(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 032 786 B2**

(12) **NEW EUROPEAN PATENT SPECIFICATION**
After opposition procedure

(45) Date of publication and mention of the opposition decision:
12.10.2016 Bulletin 2016/41

(45) Mention of the grant of the patent:
17.04.2013 Bulletin 2013/16

(21) Application number: **07747742.0**

(22) Date of filing: **29.05.2007**

(51) Int Cl.:
E05B 15/10 *(2006.01)*

(86) International application number:
PCT/PL2007/000033

(87) International publication number:
WO 2007/139410 (06.12.2007 Gazette 2007/49)

(54) SLIP BOLT FOR ROTATING ROOF WINDOWS MADE OF MULTI-CHAMBER ELEMENTS

GLEITRIEGEL FÜR DREHBARE DACHFENSTER AUS MEHRKAMMERELEMENTEN

VERROU À PLATINE, DESTINÉ À DES FENÊTRES DE TOIT À ROTATION COMPOSÉES D'ÉLÉMENTS À CHAMBRES MULTIPLES

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

(30) Priority: **29.05.2006 PL 37979806**

(43) Date of publication of application:
11.03.2009 Bulletin 2009/11

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Description

[0001] The subject of the invention is a slip bolt, especially for rotating roof windows made of multi-chamber elements, fixing in the window frame the window sash raised by about 150°.

[0002] US 2003/0047948 A1 presents a tilt-latch adapted for releasably securing a pivotable sash window disposed within opposed guide rails on a master frame of a window sash assembly. The tilt latch comprises a guide and a locking element fitted inside it having a limited sliding range, which is protected against spontaneous coming out of its stopping end-piece from the guide, wherein the guide has an upper wall, side walls, a bottom wall and a longitudinal abutment flange lying in the plane of the upper wall, and the side walls of the guide are fitted with fixing elements, wherein the guide has a longitudinal cut-out in its upper wall, the length of which is close to half the length of the guide, and a longitudinal cut-out in the bottom wall of the guide, and the locking element has on one end the stopping end-piece and at the other end an end-stop, which operates in conjunction with the longitudinal cut-out in the bottom wall of the guide. The tilt-latch further comprises an operating element connected to the locking element and is designed to retract the locking element into the guide.

[0003] US 6 340 183 discloses a bolt lock for mounting in a thin wall, comprising a handle plate which can snap into a rectangular cut-out in the wall. It has, at one side of the rectangle, a bolt that is supported so as to be displaceable against spring force relative to the wall. The bolt is formed by a second plate which is supported so ads to be displaceable against the spring force in the first plate which is held in the wall. The side walls of the outer handle plate have fixings elements pointing as an extension.

[0004] GB 1 186 079 discloses a draw-bolt for doors or the like. The front plate is flanged at one end to fit the bottom or top edge of the door to a face or edge of which the front flange plate is fitted. The flange has a round hole to guide a cylindrical bolt.

[0005] The invention provides an alternative slip bolt.

[0006] The slip bolt according the invention is adapted for rotating roof window made of multi-chamber elements, consisting of a guide and a locking element fitted inside it having a limited sliding range, which is protected against spontaneous coming out of its stopping end-piece from the guide, wherein the guide has an upper wall, side walls, a bottom wall and a longitudinal abutment flange lying in the plane of the upper wall, and the side walls of the guide are fitted with fixing elements, wherein, the guide has a longitudinal cut-out in its upper wall, the length of which is close to half the length of the guide and the width is smaller than the spacing between the inner surfaces of the side walls, which longitudinal cut-out is open on one side at the end from which the stopping end-piece is sliding out, and a longitudinal cut-out in the bottom wall of the guide, advantageously being a mirror reflection of the longitudinal cut-out, which is open on one side at the opposite end of the guide. The locking element has on one end the stopping end-piece and at the other end an end-stop, which operates in conjunction with the longitudinal cut-out in the bottom wall of the guide, and in the central part of the upper wall of the locking element there is an operating element, which operates in conjunction with the longitudinal cut-out in the upper wall of the guide

[0007] The locking element has elastic catches connected with a back wall of the locking element, which operate in conjunction with the inner surfaces of the side walls of the guide and their transverse edges.

The locking element in its upper wall has an operating element in form of a recess, which is accessible through the longitudinal cut-out in the upper wall of the guide or in form of a boss, which operates in conjunction with the longitudinal cut-out in the upper wall of the guide.

