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(54) **A PADLOCK FITTING**

VORHÄNGESCHLOSSBESCHLAG

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Description

Field of invention

[0001] The present invention relates generally to padlock fittings and more particularly to a padlock fitting which is equipped with a thumb turn and which provides a high degree of security against manipulation and attempts to force the lock.

Description of the background art

[0002] So-called padlock fittings are used to enable a door, gate or the like to be locked with the aid of a padlock. One type of padlock fitting includes a handle which is coupled to a lock bolt and which is prevented from rotating by a padlock shackle. With this type of padlock fitting, the padlock shackle extends through a hole in the thumb turn and also through a cramp or the like fastened to the door, gate etc.. This prevents rotation of the thumb turn and a bolt coupled to the thumb turn blocks opening of the door.

[0003] This type of padlock fitting can be forced relatively easily by an unauthorised person. The padlock is readily accessible and can be worked on with the aid of an appropriate tool, such as bolt clippers, heavy hammers or the like. The cramp anchored to the door can be cut away, therewith enabling the padlock to be rotated together with the thumb turn and therewith allow the door to be opened.

[0004] Thus, one drawback with many known padlock fittings is that they can readily be manipulated or destroyed with the aid of a suitable tool.

[0005] US 2003/0057710 A1 discloses a latch assembly comprising a handle and second handle release mechanisms for use with cabinets and the like. This assembly is comparatively complicated and comprises a great number of components.

SUMMARY OF THE INVENTION

[0006] Accordingly, one object of the present invention is to provide a padlock fitting of the kind defined in the introduction which will fulfil high security demands while keeping the number of components to a minimum.

[0007] The invention is based on the insight of the possibility of using a filling element or blocking element that makes manipulation of a padlock fastened to the padlock fitting difficult to achieve, while holding together the components of the padlock fitting so as to render forcing of the lock difficult with the aid of a tool.

[0008] The present invention thus provides a padlock fitting as defined in the accompanying claim 1.

[0009] According to the invention, the housing includes a housing body and a U-shaped part that has a first and a second leg, wherein the first leg is fastened to the housing body and wherein the housing body, the first leg, the second leg and the filling element include respectively a co-axial hole through which the thumb-turn shaft is rotatably mounted. This provides a compact and secure construction consisting solely of a few components: housing, thumb turn with associated bolt, and filling element.

[0010] Preferred embodiments of the invention are defined in the depending claims.

[0011] The inventive padlock fitting functions to provide an arrangement that is very secure with regard to manipulation and forcing of the lock, while comprising relatively few components.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present invention will now be described in more detail by way of example and with reference to the accompanying drawings, in which

fig. 1 is a perspective exploded view of the components of the inventive padlock fitting;

fig. 2 is a side view of a padlock fitting according to the invention in the absence of a padlock attached to said fitting;

fig. 3 is a side view of a padlock fitting according to the invention, showing a padlock attached to said fitting;

fig. 4 is a cross-sectional view of the padlock fitting of figure 3, taken on the line IV-IV;

fig. 5 shows the inventive padlock fitting from beneath;

fig. 6 is a perspective view of a thumb turn included in the inventive padlock fitting; and

figures 7a and 7b are respective perspective views of a filling or blocking element included in the inventive padlock fitting.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0013] A preferred embodiment of a padlock fitting according to the invention will now be described. Fig. 1 is an exploded view illustrating in perspective the various components of a padlock fitting according to the invention. The padlock fitting is referenced generally 1 and includes a housing 10 which is intended to be anchored to a door or the like (not shown) by means of a housing nut 11 which is screwed onto the inner end-part of the housing 10. The housing includes a body 12 which has a non-round cross-sectional shape such as to prevent rotation of the body relative to the door. It will be understood that the length of the housing can be adapted to the thickness of the door concerned.

