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(54) Auxiliary assembly for guiding the closure of wings of doors, windows or the like

(57) An auxiliary assembly for guiding the closure of wings of doors or windows or the like comprising two brackets (13,16): a first bracket (13) which is associated with an oscillating guiding device (14) which is adapted to catch, during closure, so as to force the lifting of the wing (12) with which it is associated, on a first fixed base element (15) which is associated with a second one (16) of said brackets. The guiding device is composite and comprises a first portion (17), which is fixed to the first bracket (13) and to which a second movable portion (18) is pivoted in a pendulum-like fashion; the second portion (18) has a telescopic variable length and is provided with screw-type length adjustment means (19); elastic pusher means (20) are associated with the first fixed portion (17), have an adjustable direction of action and are adapted to retain in an oblique position, with respect to the plane of arrangement of the wing (12), the second movable portion (18), which in this position is adapted for mating with the first fixed base element (15).

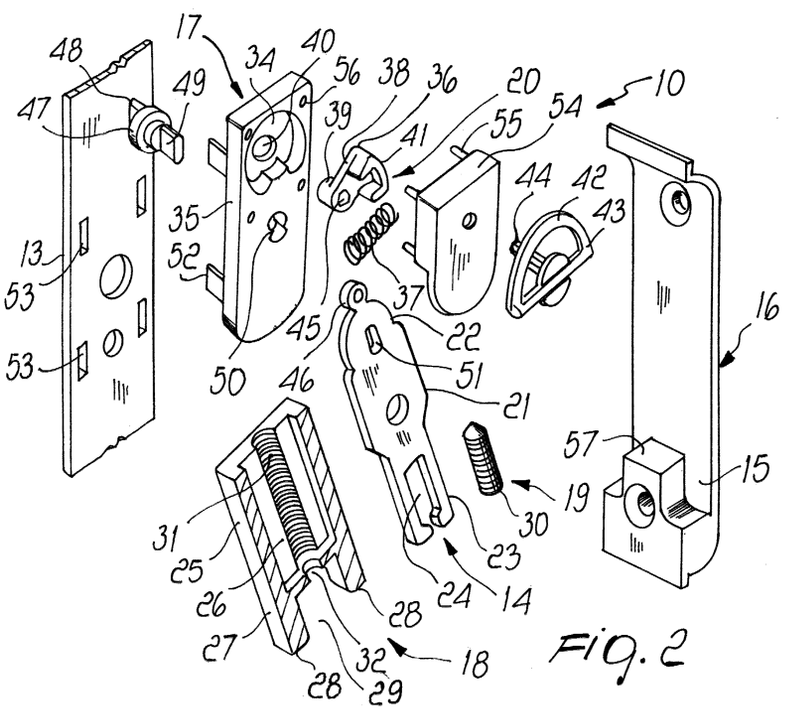

Fig. 2

EP 1 104 833 A2

Description

[0001] The present invention relates to an auxiliary assembly for guiding the closure of wings of doors or windows or the like.

[0002] It is known that casings currently have to achieve very high technical and aesthetic characteristics.

[0003] In particular, extremely precise closure and opening guiding is now required in all steps and in particular during closure in the final portion of the path of the movable wing.

[0004] This is particularly required when the casing is to be installed adjacent to particularly delicate and valuable flooring.

[0005] It is in fact known that over time, in conventional casings, such as doors, French doors or the like, play forms in the hinges and consequently produces the scraping of the lower edge of the movable wing on the flooring.

[0006] One can in fact often notice, proximate to doors, grooves or scrape marks on the flooring, which can be entirely unacceptable in conditions entailing particular aesthetic and styling requirements.

[0007] For this purpose, auxiliary assemblies for guiding the closure of wings of doors, windows, French doors or the like have been devised which comprise substantially two brackets, of which a first one is associated with an oscillating guiding device suitable, during closure, to catch and force the lifting of the wing with which it is associated, and a first fixed base element which is associated with a second one of said brackets.

[0008] Although these devices achieve their intended purposes, they are not free from drawbacks.

[0009] In particular in relation to commercially available devices, adjustments of the length of the movable catching part are rather difficult and in many of such devices it is impossible to manage, during assembly on the part of the operator, the orientation of the direction of the coupling between the device and the fixed base element.

[0010] In particular, such devices force the operator to perform long adjustment operations and force the manufacturer in many cases to provide two separate production lines according to the direction of approach to the base element.

[0011] The aim of the present invention is to provide an auxiliary assembly for guiding the closure of wings of doors or windows or the like which solves the above-noted drawbacks of conventional assemblies, particularly ensuring extreme precision in the closure of the movable wing or wings, without causing in any case the scraping of the wing in the last step of the closure path.