[0008] The upper wall of the guide is longer than the other walls and wider than the bottom wall, so that it protrudes on both sides outside the side walls and on one end of the guide, opposite to the end out of which the stopping end-piece slides out, forming the longitudinal abutment flange.

The end of the guide out of which the stopping end-piece of the locking element slides out, has a transversal abutment flange connected with the side walls and the bottom wall of the guide and the longitudinal abutment flange. A hole may be situated in abutment's part connected with the bottom part of the guide.

Along the external surfaces of the side walls the guide below the longitudinal abutment flange are arranged the fixing elements in the form of guiding and fixing strips or at the end opposite to the end out which the stopping end-piece slides out, are arranged the fixing elements.

[0009] The slip bolt according to the invention is depicted in examples of execution in the drawing, in which Fig. 1, 2,6 show the guide and the locking element in two versions of execution, Fig. 3, 4 show the top view and the bottom view in both versions of execution, and Fig. 5 shows the assembly of the slip bolt in the window sash frame made of multi-chamber elements.

Example I

[0010] The slip bolt consists of the guide 1 and the locking element 2, sliding in the guide 1. The guide 1 has the form of a short sleeve with rectangular cross section, the upper wall of which is longer than the other walls and wider than the bottom wall, so that it protrudes on both sides outside the side walls and on one end of the guide 1, constituting the longitudinal abutment flange 3. At the other end of the guide 1 there is the transversal abutment flange 4, which is integral with the side walls and the bottom wall of the guide 1 and the longitudinal flange 3, to which it is perpendicular. The transversal abutment flange 4, in its part connected with the bottom flange of the guide 1, has a hole 5 for the for the fixing screw.

[0011] In the upper wall of the guide 1 there is a rectangular longitudinal cut-out 6, the length of which is about half the length of the guide 1 and the width less than the distance between the inner surfaces of the side walls, which is on one end open at the side of the transversal abutment flange 4. On the opposite end of the guide 1, in the bottom wall, there is a longitudinal cut-out 7, which is a mirror reflection of the cut-out 6. Along the external surfaces of the side walls of the guide 1, below the longitudinal abutment flange 3, are located the longitudinal guiding and fixing strips 8.

[0012] The locking element 2 is a rectangular rod the external dimensions of which correspond to the internal dimensions of the guide 1, having on one end the stopping end-piece 9, and on the other end two catches 10 and the end-stop 11 located between the catches 10, which are springing and are arranged along the back edge of the bottom wall. In the central part of the upper surface of the locking element 2, there is the operating element consisting of the recess 12 with the stop 13 at that transverse edge of the recess 12, which is closer to the stop 11.

[0013] The locking element 2 is being lengthwise inserted into the guide 1 from the side of the transversal abutment flange 4, upon elastic flexing of the catches 10 and the end-stop 11. The stopping end-piece 9 is facing towards the transverse abutment flange 4, the recess 12 is accessible through the cut-out 6 in the upper wall of the guide 1, and the end-stop 11 is located in the cut-out 7 in the bottom wall of the guide 1. The catches 10 operate in conjunction with the inner surfaces of the side walls of the guide 1 and their edges 14.

[0014] The shifting range of the locking element 2 towards the transverse abutment flange 4 is limited by the length of the cut-out 7 and the end-stop 11, while in the opposite direction it is limited by the length of the cut-out 6 and the recess 12 with the stop 13.

[0015] The slip bolt is being located in the edge recess of the upper multi-chamber element of the frame of the window sash. The slip bolt is inserted so that edge of the recess in the external wall of the window sash frame slides between the longitudinal abutment flange 3 and the longitudinal guiding and fixing strips 8 of the guide 1, until the transverse abutment flange 4 rests on the wall of the side element of the frame. The longitudinal abutment flange 3 and the longitudinal guiding and fixing strips 8 stabilize the position of the locking bolt in respect of the external surface of the frame. Screwing down the transverse abutment flange 4 through the fixing screw hole 5 secures the slip bolt from sliding out of the recess in the sash frame.

[0016] When the end-stop 13 rests on the transverse edge of the cut-out 6, the stopping end-piece 9 is located inside the guide 1, and the two catches 10 resiliently deflect out sidewise and catch the edges 14 of the side walls guide 1, preventing spontaneous outward movement of the locking element 2. The window sash can be rotated freely in the window frame.

