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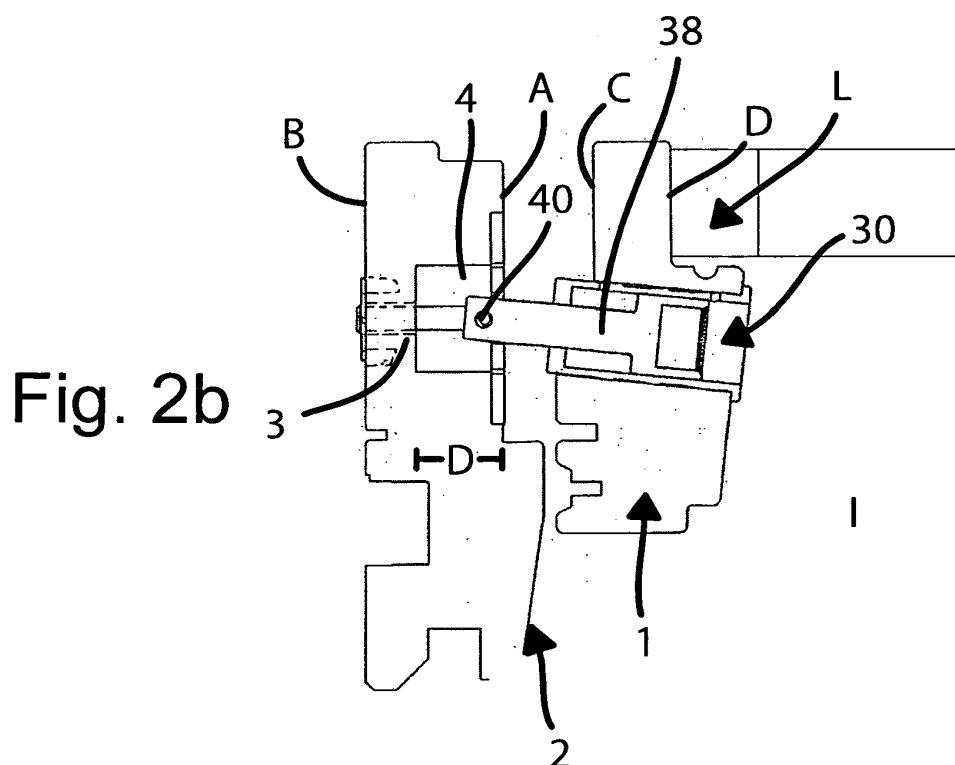
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(54) **A roof window structure with a lock, and a lock for such a window**

(57) The present invention relates to a roof window, such as for pivot or bottom hung windows, comprising a window frame (2) having a first side (A) defining an inner perimeter of the frame (2), an opposite second side (B) defining an outer perimeter of the frame (2), and a first lock housing (10), a sash (1) having a first side (C) defining an outer perimeter of the sash (1) and facing said first side (A) of the frame (2) and an opposite second side (D) defining an inner perimeter of the sash (1), the sash

(1) having a movable locking member (38) movable to a locking position in engagement with the first lock housing (10). According to the invention the sash (1) has a through-going first passage (5) extending from the first side (C) of the sash (1) to the second side (D) of the sash (1), the locking member (38) being movable within the first passage (5), a movement of said locking member (38) along the first passage (5) being controllable from said second side (D) of the sash (1).



**Fig. 2b**

## Description

**[0001]** The present invention relates to a roof window, such as a pivot or bottom hung roof window, comprising a window frame having a first side (A) defining an inner perimeter of the frame, an opposite second side (B) defining an outer perimeter of the frame, and a first lock housing, a sash having a first side (C) defining an outer perimeter of the sash and facing said first side (A) of the frame and an opposite second side (D) defining an inner perimeter of the sash.

**[0002]** The invention is specially, but not exclusively, suitable for a pivot, top or bottom hung window sash of a window structure, especially such window structures mounted on an easily accessible facade.

## BACKGROUND ART

**[0003]** Conventional windows of this type are provided with a locking mechanism operated by a handle for locking the sash in a closed position. Often, the possibility to lock the sash in a ventilation position is also provided.

**[0004]** Commercially available additional locking means exist that can be mounted after the installation of the window in an easily accessible facade. EP 1 537 285 and DE-43 28 330 disclose such a locking device for a pivot or bottom hung window. The locking device comprises a bushing mounted in the window frame and an axially movable cylindrical locking member which is mounted onto the front of the sash. The movable locking member is received in the bushing when moved to an extended active position from a retracted inactive position. The movable cylindrical locking member is formed by a key operated locking cylinder. In its active position the locking cylinder obstructs the opening movement of the sash, typically limiting the movement of the sash between a closed position and a ventilation position engaging the latch. This type of lock provides excellent burglar resistance, but is cumbersome to use as the user needs to have the key available for locking and unlocking. Further, in some cases it may be desirable to provide an increased strength of the lock. However, this should not be at the expense of the possibility of factory-mounting of the lock.

## DISCLOSURE OF THE INVENTION

**[0005]** On this background, it is an object of the present invention to provide an inexpensive user friendly and versatile locking device of the kind referred to above that provides a very good resistance to a forced entry and that is easy to install.

**[0006]** This object is achieved in accordance with claim 1 by providing a roof window comprising:

A roof window comprising: a window frame, a sash pivotally mounted to the window frame, the window frame having a first side defining an inner perimeter

of the frame, an opposite second side defining an outer perimeter of the frame, and said window frame being provided with a lock member, the sash having a first side defining an outer perimeter of the sash and facing said first side of said frame in a closed position of the sash and an opposite second side defining an inner perimeter of said sash, said sash having a movable locking member movable to a locking position in engagement with said first lock housing, said sash having a through-going first passage extending from said first side of said sash (1) to said second side of said sash, said movable locking member being movable within said first passage, and movement of said locking member along said first passage being controllable from said second side of said sash.

**[0007]** The roof window with this lock is inexpensive and can be factory fitted as a standard feature whilst maintaining competitive manufacturing costs.

**[0008]** Conveniently, the first passage is formed in the sash by drilling through said sash or in a sash molding process.

**[0009]** Advantageously, the movable locking member is spring biased towards a retracted position.

**[0010]** The lock member may simply be a recess in the frame member, for example when the frame member is made of metal. The recess or a recess can be reinforced with a striker plate.

**[0011]** To provide for a highly reliable mounting of the striker plate is received in a shallow recess in the first side of the frame and the frame is provided with a passage that extends from the second side of the frame, that is, the side that is inaccessible to a person after the window structure has been installed in a building to the first side of the frame. An anchoring member extends in the second passage and is connected with the frame and the striker plate. A highly reliable anchoring may be obtained by a first portion of the anchoring member engaging the second side of the frame, a second portion of the anchoring member including an elongated rod or bar configured to engage the first portion of the anchoring member, such as through a screw-thread.

**[0012]** Conveniently, the movable locking member may be movably received in a second lock housing fixedly mounted within the first passage. The second lock housing may include a guiding mechanism, such as a pin cooperating with a slot, configured for guiding the movement of the movable locking member when in the advanced position projecting from the first side (C) of the sash wherein the movable locking member is in engagement with the first lock housing. Additionally, or alternatively, the first lock housing may have parts, such as a key-hole slot, configured to be complementary with a head portion of the locking member so as to prevent retraction of the movable locking member unless the movable locking member is put in a predetermined configuration, such as through rotation of the movable locking

member about its longitudinal axis.

**[0013]** The object above is also achieved by providing a lock for a roof window with a window frame and a sash pivotally mounted to the window frame, said lock comprising: a lock member for mounting at the frame of said window structure and a lock housing for mounting in the sash of said window structure, a movable locking member arranged inside said lock housing said moveable locking member being provided with an engagement portion, said lock member being provided with a slot for receiving said engagement portion, said lock housing having a peripheral wall, a first open end and an opposite second open end, movement of said locking member being controllable through said first open end, said movable locking member having a first retracted position wherein said engagement head of said movable locking member does not project into the slot of the lock member, and a second extended position wherein said engagement portion of said movable locking member projects from said lock housing into said slot of the lock member said lock member having an engagement portion configured to engage said engagement head of said locking member in a second position of said locking member, a spring biasing said movable member towards the first retracted position.

