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(54) **Water-proof structure for the handle of a cabin cap**

Wasserdichte Vorrichtung für den Griff eines Kabinendeckels

Dispositif étanche pour poignée du couvercle d'une cabine

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EP 1 491 704 B1

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Description

BACKGROUND OF THE INVENTION

1. Field of the invention

[0001] This invention refers to a pull rod water-proof structure for a cabin cap which utilizes several layers of water-proof rubber rings on the fixing axis of the pull rod main body so that the water is not easily to enter into.

2. Description of the prior art

[0002] US-A-4706478 discloses a door lock including a rotary handle, flush mountable, comprising a positioning seat in the form of a pan-shaped housing, which is ordinarily mounted on a closure. The lock includes an operating handle or pull rod pivotally connected to a pivot seat of a fixed axis rod. The rod has a threaded rearward end region and it extends through an opening or hole formed in a back wall of the positioning seat. The rod includes a circumferential extending groove where a spring retaining clip is installed to retain the rod in the positioning seat. A pair of washers including a resilient washer or O-ring and a rigid washer are interposed between an upper washer and the back wall. The O-ring serves as a weather proof seal.

SUMMARY OF THE INVENTION

[0003] The object of this invention is to fabricate a pull rod water-proof structure for a cabin cap which is easily fabricated and with simple construction and which has improved sealing characteristics to thereby increase the usage life. This is achieved by a pull rod water-proof structure for a cabin cap comprising the features of claim 1.

[0004] Further embodiments are described in the dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The drawings disclose an illustrative embodiment of the present invention which serves to exemplify the various advantages and objects hereof, and are as follows:

Fig. 1 is the assembly view of the water-proof structure of the pull rod of the cabin cap of this invention;
Fig. 2 is the cross-sectional view of the water-proof structure of the pull rod of the cabin cap of this invention;
Fig. 3 is the solid view of the water-proof structure of said pull rod

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0006] Please refer to fig. 1 - fig. 3, the water-proof structure of the cabin cap pull rod is mainly comprised of a pull rod main body 1, a positioning seat 2, the ring 4 and the pin 5; said pull rod main body 1 is consisted of a pull rod 11 and a fixed axis rod 12 wherein the pull rod is pivot connected to a pivot seat 121 on the front end of the fixed axis rod 12, on the inner edge of the bottom of the pivot seat 121 there concave settles a first water-proof rubber ring 30, and there settles a second and a third water-proof water-proof rubber ring 31, 32 beneath the first water-proof rubber ring 30 and on the fixed axis rod 12, there settles a screw 122 on the fixed axis rod 12, and there settles a hole 123 on the proper position; on said positioning seat 2 there extends downwardly a stepped hollow positioning column 26 so that it could form a first hole 21 and a second hole 22 wherein the diameter value of the first hole 21 is larger than that of the second hole 22, besides, a top edge 23 of the second hole 22 is protruding within the first hole 21 so that there generates a circular shaped groove 25 on the bottom of the first hole 21; when the water is penetrating from the gap between the pivot seat 121 and the first hole 21, the water is flowing into the manger as the buffer, besides, the extra settlement of the first water-proof rubber ring 30 makes the water unlikely to flow into reversely which effectively retard the water from entering into the cabin; and it settles a T shaped concave groove 24 on the positioning seat 2, wherein one end of the T typed concave groove 24 is in connection with the first hole 21;

[0007] When the pull rod main body 1 is inserted into the stepped hollow positioning column 26, the pivot seat 121 of the pull rod main body 1 is allocated within the first hole 21, wherein the first water-proof rubber ring 30 on the bottom of the pivot seat 121 is pressed on the edge 23 of the second hole 22, meanwhile, the second water-proof rubber ring 31 and the third water-proof rubber ring 32 on the fixed axis rod 12 is allocated within the second hole 22 and is tightly pressed with the inner wall of the second hole 22, meanwhile, by means of the turnover of the pull rod 11, the pull rod could be inserted inside the T typed concave groove 24 of the positioning seat 2, and it positions the fixed axis rod 12 of the pull rod main body 1 and is stably connected with the positioning seat 2 by the ring 4 and the pin 5, by means of the cooperation of the first water-proof rubber ring 30 and the edge 23 of the second hole 22 which could prevent the other water-proof rubber being tired due to long period of usage and further causes a gap such that the water flows into the cabin to achieve better water-proof effects.