[0012] Within this aim, an important object of the present invention is to provide an auxiliary assembly which can be installed and configured according to both directions of approach to the base element by means of simple operations and equipment available to the operator.

[0013] Another object of the present invention is to provide an auxiliary assembly for which the movable catching part can be adjusted simply, rapidly and precisely by the operator.

[0014] Another object of the present invention is to provide an auxiliary assembly which can be manufactured with structures and shapes which can be adapted to substantially any type of casing, both with a side-hung wing and with a tilt-down wing.

[0015] Another object of the present invention is to provide an auxiliary assembly whose manufacturing costs are competitive with those of commercially available devices having the same functionality and can be manufactured with conventional technologies.

[0016] This aim and these and other objects which will become better apparent hereinafter are achieved by an auxiliary assembly for guiding the closure of wings of doors or windows or the like comprising a first and a second bracket, one fixed to the wing and one fixed to the lock stile, the first bracket supporting an oscillating guiding device which is adapted to catch, during closure, on a first supporting element which is associated with the second bracket, said assembly being characterized in that said guiding device comprises a first portion which is fixed to said first bracket and to which a second portion is pivoted like a pendulum, said second portion having a telescopic variable length and being provided with first screw-type length adjustment means, elastic pusher means being present and associated with said first portion, said pusher elements having an adjustable direction of action and being adapted to normally retain said second portion in an oblique position with respect to the plane of arrangement of the wing.

[0017] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of an embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a perspective view of an auxiliary assembly according to the invention;

Figure 2 is an exploded view of the assembly of Figure 1;

Figure 3 is a partially sectional view of the assembly of Figure 1 applied to a door;

Figures 4 and 5 are two sectional views of part of the device of Figure 1 applied to a door;

Figure 6 is a partially sectional view of part of the device of Figure 1;

Figures 7, 8 and 9 are partially sectional views of the device of Figure 1 in various operating steps;

Figure 10 is a perspective view of the device of Figure 1 in the active step;

Figure 11 is a perspective general view of a door provided with a device such as the one shown in Figure 1.

[0018] With reference to Figures 1 to 11, an auxiliary assembly for guiding the closure of wings of doors or windows or the like, according to the invention, is generally designated by the reference numeral 10.

[0019] In particular, the assembly 10 is applied, in this case, to a window which is generally designated by the reference numeral 11, with a wing 12 provided with a side-hung movement.

[0020] The assembly 10 comprises two brackets: a first one, designated by the reference numeral 13, is fixed to the wing 12, and a second one, designated by the reference numeral 16, is fixed to the lock stile (which can belong to another wing or to the frame).

[0021] The first bracket 13 supports a guiding device, generally designated by the reference numeral 14, which during closure is adapted to catch on a first supporting element 15 which is described in greater detail hereinafter and is associated with the second one 16 of said brackets.

[0022] By catching on the first element 15, the device 14 forces the wing 12 to rise.

[0023] The device 14 comprises a first portion 17 which is fixed to said first bracket 13; a second movable portion, generally designated by the reference numeral 18, is pivoted to the fixed portion so that it can perform a pendulum-like movement, has a telescopic variable length and is provided with length adjustment means, generally designated by the reference numeral 19, of the screw type.

[0024] The device 14 comprises elastic pusher means, generally designated by the reference numeral 20, which are associated with the first portion 17, have an adjustable direction of action and are adapted to keep the second portion 18 in an oblique position with respect to the plane of arrangement of the wing 12.

[0025] The second portion, in such position, is adapted to mate with the first element 15.

[0026] The second portion 18 has a second plate-like element 21 which has a first end 22 pivoted to the first portion 17 so that it can perform a pendulum-like motion, and a second opposite end 23 shaped so as to form a seat 24 in which the adjustment means 19 are arranged.

[0027] The second end 23 is slidingly inserted in a third hollow element 25 in which there is a seat 26 shaped so as to match the adjustment means 19.

[0028] The third element 25 has a free end 27 which is shaped so as to continue with two first tabs 28 which cooperate so as to form a recess 29 for coupling to the first element 15.

[0029] The adjustment means 19 are constituted by a grub screw 30 which is coupled, with a screw-and-nut coupling, to a corresponding threaded surface 31 formed in the seat 26.

[0030] A through hole 32 for accessing and actuating the grub screw 30 is also provided in the third element 25.

[0031] The device 14 further comprises a first cover 33 which cooperates so as to form the surface for screw-and-nut coupling with the grub screw 30.

[0032] The pusher means 20 comprise a movable base 36 for an elastic pusher element 37 which oscillates in a cavity 34 formed in a fourth element 35 which belongs to said first fixed portion 17.

[0033] In particular, the elastic pusher element 37 is constituted, in this case, by a helical spring.