**[0014]** This lock is inexpensive, secure (burglar proof) and can be factory fitted as a standard feature whilst maintaining competitive manufacturing costs.

**[0015]** Further objects, features, advantages and properties of the pivot or bottom hung window and the locking device according to the invention will become apparent from the detailed description.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0016]** In the following detailed portion of the present description, the invention will be explained in more detail with reference to the preferred embodiments shown in the drawings, in which

Fig. 1 shows schematically a window structure, with the sash in an open and closed position,  
 Fig. 2a and 2b show a sectional schematic view through a member of the sash and of the frame, including parts of a lock, in an unlocked and locked state, respectively,  
 Fig. 3 is a front perspective view of a lock according to the invention, in the engaged position,  
 Fig. 4 is a rear perspective view of the lock shown in Fig. 3, in a disengaged position,  
 Fig. 5 is a rear perspective view of the lock shown in Fig. 3, in an engaged position,  
 Fig. 6 is a front perspective view of the lock shown in Fig. 3, in a disengaged position,  
 Fig. 7 is a view similar to fig. 6,  
 Fig. 8 is a view similar to fig. 3, with other anchoring elements, and  
 Fig. 9 is an elevated view on another embodiment

of the lock according to the disclosure with a key, Fig. 10 is a semi-transparent view of the lock shown in Fig. 9,

Fig. 11 is an elevated view on several inner parts of the lock shown in Fig. 9,

Fig. 12 is an elevated view of a key of the lock shown in Fig. 9,

Fig. 13 is another elevated view on several inner parts of the lock shown in Fig. 9, and

Fig. 14 is another elevated view of the lock shown in Fig. 9.

#### DETAILED DESCRIPTION

**[0017]** Fig. 1 shows schematically an exemplary embodiment of a window structure with a window frame 2 and a window sash 1 pivotally journaled in the frame 2 by means of pivotal hinges H, with an axis of rotation parallel with a top horizontal sash member 1' and a bottom horizontal sash member 1", the axis of rotation preferably being located halfway between the top and the bottom horizontal sash members 1', 1". Fig. 1 illustrates the window structure as mounted in a roof; however, the invention can be equally applied also to bottom or top hung window structures.

**[0018]** Preferably, the frame 2 members and sash 1 members are for the major part wooden, although it is also possible to use metal members, or molded plastic members. The sash 1 includes a glass window pane P with an inner face adapted to face the inside I of the building in which the window structure is mounted.

**[0019]** In a closed position (an open position is illustrated by the interrupted lines), the sash 1 is oriented substantially parallel with the window frame 2 as shown in fig. 1, 2a and 2b. A movable locking member 38 of a lock L is arranged in a through-going bore or passage 5 of a sash member; the movable locking member 38 is configured to engage, as discussed below, a complementary lock member in an adjacent window frame 2 member, to securely lock the window sash 1 to the frame 2. The lock member is in an embodiment a recess 4 in the frame member B covered by a (preferably steel) striker plate 10.

**[0020]** In another embodiment with a window frame with metal profile frame members the lock member can simply be a recess slot 11 for receiving an engagement portion of the movable locking member 38, i.e. a keyhole in the hollow metal frame member B.

**[0021]** Preferably, the through-going passage extends through the part of the sash 1 inside the building such that locking and unlocking of the lock L can take place from the inside I of the building. The lock L is preferably arranged in a position close to one of the horizontal sash members, such as the bottom horizontal sash member 1", and preferably in addition to the lock L there is a conventional lock, such as a lock of the type disclosed in European patent application no. 2 281 984, arranged at another position, such as at the upper horizontal sash

member 1' to automatically lock the sash to the frame.

**[0022]** Fig. 2a shows a sectional schematic view through adjacent upright members of the sash 1 and of the frame 2 that connect the horizontal members 1', 1'', 2', 2'' of the sash 1 and the frame 2, respectively. Fig. 2b illustrates with letter A a first peripheral side of the frame 2 defining generally the inner perimeter or contour of the frame 2 and a second peripheral side B defining generally the outer perimeter or contour of the frame 2. Letter C represents a first peripheral side of the sash which faces the first side A of the frame and which defines generally the outer perimeter or contour of the sash while letter D represents a second peripheral side of the sash opposite the first sash side C and which defines generally the inner perimeter or contour of the sash. A window pane P illustrated only schematically will normally be mounted to the second side D of the sash 1. The lock L to be discussed below is accessible from the inside I of the building in which the window structure is mounted, the pane P being mounted on the side of the lock L closer to the building outside.

**[0023]** Shown in fig. 2a and 2b is a recessed portion 4 of the frame member as well as first and second through-going passages 5 and 3 prepared in the sash member and the frame member, respectively. In one embodiment of the invention, to accommodate for the lock L the recessed portion 4 is formed with a depth D measured from the first side (A) surface of the frame member; two opposite through-going second passages 3 are drilled or otherwise formed so as to extend from the recess 4 to the second side B. Conveniently, the recessed portion 4 is circular with a diameter of about 3-6 cm. Each second passage 3 may have a diameter in the order of 5-10 mm, to accommodate for anchoring members, as explained below. A first passage 5 is drilled or otherwise formed in the sash 1 member, preferably to extend with a uniform crosswise dimension from the first sash side C to the second sash side D. Fig. 2a shows the lock L in an unlocked state while fig. 2b shows the lock L in the locked state.

**[0024]** As best shown in Figs. 3 to 7, the lock L comprises a first lock window 10 to be mounted in the recess 4, and a lock housing 30 to be mounted in the through-going second passage 5 of the sash member. As best shown in fig. 5, in an exemplary embodiment the first lock member 10 includes a flat metal disc, a striker plate, with a slot 11 adapted to cooperate with an engagement head 40, preferably in the form of an enlarged head 40, of an elongated movable locking member 38 movable in the lock housing 30, along the length of the second passage 5. The metal disc has a thickness smaller than the aforementioned depth D of the recessed portion 4, to provide for a space between the bottom surface of the recess 4 and the disc for receiving the enlarged head 40 of the movable locking member 38 introduced through the slot 11 in the disc, as shown in fig. 2b. A 90° turning movement of the locking member 38 will then lock the engagement head 40 to the lock member 10. The lock member 10

may alternatively be formed as a hollow metal casing fitted into the recess, with a front wall including the slot 11 and a rear wall bearing against the bottom of the recess 4.

**[0025]** The lock housing 30 has a peripheral wall 32 and a first end 34 and a second end 36, the peripheral wall 32 preferably being in frictional engagement with the inside surface of the first passage 5. The first end 34 of the lock housing 30 has a flange 35 abutting against the second side D of the said sash 1 member.

**[0026]** Shown best in fig. 4 is a release mechanism including a spring 37, preferably a helical wire spring arranged between a bottom wall 33 of the lock housing 30 and the movable locking member 38. The spring 37 normally urges the movable locking member 38 to a position retracted fully or partially into the lock housing 30, away from the first lock housing 10. Opposite the engagement head 40 the moveable locking member 38 is provided with an end portion 39 contacting the spring 37 and having on the opposite side a maneuvering face which may be in the form of a recess having a peripheral wall 39'', which may be serrated or groove for improved frictional contact with a person's finger.

**[0027]** A radially outwardly protruding pin 38' of a guiding mechanism 50 is fixed to the moveable locking member 38, as best seen in fig. 5. The pin 38' extends into a U-shaped groove or recess 31 formed in the lock housing 30. When a person manually presses the moveable locking member 38 to move away from the flange 35 the pin 38' will slide along the groove 31, until reaching a bottom surface 31' of the groove. When striking the bottom surface 31' the enlarged head 40 will also have entered the key-hole slot 11 of the first lock housing 10. Through a rotation by the user of the moveable locking member 38 in this advanced position the pin 38' moves within a transverse groove part, retaining the moveable locking member 38 in this advanced position where the engagement member 38 is also engaged with the first lock housing 10, as shown in fig. 5.

