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(54) **VEHICLE HANDLE DEVICE**

FAHRZEUGGRIFFVORRICHTUNG

DISPOSITIF DE POIGNÉE DE VÉHICULE

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Description

TECHNICAL FIELD

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

BACKGROUND ART

[0002] A device described in Patent Document 1 has been known as a vehicle handle device including a handle base on which an operation handle and a lock lever are disposed next to each other and rotatably held.

[0003] In this conventional example, an inside handle (operation handle) is mounted by fitting a first rotation shaft part which protrudes from one side wall of a rotation base end section into a first supporting part bored in a cover member (handle base) and by fitting a first swivel hole in the opposite wall face of the rotation base end section onto a third supporting part on the handle base. A lock knob mounted adjacently to the operation handle restricts movement of the operation handle in a disengagement direction.

PRIOR ART DOCUMENT

PATENT DOCUMENT

[0004] Patent Document 1: Japanese Patent No. 3138422

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0005] Here, in the above conventional example, the lock knob restricts the movement of the operation handle in the direction of pulling it from the shaft parts, i.e. width-wise movement. For this reason, clanking easily occurs in lateral directions due to the influence of errors in the dimensions of the lock knob or the like. In addition, in order to prevent the clanking, the operation handle and the lock knob are in sliding contact with each other, which in turn leads to a problem such as unintentional operation of the lock knob as a result of following the operation of the operation handle, or an increase in the frictional resistance against the operation of the operation handle.

[0006] Meanwhile, this problem may be solved by adding an additional component which restricts the movement of the operation handle. In this case, however, a mounting step is required for the added component, which leads to a problem of lowered assembly workability.

[0007] The present invention has been made to solve the above drawbacks, and an object thereof is to provide a vehicle handle device which has excellent assembly workability and which is capable of effectively preventing the operation handle from clanking and the lock knob

from drag turning.

MEANS FOR SOLVING THE PROBLEMS

[0008] According to the present invention, the above object is achieved by providing a vehicle handle device, including: a handle base 5 which includes a hinge-forming wall 1 disposed between a pair of mutually facing regions of a peripheral wall of the handle base 5, and is configured such that hinge receiving parts 2 formed at opposite side faces of an operation handle 3 are rotatably pivoted on hinge receiving parts 2 formed respectively at one of the mutually facing regions of the peripheral wall and the hinge-forming wall 1, and opposite side faces of a lock lever 4 are pivoted on the hinge-forming wall 1 and the other of the mutually facing regions of the peripheral wall, in which

the operation handle 3 is mounted to the handle base 5 by inserting a shaft-form hinge receiving part 2 which is formed integrally with either one of the handle base 5 and the operation handle 3, into a hole-form hinge receiving part 2 formed on the other, by sliding the operation handle 3 in an axial direction of a rotation shaft from a position where the hinge-forming wall 1 is laid between a hinge plate 6 in which the hinge receiving part 2 at one of the side faces of the operation handle 3 is formed, and the side face of the operation handle 3 facing the hinge plate 6, and

an engagement claw 7 protruding from the hinge-forming wall 1 engages elastically with the hinge plate 6 as a result of the mounting operation to thereby restrict movement of the operation handle 3 in a separation direction.

[0009] In the present invention, the handle device is formed by rotatably pivoting the operation handle 3 and the lock lever 4 on the handle base 5. The opposite side walls of the operation handle 3 are coupled to the handle base 5 by inserting the shaft-form hinge receiving part (hinge shaft part 2A) which is formed integrally with either one of each side wall and the corresponding section of the handle base 5, into the hole-form hinge receiving part (hinge hole 2B) formed in the other.

[0010] By forming the hinge shaft part 2A integrally with the side wall of the operation handle 3 or the like and axially sliding the operation handle 3 to mount it, a shaft member such as a shaft is not additionally required. Accordingly, the number of components can be reduced and the assembly workability is improved as well.

[0011] Moreover, the restriction of the movement of the operation handle 3 is done by the engagement claw 7 and does not involve the lock lever 4. This makes it possible to ensure the prevention of clanking due to errors in the dimensions of the lock lever 4 or the like, and drag turning of the lock lever 4 due to pressure contact between the operation handle 3 and the lock lever 4.

[0012] Further, as a result of mounting the operation handle 3 to the handle base 5, the engagement claw 7 engages elastically with the operation handle 3 to thereby restrict axial movement of the operation handle 3. In this

way, neither the number of components nor the man hours for the mounting increases.

[0013] In addition, the operation handle 3 can be held on the handle base 5 without the lock lever 4 mounted. This allows the operation handle 3 to be stored in a sub-assembled state and also improves the workability for the mounting of a return spring to the operation handle 3.

[0014] Further, the vehicle handle device can be configured such that

on the hinge plate 6 of the operation handle 3, an arc-form peripheral part 8 is formed which is centered at a rotation center of the operation handle 3 and with which the engagement claw 8 engages elastically.