[0034] The movable base comprises a substantially plate-like body, designated by the reference numeral 38, which is shaped so as to monolithically form a bush 39 for pivoting in a corresponding hole 40 formed in the bottom of the cavity 34 with an axis which is substantially perpendicular to the arrangement of the body 38 and so as to form, in opposition to the bush 39, a wall 41 which is substantially U-shaped and is adapted to form a base hollow for the elastic element 37 and is adapted to set, by actuation of a key, generally designated by the reference numeral 42, which is available for the action of the operator, differently orientated thrust planes.

[0035] In particular, in this case the key 42 is provided with a grip section 43 which is available to the action of the operator and from which a stem 44 protrudes which is adapted to enter a complementarily shaped hole 45 formed in the bush 39.

[0036] In particular, in this case the stem 44 has a substantially hexagonal cross-section.

[0037] The second element 21 is shaped so as to form a second tab 46, in opposition to the grub screw 30, on which the elastic element 37 rests and pushes.

[0038] In particular, the second element 21 is pivoted to the fourth element 35 by means of a pivot 47 which has contoured tangs, designated by the reference numerals 48 and 49 respectively, which are inserted respectively in corresponding holes 50 and 51 formed in the fourth element 35 and in opposition in the second element 21.

[0039] The fourth element 35 is provided with third laminar tabs 52 which are adapted to enter a corresponding number of complementarily shaped holes 53 formed in the first bracket 13.

[0040] The fourth element 35 is also associated with a corresponding second cover 54; in particular, the second cover is provided with four pins 55 which are adapted to enter a corresponding number of holes 56 formed in the fourth element 35.

[0041] In this embodiment, the first supporting element 15 is constituted by a block 57 which is substantially shaped like a parallelepiped and is monolithic with the lower end of the second bracket 16.

[0042] In applications other than the one described, the device 14 is integrated with rods, of a per se known type, with the opening and closure mechanisms which are applied to the edges of the wings and is normally applied in such solutions.

[0043] In practice, operation is as follows.

[0044] The operator, by means of the key 42, determines the thrust plane of the elastic element 37 (in this case, the helical spring), consequently also determining

the orientation of the approach movement of the second portion 18.

[0045] Once the orientation has been defined on the basis of the conditions of application, the operator can remove the key 42 and adjust, by means of the grub screw 30, the overall length of the movable portion 18 rapidly and precisely.

[0046] In practice it has been observed that the present invention has achieved the intended aim and objects.

[0047] In particular, it should be noted that the assembly according to the invention allows an adjustment of the length of the movable approach part which is rapid and precise as well as extremely flexible according to the various requirements of application.

[0048] It should also be noted that the assembly according to the invention can ensure a bidirectional approach which can be configured directly after assembly by the operator by means of a simple key-like tool, without effort and extremely accurately.

[0049] Attention is also called to the extreme adaptability of application of the assembly according to the invention, which furthermore in no case affects the aesthetic/styling appearance of the casing to which it is applied.

[0050] The present invention is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

[0051] The details may be replaced with other technically equivalent elements.

[0052] The materials and the dimensions may be any according to requirements.

[0053] The disclosures in Italian Patent Application No. PD99A000271 from which this application claims priority are incorporated herein by reference.

[0054] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. An auxiliary assembly for guiding the closure of wings of doors or windows or the like, comprising a first and a second bracket, one fixed to the wing and one fixed to the lock stile, the first bracket supporting an oscillating guiding device which is adapted to catch, during closure, on a first supporting element which is associated with the second bracket, characterized in that said guiding device comprises:

   a first portion which is fixed to said first bracket and to which there is pivoted, in a pendulum-like fashion, a second portion which has a telescopic variable length and is provided with first screw-type length adjustment means,

   elastic pusher means being associated with said first portion, said pusher elements having an adjustable direction of action and being adapted to normally retain said second portion in an oblique position with respect to the plane of arrangement of the wing.

2. The assembly according to claim 1, characterized in that said second portion of said guiding device has a second plate-like element in which a first end is pivoted to said first portion in a pendulum-like fashion, while a second opposite end is shaped so as to form a seat which accommodates said adjustment means, said second end being slidingly inserted in a hollow third element in which a seat is defined which is shaped so as to match said second adjustment means, said third element having a free end which is shaped so as to continue with two first tabs which cooperate so as to form a recess for mating with said first supporting element.

3. The assembly according to claim 1, characterized in that said adjustment means comprise a grub screw which has a screw-and-nut coupling with a corresponding threaded surface formed in said seat, a through hole being formed in said third element and being adapted for accessing and actuating said grub screw.

4. The assembly according to one or more of the preceding claims, characterized in that it comprises a first cover which cooperates so as to form said surface for screw-and-nut coupling with said grub screw.