[0017] In order to stop the window sash turned about 150° one has to shift the recess 12 towards the transverse abutment flange 4. The end-stop 11 comes up to the transverse edge of the cut-out 7 in the bottom wall of the guide 1, the catches 10 slide on the edge 14 of the side walls of the guide 1, and the stopping end-piece 9 protrudes out of the guide 1, entering into the hole in the side element of the window frame. The window sash is then fully stopped.

Example II

[0018] The slip bolt consists of the guide 1 and the locking element 2, sliding in the guide 1.

The guide 1 has the form of a short sleeve with a rectangular cross section, the upper wall of which is longer than the other walls and wider than the bottom wall, so that it protrudes on both sides outside the side walls and on one end of the guide 1, forming the longitudinal abutment flange 3. At the other end of the guide 1 there is the transverse abutment flange 4, which is integral with the side walls and the bottom wall of the guide 1, and the longitudinal flange 3, to which it is perpendicular. The transversal abutment flange 4, in its part connected with the bottom flange of the guide 1, has a hole 5 for the for a fixing screw.

[0019] In the upper wall of the guide 1 there is a rectangular longitudinal cut-out 6, the length of which is about half the length of the guide 1 and the width less than the distance between the inner surfaces of the side walls, which is on one end open at the side of the transversal abutment flange 4. On the opposite end of the guide 1, at the prolongation of the side walls, slightly below the longitudinal flange 3, are located the fixing elements 8, and in the bottom wall there is a longitudinal cut-out 7, which mirrors the cut-out 6.

[0020] The locking element 2 is a rectangular rod the external dimensions of which correspond to the internal dimensions of the guide 1, having on one end the stopping end-piece 9 and on the other end two catches 10 and the end-stop 11 between the catches 10, which are springing and are arranged at the back of the bottom wall. In the central part of the upper surface of the locking element 2, there is an operating element consisting of the boss 12.

[0021] The locking element 2 is being inserted lengthwise into the guide 1 from the side of the transversal abutment flange 4, upon having deflected the catches 10 and the end-stop 11. The stopping end-piece 9 faces the transverse abutment flange 4, the boss 12 is being slid into the cut-out 6 in the upper wall of the guide 1, and the end-stop 11 into the cut-out 7 in the bottom wall of the guide 1. The catches 10 operate in conjunction with the inner surfaces of the guide 1 and their edges 14.

The sliding range of the locking element 2 in direction of the transverse abutment flange 4 is limited by the length of the cut-out 7 and the end-stop 11, and in the opposite direction by the length of the cut-out 6 and the boss 12.

[0022] The slip bolt is being located in the edge recess of the upper multi-chamber element of the frame of the window sash. The longitudinal abutment flange 3 constitutes the resting surface which slides along the cut-out on the external surface of the frame of the sash, until the fixing strips 8 of the guide 1 get under the transverse edge of the cut-out in frame of the sash, fixing the locking bolt from that side, and at the same time the transverse abutment flange 4 rests on the wall of the side element of the sash. Screwing down the transverse abutment flange 4, through the fixing screw hole 5, secures the slip bolt from sliding out of the recess in the sash frame.

[0023] When the boss 12 is most distant from the transverse abutment flange 4, the stopping end-piece 9 is inside the guide 1, and the two catches 10 spring aside and catch the edges 14 of the side walls of the guide 1, preventing spontaneous shifting of the locking element 2. The window sash can be rotated freely in the window frame.

[0024] In order to stop the turned window sash one has to slide the boss 12 towards the transverse abutment flange 4. The end-stop 11 comes up to the transverse edge of the cut-out 7 in the bottom wall of the guide 1, the catches 10 slide on the edge 14 of the side walls of the guide 1, and the stopping end-piece 9 protrudes out of the guide 1, entering into the hole in the side element of the window frame. The window sash is then fully stopped.

