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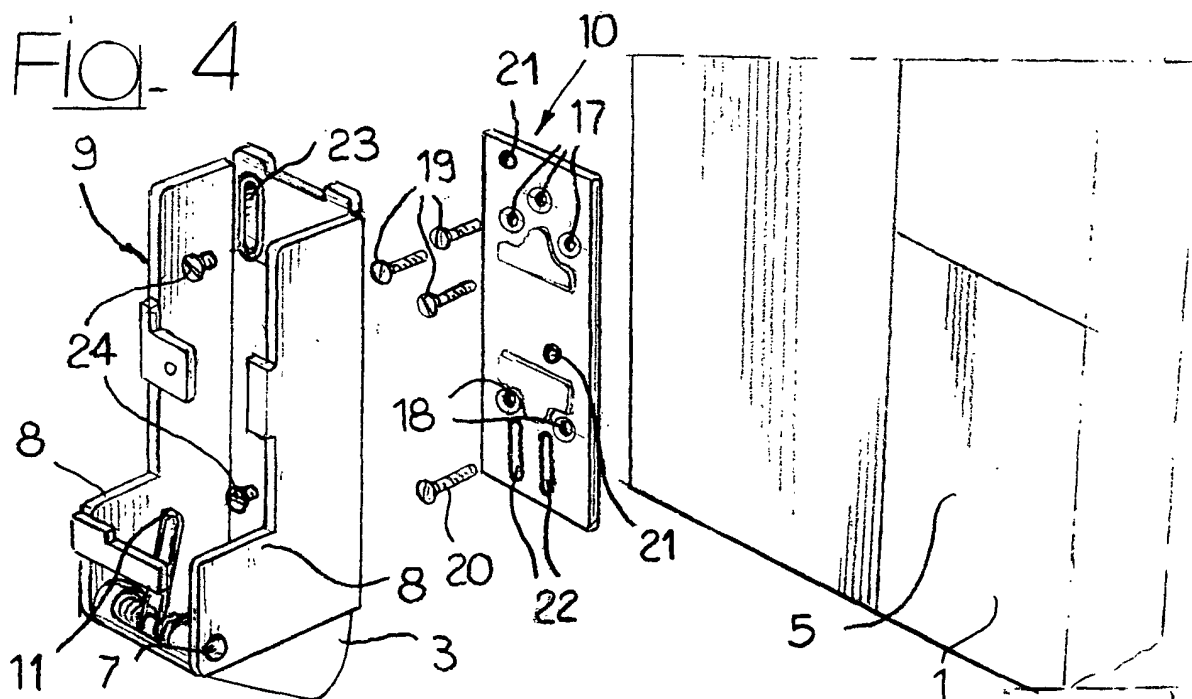
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(54) **Adjustable panic-opening system for doors**

(57) A panic-opening system for doors comprises a device for regulating the spring latch (3) operated by a control bar (2) applied transversely to the door (1). The regulating device employs through holes (17, 18),

threaded holes (21) and slots (22) in a base plate (10), which can be fixed to the door (1) and to which a supporting element (9) for supporting the spring latch (3) is anchored, the spring latch (3) being, in turn, equipped with longitudinal slots (23) and through holes (25).



EP 1 348 824 A1

Description

[0001] The present invention relates in general to panic-opening systems for doors of the type comprising a control bar, which is applied transversely to the door and which can be displaced by application of a thrust so as to release at least one spring latch, said spring latch being able to oscillate between an extracted position, in which it engages a stationary blocking striker, and a retracted position to enable push opening of the door.

[0002] In such systems, in order to enable oscillation of the spring latch from the extracted position to the retracted position, there is traditionally provided a slide, which can be translated, from an advanced position to a set-back position as a result of the displacement of the control bar, along a supporting element fixed to the door by means of a base plate.

[0003] Upon installation of the panic-opening system, the problem arises of adapting the position of the spring latch with respect to the stationary striker in order to guarantee the necessary security in the closing position and easy and immediate opening in the event of need.

[0004] The purpose of the present invention is to solve the above problem in an effective way, as well as in a particularly simple and practical way for the installer.

[0005] According to the invention, this purpose is achieved thanks to the fact that a panic-opening system for doors of the type defined above is characterized in that:

- the base plate has two formations of through holes, which can be selectively used for inserting screws for fixing to the door, and at least one pair of threaded holes; and
- the supporting element has at least one pair of longitudinal slots for insertion of corresponding screws for adjustable anchorage of its longitudinal position with respect to the base plate, said two anchoring screws being engageable in said two threaded holes of the base plate.