[0008] The water-proof structure of the pull rod provided by this invention has the following advantages in comparison with the other conventional objects:

1.This invention could easily achieve the object of water-proof by the cooperation of the multiple-layer

water-proof rubber settled on the cabin cap pull rod with the stepped hollow positioning column of the positioning seat.

2. This invention is to concave settle a water-proof rubber ring on the inner edge of the bottom of the pivot seat and in cooperative with the edge of the second hole so that the water does not easily penetrate into it, which achieves better water-proof results.

3. This invention could be easily to have more complete water-proof effect for the through simple structure and process.

[0009] Many changes and modifications in the above described embodiment of the invention can, of course, be carried out without departing from the scope thereof as defined in the appended claims. Accordingly, to promote the progress in science and the useful arts, the invention is disclosed and is intended to be limited only by the scope of the appended claims

Claims

1. Pull rod water-proof structure for a cabin cap comprising:

a pull rod main body (1), which is consisted of a pull rod (11) and a fixed axis rod (12), wherein a pivot seat (121) extends from the front upper side of said fixed axis rod (12), and said pull rod (11) is connected on said pivot seat (121), several layers of water-proof rubber rings (30, 31, 32) setting on said fixed axis rod (12) beneath the pivot seat (121), and there settles a screw (122) on the fixed axis rod (12), wherein the fixed axis rod (12) includes a hole (123) for connecting a ring (4) to the fixed axis rod (12) by means of a pin (5); and

a positioning seat (2), there extends downwardly a stepped hollow positioning column (26) which makes said position seat (2) form a first hole (21) and a second hole (22), besides, the edge (23) of the second hole (22) being protruded outwardly within the first hole (21) to generate a groove (25) on the bottom of the first hole (21); wherein when mounting the pull rod main body (1) to the positioning seat (2), the following steps are performed:

settling a waterproof rubber ring (30) in a groove located on the inner edge of the bottom of the pivot seat (121); inserting the fixed axis rod (12) into the stepped hollow positioning column (26) with the pivot seat (121) being allocated within the first hole (21), wherein the water-proof rubber ring (30) on the bottom of the pivot seat (121) is

tightly pressed against the top edge (23) of the second hole (22), and stably connecting the fixed axis rod (12) with the positioning seat (2) by inserting the fixed axis rod (12) through the ring (4) and fixing it with the pin (5).

2. The pull rod water-proof structure for a cabin cap as mentioned in claim 1, wherein when the pull rod main body (1) is inserted into the stepped hollow positioning column (26) of the positioning seat (2), a second and a third water-proof rubber ring (31, 32) on the fixed axis rod (12) are inserted in the second hole (22) and tightly pressed against the inner wall of the second hole (22).
3. The pull rod water-proof structure for a cabin cap as mentioned in claim 1, wherein there settles a T typed concave groove (24) on said positioning seat (2), and one end of said groove (24) interconnecting with the first hole (21) which could allocate the pull rod (11) within the groove (24) through the turnover of the pull rod (11).

Patentansprüche

1. Wasserdichte Zugstangenkonstruktion für einen Kabinendeckel, aufweisend:

einen Zugstangen-Hauptkörper (1), welcher aus einer Zugstange (11) und einer fixierten Achsenstange (12) gebildet ist, wobei sich ein Drehsitz (121) von der oberen Stirnseite der fixierten Achsenstange (12) aus erstreckt und die Zugstange (11) mit dem Drehsitz (121) verbunden ist, wobei mehrere Schichten aus wasserdichten Gummiringen (30, 31, 32) auf der fixierten Achsenstange (12) unterhalb des Drehsitzes (121) angeordnet sind und dort ein Gewinde (122) auf der fixierten Achsenstange (12) vorgesehen ist, wobei die fixierte Achsenstange (12) ein Loch (123) zum Verbinden eines Ringes (4) mit der fixierten Achsenstange (12) mittels eines Stiftes (5) aufweist, und einen Positioniersitz (2), von dem sich ein gestufter hohler Positionierstutzen (26) abwärts erstreckt, so dass der Positioniersitz (2) ein erstes Loch (21) und ein zweites Loch (22) bildet, wobei der Rand (23) des zweiten Lochs (22) innerhalb des ersten Lochs (21) nach außen hervorsteht, um eine Nut (25) unten am ersten Loch (21) zu bilden, wobei die folgenden Schritte durchgeführt werden, wenn der Zugstangen-Hauptkörper (1) an dem Positioniersitz (2) angebracht wird:

