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(11)

EP 2 414 607 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
20.11.2013 Bulletin 2013/47

(21) Application number: **09787687.4**

(22) Date of filing: **01.04.2009**

(51) Int Cl.:
E05B 9/08 (2006.01) **E05B 65/10 (2006.01)**

(86) International application number:
PCT/IT2009/000132

(87) International publication number:
WO 2010/113191 (07.10.2010 Gazette 2010/40)

(54) EASY MOUNTING LOCK ASSEMBLY

LEICHT ZU MONTIERENDE SCHLOSSANORDNUNG

ENSEMBLE SERRURE À MONTAGE FACILE

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK TR**

(43) Date of publication of application:
08.02.2012 Bulletin 2012/06

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Description

Technical Field

[0001] The present invention relates to an easy mounting lock assembly.

Background Art

[0002] It is known to use locks that are adapted to be fixed to the external surface of a laminar body (a door, a movable wall, but also an internal lamina of such elements).

[0003] These locks comprise a retractable body (the spring latch) which, once assembly has occurred, is adapted to be accommodated within a corresponding seat of an appropriate strike that is fixed to the jamb or to the secondary leaf.

[0004] In order to ensure correct operation of the lock, the latch must be aligned perfectly with the corresponding seat; therefore, the lock must be mounted on the respective anchoring surface with maximum precision in order to avoid incorrect mutual arrangements of the latch and of the seat, which may entail jamming or malfunction of the entire lock.

[0005] The weight of the lock during mounting on the anchoring surface complicates the mounting operations and often requires the presence of two workers, one to hold the lock in the correct position and one to cope exclusively with fixing.

[0006] This mounting very often occurs with the aid of a ladder, since the lock can be installed on the upper part of the door: of course, this specific installation is particularly complicated.

[0007] Moreover, the issue that removal of the lock to perform maintenance operations is equally awkward and complicated is not marginal: in this case also the cooperation of two workers may be necessary.

[0008] Locks having a case that is releasably mountable on a supporting base plate, are described, from example, in documents DE 361 010 C, FR 2 773 580 A1 and DE 72 40 811 U. In particular, the document DE 361 010 C discloses a lock assembly according to the preamble of claim 1.

Disclosure of the Invention

[0009] The aim of the present invention is to solve the above-mentioned drawbacks, by providing an easy mounting lock assembly in which it is simple and straightforward to align the lock with the corresponding latch seat, wherein the weight of the lock does not affect the precision and straightforwardness of the mounting operations, and wherein the lock can be stably mounted to the anchoring surface.

[0010] Another object of the invention is to provide an easy mounting lock assembly that is also simple to remove from the anchoring surface if maintenance opera-

tions are required.

[0011] Another object of the present invention is to provide an easy mounting lock assembly that has a low cost, is relatively simple to provide in practice and is safe in application.

[0012] This aim and these and other objects, which will become better apparent hereinafter, are achieved by an easy mounting lock assembly, according to the invention, that has the features set forth in claim 1.

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Brief description of the drawings

[0013] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment of the easy mounting lock assembly according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

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Figure 1 is a perspective view of a first step of the mounting of a lock assembly according to the invention;

Figure 2 is a perspective view of a second step of the mounting of the lock assembly according to the invention;

Figure 3 is a perspective view of a third step of the mounting of the lock assembly according to the invention;

Figure 4 is a side view of a plate of the lock assembly according to the invention;

Figure 5 is a top view of the plate of the lock assembly according to the invention;

Figure 6 is a partially sectional top view of the lock assembly according to the invention;

Figure 7 is a sectional side view, taken along the line VII-VII of Figure 6, of the lock assembly according to the invention.

Ways of carrying out the Invention

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[0014] With reference to the figures, the reference numeral 1 generally designates an easy mounting lock assembly.

