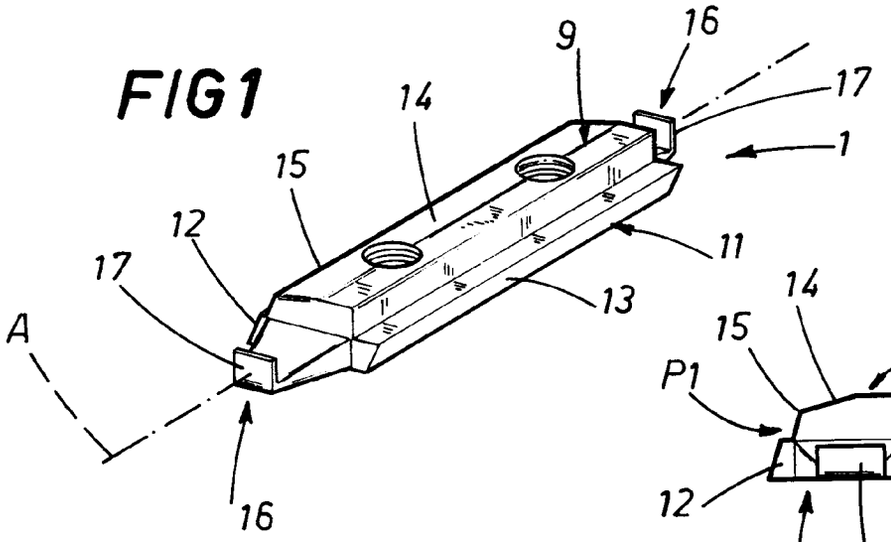
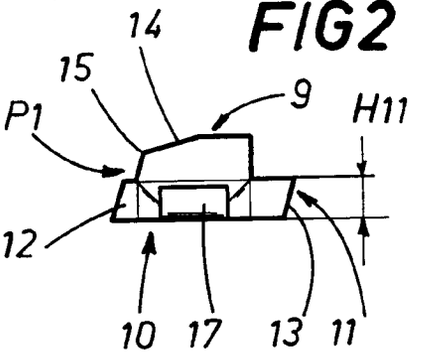