Anordnen eines wasserdichten Gummiring-

- ges (30) in einer Nut, die am inneren Rand der Unterseite des Drehsitzes (121) angeordnet ist, Einsetzen der fixierten Achsenstange (12) in den gestuften hohlen Positionierstutzen (26) unter Anordnen des Drehsitzes (121) im ersten Loch (21), wobei der wasserdichte Gummiring (30) auf der Unterseite des Drehsitzes (121) fest gegen den oberen Rand (23) des zweiten Lochs (22) gedrückt wird, und stabiles Verbinden der fixierten Achsenstange (12) mit dem Positioniersitz (2) durch Einsetzen der fixierten Achsenstange (12) durch den Ring (4) hindurch und Fixieren derselben mit dem Stift (5).
2. Wasserdichte Zugstangenkonstruktion für einen Kabinendeckel gemäß Anspruch 1, wobei, wenn der Zugstangen-Hauptkörper (1) in den gestuften hohlen Positionierstutzen (26) des Positioniersitzes (2) eingebracht ist, ein zweiter und ein dritter Gummiring (31, 32) auf der fixierten Achsenstange (12) in das zweite Loch (22) eingebracht sind und fest gegen die Innenwand des zweiten Lochs (22) gedrückt sind.
3. Wasserdichte Zugstangenkonstruktion für einen Kabinendeckel gemäß Anspruch 1, wobei eine T-förmige konkave Nut (24) in dem Positioniersitz (2) vorgesehen ist und ein Ende der Nut (24) mit dem ersten Loch (21) verbunden ist, wodurch die Zugstange (11) innerhalb der Nut (24) durch Umlegen der Zugstange (11) angeordnet werden kann.
- Revendications**
1. Structure de tige de traction étanche à l'eau pour un couvercle de cabine, comportant :
- un corps principal de tige de traction (1), qui est constitué d'une tige de traction (11) et d'une tige d'axe fixe (12), dans laquelle un siège de pivotement (121) s'étend depuis le côté supérieur avant de ladite tige d'axe fixe (12), et ladite tige de traction (11) est reliée audit siège de pivotement (121), plusieurs couches d'anneaux en caoutchouc étanches à l'eau (30, 31, 32) étant disposées sur ladite tige d'axe fixe (12) en dessous du siège de pivotement (121), et une vis (122) étant installée sur la tige d'axe fixe (12), dans laquelle la tige d'axe fixe (12) comporte un trou (123) pour relier un anneau (4) à la tige d'axe fixe (12) par l'intermédiaire d'une broche (5) ; et
- un siège de positionnement (2), dans lequel s'étend vers le bas une colonne de positionnement creuse étagée (26) qui fait que ledit siège de positionnement (2) forme un premier trou (21) et un second trou (22), côte à côte, le bord (23) du second trou (22) faisant saillie vers l'extérieur dans le premier trou (21) pour créer une rainure (25) au fond du premier trou (21) ; où lors d'un montage du corps principal de tige de traction (1) sur le siège de positionnement (2), les étapes suivantes sont effectuées : installation d'un anneau en caoutchouc étanche à l'eau (30) dans une rainure située sur le bord intérieur au fond du siège de pivotement (121) ; insertion de la tige d'axe fixe (12) dans la colonne de positionnement creuse étagée (26), le siège de pivotement (121) étant engagé dans le premier trou (21), l'anneau en caoutchouc étanche à l'eau (30) au fond du siège de pivotement (121) étant comprimé fermement contre le bord supérieur (23) du second trou (22), et connexion de manière stable de la tige d'axe fixe (12) au siège de positionnement (2) en insérant la tige d'axe fixe (12) à travers l'anneau (4), et en la fixant à l'aide de la broche (5).
2. Structure de tige de traction étanche à l'eau pour un couvercle de cabine selon la revendication 1, dans laquelle le corps principal de tige de traction (1) est inséré dans la colonne de positionnement creuse étagée (26) du siège de positionnement (2), et dans laquelle un deuxième, et un troisième anneaux en caoutchouc étanches à l'eau (31, 32) sur la tige axiale fixe (12) sont insérés dans le second trou (22), et comprimés fermement contre la paroi intérieure du second trou (22).
3. Structure de tige de traction étanche à l'eau pour un couvercle de cabine selon la revendication 1, dans lequel est installée une rainure concave de type T (24) sur ledit siège de positionnement (2), une extrémité de ladite rainure (24) s'interconnectant avec le premier trou (21), ce qui permet d'engager la tige de traction (11) dans la rainure (24) par le basculement de la tige de traction (11).