[0015] Locks 2 according to the assembly 1 of the invention are the ones of the type that comprises a frame 3, which is associated with the anchoring surface. A latch 4 is movable with respect to the frame 3 and is functionally associated with respective actuation lever systems 5, which are controlled by an actuation element (not visible in the figure, such as for example a handle or a panic bar). It should be noted that the latch 4 is conveniently guided by the frame 3 in its movement: with particular reference to the accompanying figures, the latch 4 can rotate, with respect to an axis 6 that is jointly connected to the frame 3, from a protruding configuration to a retracted configuration.

[0016] The assembly 1 comprises a contoured plate 7, which is provided with specific means 8 for coupling

to the respective anchoring surface and is provided with selective locking elements 9 for the frame 3.

[0017] The frame 3 in turn comprises elastically deformable portions 10, which are adapted to engage detachably, in the mounting configuration, at least one part of the locking elements 9.

[0018] The contoured plate 7 comprises lateral laminar bands 11 provided with appropriate seats 12 designed to accommodate the elastically deformable portions 10 of the frame 3.

[0019] Therefore, the seats 12 in practice constitute one of the locking elements 9.

[0020] According to an embodiment of unquestionable interest in practice and in application, the lateral laminar bands 11 comprise inclined end planes 13.

[0021] The inclined planes 13 assist the facilitated insertion of the elastically deformable portions 10 between the bands 11 (during the mounting of the lock assembly 1): the insertion operation ends when the portions 10 engage within the seats 12.

[0022] In order to ensure optimum fixing to the plate 7 of the lock 2, the locking elements 9 comprise a unit 14 that protrudes, in an upper region, from the contoured plate 7: the unit 14 is adapted to mate stably with a bottom 15 of the lock 2.

[0023] According to the invention, the unit 14 is constituted by a threaded stem that is jointly connected to the plate 7 (directly welded to it or jointly connected thereto in any other manner). In this case, the lock 2 comprises, in the bottom 15, a hole for accommodating the stem. The stability of the mating between the stem and the bottom hole is ensured by the tightening of an appropriately provided threaded element 16, which is complementary with respect to the stem, on the stem itself, clamping the bottom 15. In practice, a threaded nut tightened onto the stem rigidly couples the bottom 15 to the plate 7.

[0024] The elastically deformable portion 10 of the frame 3 is constituted preferably by at least one substantially transverse pivot 17, which expands elastically with respect to the contour of the frame 3 along a respective substantially tubular cavity; elastic expansion occurs by means of an axially-acting spring 18, which is accommodated in such cavity.

[0025] According to a preferred but not exclusive embodiment, the coupling means 8 comprise at least one through opening for stable engagement of a fixing body 19 that engages within the anchoring surface below the plate 7.

[0026] It should be noted that according to an embodiment of particular interest in practice and in application, the at least one through opening is selected preferably among the ones with a slotted shape, for adjustable mounting, and with a hole-like shape.

[0027] The operation of the assembly 1 according to the invention is as follows.

[0028] Once the plate 7 has been fixed to the anchoring surface, such fixing being simplified by the light weight of the plate 7, it is possible to "engage" therewith the lock

2 simply by arranging the elastically deformable portions 10 adjacent to the inclined planes 13, so that the inclined planes 13 contribute to the retraction of the portions within the contour of the frame 3.

[0029] By making the lock 2 slide, the elastically deformable portions 10 face the seats 12, exiting again from the transverse cavity of the lock 2 by way of the action of the spring 18.

[0030] At this point it is sufficient to lower the lock 2 so that the unit 14 engages in the hole of the bottom 15: the application of the threaded element 16 and the subsequent tightening ensure the locking of the lock 2 on the plate 7.

[0031] The mounting operations are therefore particularly simplified.

[0032] Removal, if maintenance or replacement of the lock is necessary, also requires merely the removal of the element 16 (simply by unscrewing it) and the application of a simultaneous pressure on the two elastically deformable portions 10 while a movement force is applied to the lock 2.

[0033] In case of replacement of the lock 2, it is not necessary also to remove the plate 7, which in practice is universal.

[0034] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0035] 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.