FIG2



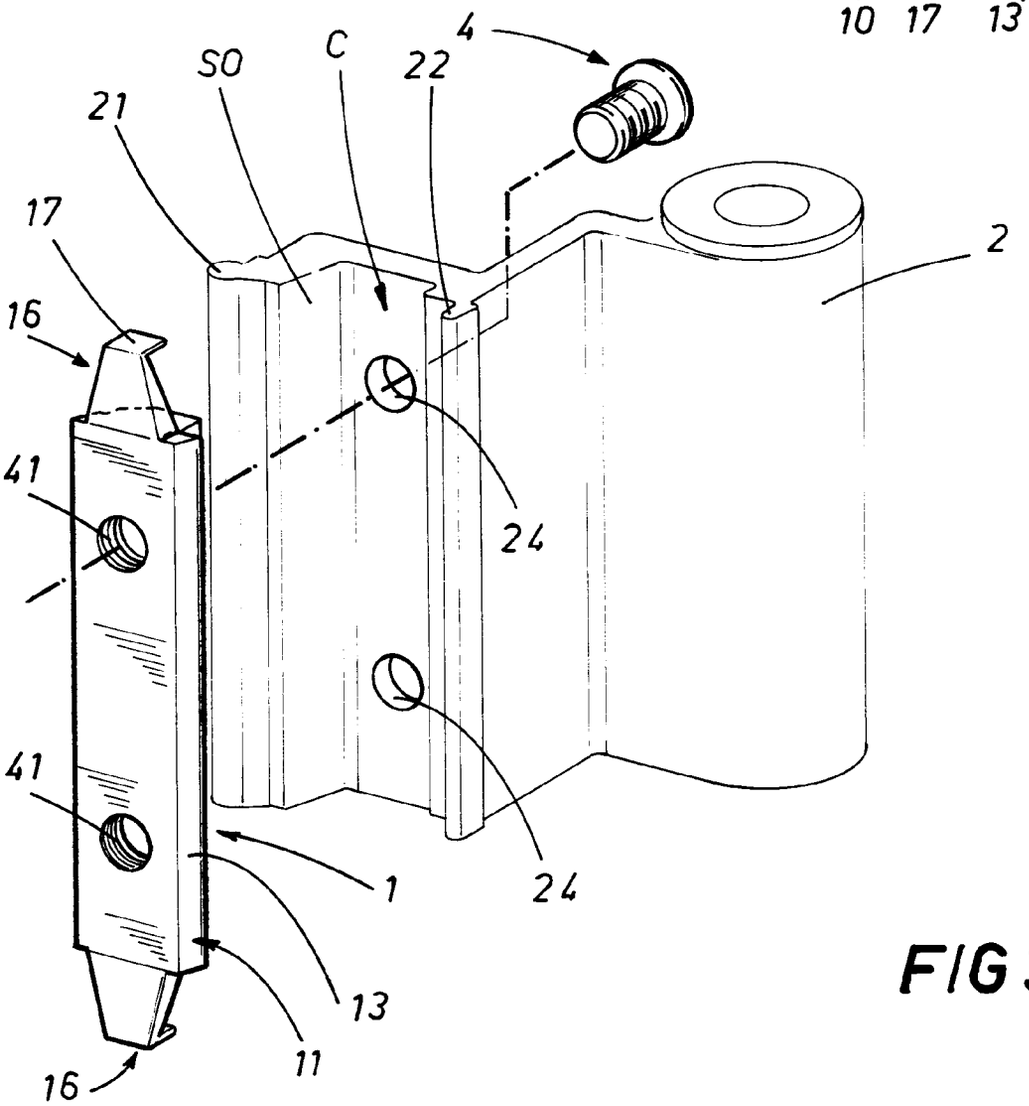


FIG3

FIG 4

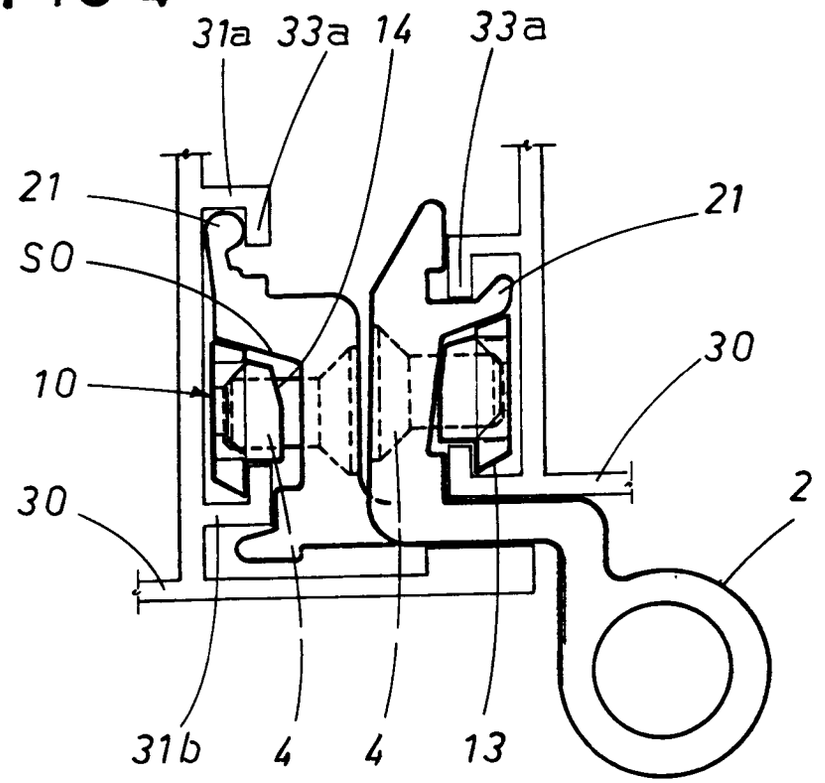
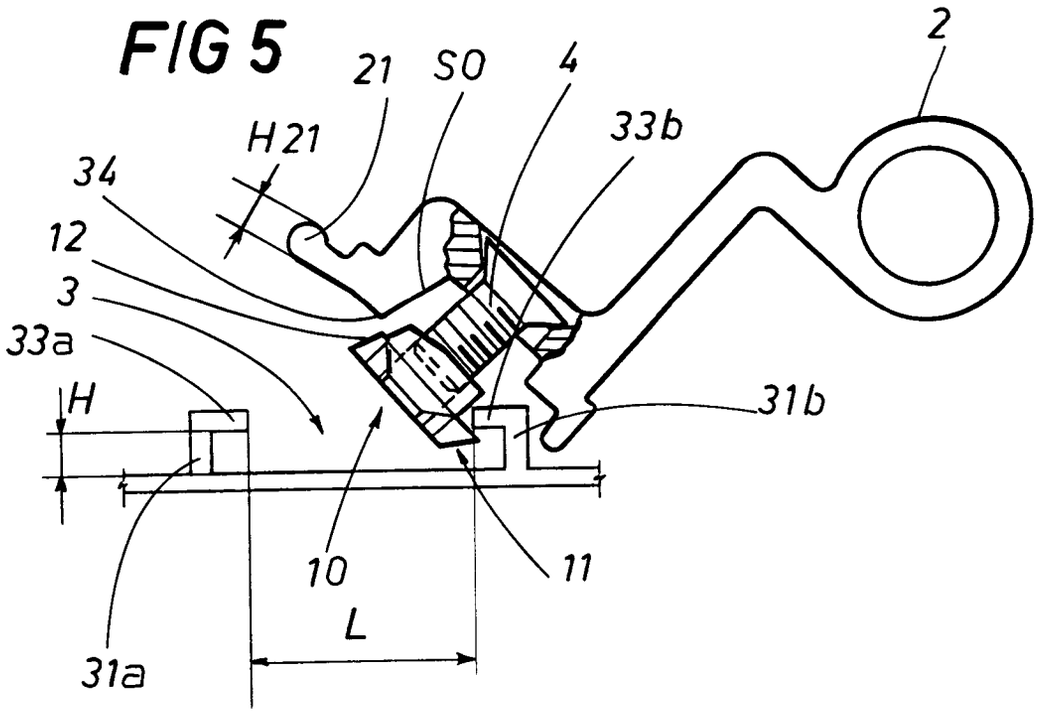