5. The assembly according to one or more of the preceding claims, characterized in that said pusher means comprise a movable base for an elastic pusher element, said base oscillating in a cavity formed in a fourth element which belongs to the first fixed portion.

6. The assembly according to one or more of the preceding claims, characterized in that said elastic element is constituted by a helical spring.

7. The assembly according to one or more of the preceding claims, characterized in that said movable base comprises a plate-like body which is shaped so as to form monolithically a bush for pivoting in a corresponding hole formed in the bottom of said cavity with an axis which is substantially perpendicular to the arrangement of said body and, in opposition to said bush, a wall which is substantially U-shaped and is adapted to form a base hollow for said elastic element which is adapted to provide,

under the actuation of a key which is available to the action of the operator, differently orientated thrust planes.

8. The assembly according to one or more of the preceding claims, characterized in that said key is provided with a grip section which is available to the action of the operator and from which a stem protrudes which is adapted to enter a complementarily shaped hole formed in said bush.

9. The assembly according to one or more of the preceding claims, characterized in that the stem of said key has a substantially hexagonal cross-section.

10. The assembly according to one or more of the preceding claims, characterized in that said second element is shaped so as to form a second tab in opposition to said grub screw on which said elastic element rests and pushes.

11. The assembly according to one or more of the preceding claims, characterized in that said second element is pivoted to said fourth element by means of a pivot provided with shaped tangs which are respectively inserted in a corresponding hole formed in said fourth element and in an opposite and corresponding hole formed in said second element.

12. The assembly according to one or more of the preceding claims, characterized in that said fourth element is provided with third laminar tabs which are adapted to enter a corresponding number of complementarily shaped holes formed in said first bracket.

13. The assembly according to one or more of the preceding claims, characterized in that said fourth element is associated with a corresponding second cover.

14. The assembly according to one or more of the preceding claims, characterized in that said second cover is provided with pins which are adapted to enter a corresponding number of holes formed in said fourth element.

15. The assembly according to one or more of the preceding claims, characterized in that said first element is constituted by a block which is substantially shaped like a parallelepiped which is monolithic with respect to the lower end of said second bracket.

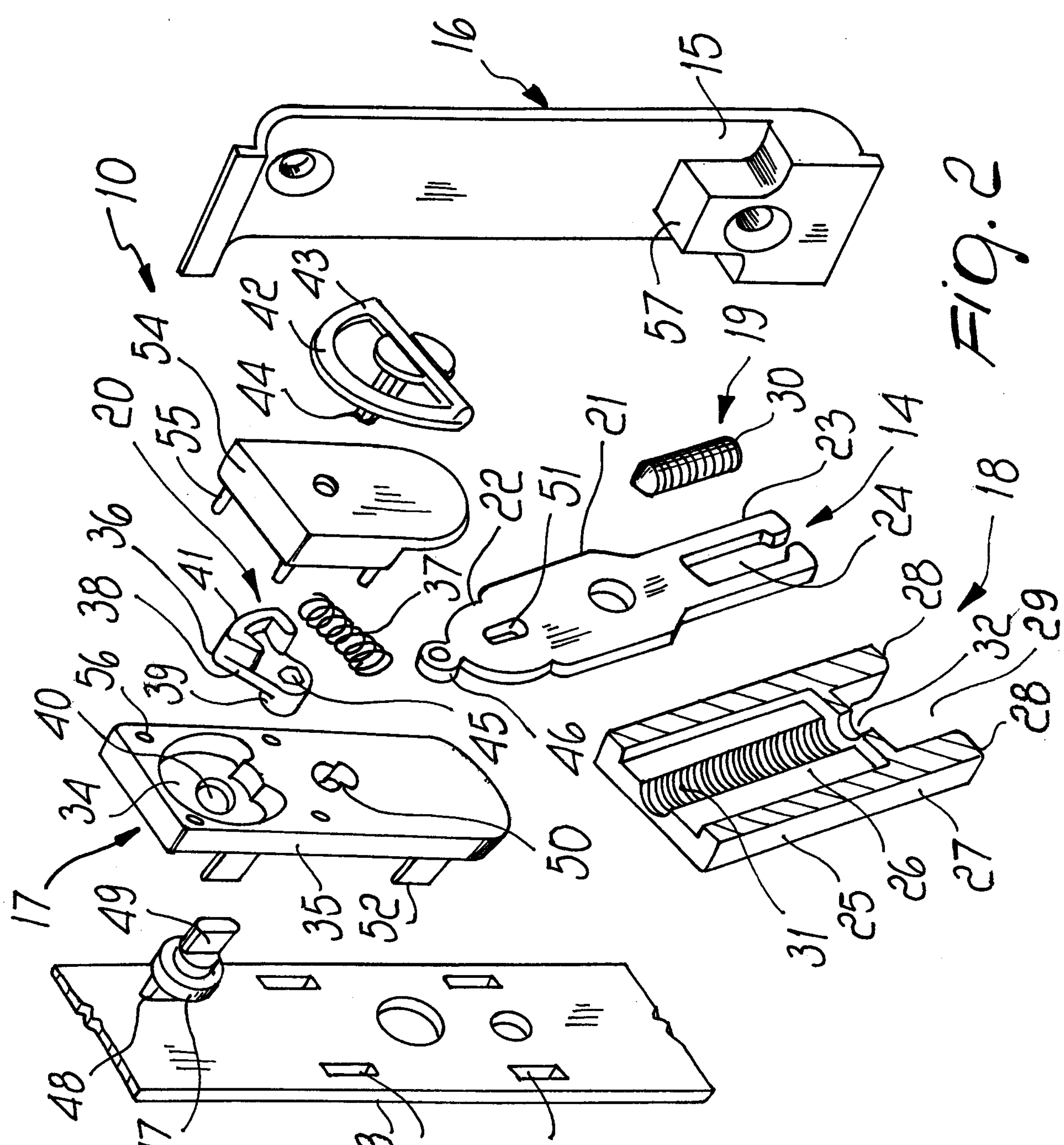
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Fig. 2