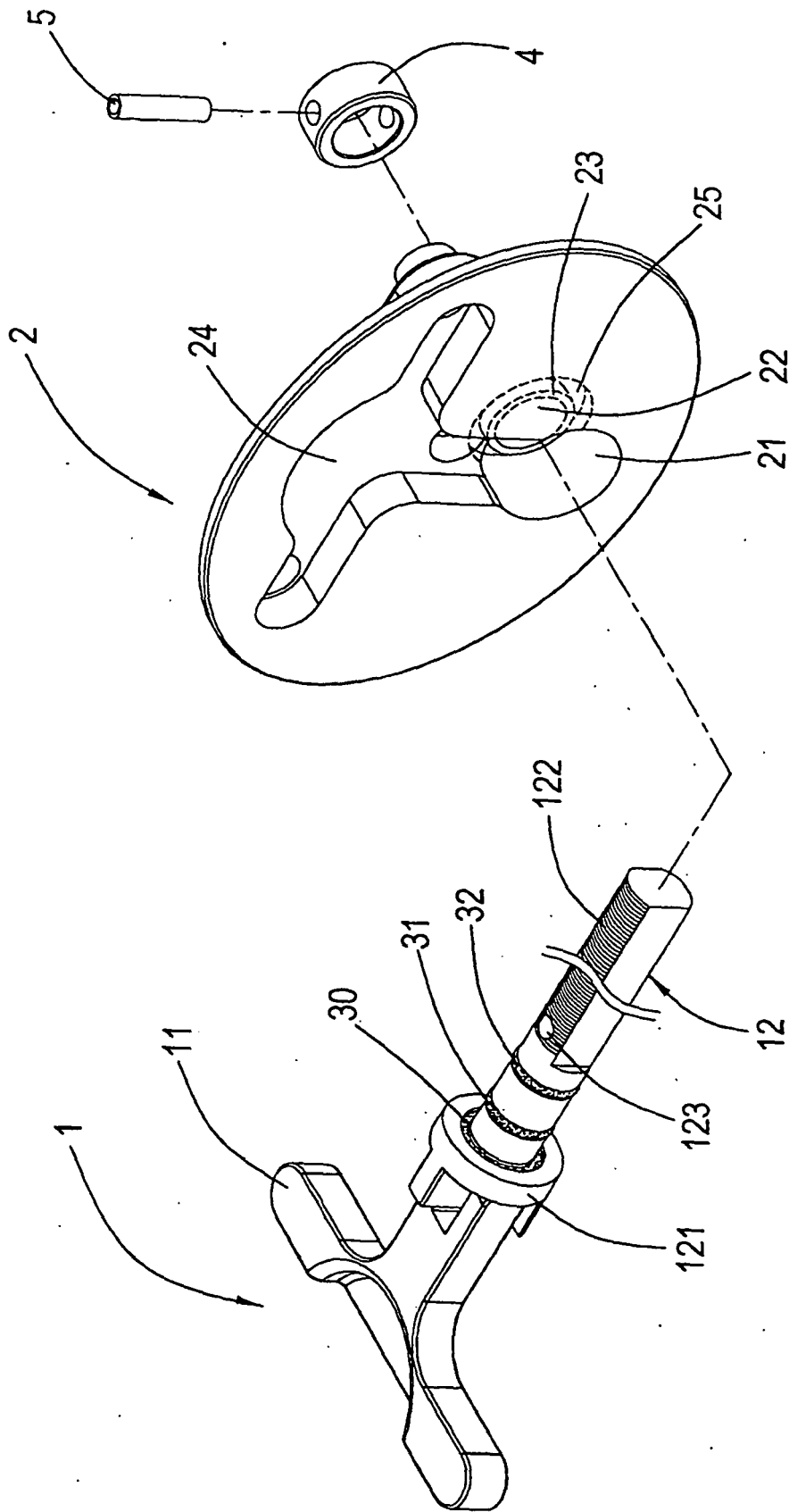


FIG. 1