[0006] Thanks to the above idea for solving the problem, the base plate can be fixed to the door, by means of the two formations of through holes, in the most convenient and appropriate position. Next, after positioning of the supporting element against the base plate, and after the adjustment screws have been threaded into the threaded holes of said base plate, the supporting element is positioned longitudinally in the condition corresponding to the optimal position of the spring latch with respect to the stationary striker. Then, the adjustment screws are tightened home.

[0007] In order to complete fastening of the supporting element, the base plate also conveniently has at least one pair of longitudinal slots, and the supporting element has corresponding holes for insertion, through said longitudinal holes made in said base plate, of screws for fixing to the door.

[0008] The invention will now be described in detail with reference to the attached drawings, which are provided purely by way of non-limiting example and in which:

- Figure 1 is a schematic front elevation of a door provided with a panic-opening system according to the invention;
- Figure 2 is partially cross-sectional view at an enlarged scale according to the line II-II of Figure 1;
- Figure 3 is a side elevation according to the arrow III of Figure 2;
- Figure 4 is a simplified exploded perspective view at a reduced scale of Figure 3;
- Figure 5 is an elevation at an enlarged scale of a detail of the system;
- Figure 6 is a longitudinal sectional view according to the line VI-VI of Figure 5;
- Figure 7 is a transverse sectional view according to the line VII-VII of Figure 5;
- Figure 8 is an elevation similar to that of Figure 5 of another detail of the system; and
- Figure 9 is a view similar to that of Figure 2 in a different regulating position.

[0009] With initial reference to Figure 1, the number 1 designates a door equipped with a panic-opening system including, in a way of itself generally known, a control bar 2, which can be operated by application of a thrust (in translation or in rotation) so as to actuate opening of one or more spring latches 3. The ensuing description relates, in particular, to a spring latch 3 set in a position corresponding to the bottom part of the door 1: it should, however, be noted that the invention can be identically applied to possible spring latches located in other positions, for instance, in a position corresponding to the top part of the door 1.

[0010] The spring latch 3, which is illustrated in greater detail in Figures 2 to 4 and Figure 9, usually cooperates with a stationary blocking striker 4 provided underneath the door 1 on the inside 5. By means of an actuating tie-rod 6, which can be displaced vertically between a lowered position (illustrated in Figures 2 to 4 and Figure 9) and a raised position, the spring latch 3 is able to oscillate between an extracted position, in which it engages the stationary striker 4, and a retracted position, in which the mechanism for push-opening of the door 1 is released.

[0011] In a generally known way, the spring latch 3 is able to oscillate about a horizontal transverse pin 7 carried by the side flaps 8 of a supporting element 9, which is in turn fixed, by means of a base plate 10, to the lower area of the inside 5 of the door 1. A pin spring 11 tends to keep the spring latch 3 in the extracted position illustrated in the figures, and its rotation towards the retracted position is obtained as a result of the upward translation of a sliding member, designated as a whole by 12, which is able to slide in a guided way along the support-

ing element 9 and has a yoke 13, to which the bottom end of the actuating tie-rod 6 is anchored. Connected to the sliding member 12 is a pin 15 of the spring latch 3, and a spring 16 tends to keep the sliding member 12 in the lowered position (represented in Figures 2, 3 and 9), to which, as has been said, there corresponds the extracted position of the spring latch 3. When the control bar 2 is actuated by application of a thrust, bringing about raising of the actuating tie-rod 6, the sliding member 12 moves upwards against the action of the spring 16, bringing about, via the pin 15, rotation of the spring latch 3 about the axis of the pin 7 towards the raised position, thus enabling push-opening of the door 1.

[0012] The system can moreover be provided with an anti-intrusion security device, which forms the subject of a co-pending patent application filed on the same date by the present applicant.