[0015] The position of engagement of the engagement claw 7 may be set as appropriate on the operation handle 3. However, by, like the present invention, engaging the engagement claw 7 with the arc-form peripheral part 8 of the hinge plate 6, which is provided correspondingly to the hinge-forming wall 1 and pivoted on the hinge-forming wall 1, the engagement claw 7 can be moved relative to the operation handle 3 along the arc-form peripheral part 8 when the operation handle 3 is turned. Thus, interference with the engagement claw 7 in the turning of the operation handle 3 can be easily avoided with a simpler structure.

[0016] Moreover, with the lock lever 4 removed, the position of engagement of the engagement claw 7 is exposed to the outside, and the operation handle 3 can therefore be removed easily as well.

[0017] Further, the lock lever 4 can be pivoted on the handle base 5 by using appropriate members.

[0018] However, the hinge receiving part 2A of the hinge-forming wall 1 may be formed in a shaft form, and one of side walls of the lock lever 4 may be pivoted on a portion of the shaft-form hinge receiving part 2A, the portion projecting from the hinge plate 6. In this way, the structure is simple.

[0019] In the above case, the vehicle handle device may be configured such that

the shaft-form hinge receiving part 2A is formed in a stepped pin form including a small diameter protrusion 9 at a tip thereof, the smaller diameter protrusion 9 being inserted in one side wall section of the lock lever 4 and including a base end part restricting movement of the lock lever 4 toward the operation handle 3. In this way, it is possible to ensure the prevention of contact between the lock lever 4 and the operation handle 3 with the help of the engagement claw 7 on the operation handle 3 side.

EFFECT OF THE INVENTION

[0020] According to the present invention, the operation handle is mounted to the handle base by sliding the operation handle in the axial direction of the rotation shaft, and the engagement claw, which has come into engagement with the operation handle as a result of the mounting operation, restricts the movement of the operation handle in the sliding direction, so that the operation handle is

held at a predetermined position independently of the lock knob. In this way, the operation handle can be prevented from contacting the lock knob without lowering the assembly workability. Hence, it is possible to effectively prevent the operation handle from clanking and the lock knob from drag turning.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021]

Fig. 1 is a set of views showing the present invention, and part (a) is a front view and part (b) is a cross-sectional view taken along line 1B-1B in part (a).

Fig. 2 is a set of views showing a handle base, and part (a) is a front view showing a main section and part (b) is a cross-sectional view showing a mounted state of an operation handle.

Fig. 3 is a set of views showing the mounted state of the operation handle, and part (a) is an enlarged view of the main s seen from the direction of arrows 3A in part (a) of Fig. 2 and part (b) is a view showing the mounted state.

Fig. 4 is a set of cross-sectional views of a handle device, and part (a) is a cross-sectional view taken along line 4A-4A in part (b) of Fig. 3 and part (b) is a cross-sectional view taken along line 4B-4B in part (a) of Fig. 1.

MODE FOR CARRYING OUT THE INVENTION

[0022] Fig. 1 and the following figures show an embodiment of the present invention which is made as an inside vehicle handle device. The inside handle device includes: a handle base 5 in the form of a thin container with a peripheral wall rising along substantially the entire periphery; and a lock lever 4 and an operation handle 3 which are rotatably pivoted at a given spot on the handle base 5.

[0023] The lock lever 4 and the operation handle 3 are disposed next to each other. A door lock device not shown can be unlocked by turning the lock lever 4 from an initial rotation position shown in part (b) of Fig. 1 in the direction of arrow A to pull it toward the outer side. Moreover, the operation handle 3 is urged toward its initial rotation position shown in part (b) of Fig. 1 by a torsion spring 10. A latch in the door lock device can be disengaged by turning the operation handle 3 from the initial rotation position in the direction of arrow B.

[0024] As shown in Fig. 2, in order to pivot the lock lever 4 and the operation handle 3, a hinge housing opening 11 is bored in a front end section (left end side in Fig. 1) of the handle base 5, and a hinge-forming wall 1 is laid at the middle of the hinge housing opening 11, thereby defining a lever opening 11A and a handle opening 11B. The wall face of the hinge-forming wall 1 on the lever opening 11A side is integrally provided with a shaft-form hinge receiving part (hinge shaft part 2A) including a

small diameter protrusion 9 at the tip.

[0025] The operation handle 3 includes a finger hooking part 3a at one end while a pair of hinge receiving parts 2 are formed at the other end. One of the pair of the hinge receiving parts 2 is formed in a hinge plate 6 as a hole-form hinge receiving part (hinge hole 2B) through which the hinge shaft part 2A of the hinge-forming wall 1 can be inserted. The other hinge receiving part 2 is formed as a hinge shaft part 2A.

[0026] The hinge plate 6 protrudes laterally from a free end portion of a support column part 6a having a semi-circular tube form. The distance (D) between the inner wall of this hinge plate 6 and the inner wall face of the operation handle 3 facing the inner wall of the hinge plate 6 (hereinafter, referred to as the facing inner wall face) is set to be larger than the distance (d) between the tip of the hinge shaft part 2A of the hinge-forming wall 1 and the opposite wall face of the hinge-forming wall 1. As shown in part (b) of Fig. 2, the operation handle 3 can sandwich the hinge-forming wall 1 between the hinge plate 6 and the facing inner wall face.