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Claims

1. An easy mounting lock assembly (1), said lock (2) comprising a frame (3) adapted to be associated with an anchoring surface, a latch (4) being movable with respect to said frame (3) and being guided by said frame (3) and being functionally associated with respective actuation lever systems (5) controlled by an actuation element, a contoured plate (7) provided with means (8) for coupling to the respective anchoring surface and provided with selective locking elements (9) for said frame (3), said frame (3) comprising elastically deformable portions (10) designed to engage detachably, in the mounting configuration, with at least one part of said locking elements (9), fixing and removal of the frame (3) with respect to the contoured plate (7) being simple and straightforward, said locking elements (9) comprising a unit (14) that protrudes upward from said contoured plate (7) and is adapted to mate stably with a bottom (15) of said lock (2), **characterized in that** said unit (14) is a threaded stem that is jointly connected to the

- plate (7), said lock (2) comprising, in said bottom (15), a hole for accommodating said stem, coupling stability being ensured by the tightening of a threaded element (16), which is shaped complementarily to said stem, clamping the bottom (15) on said stem. 5
2. The lock assembly according to claim 1, **characterized in that** said contoured plate (7) comprises lateral laminar bands (11) provided with seats (12) for said elastically deformable portions (10) of the frame (3), said seats (12) constituting one of said locking elements (9). 10
3. The lock assembly according to claim 2, **characterized in that** said lateral laminar bands (11) comprise inclined end planes (13) for the assisted insertion of said elastically deformable portions (10) between said bands (11), until they engage said seats (12). 15
4. The lock assembly according to claim 1, **characterized in that** said elastically deformable portion (10) is constituted by at least one substantially transverse pivot (17) which expands elastically with respect to the contour of said frame (3) along a respective substantially tubular cavity, said elastic expansion occurring by means of an axially acting spring (18) that is accommodated in said cavity. 20
5. The lock assembly according to claim 1, **characterized in that** said coupling means (8) comprise at least one through opening for the stable engagement of a fixing body (19) that engages in said anchoring surface. 25
6. The lock assembly according to claim 5, **characterized in that** said at least one through opening is selected among slot-shaped openings, for adjustable mounting according to a plurality of contiguous positions, and hole-shaped openings. 30
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- elemente (9) einzugreifen, wobei die Befestigung und Lösung des Rahmens (3) im Verhältnis zur konturierten Platte (7) einfach und unkompliziert ist und die Verriegelungselemente (9) eine Einheit (14) umfassen, welche von der konturierten Platte (7) nach oben ragt und ausgebildet ist, um sich stabil mit einem Boden (15) des Schlosses (2) zu verbinden, **dadurch gekennzeichnet, dass** die Einheit (14) ein Gewindezapfen ist, der fest mit der Platte (7) verbunden ist, wobei das Schloss (2) in dem Boden (15) ein Loch zur Aufnahme des Zapfens aufweist und Kopplungsstabilität durch das Festziehen eines Gewindesteckels (16) sichergestellt wird, das komplementär zu dem Zapfen geformt ist, den Boden (15) an dem Zapfen festklemmend.
2. Der Schlossaufbau gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die konturierte Platte (7) laminales Seitenstreifen (11) aufweist, ausgestattet mit Sitzen (12) für die elastisch verformbaren Abschnitte (10) des Rahmens (3), wobei die Sitze (12) einer der Verriegelungselemente (9) bilden.
3. Der Schlossaufbau gemäß Anspruch 2, **dadurch gekennzeichnet, dass** die laminalen Seitenstreifen (11) schräge Endflächen (13) für das unterstützte Einführen der elastisch verformbaren Abschnitte (10) zwischen die Streifen (11), bis sie in die Sitze (12) eingreifen, aufweisen.
4. Der Schlossaufbau gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der elastisch verformbare Abschnitt (10) in mindestens einem im Wesentlichen transversalen Zapfen (17) besteht, der sich elastisch im Verhältnis zu der Kontur des Rahmens (3) entlang eines entsprechenden im Wesentlichen rohrförmigen Hohlraums erweitert, wobei die elastische Erweiterung mit Hilfe einer axial wirkenden Feder (18) stattfindet, die in dem Hohlraum untergebracht ist.
5. Der Schlossaufbau gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Kopplungsmittel (8) mindestens eine Durchgangsöffnung für den stabilen Eingriff eines Fixierkörpers (19) aufweisen, der in die Verankerungsfläche eingreift.
6. Der Schlossaufbau gemäß Anspruch 5, **dadurch gekennzeichnet, dass** die mindestens eine Durchgangsöffnung gewählt ist aus schlitzförmigen Öffnungen, zur einstellbaren Montage entsprechend einer Vielzahl benachbarter Positionen, und lochförmigen Öffnungen.