[0014] The housing also includes a U-shaped part 13

whose one leg 13a is fastened to the housing body 12. Extending through the housing body 12 and the leg fastened to said body is a first opening 14a, while a second opening 14b which is co-axial with the first opening extends through the other leg 13b. These openings accommodate the shaft 21 of a thumb turn 20 which extends from the outside to the inside of the door.

[0015] A bolt 25 is fastened to the outer end of the shaft by means of a bolt nut 26. The bolt is thus connected mechanically to the thumb turn and is movable between a locking position, in which the door is locked, and a release position in which the door is open.

[0016] The thumb turn also includes a handle 22 which is turned in order to move the bolt 25 between its locking and release positions. As seen in fig. 6, the handle includes a lower outwardly projecting part 23 and an upper outwardly projecting part 24. The lower outwardly projecting part includes two tongues 23a, 23b which function to hold a padlock in place, said padlock being secured around said lower part 23. These tongues are shown clearly in fig. 5. The upper, outwardly projecting part includes a through-passing hole 24a whose function will be explained in detail hereinafter. Rotation of the thumb turn is restricted to about 90 degrees, by a shoulder 15 on the first leg 13a.

[0017] The padlock fitting 1 also includes a filling or blocking element 30, which is shown in detail in fig. 7a and 7b. The filling element may be made of steel or plastic for instance and is adapted for reciprocating movement between the two legs 13a, 13b of the U-shaped part 13, between a release position, see fig.2, and a blocking position, see fig.3. To this end, the side of the filling element 30 is provided on the side facing towards said other leg 13b with a groove 31 in which the leg 13b runs. The filling element is prevented from moving laterally in this way. The filling element also includes a through-passing elongate hole 32 through which the shaft 21 of the thumb turn extends. Because the thumb-turn shaft extends through the filling element, the filling element is anchored in the shank of the padlock, therewith making manipulation of the padlock still more difficult to achieve.

[0018] The upper part of the filling or blocking element includes a circular knob or projection 33 which extends through the hole 24a in the upper, outwardly projecting part 24 of the handle 22 when the filling element is located in an upper end position; see fig. 3. Because the filling element is anchored in the housing 10, more specifically in the U-shaped part 13, the knob 33 on the filling element prevents relative rotation between the housing 10 and the thumb turn 20 when the knob extends through the opening in said handle.

[0019] As before mentioned, the lower, outwardly projecting part 23 of the handle 22 is intended to hold the shank of a padlock in place. This is shown in figure 2, which is a side view of the padlock fitting 1 in an assembled and locked state. A padlock 40, shown in broken lines, includes a padlock housing 41 and a curved shank 42. The shank extends around both the lower part of the U-shaped part 13 and the lower outwardly projecting part 23 of the handle. The tongues 23a, 23b assist in holding the padlock in place.

[0020] In order to be able to insert the shank 42 to the position shown in fig. 3, it is necessary to move the filling element from the lower end position shown in fig. 2. This movement is made possible by the bevelled surfaces 34a, 34b on the lower surface of the filling element. The central portion of the lower surface of the filling element is concave, so as to conform to the radius of curvature of the shank 42. The lower inner surface of the U-shaped part 32 is correspondingly convex. With the shank inserted, there is very little clearance for the filling element and at least a sufficiently small clearance to allow the knob 33 to run through the opening 24a in the handle.

[0021] The locking procedure with regard to the padlock fitting is as follows: The thumb turn 20 is turned to an opening position, i.e. to a position in which the handle 22 is horizontal. The door is then closed and the thumb turn is turned to the position shown in fig. 4 for instance, wherewith the bolt 22 engages a striking plate or the like and therewith prevents the door from being opened. The shank of the padlock is then inserted between the U-shaped part 13 and the filling element 30 and the filling element is then moved upwards so that the knob engages the hole 24a in the handle. The padlock is then locked.

[0022] In this state of the lock, opening of the lock, i.e. relative rotation between the housing 10 and the thumb turn 20, is prevented, partly by the padlock extending the around the U-shaped part 13 and the handle 22, and partly by the knob 33 on the filling element engaging in the hole in the thumb turn. This provides double locking of rotation of the thumb turn. Further more, the shank is hidden largely by the filling element and the U-shaped part, therewith making forcing of the actual padlock more difficult to achieve.