**[0028]** As the moveable locking member 38 cannot be reached from the outside it offers proper burglar protection.

**[0029]** As shown in fig. 2-7 and discussed briefly above the first lock housing 10 may include at least one anchoring member 15 configured with a first portion 16 for anchoring the anchoring member 15 to the frame 2 and a second portion 17 connected with or configured for connection with the lock housing 10. The first portion 16 of the anchoring member 15 may include teeth 18 driven into the wooden frame 2. For mounting the lock housing 10 the second portion 17 of the anchoring member 15 includes an elongated rod or bar configured to engage the first portion 16 of the anchoring member 15 already secured to the frame 2, such as through a screw-thread, using a screw-driver acting on a head portion 17' of the elongated rod 17 which extends through a corresponding mounting hole in the disc 10.

**[0030]** In fig. 8 another anchoring member 15 is shown

in the form of conventional screws and also showing an alternative configuration of the key-hole aperture 11 where the first locking house 10 may in the area of the aperture 11 have a stepped portion such that the engagement head 40 will protrude into the recess 4 to a lesser degree.

**[0031]** From the above it will be understood that the locked state illustrated in fig. 2b requires first a translational movement of the locking member 38 by a person pressing the locking member 38 into the passage 5 against the spring 37, and further into the recess 4 where-by the enlarged head 40 passes the key-hole slot 11. The user then preferably rotates the locking member 38 to bring the enlarged head 40 into engagement with the rear side face of the lock housing.

**[0032]** Figs. 9 to 12 show another exemplary embodiment of the lock. The lock according to this embodiment is installed in a roof window in the same way as shown for the embodiment shown in figures 1 to 8. In this embodiment the lock is provided with a key 60 to operate the locking mechanism, to lock the moveable locking member 38 in the extended position and possibly also to move the moveable locking member 38 to the retracted position. The key can be made of a plastics or other polymer material. The key is provide with a hook 61 at its proximate end, a shaft 62 extending form the hook 61 to a bit 63 at the distal end of the key 60. The hook 61 is in an embodiment shaped and sized to snap fit on a handlebar or other element for operating the window. The engagement head 40 at the distal end of the movable locking member 38 is in this embodiment formed by a rod 40' extending through the movable locking member and the rod projects form the distal end of the movable locking member 38 in two opposite directions and at a substantially right angle.

**[0033]** The movable locking member 38 is provided with a cylindrical shaft, preferably a metal shaft, forming the main part of the movable locking member 38.

**[0034]** An engagement member 65 is connected to the proximate end of the metal shaft. The engagement member 65 serves to engage the bit 63 at the distal end of the key 60. Hereto, the engagement member 65 is provided with a slot 66 that is complementary with- and engages the bit 63. The bit 63 and the slot 66 are formed such that the key 60 can be used to pull the movable lock member 38 towards the retracted position if it should get stuck and the force of the spring 37 is insufficient for returning the movable lock member 38.

**[0035]** The engagement member 65 is made from a thermal insulation material such as plastic or other polymer material so that the engagement member 65 serves as a thermal barrier.

**[0036]** A helical wire spring 37 is placed over the metal shaft and extends between the engagement member 65 and an end wall of the lock housing 30 and urges the movable locking member 38 to a retracted position. The lock housing 30 is a tubular (hollow cylinder) member provided with a flange 35 for abutting with the first surface

D of the upper sash member 1' and the movable member 38 is slidably received in the lock housing 30.

**[0037]** In this embodiment the lock is not provided with a guiding mechanism and the movable locking member 38 is not provided with a radially outwardly protruding pin. The guiding function is taken over by the enlarged head 40 / rod 40' through interaction with guide projections 71,72 and slots 73 formed on the rear side of the striker plate 10 (on the side facing the hole or recess 4 in the frame member B).

**[0038]** The two highest projections 71 are diametrically oppositely placed and each provide one side surface for the slots 73 and an end stop surface for abutment with the rod 40'. The highest projections 71 are provide with threaded holes 76 that allow for the striker plate 10 to be secured to the frame member B by bolts that engage from the opposite side of the frame member B.

**[0039]** The two less high projections 72 each provide one side surface of the slots 73 and one guide surface 75 with a axially directed normal vector. Thus two guide surfaces 75 are formed for guiding the two projections of the rod 40' when it is turned.

**[0040]** In operation a user inserts the key 60 into the lock and engages the slot 66 in the engagement member 65 with the bit 63. In order to activate the lock the user pushes the movable locking member 38 against the force of the spring 37 with the key 60 until the enlarged head 40 passes though the slot 11 and beyond the guide surfaces 75, i.e. to the extended position. Then, the user starts an approximately 180 degrees turn unit the rod 40' abuts with the end stop surfaces of the higher projections 71. This is the position shown in figures 10 to 14. Next, the user can disengage the key and the force of the spring 37 will ensure that the rod 40' abuts with guide surfaces 72. During the turn the user does not need to push the key/movable member since the return force of the spring 347 can be countered by the rod 40' being guided by the guide surfaces 75.

**[0041]** For releasing the lock the user inserts the key 60 again and engages the engagement member 65, turns the movable member 180 degrees back and allows the spring to urge the movable member back to the retracted position.

**[0042]** Although not shown in detail, the present disclosure also covers a locking member 38 provided with a push to release mechanism. This mechanism is configured to let the movable lock member 38 to assume the engaged position after one press/pushing activity by a user on the movable lock member 38 and to let the movable lock member 38 return to the retracted position upon the next press/pushing activity of a user.

**[0043]** In an embodiment (not shown) the striker plate 10 is connected with another part of the structure for improving its strength. The connection could be an extension, preferably in the form of a bracket of the striker plate so that it can be attached, preferably by screws, to another side of the profiles of the frame, or the extension can be configured such that a (bracket) portion of the

striker plate can be directly secured (preferably by screws) to the building (roof) structure where the roof window is installed. The extension can be an integral part/bracket of the striker plate or it can be a preferably plate metal bracket that can be connected to the striker plate 10.

**[0044]** In an embodiment a lid (not shown) of thermally insulating material (plastic) covering the flange 35 lid it fitted to the opening 34 for avoiding the lock to form a thermal bridge and to avoid problems with condensation. Alternatively a plug of thermally insulating material (plastic) can be inserted into the lock housing 30 avoiding the lock to form a thermal bridge and to avoid problems with condensation. Such a plug fulfills a similar function to the engagement member 65.

**[0045]** Although the present invention has been described in detail for purpose of illustration, it is understood that such detail is solely for that purpose, and variations and combinations can be made therein by those skilled in the art without departing from the scope of the appended claims. For example a roof window with one frame and one sash has been shown, but it is clear that a single window frame can be provided with several sashes.

## Claims

### 1. A roof window comprising:

- a window frame (2),
- a sash (1) pivotally mounted to the window frame,
- the window frame (2) having a first side (A) defining an inner perimeter of the frame (2), an opposite second side (B) defining an outer perimeter of the frame (2), and said window frame (2) being provided with a lock member (10),
- the sash (1) having a first side (C) defining an outer perimeter of the sash (1) and facing said first side (A) of said frame (2) in a closed position of the sash (1) and an opposite second side (D) defining an inner perimeter of said sash (1), said sash (1) having a movable locking member (38) movable to a locking position in engagement with said first lock housing (10),
- **characterized by** said sash having a through-going first passage (5) extending from said first side (C) of said sash (1) to said second side (D) of said sash (1), said movable locking member (38) being movable within said first passage (5), and movement of said locking member along said first passage (5) being controllable from said second side (D) of said sash (1).