Patentansprüche

1. Ein leicht zu montierender Schlossaufbau (1), wobei das Schloss (2) einen Rahmen (3) umfasst, ausgebildet, um mit einer Verankerungsfläche verbunden zu werden, wobei eine Klinke (4) im Verhältnis zu dem Rahmen (3) beweglich ist und von dem Rahmen (3) geführt wird und funktionell mit entsprechenden Betätigungshebelsystemen (5) verbunden ist, die von einem Betätigungssegment gesteuert werden, eine konturierte Platte (7), ausgestattet mit Mitteln (8) zur Kopplung mit der entsprechenden Verankerungsfläche und mit selektiven Verriegelungselementen (9) für den Rahmen (3), wobei der Rahmen (3) elastisch verformbare Abschnitte (10) aufweist, die konstruiert sind, um in der Montageanordnung lösbar in mindestens einen Teil der Verriegelungs-

Revendications

1. Bloc serrure (1) facile à monter, ladite serrure (2) comprenant un coffre (3) destiné à être associé à

une surface d'accrochage, un loquet (4) mobile par rapport audit coffre (3) et guidé par ledit coffre (3) et coopérant avec des systèmes de leviers d'actionnement respectifs (5) commandés par un élément d'actionnement, une plaque profilée (7) dotée de moyens de montage (8) sur la surface d'accrochage respective et dotée d'éléments de verrouillage sélectif (9) pour ledit coffre (3), ledit coffre (3) comprenant des parties déformables par élasticité (10) conçues pour, dans la configuration de montage, se placer d'une manière amovible sur au moins une partie desdits éléments de verrouillage (9), la fixation et la séparation du coffre (3) par rapport à la plaque profilée (7) étant simples et directes, lesdits éléments de verrouillage (9) comprenant une pièce (14) qui fait saillie vers le haut depuis ladite plaque profilée (7) et est destinée à s'assembler d'une manière stable avec un fond (15) de ladite serrure (2), **caractérisé en ce que** ladite pièce (14) est une tige filetée vissée dans la plaque (7), ladite serrure (2) comportant, dans ledit fond (15), un trou destiné à recevoir ladite tige, la stabilité du montage étant assurée par le serrage d'un élément fileté (16), d'une forme complémentaire de celle de ladite tige, assujettissant le fond (15) à ladite tige.

pour un montage réglable dans une pluralité de positions contiguës, et des ouvertures en forme de trous.