31a
33a
14
33a
21
21
SO
30
10
30
2
31b
4
4
13

FIG 5


2
21
SO
4
H21
33b
34
12
3
33a
H
31b
10
11
L
31a

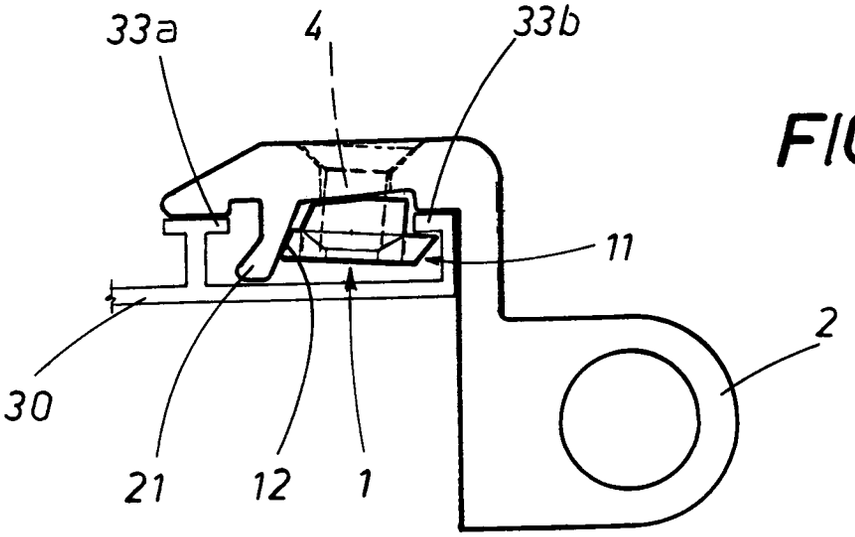


FIG 6

FIG 7

