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(54) **Vehicle door handle**

Türgriff für Kraftfahrzeug

Poignée de porte pour véhicule

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Description

[0001] The present invention relates to a vehicle door handle.

[0002] In particular, the present invention relates to an outside handle of the type comprising a connecting body fitted inside a vehicle door; a lever hinged to the connecting body and operated by a user to release a lock mechanism on the door; and a lock assembly inserted inside a hole in the door and inside the connecting body.

[0003] This type of handle is normally fitted to the door by fixing the connecting body to a wall inside the door, and then fitting the connecting body with the lever and the lock assembly, which have respective portions on the outside of the wall. The lock assembly is inserted in a given direction through a hole in the wall and inside a seat formed in the connecting body, where it is clamped by means of a screw, which extends crosswise to said given direction and clamps the lock assembly inside the seat.

[0004] The screw, which is turned by a fitter, normally using a small Allen wrench, to clamp or release the lock assembly, extends through one end of the connecting body located close to said wall and to a further wall on the door supporting the door lock mechanism. The location of the screw therefore leaves very little space in which to tighten and loosen the screw, so that fitting and removing the lock assembly to and from the connecting body is an extremely time-consuming job.

[0005] It is further known from document US 4,412,696 (D₁) to have a handle presenting a connecting body on which is mounted a lock assembly. The connecting body presents a seat in which a patron of the lock assembly is laterally inserted. This portion comprises a tooth extending crosswise with respect to the revolution axis of the lock assembly for a correct insertion in the seat. Once the lock assembly is inserted in the connecting body, the whole is mounted on the door and secured to the door using a clip. The device of D₁ is not of easy mounting and the replacement of the lock assembly in case of defect requires to dismantle the complete handle and door.

[0006] It is an object of the present invention to provide a vehicle door handle designed to eliminate the aforementioned drawback of the known state of the art.

[0007] According to the present invention, there is provided a vehicle door handle according to the appended claim 1.

[0008] The lock assembly clamping means of known handles fail to provide for clamping the lock assembly to the door, so that water seeps inside the door with all the obvious drawbacks this entails.

[0009] In a preferred embodiment of the invention, there is provided a handle as claimed in Claim 1, characterized in that said ring nut comprises at least one wedge located on a lateral surface of said ring nut and which engages said tooth so as to push said tooth in said given direction by rotating the ring nut about the

axis.

[0010] A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows an exploded view of a preferred embodiment of the handle according to the invention; Figure 2 shows a section of the Figure 1 handle; Figure 3 shows a plan view of the Figure 1 handle fitted to a door.

[0011] With reference to Figures 1, 2 and 3, number 1 indicates an outside handle of a vehicle. With reference to Figure 3, handle 1 is fitted to a door P comprising a wall P1, and a wall P2 fitted with a known lock mechanism not shown.

[0012] Handle 1 comprises a connecting body 2 which is fitted to wall P1; a known lever (not shown) hinged to connecting body 2 and operated, in use, by a user to release the known lock mechanism (not shown); a lock assembly 3 which is inserted inside connecting body 2; and a clamping member 4 designed to assume a clamping position and a release position to clamp and release lock assembly 3 to and from connecting body 2.

[0013] Connecting body 2 comprises a shell 5 located at one end 2a of connecting body 2 at the corner formed by walls P1 and P2, and which comprises an outer surface 6, and an inner surface 7 defining a through cavity 8 extending axially along an axis A and for housing lock assembly 3.

[0014] Shell 5 also comprises a seat 9, which extends about axis A, enables clamping member 4 to be housed partly inside cavity 8, and in turn comprises an opening 10, and two grooves 11 and 12, which are in the form of sectors of axis A, and are aligned with and extend on opposite sides of opening 10. Opening 10 extends through shell 5, between outer surface 6 and inner surface 7, and permits insertion of clamping member 4 inside cavity 8.

[0015] Shell 5 comprises two grooves 13 extending parallel to axis A along inner surface 7 and along the full length of cavity 8; and two cavities 14 and 15 located along outer surface 6 and which are engaged by clamping member 4 to secure clamping member 4 firmly in the clamping and release positions respectively.

[0016] Lock assembly 3 comprises a cylinder 16, and is defined by a portion 17 which is housed inside cavity 8, and by a portion 18 which rests against wall P1 in the clamping position. Portion 17 is defined by a substantially cylindrical surface, from which extend radially two teeth 19, each of which slides inside a respective groove 13 when lock assembly 3 is inserted inside or removed from cavity 8.