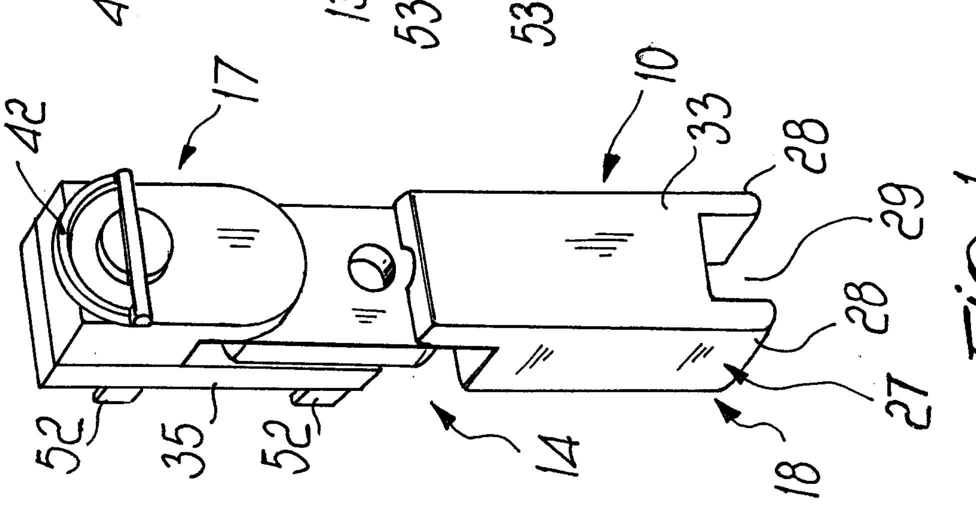
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Fig. 1