### 2. The roof window according to the preceding claim, said first passage (5) being formed in said sash by boring through said sash (1) or by being formed in a sash molding process.

3. The roof window according to any of the preceding claims, said sash (1) including an uppermost and a lowermost horizontal member and parallel vertical members, said passage (5) extending in the one of said vertical members closer to said lowermost horizontal member than to said uppermost horizontal member.

4. The roof window according to any of the preceding claims, said locking member (38) being resiliently biased towards a retracted position away from said lock member (10).

5. The roof window according to any of the preceding claims, wherein said first side (A) of said frame (2) is provided with said lock member (10) and said lock member (10) comprises a recess (4), said recess (4) receives member striker plate (10), and a passage (3) extending from said second side (B) of said frame (2) to said lock striker plate (10a), and an anchoring member (15) in said passage (3), said anchoring member (15) being connected to said striker plate (10a) and to said frame (2).

6. The roof window according to the preceding claim, wherein said anchoring members include screws or bolts and plate like elements that engage the opposite second side (B) of said frame (2).

7. The roof window according to any of the preceding claims, wherein said locking member (38) has an engagement head (40,40'), said lock member (10) having an engagement portion (12,71,72) configured to engage with said engagement head (40,40') in said locking position, such as after a turning movement of said movable locking member (38).

8. The roof window according to any of the preceding claims, wherein said movable locking member (38) is movably received in a lock housing (30), said lock housing (30) being fixedly mounted within said first passage (5).

9. The roof window according to the preceding claim, wherein said lock housing (30) or said lock member (10) includes a guiding mechanism (50,71,72,73,75) configured for guiding the movement of said locking member (38) in an advanced position projecting from said first side (C) of said sash (1).

10. The roof window according to claim 8 or 9, wherein the sash (1) includes a glass pane, said first passage (5) being on the building interior side of said glass pane.

11. The roof window according to any of claims 8 to 10, wherein said lock housing (30) is provided with a peripheral wall (32) and a first end (34) and a second

end (36), said peripheral wall (32) engaging an inside surface of said first passage (5).

12. The roof window according to any of claims 8 to 11, wherein said first end (34) of said lock housing (30) includes a flange (35) abutting against said second side (D) of said sash (1) .

13. The roof window according to any of claims 8 to 12, an end portion (39) of said locking member (38) having a maneuvering face (39', 39'') directly engageable from said second side (D) of said sash (1), for moving said locking member (38) to said locking position or said end portion being provided with an engagement member 65, said engagement member (65) preferably being made form a material with good thermal insulation properties.

14. A lock (L) for a roof window with a window frame (2) and a sash (1) pivotally mounted to the window frame, said lock (L) comprising:

- a lock member (10) for mounting at the frame (2) of said window structure and a lock housing (30) for mounting in the sash (1) of said window structure,
- a movable locking member (38) arranged inside said lock housing (30) said moveable locking member being provided with an engagement portion (40, 40'),
- said lock member (10) being provided with a slot (11) for receiving said engagement portion (40,40'),
- said lock housing (30) having a peripheral wall (32), a first open end (34) and an opposite second open end (36), movement of said locking member (38) being controllable through said first open end (34),
- said movable locking member (38) having a first retracted position wherein said engagement head (40,40') of said movable locking member (38) does not project into the slot (11) of the lock member (10), and
- a second extended position wherein said engagement portion of said movable locking (38) member projects from said lock housing (30) into said slot (11) of the lock member (10),
- said lock member (10) having an engagement portion (12,72,75) configured to engage said engagement (40,40') head of said locking member (38) in a second position of said locking member (38),
- a spring (37) biasing said movable member (38) towards the first retracted position.

15. The lock (L) according to the preceding claim, further comprising at least one anchoring member (15) configured with a first portion (16) for anchoring said

anchoring member (15) to said frame (2) and a second portion (17) connected with or configured for connection with said lock member (10).

16. The lock (L) according to the preceding claim, said first portion (16) of said anchoring member (15) including teeth (18) for engaging said frame (2), said second portion (17) of said anchoring member (15) including an elongated rod or bar configured to engage said first portion (16) of said anchoring member (15), such as through a screw-thread.

17. The lock (L) according to claim 13 or 14, an end portion (39) of said locking member (38) including a maneuvering face (39',39'',66) directly engageable from said first end (34), for moving said locking member (38), said maneuvering face (39',39'',66) preferably being configured for engagement by a tool or key (60) or said maneuvering face being a peripheral wall (39'') for engagement by a finger of an operator.