[0013] According to the invention, the system is configured so as to enable, upon installation, an easy and effective adjustment of the position of the spring latch 3 with respect to the stationary striker 4. This is obtained, in the first place, thanks to the fact that the base plate 10 has two formations of through holes, one of which formations is designated by 17 and consists, in the example illustrated, of three holes arranged at the vertices of an isosceles triangle, and the other is designated by 18 and consists, in the example illustrated, of two holes. The holes 17 and 18 can be used selectively, either entirely or in part, for insertion of corresponding fixing screws 19, 20 to the door 1. Figure 5 illustrates an example of possible fixing, in which two screws 19 are inserted through the corresponding holes 17, and a screw 20 is inserted through one of the holes 18. Of course, it is possible to use any combination of screws 19, 20 and holes 17, 18 in order to fix the base plate 10 to the door 1 in the most convenient position.

[0014] The base plate 10 is moreover formed with at least one pair of threaded holes 21, set staggered with respect to one another, one above the formation of holes 17 and the other above the formation of holes 18, and with a pair of bottom longitudinal slots 22 set alongside one another, the function of which will be clarified in what follows.

[0015] To complete the regulating device according to the invention, the supporting element 9 has, in the way illustrated in greater detail in Figure 8, a pair of longitudinal slots 23, staggered with respect to one another like the two threaded holes 21 of the base plate 10, and, at the bottom, a pair of through holes 25 set like the slots 22 of the plate 10.

[0016] With the arrangement described, the regulating device according to the invention enables, upon assembly, optimal positioning of the spring latch 3 with respect to the stationary striker 4, by means of operations that are particularly easy and fast for the installer, according to the procedures described in what follows.

[0017] The first operation consists in fixing the base plate 10 to the door 1 by means of three, four or five

screws 19 inserted through the formations of holes 17 and 18. Then the supporting element 9 with the spring latch 3 and the sliding member 12 is positioned against the base plate 10, threading in two anchoring screws 24 within the threaded holes 21 of the base plate 10, through the corresponding slots 23 of the supporting element 9. This is followed by the step of regulating the spring latch 3 with respect to the striker 4, moving the supporting element 9 longitudinally with respect to the base plate 10. Once the optimal position is reached, the screws 24 are tightened home so as to fix the supporting element 9 to the base plate 10.

[0018] Figures 2 and 3 and Figures 8 and 9 show the two extreme adjustment positions, namely the lowest and the highest respectively, of the spring latch 3 with respect to the striker 4.

[0019] Definitive blocking of the supporting element 9 is obtained by introducing a pair of self-tapping screws 26 through the holes 25 and the slots 22 of the base plate 10, and screwing them into holes previously made in the door 1.

[0020] Of course, the details of construction and the embodiments may vary widely with respect to what is described and illustrated herein, without thereby departing from the scope of the present invention as defined in the ensuing claims.

Claims

1. A panic-opening system for doors, comprising a control bar (2), which is applied transversely to the door (1) and can be displaced by application of a thrust so as to release at least one spring latch (3), said spring latch (3) being able to oscillate between an extracted position, in which it engages a stationary blocking striker (4), and a retracted position to enable push-opening of the door (1), wherein for oscillation of said spring latch (3) from said extracted position to said retracted position there is provided a slide (12), which can be translated from an advanced condition to a retracted condition as a result of the displacement of said control bar (2), along a supporting element (9) which is fixed to the door (1) by means of a base plate (10) and by which said spring latch (3) is supported in an oscillating way, said panic-opening system being **characterized in that:**

- said base plate (10) has two formations of through holes (17, 18), which can be selectively used for insertion of fixing screws (19, 20) for fixing to the door (1), and at least one pair of threaded holes (21); and
- said supporting element (9) has at least one pair of longitudinal slots (23) for insertion of corresponding screws (24) for adjustable anchorage of its longitudinal position with respect to

the base plate (10), said two anchoring screws (24) being engageable in said two threaded holes (21) of the base plate (10).

2. The system according to Claim 1, **characterized in that** the base plate (10) moreover has at least one pair of longitudinal slots (22), and the supporting element (9) has corresponding holes (25) for insertion, through said longitudinal slots (22), of fixing screws (26) for fixing to the door (1).