2. Bloc serrure selon la revendication 1, **caractérisé en ce que** ladite plaque profilée (7) comprend des bandes latérales laminaires (11) pourvues de logements (12) pour lesdites parties (10) du coffre (3) déformables par élasticité, lesdits logements (12) constituant l'un desdits éléments de verrouillage (9). 30
3. Bloc serrure selon la revendication 2, **caractérisé en ce que** lesdites bandes latérales laminaires (11) comprennent des plans d'extrémités inclinés (13) pour l'insertion assistée, entre lesdites bandes (11), desdites parties déformables par élasticité (10) jusqu'à ce qu'elles entrent dans lesdits logements (12). 35
4. Bloc serrure selon la revendication 1, **caractérisé en ce que** ladite partie déformable par élasticité (10) est constituée par au moins un pivot sensiblement transversal (17) qui se déploie par élasticité par rapport au profil dudit coffre (3) le long d'une cavité respective sensiblement tubulaire, ledit déploiement par élasticité s'effectuant à l'aide d'un ressort (18) à action axiale logé dans ladite cavité. 45
5. Bloc serrure selon la revendication 1, **caractérisé en ce que** lesdits moyens de montage (8) comprennent au moins une ouverture traversante pour y engager d'une manière stable un corps de fixation (19) qui pénètre dans ladite surface d'accrochage. 50
6. Bloc serrure selon la revendication 5, **caractérisé en ce que** ladite au moins une ouverture traversante est choisie parmi des ouvertures en forme de fentes,