[0023] The reverse procedure applies when releasing the lock. The padlock 40 is unlocked and removed. In this regard, the force of gravity ensures that the filling element 30 will move down to its release position; see fig. 2. The thumb turn can then be rotated to its lock release position, whereafter the door can be opened.

[0024] Although a preferred embodiment of a padlock fitting according to the invention has been described, the person skilled in this particular technical field will realise that this embodiment can be varied and modified within the scope of the accompanying claims. Thus, it will understood that the precise form of the components comprising the inventive padlock fitting can be varied.

[0025] Although a padlock of a specific form has been described as the device that holds the thumb turn and the housing together, it will be understood that a lock of some other form may be used as an alternative. In this regard, it is appropriate for the design of the padlock fitting to be adapted to the type of lock concerned.

Claims

1. A padlock fitting which is intended to be mounted on a door or the like and which comprises

   - a housing (10) intended to be fitted to the door and comprising a housing body (12);
   - a thumb turn (20) that includes a handle (22) and a shaft (21) mounted in the housing;
   - and a lock bolt (25) which is coupled mechanically to the thumb turn and which is movable between a locking position, in which the door is locked, and a lock release position in which the door is opened, and
   - a filling element (30) which is movable between a blocking position in which its blocks relative rotation between hosing and thumb turn, and a lock release position in which it allows relative rotation between said housing and said thumb turn, wherein a padlock mounted on the padlock fitting blocks movement of the filling element to said lock release position, **characterized by**

   a U-shaped part (13) which includes a first and a second leg (13a, 13b), wherein the first leg (13a) is fastened to the house body, and wherein the house body, the first leg, the second leg and the filling element (30) have respective co-axial holes (14a, 14b, 32) within which the shaft (31) of the thumb turn is rotatably mounted.

2. A padlock fitting according to claim 1, wherein the filling element (30) is prevented from moving to said lock release position when a padlock shank (42) is inserted between the U-shaped part (13) and the filling element.

3. A padlock fitting according to claim 1 or 2, wherein the filling element (30) includes a projection (33) and the handle (22) includes an outwardly projecting portion (24) which has a through-passing hole (24a) for receiving the projection on said filling element when the filling element is located in said blocking position.

4. A padlock fitting according to any one of claims 1-3, wherein the handle includes a further outwardly projecting portion (23) which includes tongues (23a, 23b) that function to fixate the padlock attached to the padlock fitting.

5. A padlock fitting according to any one of claims 1-4, wherein the filling element (30) includes a groove or slot (31) adapted to accommodate one (13b) of the legs of the U-shaped part (13).

6. A padlock fitting according to any one of claims 1-5, wherein the filling element (30) includes bevelled surfaces (34a, 34b) that facilitate insertion of a padlock shank (42) between the filling element and the housing (10).

7. A padlock fitting according to any one of claims 1-6, comprising a bolt (25) which is mounted on the outer end portion of the thumb-turn shaft (21).

8. A padlock fitting according to any one of claims 1-7, wherein the filling element (30) includes a concave surface (35) for harmonisation with the shape of a padlock shank (42).

Patentansprüche

1. Eine Vorhängeschlossbefestigung, welche dazu vorgesehen ist, an einer Tür oder Ähnlichem befestigt zu werden und welche umfasst:

   - eine Gehäuse (10), welches dazu vorgesehen ist, an der Tür befestigt zu werden und einen Gehäusekörper (12) umfassend;
   - einen Daumen-Dreher (20), welcher einen Griff (22) und eine Achse (21) einschließt, welche an dem Gehäuse befestigt ist;
   - und einen Schließbolzen (25), welcher mechanisch mit dem Daumen-Dreher gehoppelt ist und welcher zwischen einer Verriegelungsposition, in welcher die Tür verriegelt ist, und einer Öffnungsposition, in welcher die Tür offen ist, verschoben werden kann, und
   - ein Füllelement (30), welches zwischen einer Blockierposition, in welcher es eine relative Drehung zwischen dem Gehäuse und dem Daumen- Dreher blockiert, und einer Entriegelungsposition, in welcher es eine relative Drehung zwischen dem Gehäuse und dem Daumen- Dreher zulässt, beweglich ist, wobei ein Vorhängeschloss, welches an der Vorhängeschlossbefestigung befestigt ist, eine Bewegung des Füllelements zu der Entriegelungsposition verhindert, **dadurch gekennzeichnet, dass**

   ein U-förmiges Teil (13), welches einen ersten und einen zweiten Abschnitt (13a, 13b) umfasst, wobei der erste Abschnitt (13a) an dem Gehäusekörper befestigt ist, und wobei der Gehäusekörper, der erste Abschnitt, der zweite Abschnitt und das Füllelement (30) jeweilige koaxiale Löcher (14a, 14b, 32) aufweisen, in welchen die Achse (31) des Daumen-Drehers drehbar gelagert ist.

2. Eine Vorhängeschlossbefestigung nach Anspruch 1, wobei das Füllelement (30) von einer Bewegung zu der Entriegelungsposition abgehalten wird, wenn ein Vorhängeschlossbügel (42) zwischen dem U-förmigen Teil (13) und dem Füllelement eingeführt wird.

3. Eine Vorhängeschlossbefestigung nach Anspruch 1 oder 2, wobei das Füllelement (30) einen Vorsprung (33) umfasst und der Griff (22) einen nach außen herausstehenden Abschnitt (24) umfasst, welcher ein durchgehendes Loch (24a) aufweist zum Aufnehmen des Vorsprungs auf dem Füllelement, wenn sich das Füllelement in der Verriegelungsposition befindet.

4. Eine Vorhängeschlossbefestigung nach einem der Ansprüche 1 bis 3, wobei der Griff einen weiteren nach außen herausstehenden Abschnitt (23) umfasst, welcher Zungen (23a, 23b) umfasst, die dazu dienen, um das Vorhängeschloss zu fixieren, welches an der Vorhängeschlossbefestigung angebracht ist.

5. Eine Vorhängeschlossbefestigung nach einem der Ansprüche 1 bis 4, wobei das Füllelement (30) eine Nut oder einen Schlitz (31) umfasst, welcher angepasst ist, um einen (13b) der Abschnitte des U-förmigen Teils (13) aufzunehmen.

6. Eine Vorhängeschlossbefestigung nach einem der Ansprüche 1 bis 5, wobei das Füllelement (30) abgeschrägte Oberflächen (34a, 34b) umfasst, welche das Einführen eines Vorhängeschlossbügels (42) zwischen dem Füllelement und dem Gehäuse (10) erleichtern.

7. Eine Vorhängeschlossbefestigung nach einem der Ansprüche 1 bis 6, welche einen Bolzen (25) umfasst, welcher an dem äußeren Endabschnitt der Daumen-Dreherachse (21) befestigt ist.

8. Eine Vorhängeschlossbefestigung nach einem der Ansprüche 1 bis 7, wobei das Füllelement (30) eine konkave Oberfläche (35) zur Angleichung an die Gestalt eines Vorhängeschlossbügels (42) umfasst.

Revendications

1. Une installation de cadenas prévue pour être attachée à une porte ou quelque chose de similaire et qui comprend

   - un boîtier (10) prévu pour être installé à la porte et comprenant un corps de boîtier (12);
   - un pivot de pouce (20) qui inclut une poignée (22) et un axe (21) qui est accueilli dans le boîtier ;
   - et un goujon de serrure (25) qui est mécaniquement couplé au pivot de pouce et qui est déplaçable entre une position de verrouillage dans laquelle la porte est verrouillée et une position de desserrage dans laquelle la porte est ouverte, et
   - un élément de remplissage (30) qui est déplaçable entre une position de blocage dans laquelle il bloque la rotation relative entre le boîtier et le pivot de pouce, et une position de desserrage dans laquelle il permet une rotation relative entre le boîtier et le pivot de pouce, dans laquelle un cadenas attaché à l'installation de cadenas bloque un déplacement de l'élément de remplissage vers la position de desserrage, **caractérisé par**