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Fig. 1

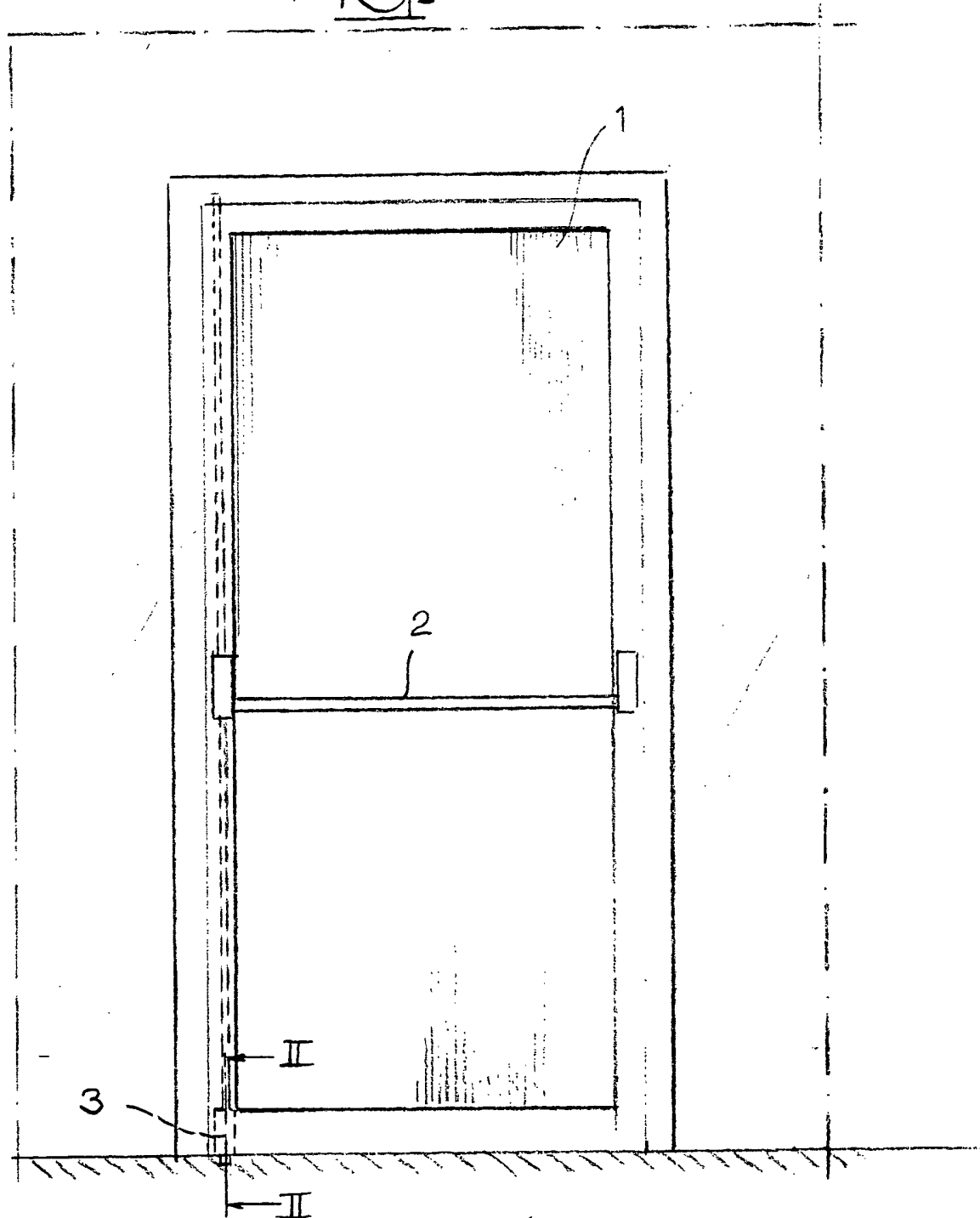


Fig. 2

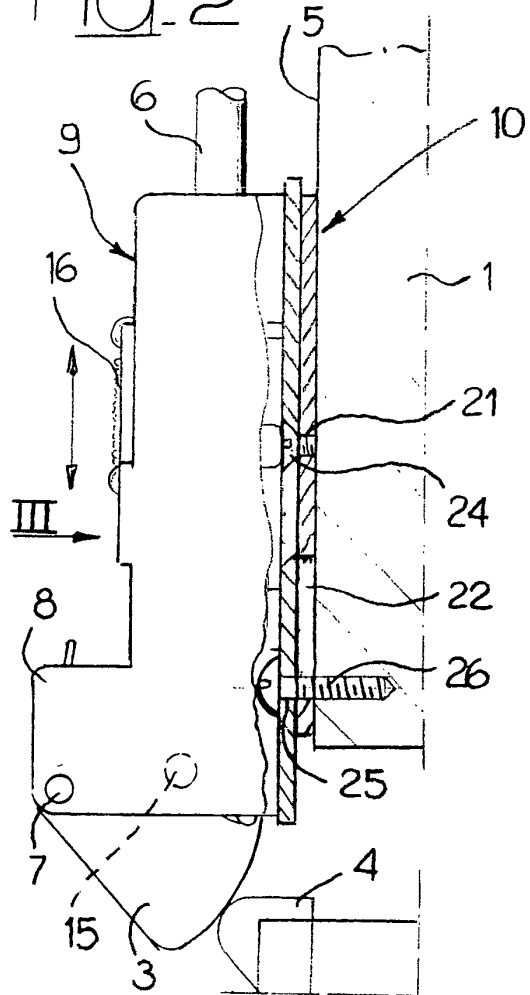


Fig. 3

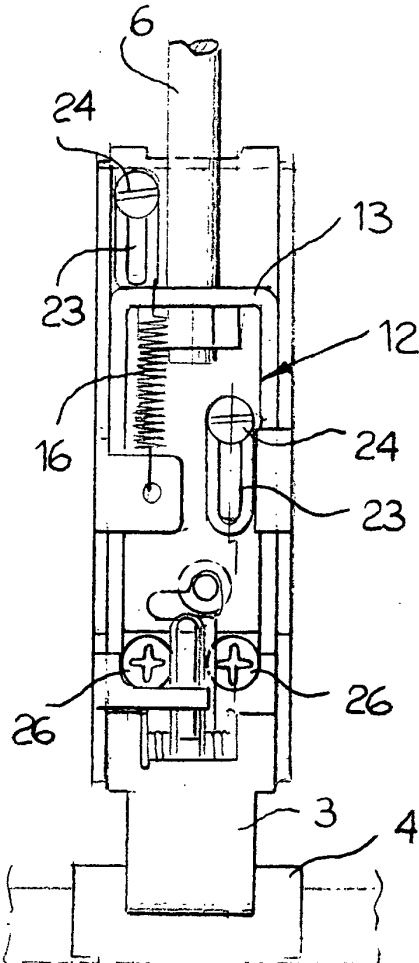