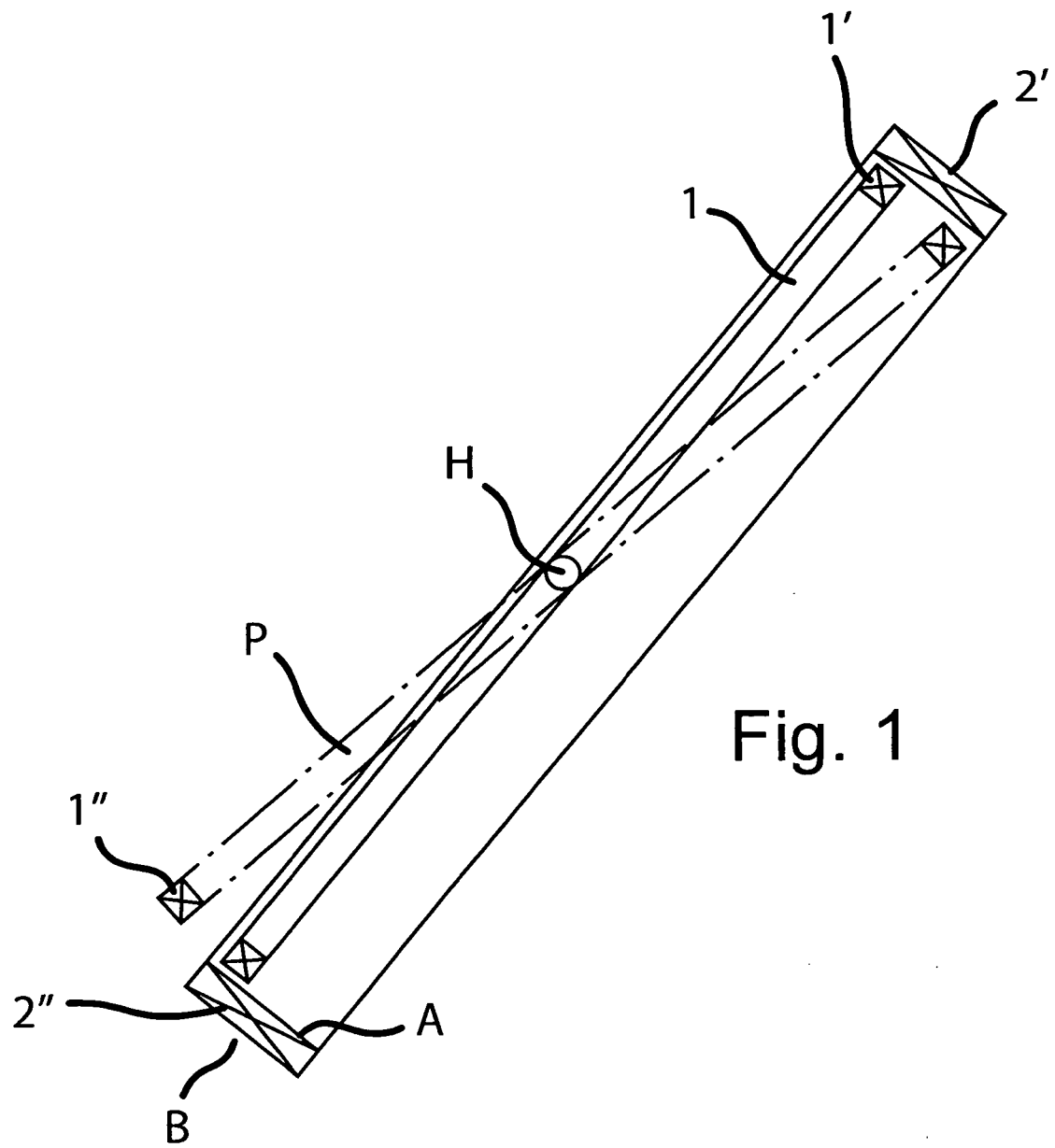


Fig. 1



Fig. 2a

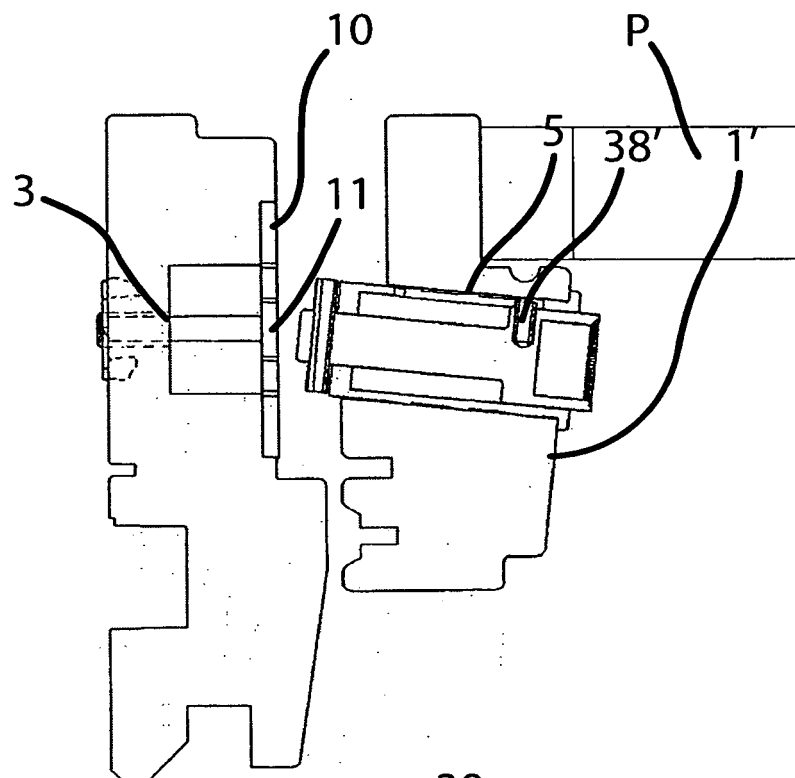


Fig. 2b

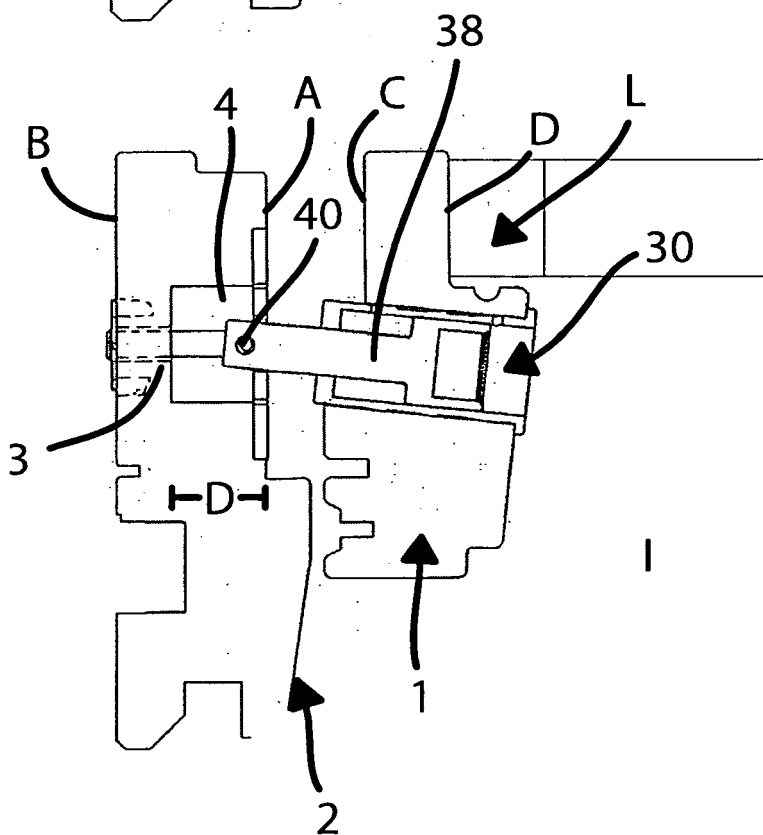


Fig. 3