   une pièce en forme de U (13) qui inclut une première et une deuxième partie (13a, 13b), où la première partie (13a) est attachée au corps du boîtier et où le corps de boîtier, la première partie, la deuxième partie et l'élément de remplissage (30) ont des trous coaxiaux respectifs (14a, 14b, 32) dans lesquels l'axe (31) du pivot de pouce est installé de manière rotative.

2. Une installation de cadenas selon la revendication 1, où l'élément de remplissage (30) est empêché de se déplacer à la position de desserrage quand un fût (42) de cadenas est introduit entre la pièce en forme de U (13) et l'élément de remplissage.

3. Une installation de cadenas selon les revendications 1 ou 2, où l'élément de remplissage (30) inclut une saillie (33), et la poignée (22) inclut une portion saillant à l'extérieur (24) qui a un trou passant à travers (24a) pour accueillir la saillie sur l'élément de remplissage quand l'élément de remplissage est situé dans la position de blocage.

4. Une installation de cadenas selon une des revendications 1 à 3, où la poignée inclut une portion supplémentaire (23) saillant à l'extérieur qui inclut des ardillons (23a, 23b) qui servent à fixer le cadenas attaché à l'installation de cadenas.

5. Une installation de cadenas selon une des revendications 1 à 4, où l'élément de remplissage (30) inclut une rainure ou une fente (31) adaptée à accueillir une (13b) des parties de la pièce en forme de U (13).

6. Une installation de cadenas selon une des revendications 1 à 5, où l'élément de remplissage (30) inclut des surfaces biaisées (34a, 34b) qui facilitent l'insertion d'un fût de cadenas (42) entre l'élément de remplissage et le boîtier (10).

7. Une installation de cadenas selon une des revendications 1 à 6, comprenant un goujon (25) qui est attaché au bout extérieur de la partie du pivot de pouce (21).

8. Une installation de cadenas selon une des revendications 1 à 7, où l'élément de remplissage (30) inclut

une surface concave (35) pour l'harmonisation avec la forme d'un fût de cadenas (42).