[0017] Clamping member 4 comprises a ring nut 20 and a lever 21 integral with ring nut 20.

[0018] Ring nut 20 is in the form of a sector and, in use, is inserted inside seat 9 through opening 10 and extends partly inside cavity 8 to partly surround portion

17.

[0019] As shown more clearly in Figure 2, ring nut 20 is fitted prismatically to grooves 11 and 12, and is guided by grooves 11 and 12 so as to rotate about axis A.

[0020] Ring nut 20 comprises a curved outer surface 22; a curved inner surface 23; two flat lateral surfaces 24; and two slots 25 extending between the two opposite lateral surfaces 24 at inner surface 23. At each slot 25, ring nut 20 also comprises a respective wedge 26 integral with a lateral surface 24 and having a face 27, which extends from an edge of respective slot 25 flush with lateral surface 24, and slopes with respect to lateral surface 24 by an angle of 2 to 20 degrees.

[0021] Lever 21 extends from outer surface 22 of ring nut 20, projects from opening 10 in use, and comprises a laminar member 28 which is engaged by the user to move clamping member 4 to or from the clamping or release position; and an elastic retaining member 29 projecting from laminar member 28 and having, on the free end, a tooth 30 for engaging cavity 14 when ring nut 20 is in the clamping position, and cavity 15 when ring nut 20 is in the release position.

[0022] In actual use, commencing from an initial condition in which lock assembly 3 and connecting body 2 are separate, ring nut 20 of clamping member 4 is inserted inside seat 9 through opening 10, and opposite portions of ring nut 20 are inserted inside respective grooves 11 and 12. Ring nut 20 is guided by grooves 11 and 12 and rotated about axis A so that tooth 30 of retaining member 29 engages cavity 15 and slots 25 are aligned with respective grooves 13 along axis A. At this point, lock assembly 3 is inserted inside cavity 8 in a direction D parallel to axis A by sliding teeth 19 along grooves 13 and through slots 25 so that ring nut 20 is positioned between teeth 19 and portion 18 of lock assembly 3, which, in this position, substantially rests against wall P1 of door P.

[0023] Once lock assembly 3 is inserted as described above, clamping member 4 is rotated about axis A by the user lifting laminar member 28 so as to push teeth 19, by means of respective wedges 26, in direction D and so clamp portion 18 of lock assembly 3 against wall P1, preferably with the interposition of a seal. The clamping position is then secured by tooth 30 of retaining member 29 engaging cavity 14 to prevent any accidental rotation of clamping member 4.

[0024] To remove lock assembly 3 from connecting body 2, tooth 30 is simply released from cavity 14 and clamping member 4 rotated in the opposite direction using laminar member 29, so that slots 25 are once more aligned with grooves 13, thus enabling lock assembly 3 to be withdrawn from cavity 8 in direction D.

[0025] Lock assembly 3 is therefore assembled and disassembled extremely easily by simply pressing lightly on laminar member 28 of lever 21. Moreover, the action of wedges 26 on teeth 19 of lock assembly 3 ensures portion 18 of lock assembly 3 rests perfectly in fluidtight manner against wall P1 of the vehicle, or

against a seal interposed between portion 18 and wall P1.

[0026] Clearly, changes may be made to the handle as described herein without, however, departing from the scope of the accompanying Claims.

[0027] For example, teeth 19 may be of a different number from that described, and may be carried by a cover layer about portion 17, or by a ring fixed firmly about portion 17.

[0028] Moreover, lever 21 may be formed otherwise than as described without, however, affecting the ease with which the clamping member is operated by the user.

Claims

1. A vehicle door handle (1) comprising

- a connecting body (2) extending along a longitudinal axis and having a seat (8),
- a lock assembly (3) having a portion (17) insertable inside said seat (8) in a given direction (D), said portion (17) comprising a tooth (19) extending crosswise with respect to said given direction (D); and
- clamping means (4) for clamping said lock assembly (3) releasably inside said seat (8);

said handle being **characterized in that**

said seat (8) extends along an axis (A) parallel to said direction (D) when inserted inside said seat (8), **in that**

said connecting body (2) comprises a further seat (9) extending about axis (A) for the clamping means (4) to be partially housed inside said seat (8) and **in that**

said clamping means (4) comprise a ring nut (20) which rotates about said axis (A) between a first position permitting insertion of said lock assembly (3) and said tooth (19), and a second position for clamping said tooth (19) in said direction (D).