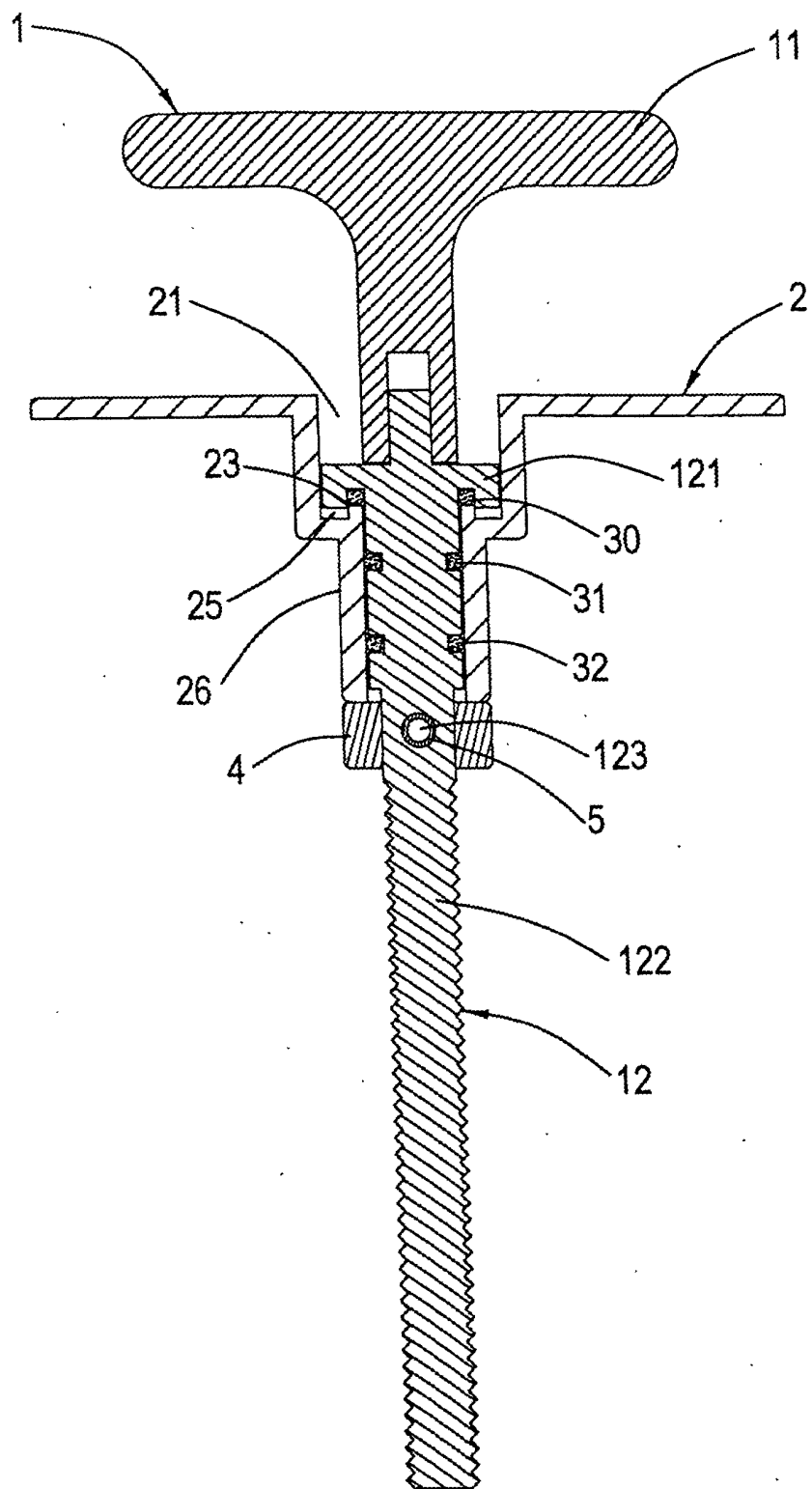


FIG. 2