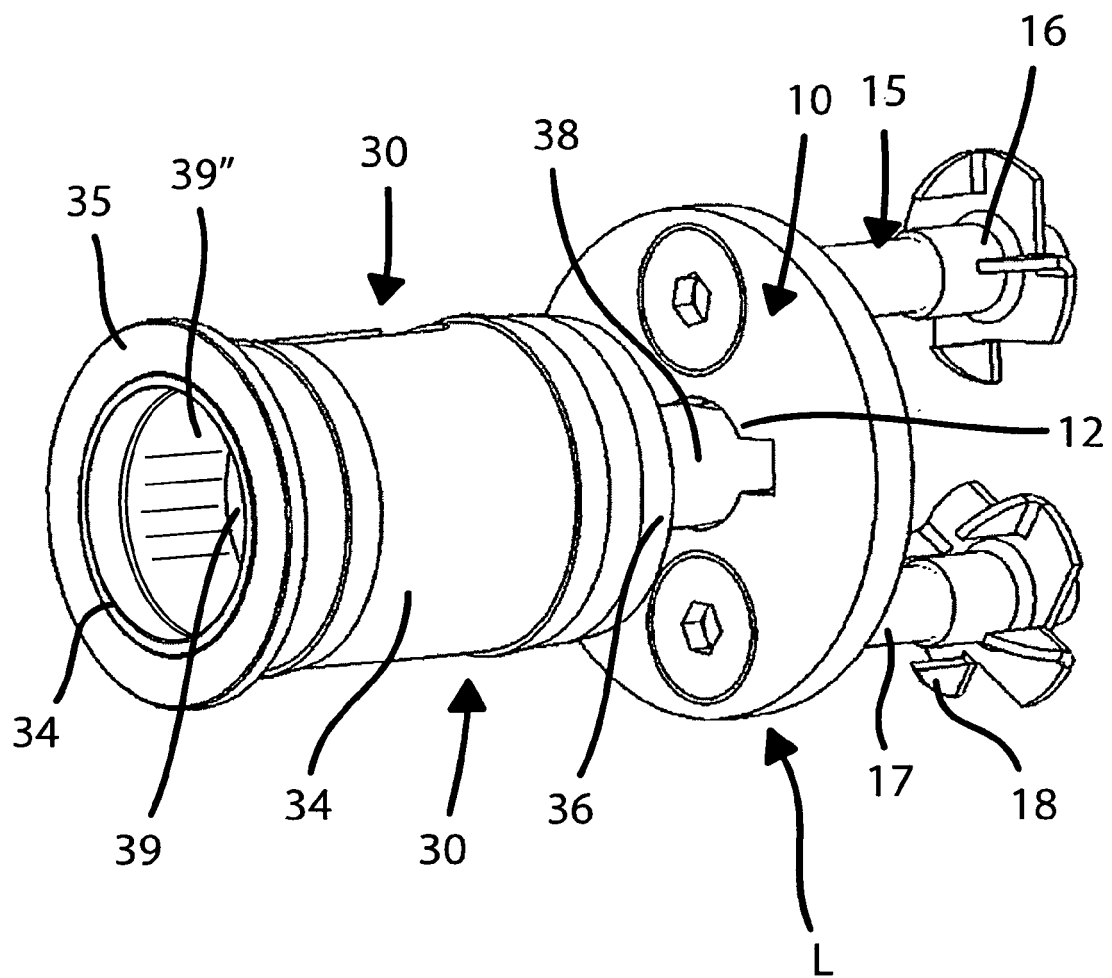


Fig. 4

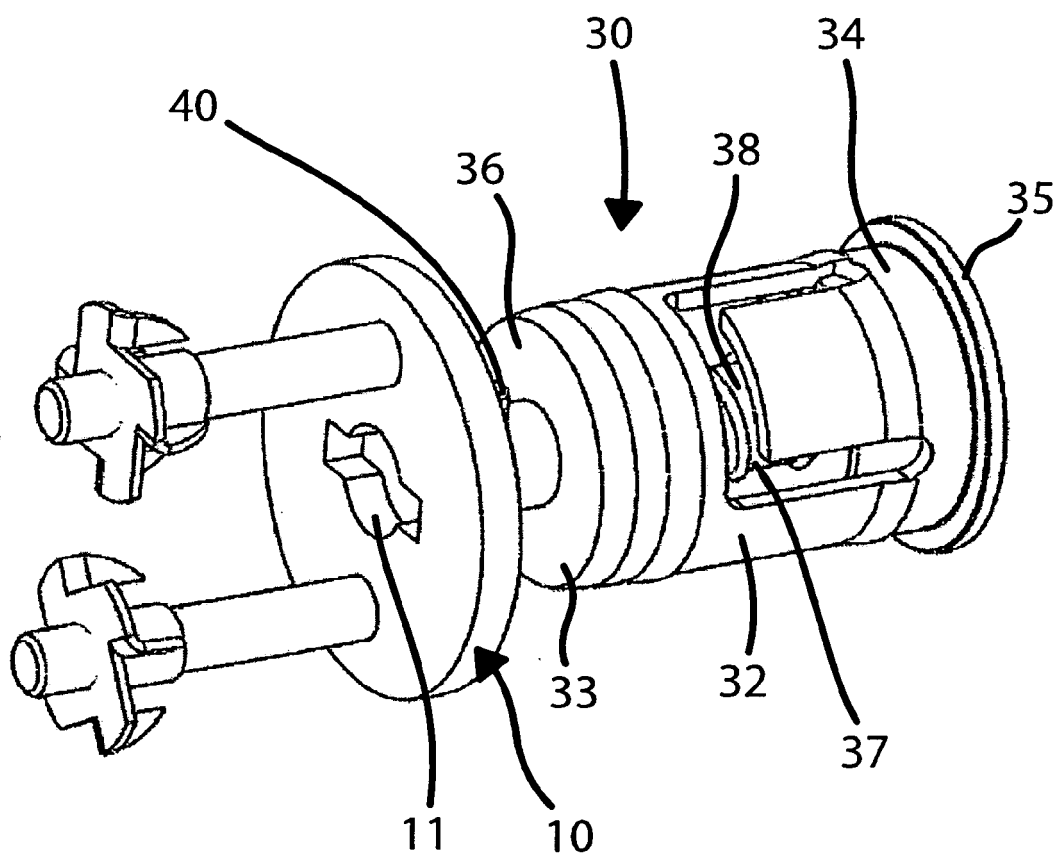


Fig. 5

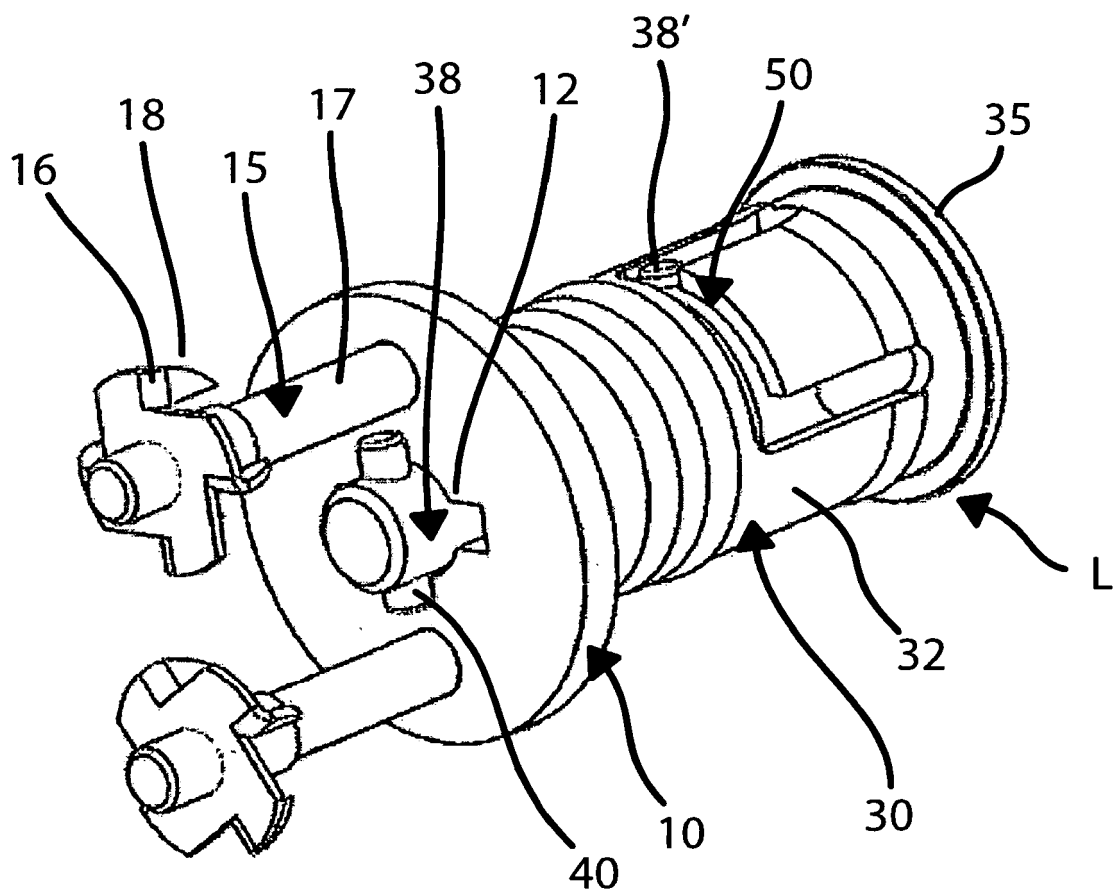


Fig. 6

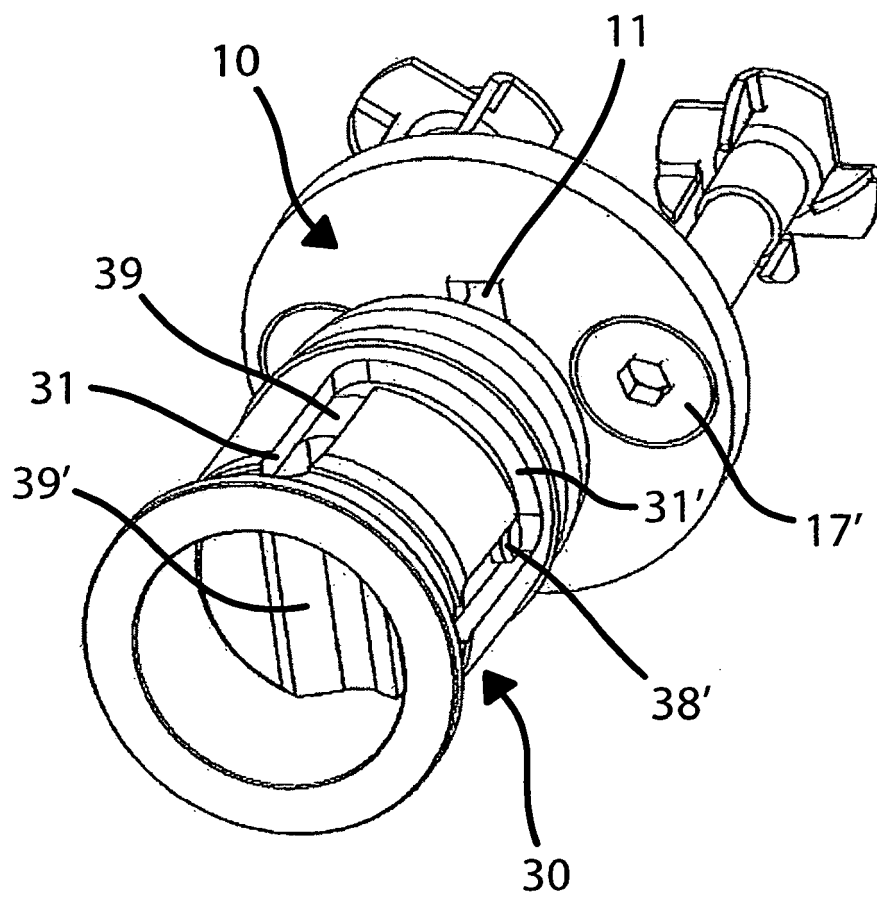