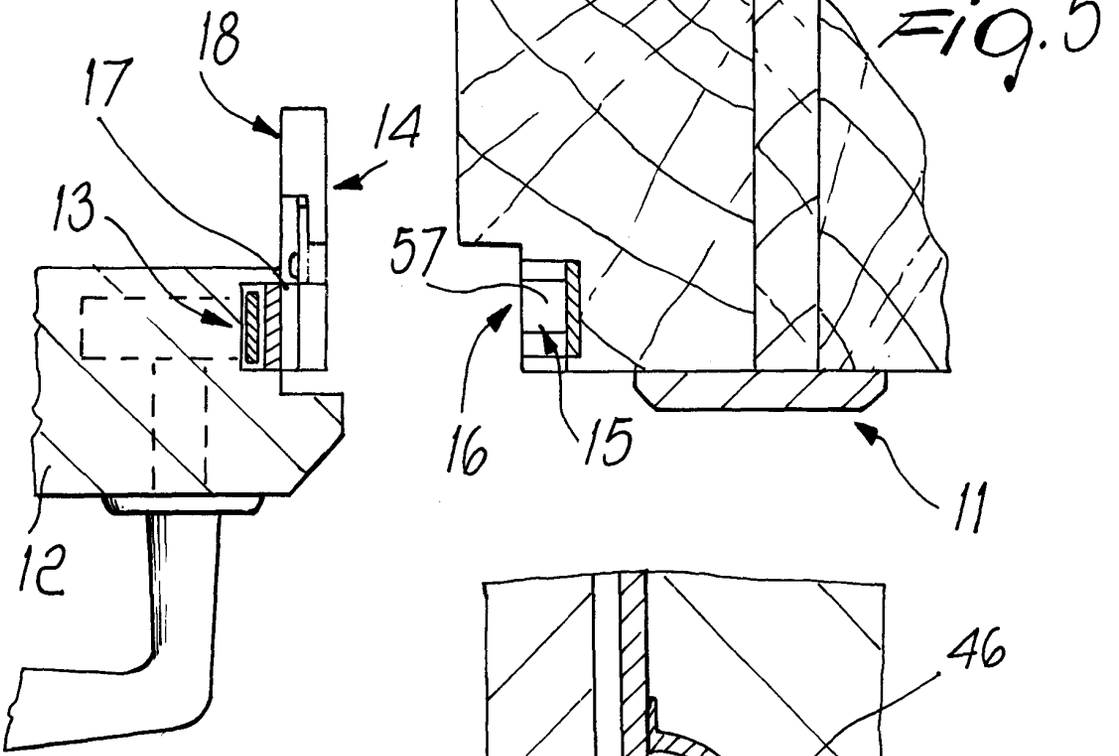

Fig. 4

Fig. 5

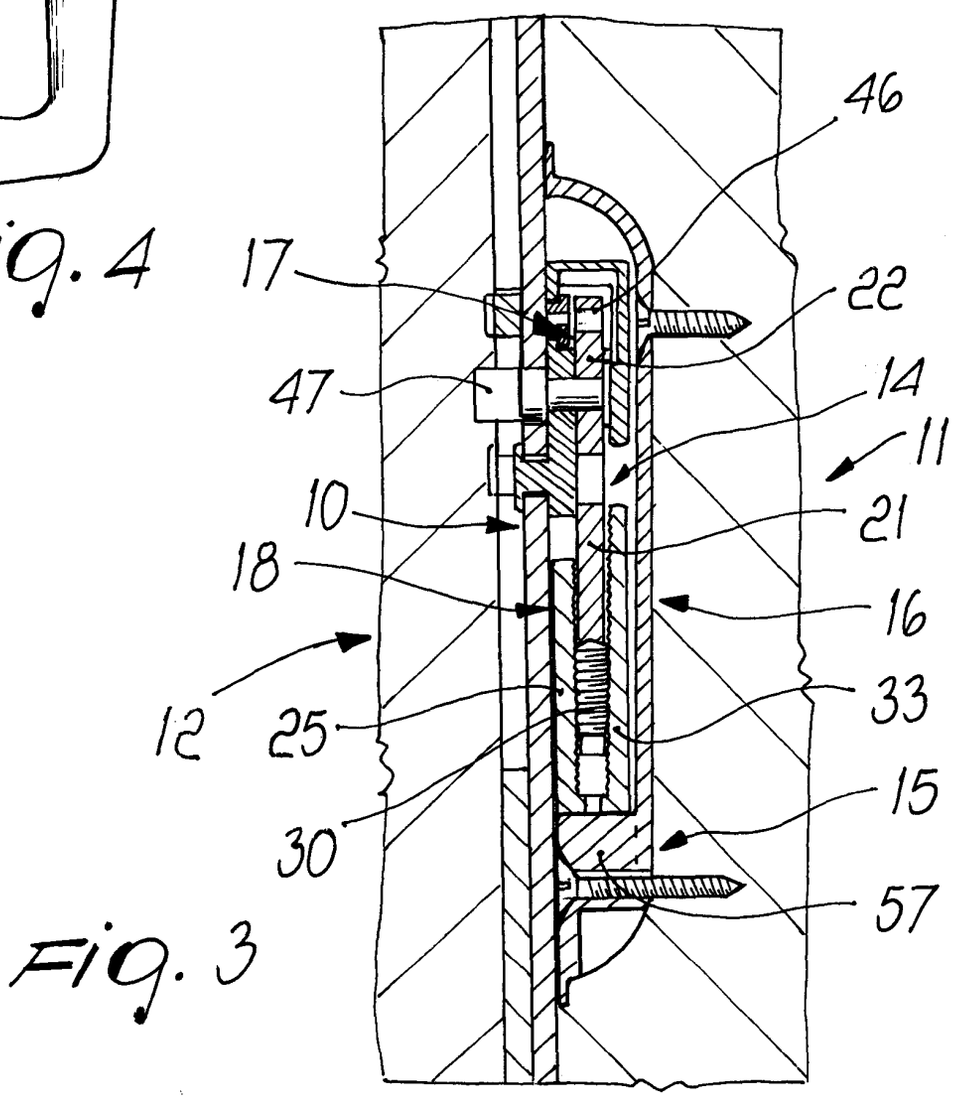

Fig. 3

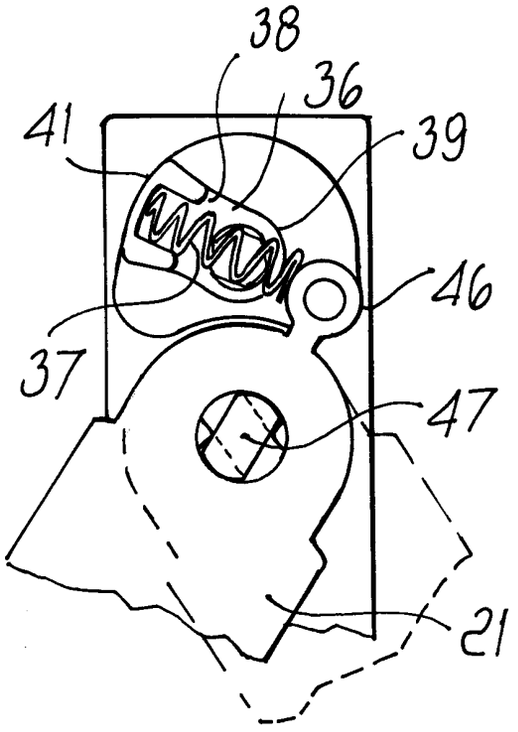