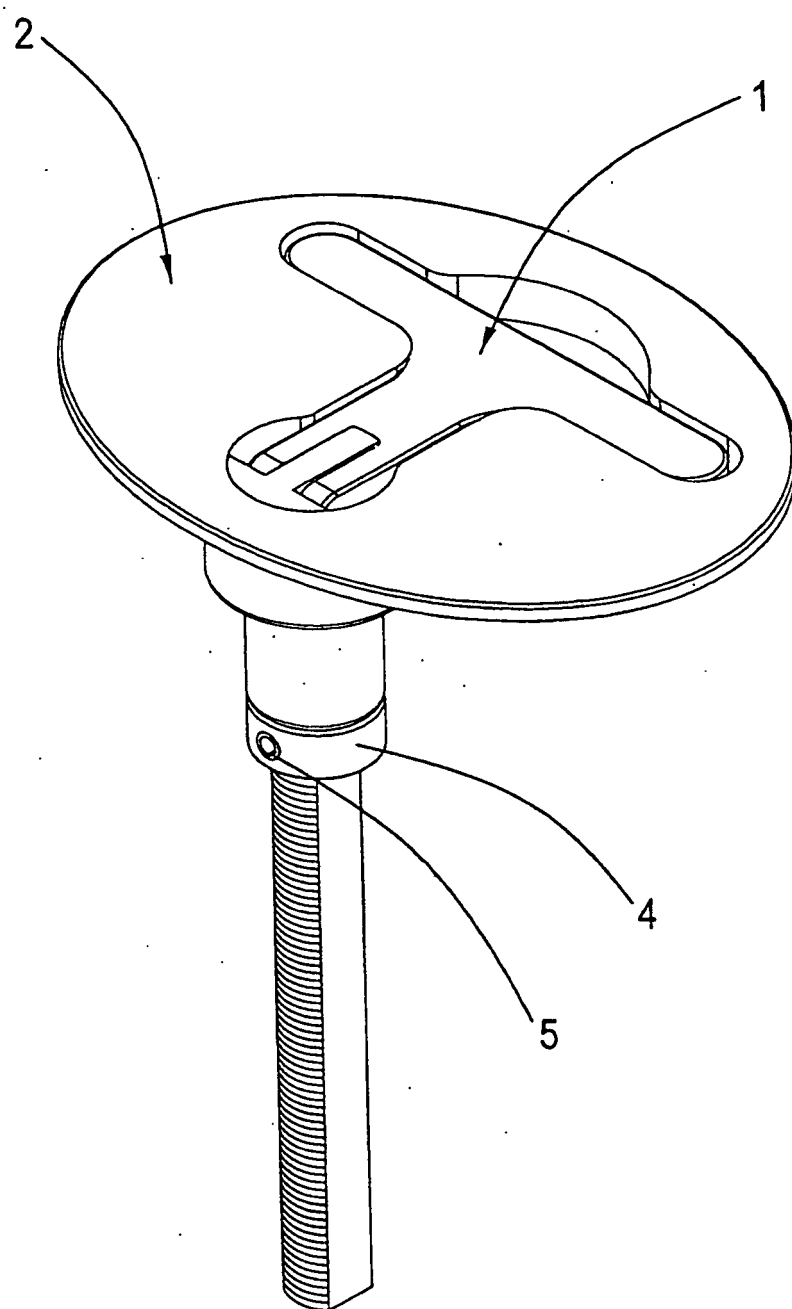


FIG. 3