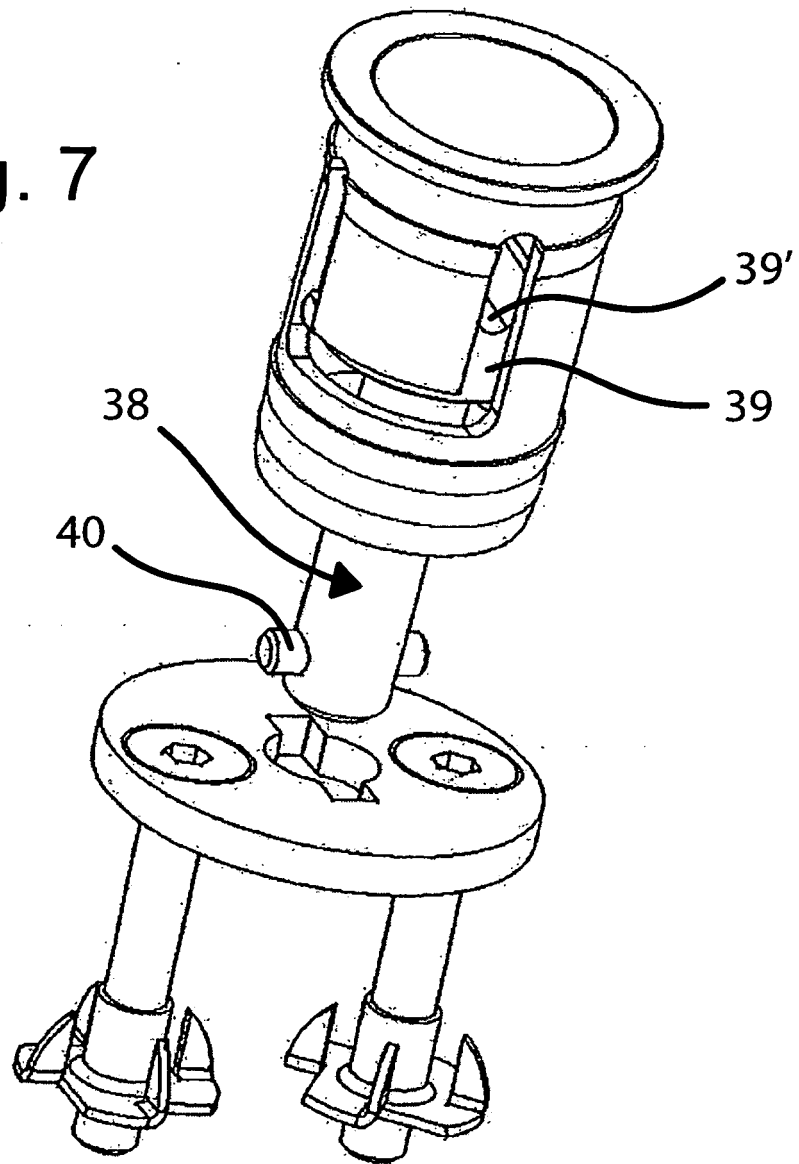


Fig. 7



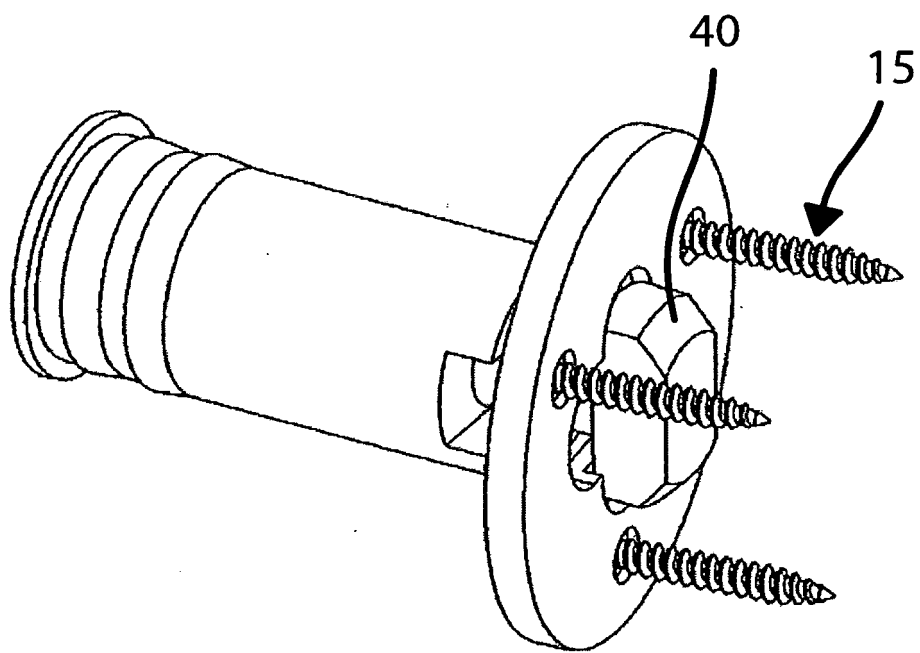
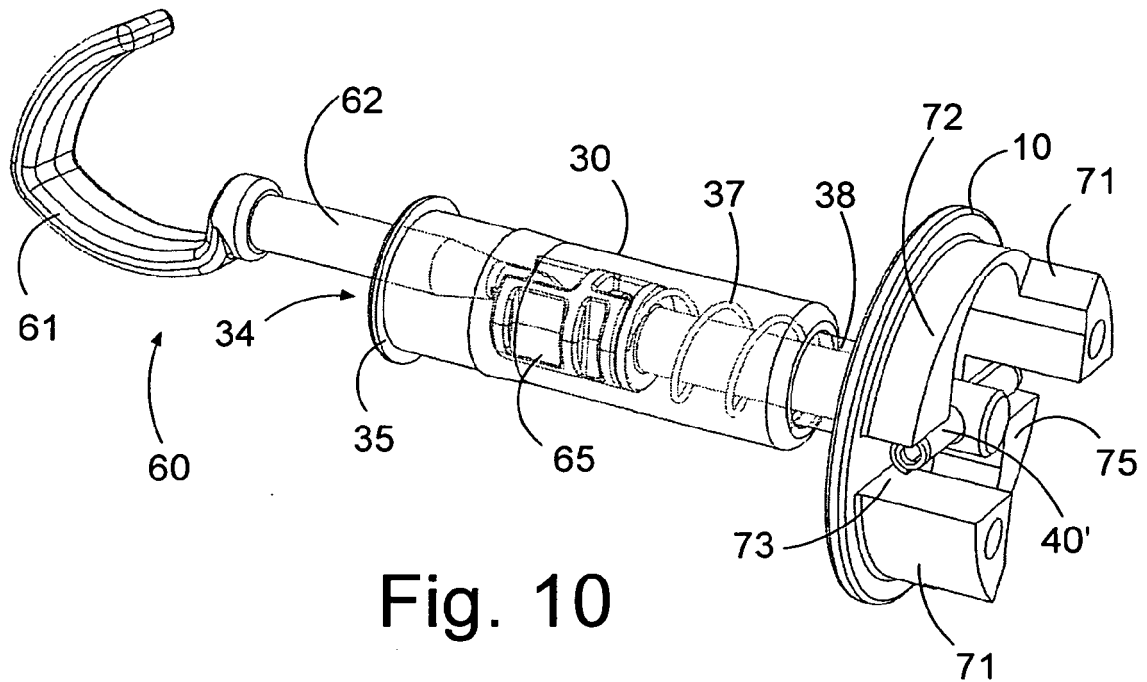
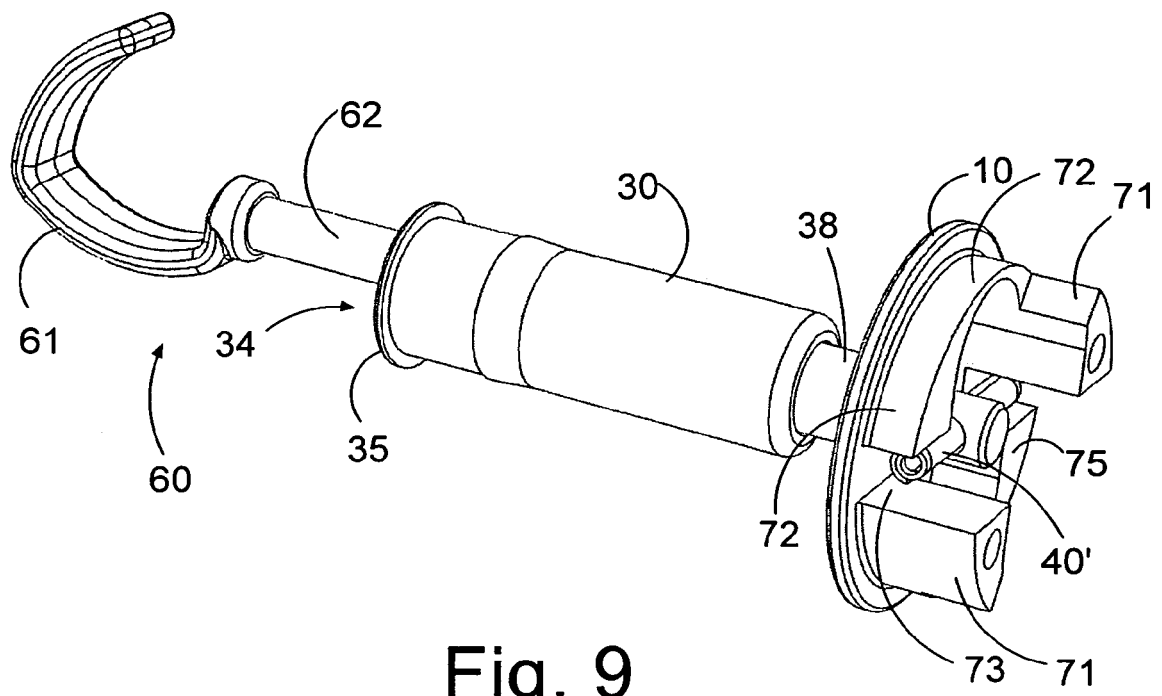