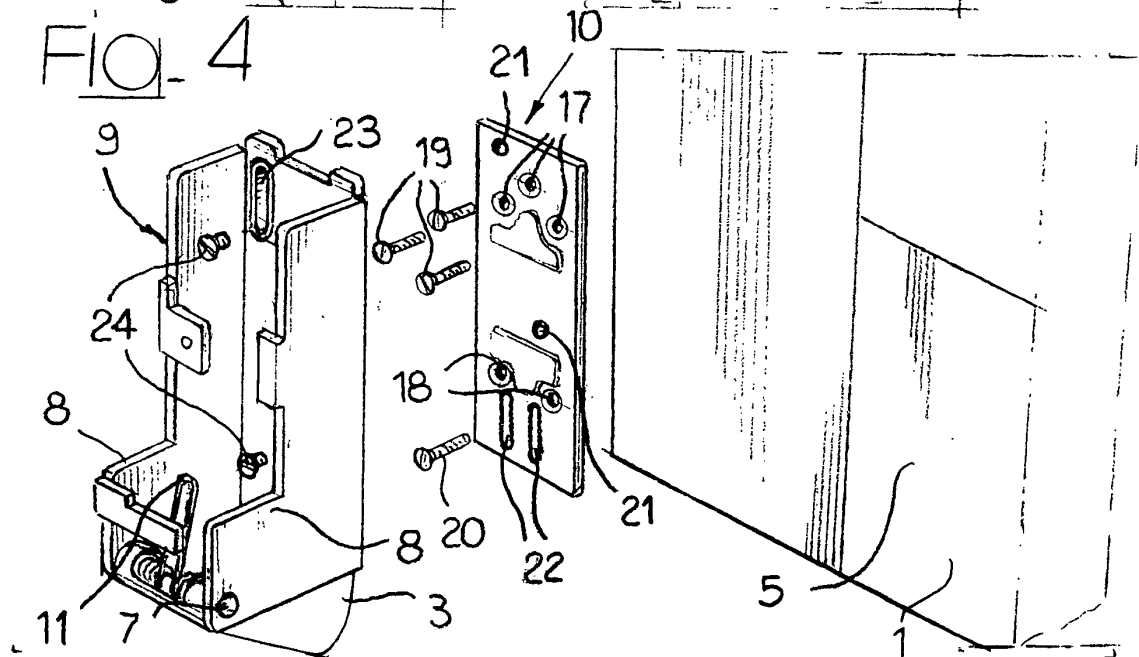
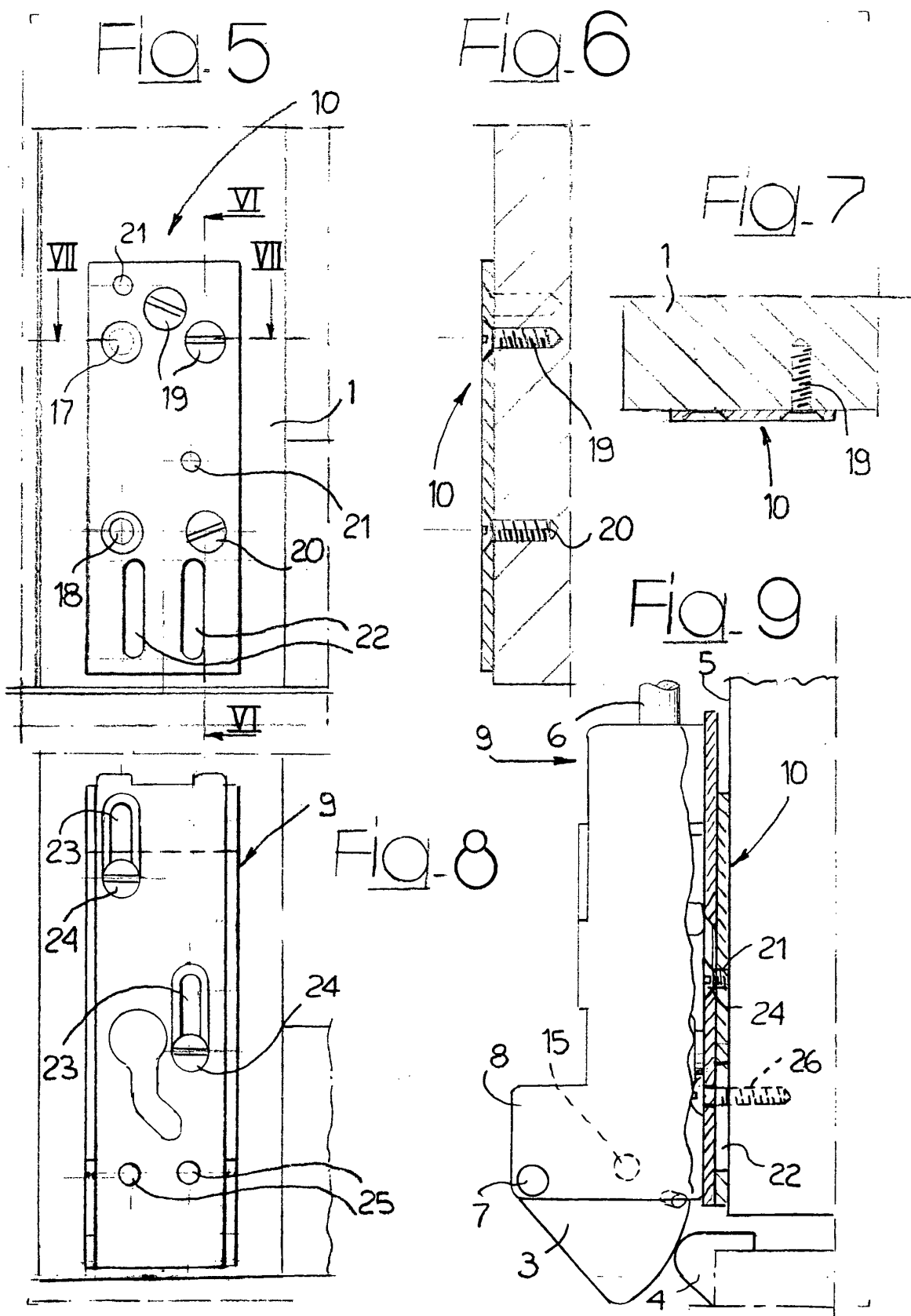


Fig. 4







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EUROPEAN SEARCH REPORT

Application Number
EP 03 00 1103

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 18 June 2003	Examiner Vacca, R
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 03 00 1103

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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