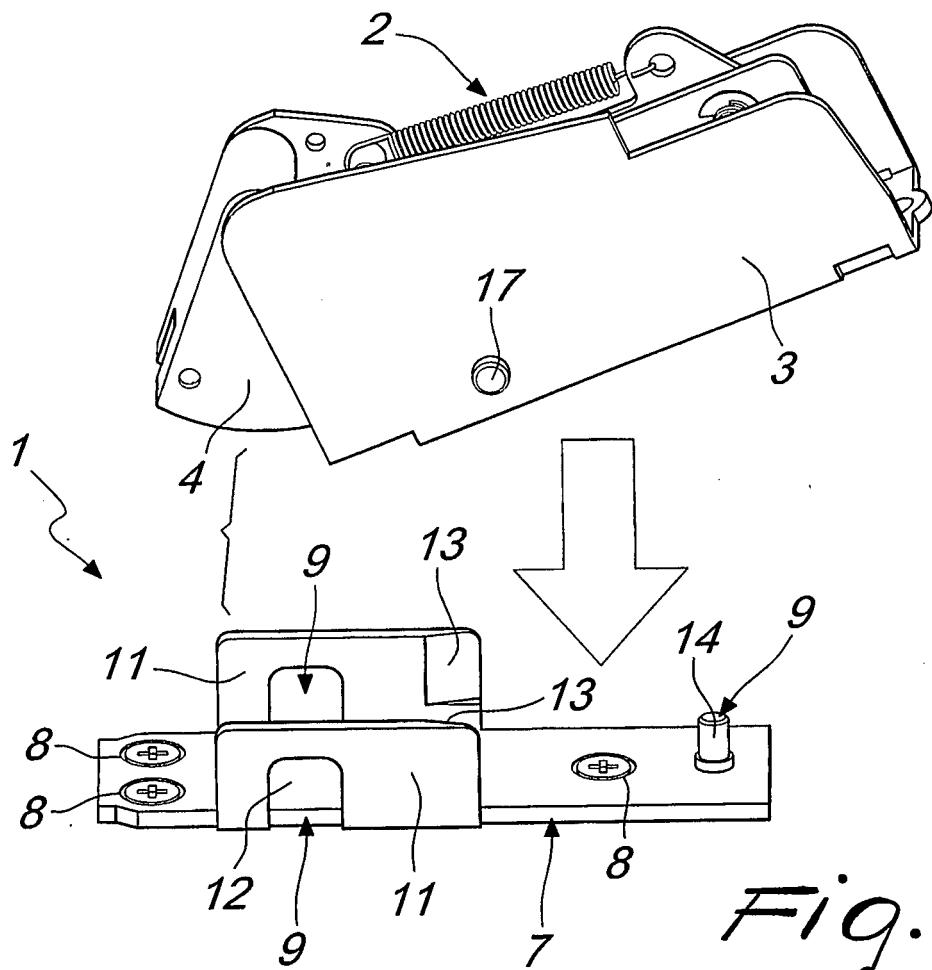


Fig. 1

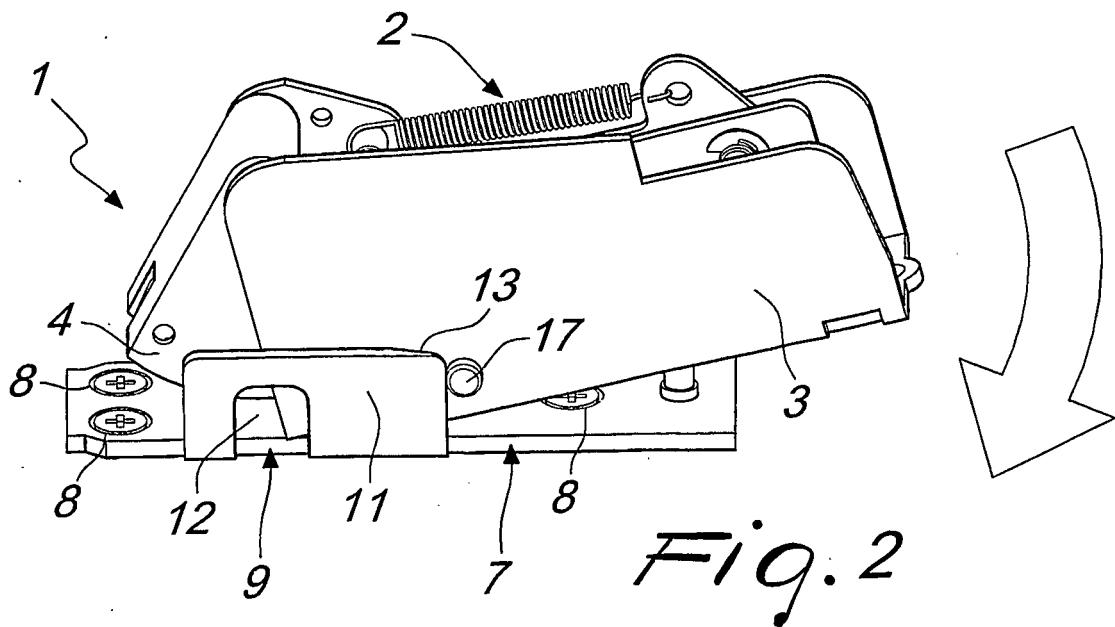


Fig. 2

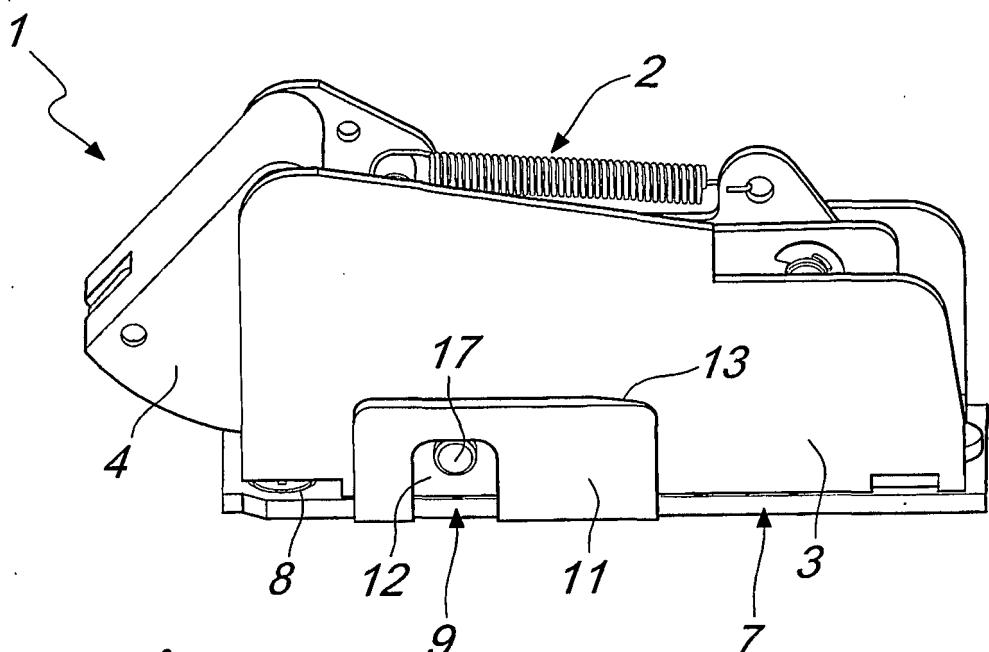