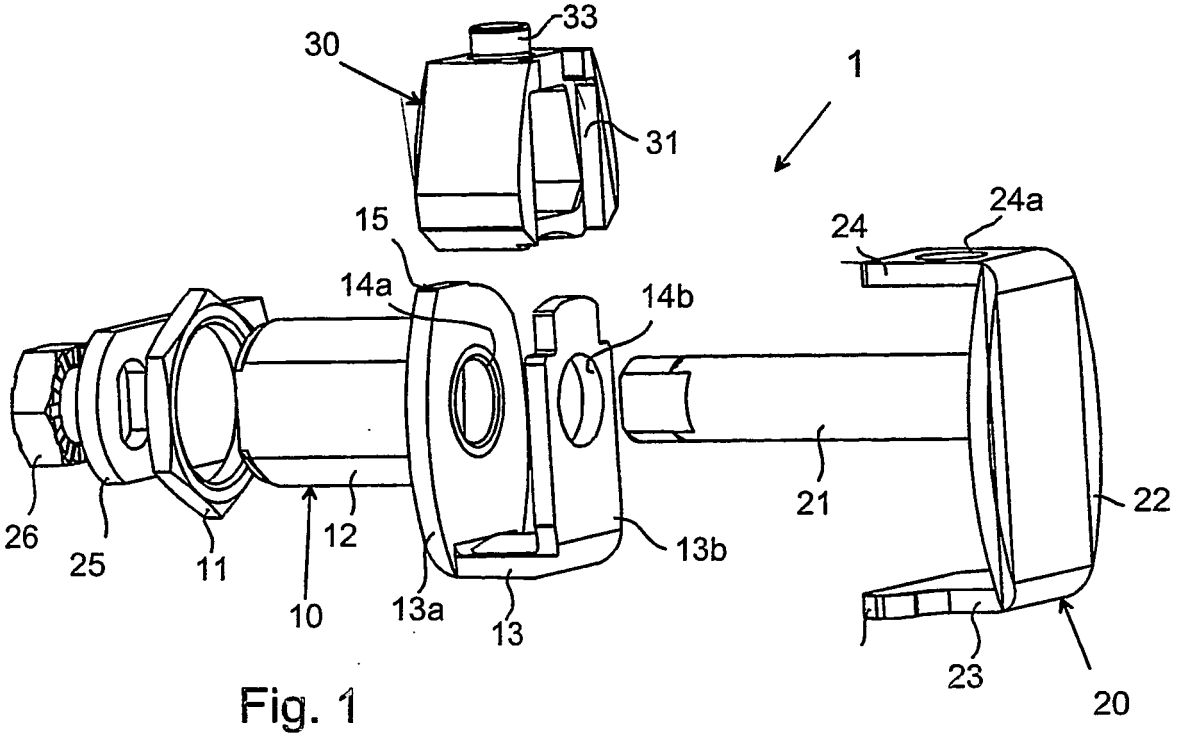


Fig. 1

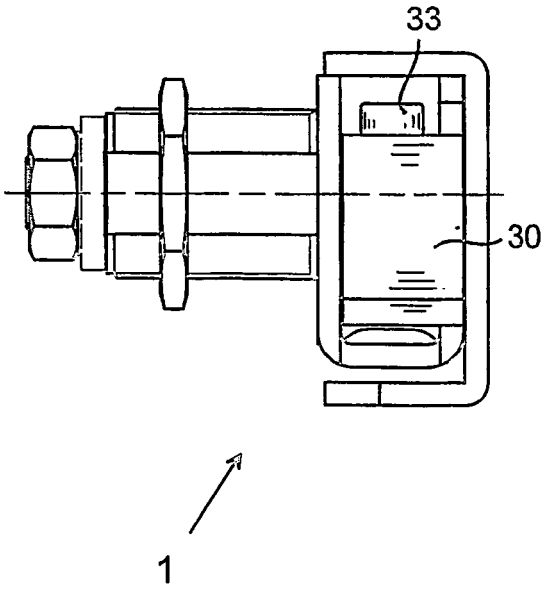


Fig. 2

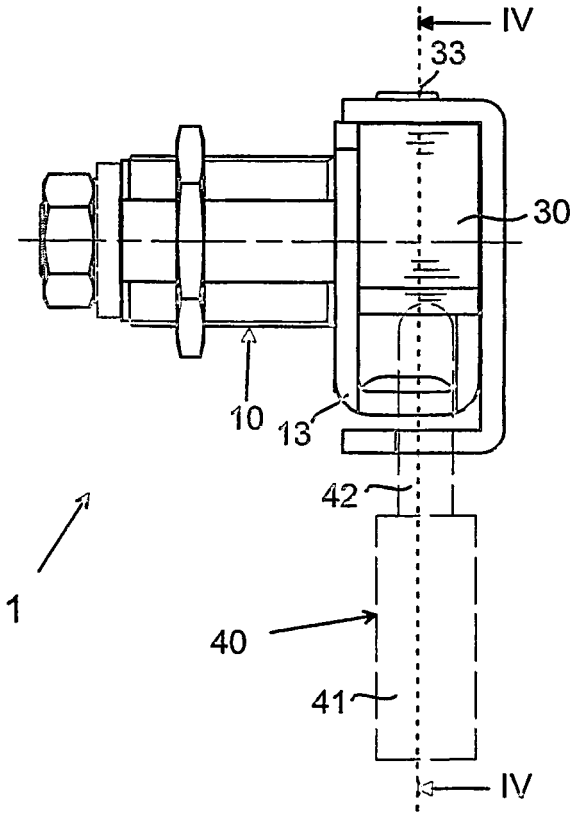


Fig. 3

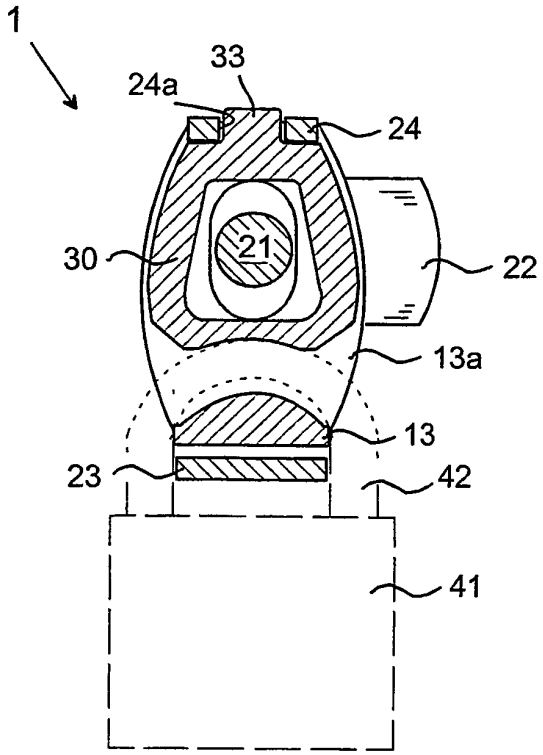


Fig. 4

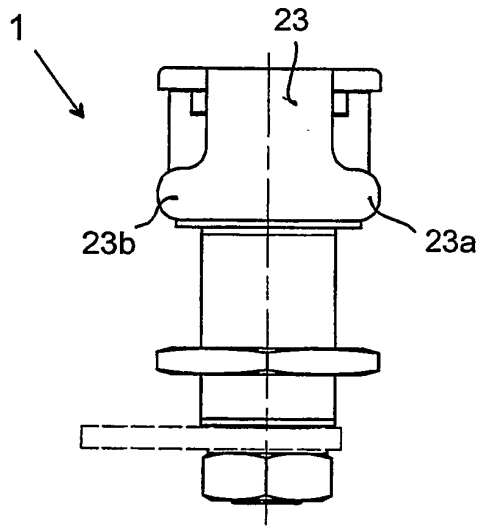