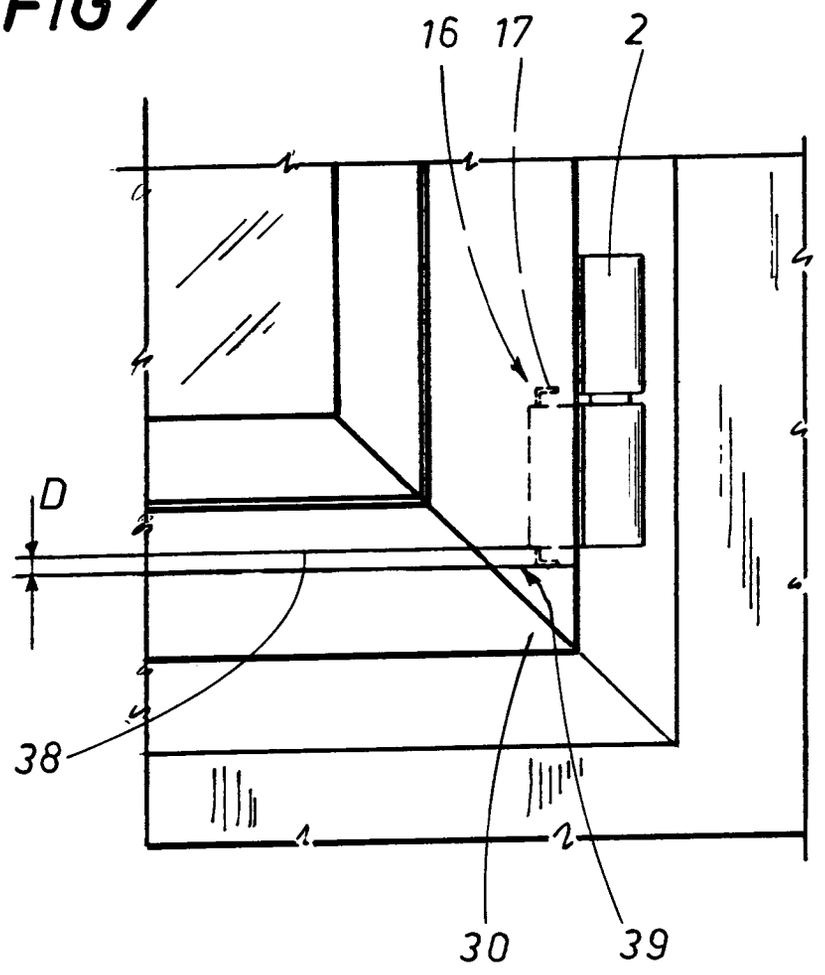


FIG 8

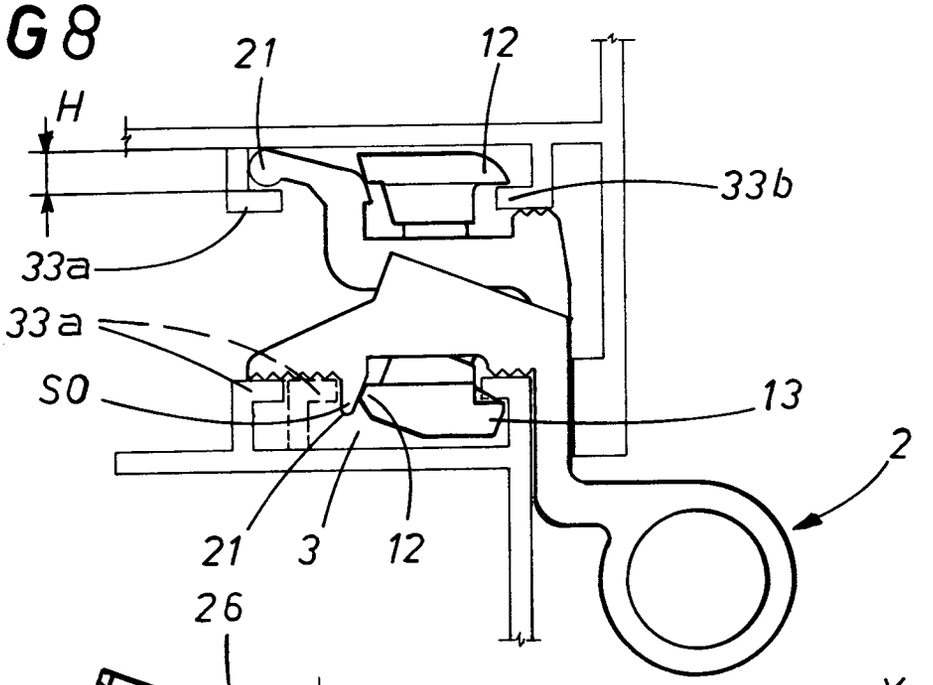
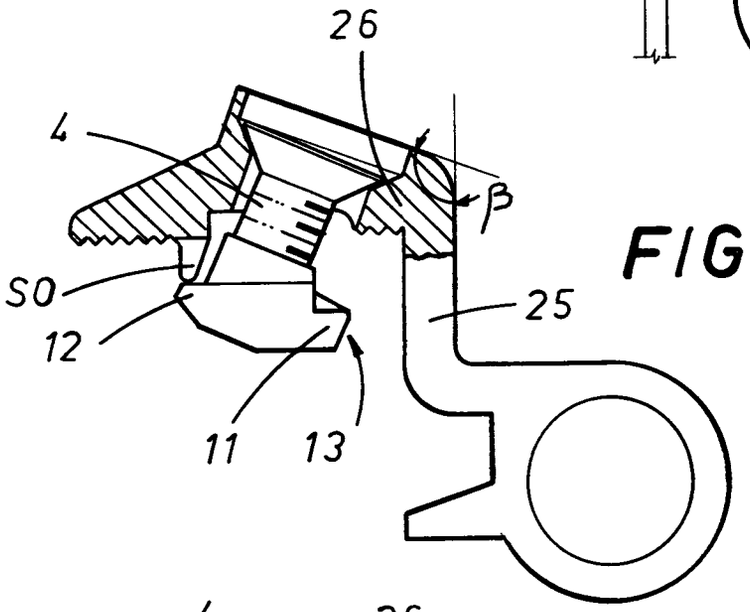


FIG 9



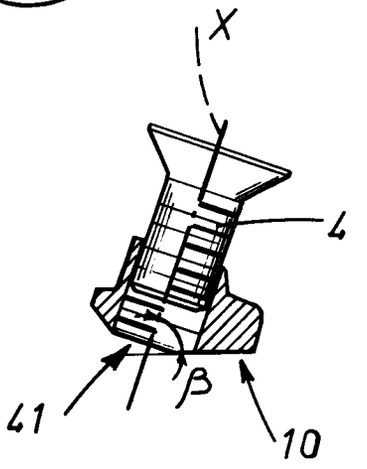


FIG 10