2. A handle as claimed in Claim 1, **characterized in that** said ring nut (20) comprises at least one wedge (26) located on a lateral surface (24) of said ring nut (20) and which engages said tooth (19) so as to push said tooth (19) in said given direction (D) by rotating the ring nut (20) about the axis (A).

3. A handle as claimed in Claim 2, **characterized in that** said ring nut comprises a slot (25) permitting passage of said tooth (19), said wedge being located at said slot (25).

4. A handle as claimed in any one of the foregoing Claims, **characterized in that** said clamping means (4) comprise control means (21) for rotating

said ring nut (20) about said axis (A).

5. A handle as claimed in Claim 4, **characterized in that** said control means (21) comprise a laminar member (28) engaged by a user and projecting from said connecting body (2); and a retaining member (29) for retaining said clamping means (4) in said first and second position.
6. A handle as claimed in any one of the foregoing Claims, **characterized in that** said seat (8) comprises at least one groove engaged in sliding manner by said tooth (19) to guide said lock assembly (3) in said direction (D) and prevent rotation of said lock assembly (3) about the axis (A).
7. A handle as claimed in Claim 3 and 6, **characterized in that** said slot (25) is alignable with said groove (13) along the axis (A) to permit assembly and disassembly of said lock assembly (3).
8. A handle as claimed in any one of the foregoing Claims, **characterized in that** said lock assembly (3) comprises two teeth; said seat (8) comprising two grooves (13) parallel to each other and to the axis (A) and which are engaged by said teeth; and said ring nut (20) comprising two slots (25) alignable with the respective grooves, and two wedges (26) located on a lateral surface (24) of said ring nut (20) and which engage said teeth (19) so as to push said teeth (19) in said given direction (D).

Patentansprüche

1. Türgriff (1) für Kraftfahrzeug umfassend

- einen verbindenden Körper (2), der sich entlang einer Längsachse erstreckt und eine Aufnahme (8) besitzt,
- eine Schlossbaugruppe (3), die einen Teil (17) besitzt, der in eine bestimmte Richtung (D) in die Aufnahme (8) eingesetzt werden kann, wobei der Teil (17) einen Zahn (19) aufweist, der sich hinsichtlich der bestimmten Richtung (D) kreuzförmig erstreckt, und
- Klemmmittel (4), welche die Schlossbaugruppe (3) innerhalb der Aufnahme (8) lösbar klemmen;

wobei der Griff **dadurch gekennzeichnet ist, dass** die Aufnahme (8) sich entlang einer zur Richtung (D) parallelen Achse (A) erstreckt, wenn sie in die Aufnahme (8) eingesetzt ist, dadurch, dass der verbindende Körper (2) eine weitere Aufnahme (9) aufweist, die sich um Achse (A) erstreckt, damit die

Klemmmittel (4) teilweise in der Aufnahme (8) untergebracht werden, und dadurch, dass die Klemmmittel (4) eine Ringmutter (20) aufweisen, die sich um die Achse (A) zwischen einer ersten Position, welche das Einsetzen der Schlossbaugruppe (3) und des Zahns (19) erlaubt, und einer zweiten Position dreht, um den Zahn (19) in die Richtung (D) zu klemmen.