Fig. 6

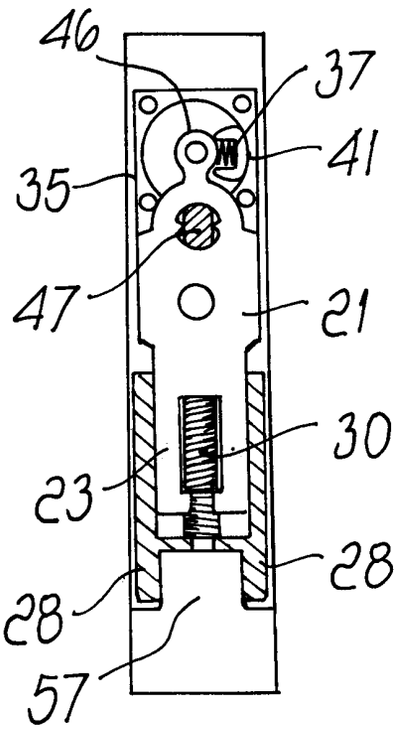

Fig. 7

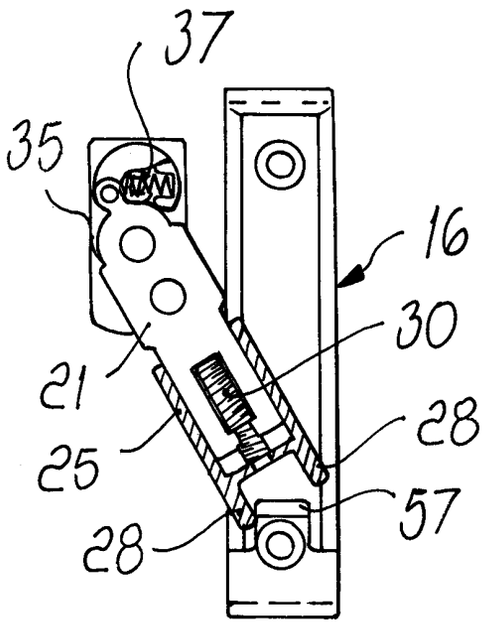

Fig. 8