Claims

1. Slip bolt for rotating roof windows made of multi-chamber elements, consisting of a guide (1) and a locking element (2) fitted inside it having a limited sliding range, which is protected against spontaneous coming out of its stopping end-piece (9) from the guide (1), wherein the guide (1) has an upper wall, side walls, a bottom wall and a longitudinal abutment flange (3) lying in the plane of the upper wall and the side walls of the guide (1) are fitted with fixing elements (8), wherein the guide (1) has a longitudinal cut-out (6) in its upper wall, the length of which is close to half the length of the guide (1) and the width is smaller than the spacing between the inner surfaces of the side walls, which longitudinal cut-out (6) is open on one side at the end from which the stopping end-piece (9) is sliding out, and a longitudinal cut-out (7) in the bottom wall of the guide (1), advantageously being a mirror reflection of the longitudinal cut-out (6), which is open on one side at the opposite end of the guide (1), and the locking element (2) has on one end the stopping end-piece (9) and at the other end an end-stop (11), which operates in conjunction with the longitudinal cut-out (7) in the bottom wall of the guide (1), and in the central part of the upper wall of the locking element (2) there is the operating element (12), which operates in conjunction with the longitudinal cut-out (6) in the upper wall of the guide (1).

2. Slip bolt according to claim 1 **characterized in that** the locking element (2) has elastic catches (10) connected with a back wall of the of the locking element (2), which operate in conjunction with the inner surfaces of the side walls of the guide (1) and their transverse edges (14).

3. Slip bolt according to claim 1, **characterized in that** the locking element (2) in its upper wall has an operating element in form of a recess (12), which is accessible through the longitudinal cut-out (6) in the upper wall of the guide (1).

4. Slip bolt according to claim 1, **characterized in that** the locking element (2) in its upper wall has an operating element in form of a boss (12), which operates in conjunction with the longitudinal cut-out (6) in the upper wall of the guide (1).

5. Slip bolt according to claim 1, **characterized in that** the upper wall of the guide (1) is longer than the other walls and wider than the bottom wall, so that it protrudes on both sides outside the side walls and on one end of the guide (1), opposite to the end out of which the stopping end-piece (9) slides out, forming the longitudinal abutment flange (3).

6. Slip bolt according to claim 1, **characterized in that** at the end of the guide (1) out of which the stopping end-piece (9) of the locking element (2) slides out, has a transversal abutment flange (4) connected with the side walls and the bottom wall of the guide (1) and the longitudinal abutment flange (3).

7. Slip bolt according to claim 6, **characterized in that** the transversal abutment flange (4), in its part connected with the bottom part of the guide (1) has a hole (5).

8. Slip bolt according to claim 1, **characterized in that** on an extension of the side walls of the guide (1), below the longitudinal abutment flange (3), at the end opposite to the end out which the stopping end-piece (9) slides out, are arranged the fixing elements (8).

Patentansprüche

1. Eine für aus Mehrkammerelementen gefertigte Schwing-Dachfenster bestimmte Verriegelungsvorrichtung, bestehend aus einer Führungsleiste und einem darin beschränkt gleitend gelagerten Riegelelement, und die Verriegelungsvorrichtung ist gegen das selbständige Herausfahren des verriegelnden

Endstücks aus der Führungsleiste gesichert, wobei die Führungsleiste einen längsverlaufenden, vorteilhaft in der Ebene der oberen Wand liegenden Flansch sowie eine obere und eine untere Seitenwand aufweist, und die Seitenwände der Führungsleiste (1) mit Befestigungselementen ausgestattet sind, **dadurch gekennzeichnet, dass** die Führungsleiste (1) an der oberen Wand Längsausschnitte (6) aufweist, die halb so lang wie die Führungsleiste (1) und schmaler als die Distanz zwischen den inneren Flächen der Seitenwände sind und die an einem Ende, durch das das verriegelnde Endstück (9) ausfährt, geöffnet sind, sowie einen Längsausschnitt (7) an der unteren Wand der Führungsleiste (1) besitzt, der bevorzugt eine Widerspiegelung des Ausschnitts (6) darstellt und an einem gegenüberliegenden Ende der Führungsleiste (1) geöffnet ist, und das verriegelnde Endstück (9) an dem anderen Ende einen aufgesetzten Anschlag (11) aufweist, der mit der Ausnehmung (7) an der Unterwand der Führungsleiste (1) zusammenwirkt, und in dem mittleren Teil der oberen Wand des Riegelelements (2) ein Betriebselement (12) angebracht ist, das mit des Ausschnitts (6) an der oberen Wand der Führungsleiste (1) zusammenwirkt (1).

2. Verriegelungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Riegelelement (2) federnde, mit der hinteren Wand verbundene Sperren (10) aufweist, die mit den inneren Flächen der Seitenwände der Führungsleiste (1) und deren Schrägkanten (14) zusammenwirken.

3. Verriegelungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Riegelelement (2) an der oberen Wand ein Betriebselement in Form von einem Bolzen (12) aufweist, der mit dem Ausschnitt (6) an der oberen Wand der Führungsleiste (1) zusammenwirkt.

4. Verriegelungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Riegelelement (2) an der oberen Wand ein Betriebselement in Form von einer Aussparung (12) aufweist, die durch den Ausschnitt (6) an der oberen Wand der Führungsleiste (1) zugänglich ist.

5. Verriegelungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die obere Wand der Führungsleiste (1) länger als die anderen Wände und breiter als die untere Wand ist, so dass sie an beiden Seiten über die Seitenwände und an einem Ende der Führungsleiste (1) herausragt, und dadurch einen Längsflansch (3) darstellt.

6. Verriegelungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** an einem Ende der Führungsleiste (1), durch das das verriegelnde Endstück (9) des Riegelelements (2) ausfährt, ein Querflansch (4) angebracht ist, der mit den Seitenwänden und der unteren Wand der Führungsleiste (1) sowie mit dem Längsflansch (3) verbunden ist.

7. Verriegelungsvorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass** der Querflansch (4) in dem mit der unteren Wand der Führungsleiste (1) verbundenen Bereich eine Öffnung (5) aufweist.

8. Verriegelungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** an der Verlängerung der Seitenwände der Führungsleiste (1) unter dem Längsflansch (3) an dem Ende, das gegenüber dem Ende liegt, durch das das verriegelnde Endstück (9) ausfährt, Befestigungselemente (8) angebracht sind.

Revendications

1. Verrou de blocage, pour les fenêtres de toit à rotation, faites en profilés multichambres, composé d'un guide et d'un élément de blocage à translation limitée inséré dans ce guide de façon déplaçable, le verrou étant protégé contre le déplacement incontrôlé de l'embout de verrouillage du guide, tandis que le guide possède une bride d'assise longitudinale située avantageusement dans le plan de la paroi supérieure et des parois latérales, supérieure et inférieure, et les parois latérales du guide (1) sont munies d'éléments de fixation, **caractérisé en ce que** le guide (1) possède les entailles longitudinales (6) dans la paroi supérieure, de longueur proche de la mi-longueur du guide (1) et de largeur inférieure à la distance entre les faces intérieures des parois latérales, ouvertes à une extrémité par laquelle sort l'embout de verrouillage (9) et l'entaille longitudinale (7) dans la paroi inférieure du guide (1), étant une reflexion spéculaire de l'entaille (6), ouverte à l'extrémité opposée du guide (1), et l'élément de blocage (9), à la deuxième extrémité a un butoir (11) collaborant avec l'entaille (7) dans la paroi inférieure du guide (1), par contre dans la partie centrale de la paroi supérieure de l'élément de blocage (2) se trouve un élément opérationnel (12) collaborant avec l'entaille (6) dans la paroi supérieure du guide (1).

2. Verrou de blocage selon la revendication 1, **caractérisé en ce que** l'élément de blocage (2) possède des cliquets élastiques (10) liés à la paroi arrière, qui collaborent avec les surfaces intérieures des parois latérales du guide (1) et leurs bords transversaux (14).

3. Verrou de blocage selon la revendication 1, **caractérisé en ce que** l'élément de blocage (2) possède dans la paroi supérieure un élément opérationnel

sous forme d'une tige (12), qui collabore avec l'entaille (6) dans la paroi supérieure du guide (1).

4. Verrou de blocage selon la revendication 1, **caractérisé en ce que** l'élément de blocage (2) possède dans la paroi supérieure un élément opérationnel sous forme d'un évidement (12), qui est disponible à travers l'entaille (6) dans la paroi supérieure du guide (1).

5. Verrou de blocage selon la revendication 1, **caractérisé en ce que** la paroi supérieure du guide (1) est plus longue et plus large que la paroi inférieure débordant de deux côtés au-délà des parois latérales et à l'une des extrémités du guide (1), constituant ainsi une bride d'assise longitudinale (3).