2. Griff nach Anspruch 1, **dadurch gekennzeichnet, dass** die Ringmutter (20) mindestens einen Keil (26) aufweist, der an einer seitlichen Oberfläche (24) der Ringmutter (20) liegt und den Zahn (19) angreift, so dass der Zahn (19) in die bestimmte Richtung (D) gedrückt wird, indem die Ringmutter (20) um die Achse (A) gedreht wird.
3. Griff nach Anspruch 2, **dadurch gekennzeichnet, dass** die Ringmutter einen Schlitz (25) aufweist, der den Durchgang des Zahns (19) ermöglicht, wobei der Keil in dem Schlitz (25) liegt.
4. Griff nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Klemmmittel (4) Steuermittel (21) zum Drehen der Ringmutter (20) um die Achse (A) aufweisen.
5. Griff nach Anspruch 4, **dadurch gekennzeichnet, dass** die Steuermittel (21) ein lamellenförmiges Glied (28) aufweisen, das von einem Nutzer betätigt wird und von dem verbindenden Körper (2) vorsteht; und ein haltendes Glied (29) zum Halten der Klemmmittel (4) in der ersten und zweiten Position.
6. Griff nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Aufnahme (8) mindestens eine Nut aufweist, in die der Zahn (19) gleitend eingreift, um die Schlossbaugruppe (3) in die Richtung (D) zu führen und das Drehen der Schlossbaugruppe (3) um die Achse (A) zu verhindern.
7. Griff nach Anspruch 3 und 6, **dadurch gekennzeichnet, dass** sich der Schlitz (25) entlang der Achse (A) nach der Nut (13) ausrichten kann, um die Montage und Demontage der Schlossbaugruppe (3) zu ermöglichen.
8. Griff nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Schlossbaugruppe (3) zwei Zähne aufweist; wobei die Aufnahme (8) zwei Nuten (13) aufweist, die zueinander und zur Achse (A) parallel sind und worin die Zähne eingreifen; und wobei die Ringmutter (20) zwei Schlitz (25), die sich nach den jeweiligen Nuten ausrichten können, und zwei Keile (26) aufweist, die an einer seitlichen Oberfläche (24) der Ringmutter (20) liegen und die Zähne (19) angreifen, so

dass die Zähne (19) in die bestimmte Richtung (D) gedrückt werden.

Revendications

1. Une poignée de portière de véhicule (1) comprenant :

- un corps de liaison (2) s'étendant le long d'un axe longitudinal et disposant d'un siège (6),
- un verrou (3) disposant d'une partie (17) pouvant être insérée à l'intérieur dudit siège (8), dans un sens donné (D), ladite partie (17) comprenant une dent (19) s'étendant dans le sens de la largeur par rapport audit sens donné (D)
- un moyen de blocage (4) pour bloquer ledit verrou (3) de façon à ce qu'il soit démontable à l'intérieur dudit siège (8) ;

ladite poignée étant **caractérisée en ce que** ledit siège (8) s'étend le long d'un axe (A) parallèle à ladite direction (D) lorsqu'elle est insérée à l'intérieur dudit siège (8), **en ce que** ledit corps de liaison (2) comprend un autre siège (9) s'étendant autour de l'axe (A) pour que le moyen de blocage (4) soit partiellement logé à l'intérieur dudit siège (8) et **en ce que** ledit moyen de blocage (4) comprend un écrou à oeil (20) qui tourne autour dudit axe (A) entre une première position permettant l'insertion dudit verrou (3) et de ladite dent (19), et une seconde position pour bloquer ladite dent (19) dans ladite direction (D).

2. Une poignée telle que revendiquée dans la Revendication 1, **caractérisée en ce que** ledit écrou à oeil (20) comprend au moins un coin (26) positionné sur une surface latérale (24) dudit écrou à oeil (20) et qui engage ladite dent (19) de façon à pousser ladite dent (19) dans ladite direction donnée (D) en faisant tourner l'écrou à oeil (20) autour de l'axe (A).
3. Une poignée telle que revendiquée dans la Revendication 2, **caractérisée en ce que** ledit écrou à oeil comprend une fente (25) permettant le passage de ladite dent (19), ledit coin étant positionné au niveau de ladite fente (25).
4. Une poignée telle que revendiquée dans n'importe laquelle des Revendications précédentes, **caractérisée en ce que** ledit moyen de blocage (4) comprend un moyen de commande (21) pour faire tourner ledit écrou à oeil (20) autour dudit axe (A).
5. Une poignée telle que revendiquée dans la Revendication 4 **caractérisée en ce que** le moyen de commande (21) comprend une pièce lamellaire (28)

engagée par un utilisateur et faisant saillie à partir dudit corps de liaison (2) ; et une pièce de retenue (29) pour retenir ledit moyen de blocage (4) dans lesdites première et deuxième positions.