Fig. 3

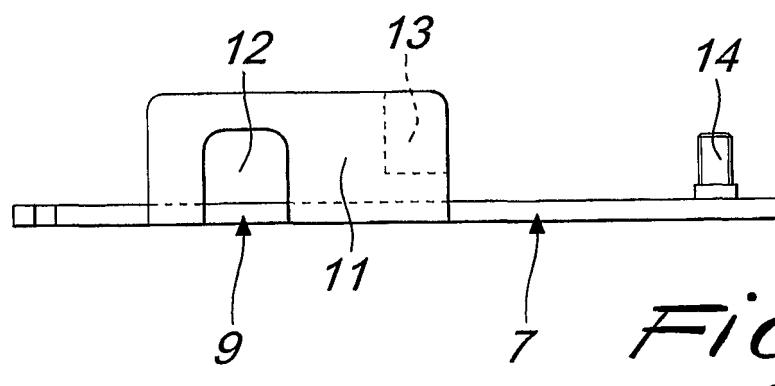


Fig. 4

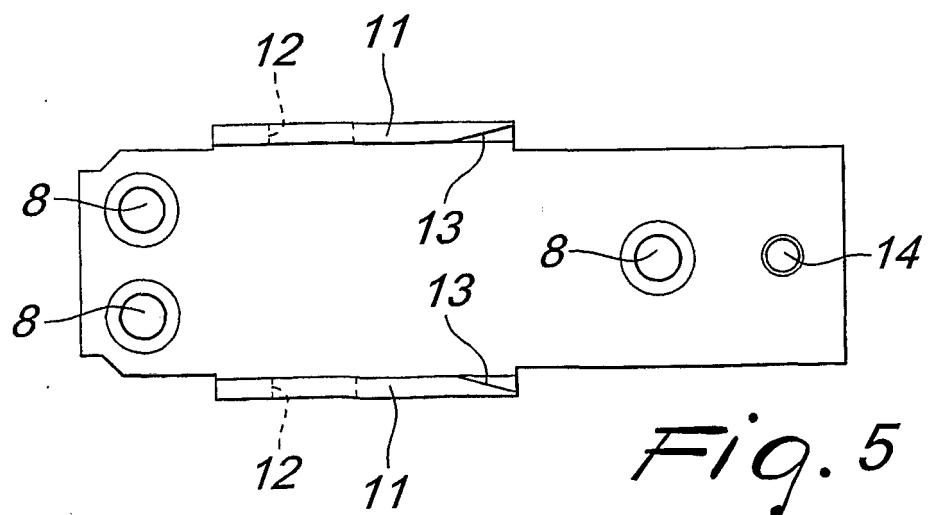


Fig. 5

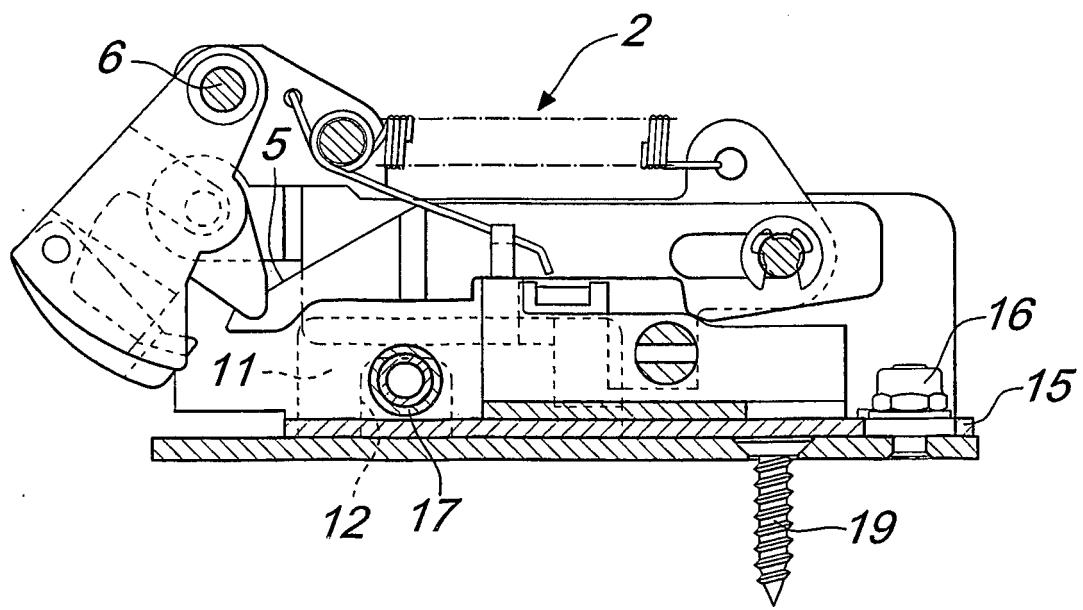