Fig. 8





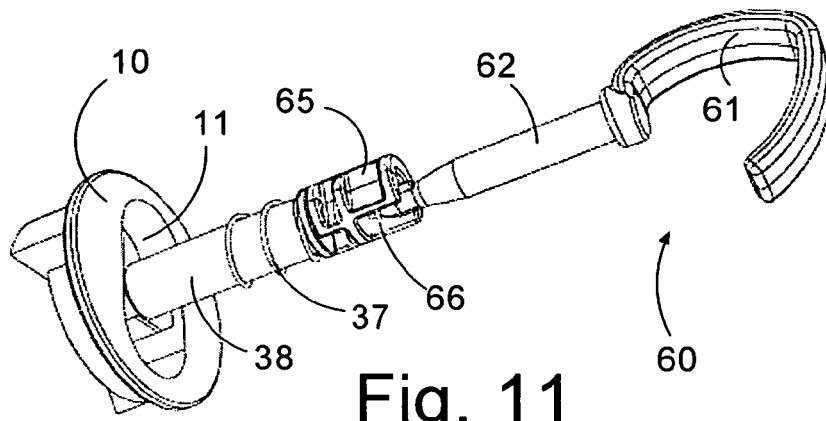


Fig. 11

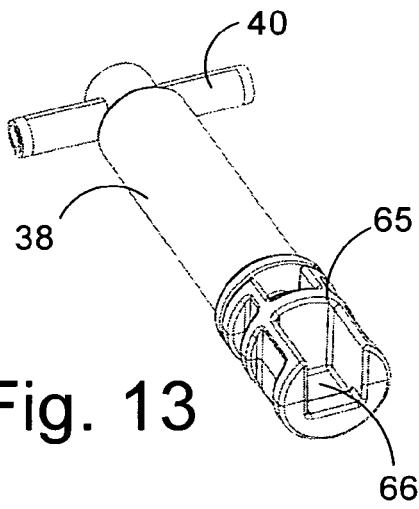


Fig. 13

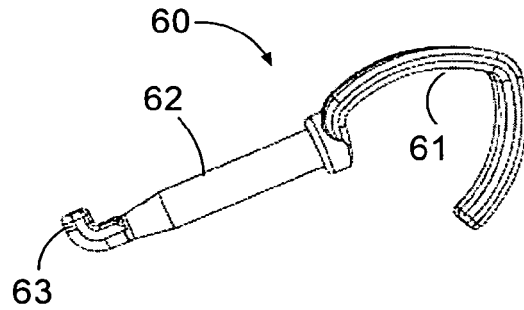


Fig. 12

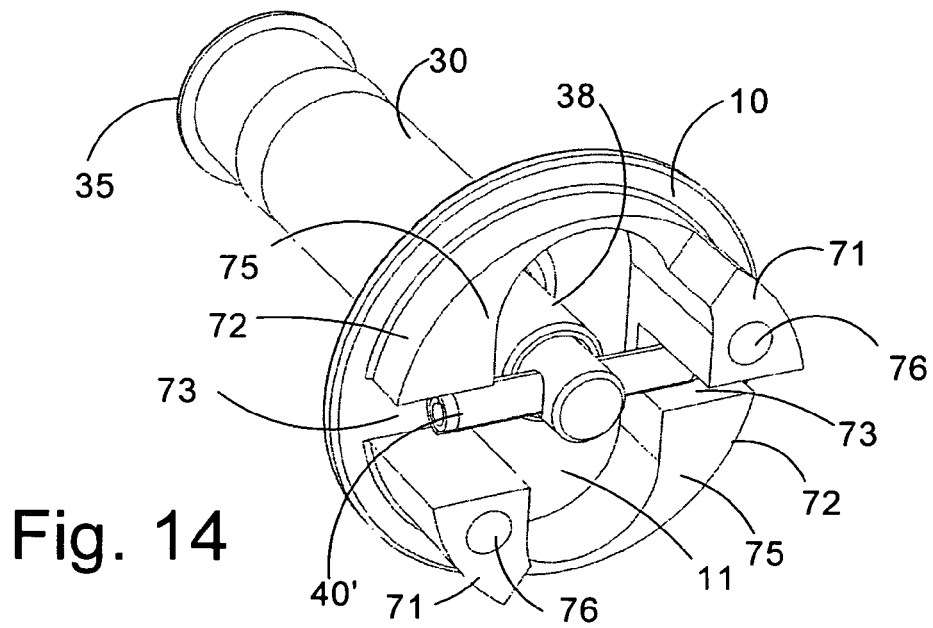


Fig. 14



## EUROPEAN SEARCH REPORT

Application Number  
EP 12 00 4448

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 6 December 2012	Examiner Pérez Méndez, José F
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... &amp; : member of the same patent family, corresponding document</p>			

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