6. Une poignée telle que revendiquée dans une quelconque des Revendications précédentes, **caractérisée en ce que** ledit siège (8) comprend au moins une gorge dans laquelle s'engage par glissement ladite dent (19) pour guider ledit verrou (3) dans ladite direction (D) et éviter la rotation dudit verrou (3) autour de l'axe (A).
7. Une poignée telle que revendiquée dans les Revendications 3 et 6, **caractérisée en ce que** ladite fente (25) peut être alignée avec ladite gorge (13) le long de l'axe (A) pour permettre l'assemblage et le désassemblage dudit verrou (3).
8. Une poignée telle que revendiquée dans n'importe laquelle des Revendications précédentes, **caractérisée en ce que** ledit verrou (3) comprend deux dents ; ledit siège (8) comprenant deux gorges (13) parallèles entre elles et à l'axe (A) et dans lesquelles s'engagent lesdites dents ; et ledit écrou à oeil (20) comprenant deux fentes (25) qui peuvent être alignées avec les gorges respectives, et deux coins (26) positionnés sur une surface latérale (24) dudit écrou à oeil (20) et dans lesquelles s'engagent lesdites dents (19) de façon à pousser lesdites dents (19) dans ladite direction donnée (D).

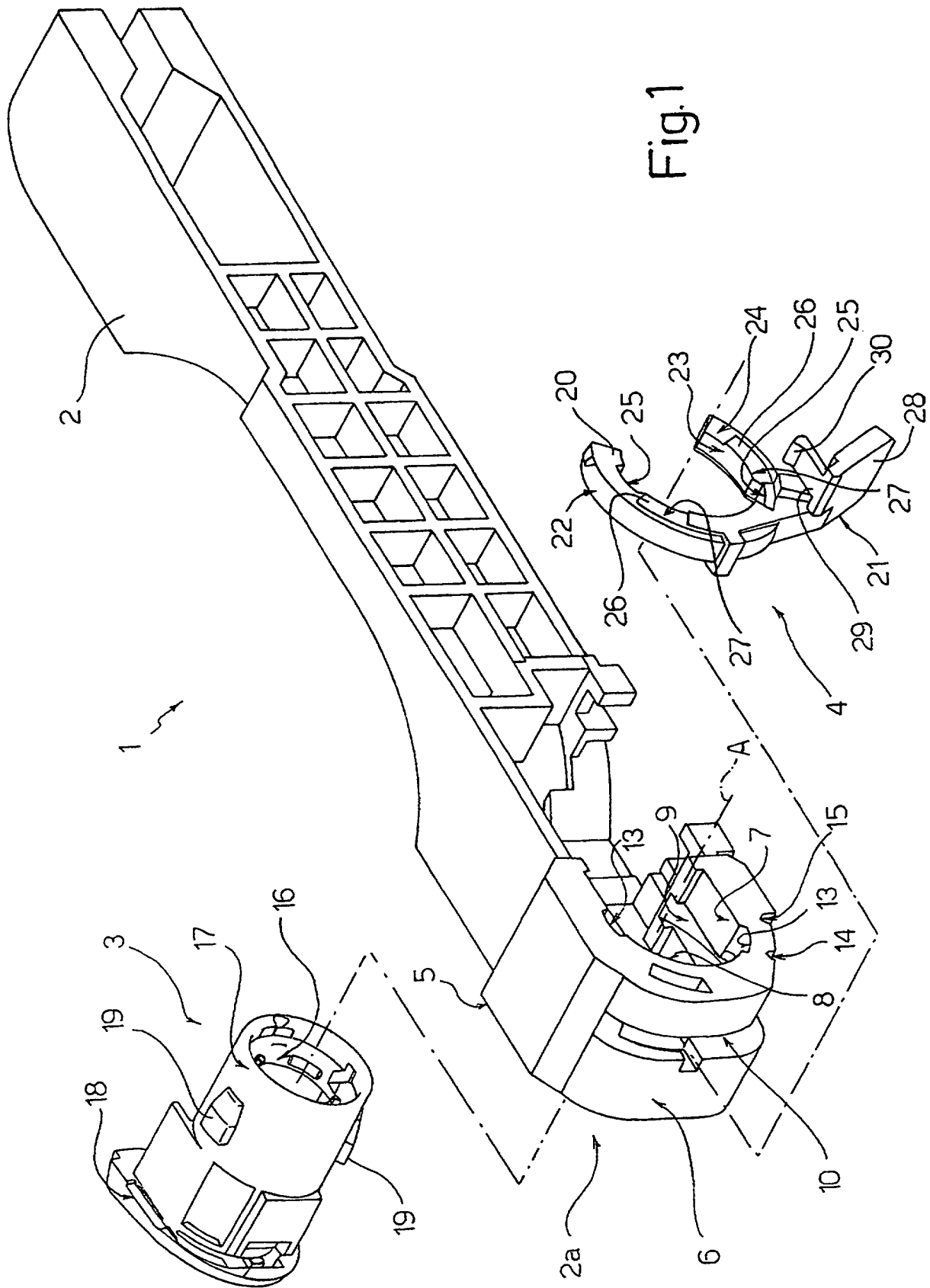


Fig. 1

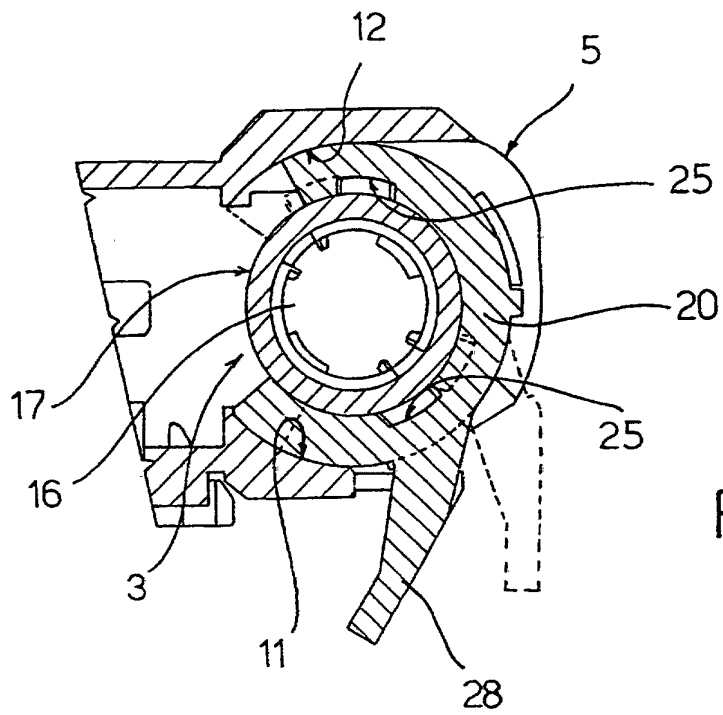


Fig. 2

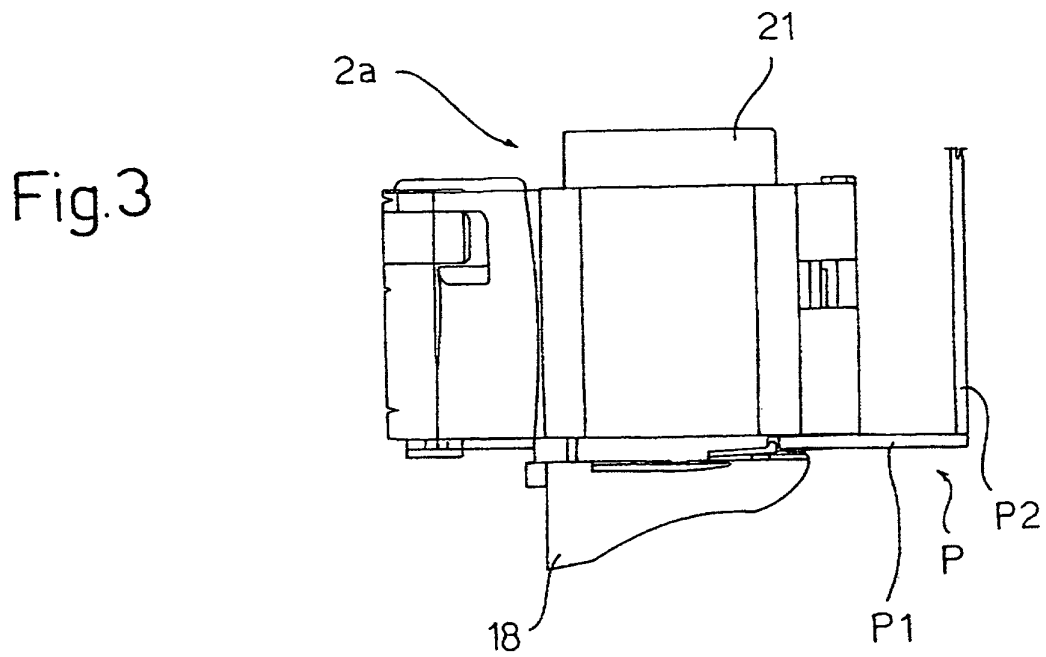


Fig. 3