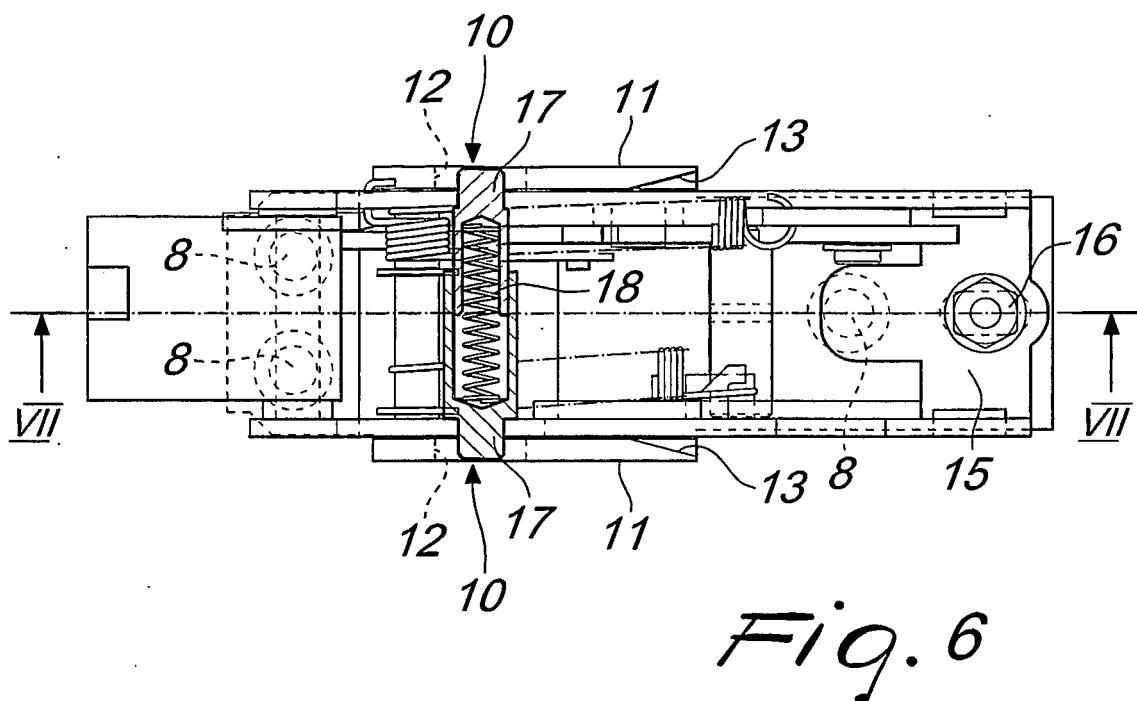


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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