Fig. 5

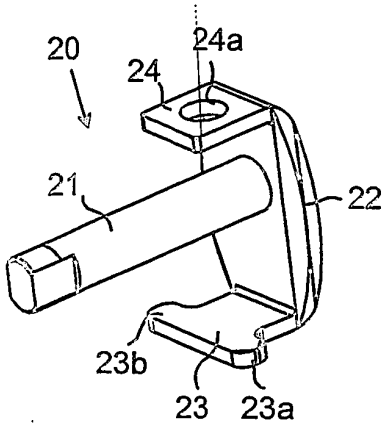


Fig. 6

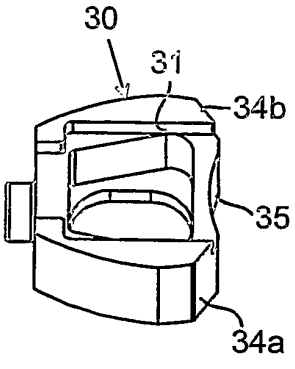


Fig. 7a

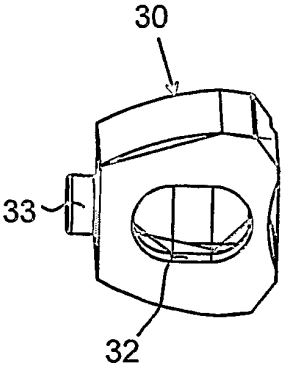


Fig. 7b

REFERENCES CITED IN THE DESCRIPTION

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