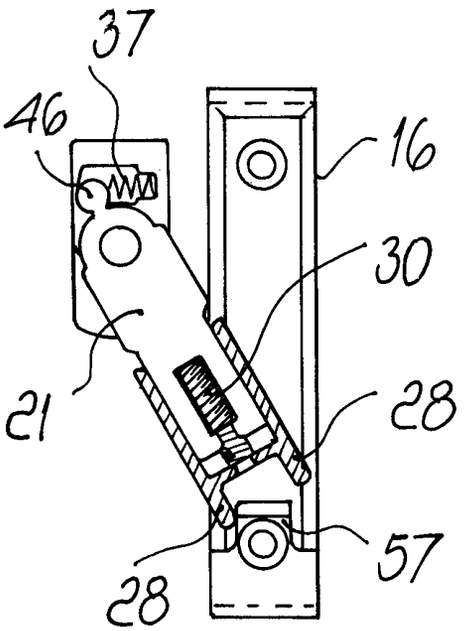

Fig. 9

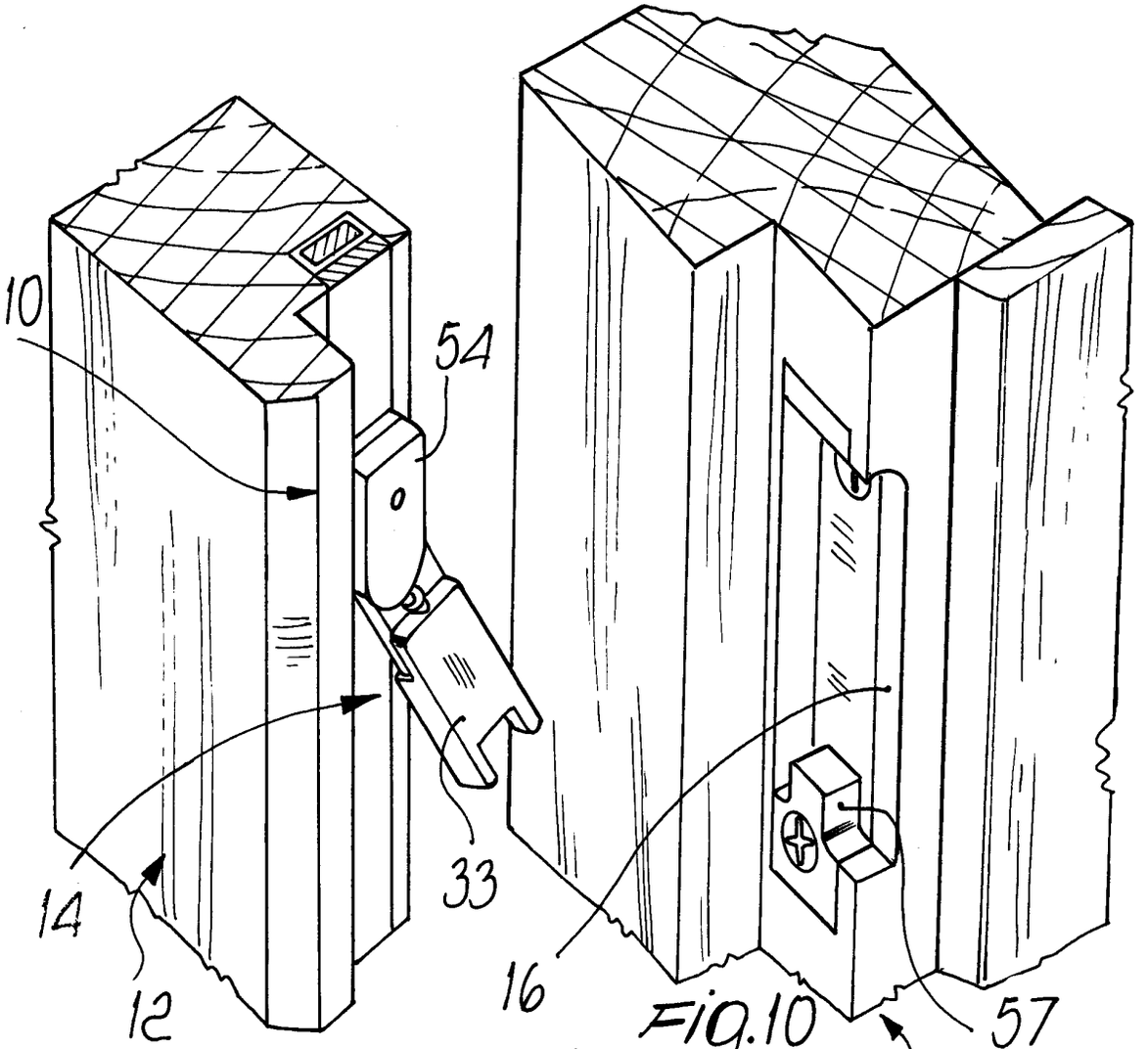

Fig.10

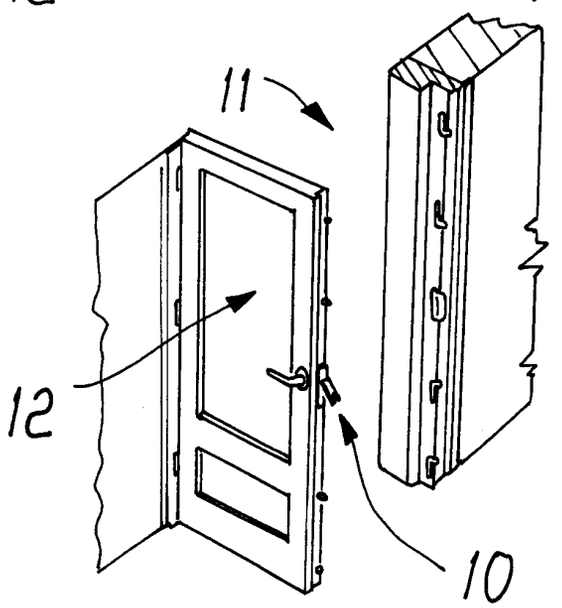

Fig.11