6. Verrou de blocage selon la revendication 1, **caractérisé en ce qu'**à l'extrémité du guide (1) d'où sort une tige de verrouillage (9) de l'élément de blocage (2), se trouve une bride d'assise (4), liée aux parois latérales et à la paroi inférieure du guide (1), ainsi qu'à la bride longitudinale (3).

7. Verrou de blocage selon la revendication 2, **caractérisé en ce que** la bride d'assise transversale (4), dans la partie liée à la paroi inférieure du guide (1), possède un trou (5).

8. Verrou de blocage selon la revendication 1, **caractérisé en ce qu'**au prolongement des parois latérales du guide (1), au-dessous de la bride longitudinale (3), à l'extrémité opposée à celle de laquelle sort la tige de verrouillage (9) se trouvent les éléments de fixation (8).

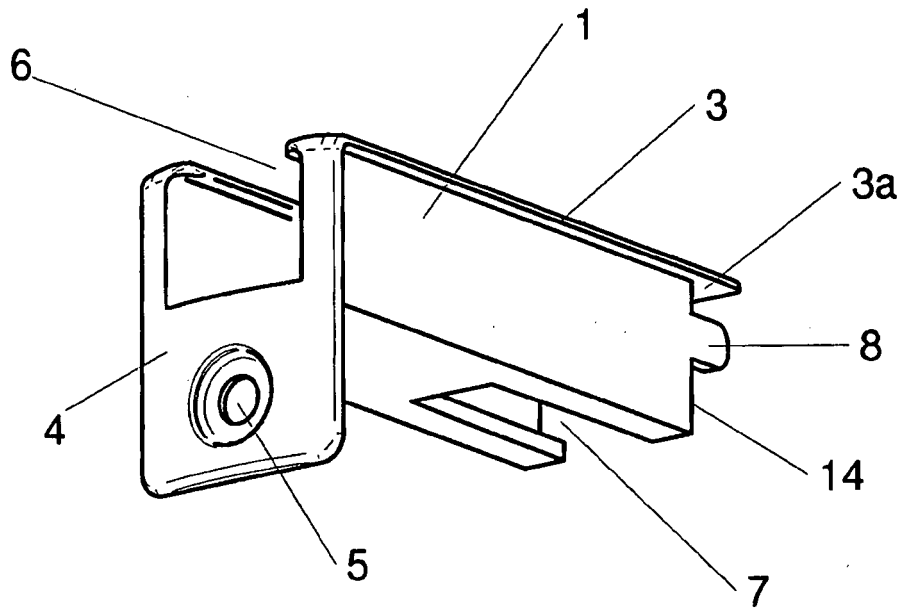


Fig. 1

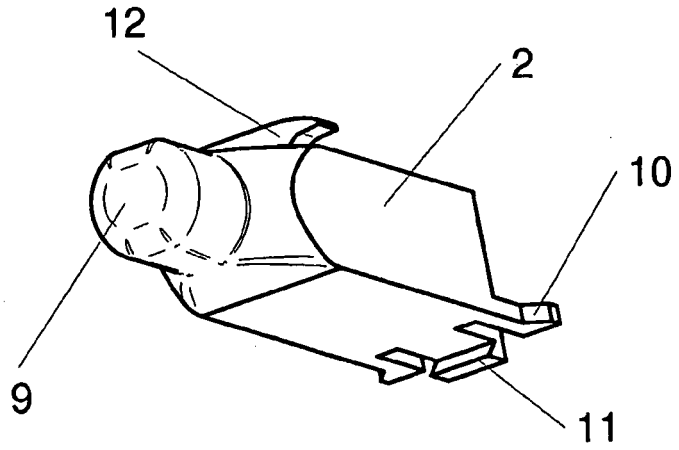


Fig. 2

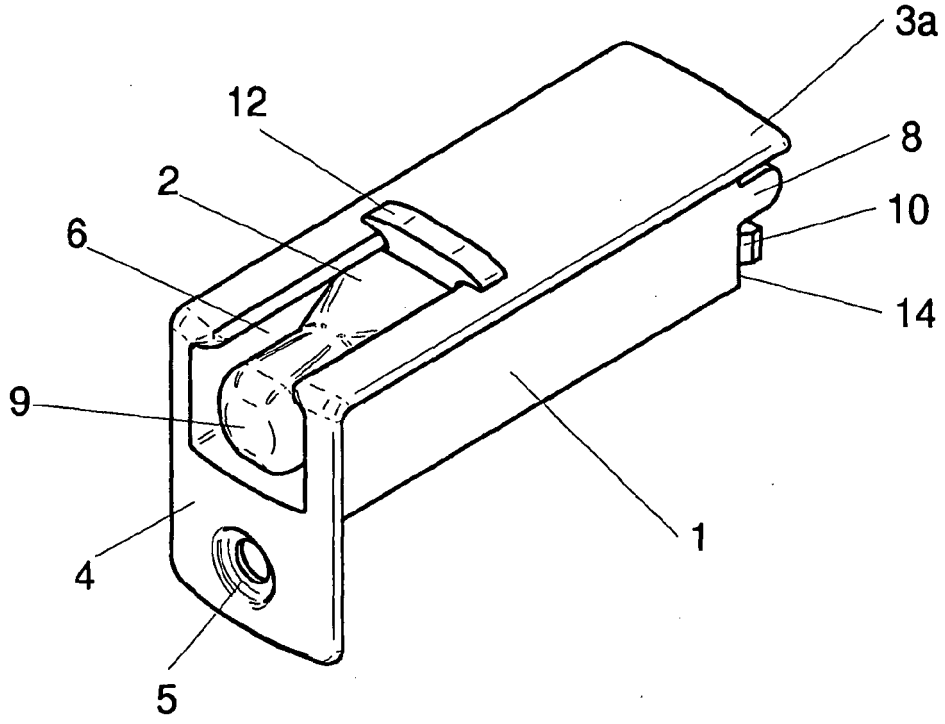


Fig. 3

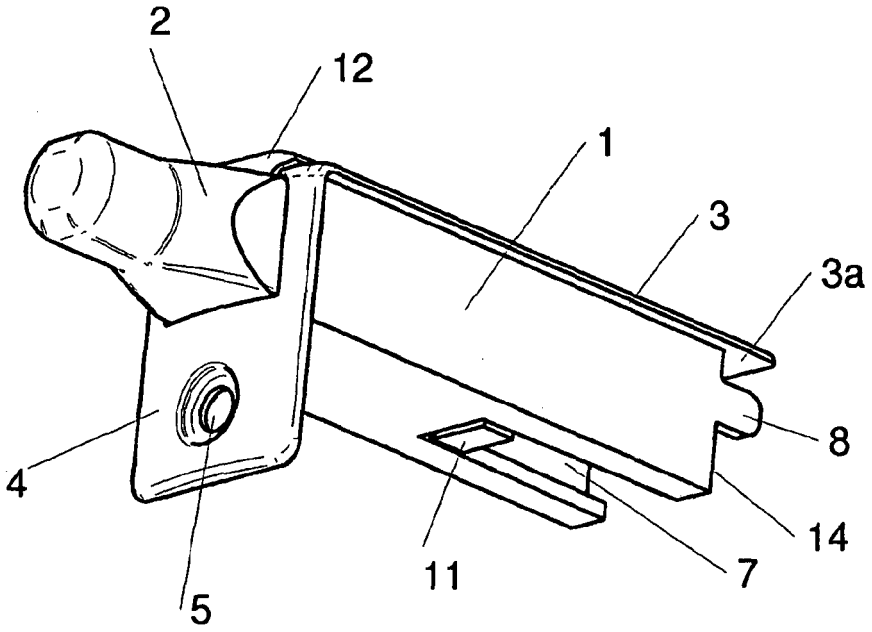


Fig. 4

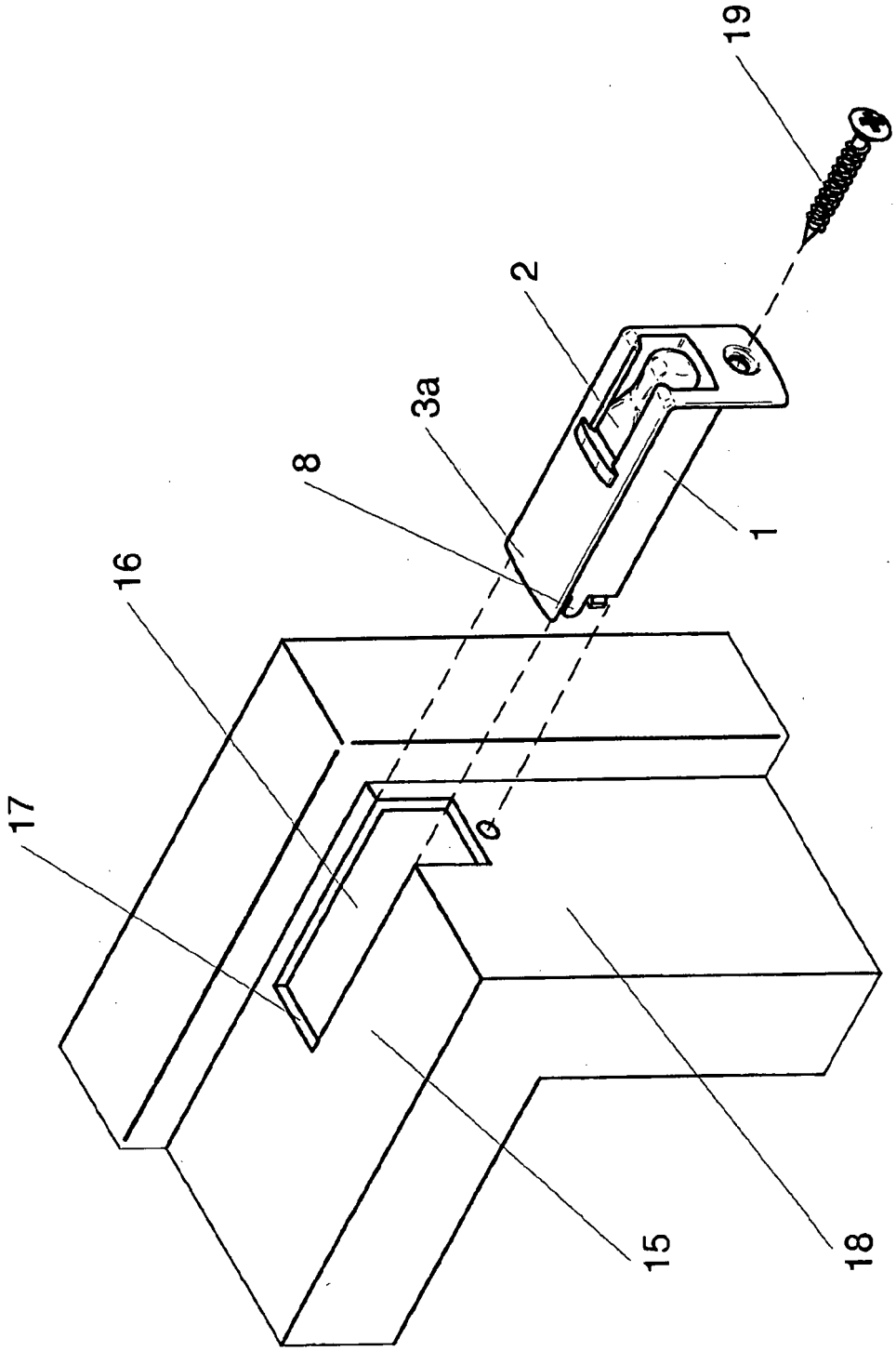


Fig. 5

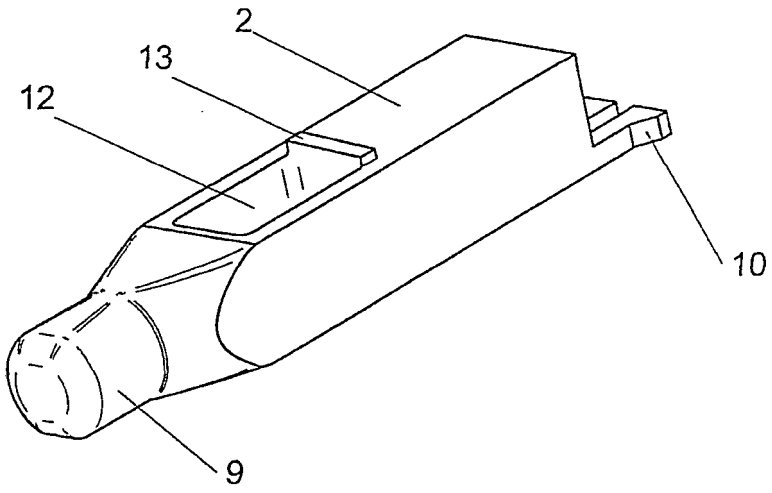


Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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