[0027] The operation handle 3 can be mounted by sliding it laterally (in the direction of arrow C in part (b) of Fig. 2) with the hinge-forming wall 1 laid between the hinge plate 6 and the facing inner wall face. By this sliding, the hinge hole 2B of the hinge plate 6 is fitted onto the hinge shaft part 2A of the hinge-forming wall 1, and the hinge shaft part 2A on the wall face facing the hinge plate 6 is fitted into a hinge hole 2B in the handle base 5.

[0028] Further, on the hinge-forming wall 1, an engagement claw 7 is formed which includes a support column part 7a and a claw part 7b protruding from the tip thereof. The support column part 7a of the engagement claw 7 is disposed on the hinge-forming wall 1 at a position separated by an appropriate distance from the center of the hinge shaft part 2A on the hinge-forming wall 1. The claw part 7b of the engagement claw 7 protrudes toward the hinge shaft part 2A.

[0029] On the other hand, on the hinge plate 6 of the operation handle 3, an arc-form peripheral part 8 is formed which is centered at the center of the above hinge shaft part 2A. The arc-form peripheral part 8 is formed such that its diameter is slightly smaller than the distance between the support column part 7a of the claw 7 and the hinge shaft part 2A, and is provided with an engagement recess 8a in the outer peripheral face thereof within a range slight larger than the angle of operation of the operation handle 3.

[0030] Thus, in this embodiment, upon sliding of the operation handle 3 in the axial direction of the hinge shaft part 2A to mount the operation handle 3 to the handle base 5, the arc-form peripheral part 8 of the hinge plate 6 comes into contact with the claw part 7b of the engagement claw 7. An inclined face is formed on the region of the claw part 7b where it comes into contact with the hinge plate 6. Thus, when the operation handle 3 is pushed further down, the engagement claw 7 receives an outward pressure from this inclined face, thereby tem-

porarily elastically deforming and turning aside the hinge plate 6. Thereafter, as shown in part (a) of Fig. 4, the engagement claw 7 elastically returns to its original form, so that the claw part 7b engages with the engagement recess 8a. The engagement recess 8a is formed to such a depth that the upper face of the claw part 7b in the engaged state does not project from the upper face of the hinge plate 6.

[0031] In the state where the claw part 7b is in engagement with the hinge plate 6, the claw part 7b restricts movement of the operation handle 3 in a direction of pulling it from the hinge shaft part 2A and therefore maintains the operation handle 3 in the mounted state. Further, since the arc-form peripheral part 8 moves along the support column part 7a of the engagement claw 7, the arc-form peripheral part 8 will never interfere with the turning of the operation handle 3.

[0032] The handle device is assembled by: mounting the torsion spring 10 to the operation handle 3 which has been mounted as described above; and then mounting the lock lever 4 adjacently to the operation handle 3. As shown in Fig. 4, the lock lever 4 is provided with a hinge hole 2B bored therethrough, and the small diameter protrusion 9, which is formed at the tip of the hinge shaft part 2A on the hinge-forming wall 1, can be inserted through the hinge hole 2B. The lock lever 4 is mounted by inserting, into the hinge hole 2B, the small diameter protrusion 9 and a hinge shaft part 2A protruding from an outer wall section of the handle base 5 facing the hinge-forming wall 1.

[0033] As shown in part (a) of Fig. 4, the hinge shaft part 2A inserted in the hinge hole 2B of the lock lever 4 is formed on a cantilevered leg piece 12 formed on the outer wall of the handle base 5. The lock lever 4 can be mounted at a predetermined position by elastically deforming this leg piece 12.

[0034] Movement of the lock lever 4, which is pivoted on the hinge shaft part 2A, toward the operation handle 3 is restricted by a step formed at the base end of the small diameter protrusion 9 of the hinge shaft part 2A formed on the hinge-forming wall 1, so that contact of the lock lever 4 with the operation handle 3 is prevented.

EXPLANATION OF REFERENCE NUMERALS

[0035]

- 1 HINGE-FORMING WALL
- 2 HINGE RECEIVING PART
- 3 OPERATION HANDLE
- 4 LOCK LEVER
- 5 HANDLE BASE
- 6 HINGE PLATE
- 7 ENGAGEMENT CLAW
- 8 ARC-FORM PERIPHERAL PART
- 9 SMALL DIAMETER PROTRUSION

Claims

1. A vehicle handle device, comprising: a handle base (5) which includes a hinge-forming wall (1) disposed between a pair of mutually facing regions of a peripheral wall of the handle base (5), and is configured such that hinge receiving parts (2) formed at opposite side faces of an operation handle (3) are rotatably pivoted on hinge receiving parts (2) formed respectively at one of the mutually facing regions of the peripheral wall and the hinge-forming wall (1), and opposite side faces of a lock lever (4) are pivoted on the hinge-forming wall (1) and the other of the mutually facing regions of the peripheral wall, wherein the operation handle (3) is mountable to the handle base (5) by inserting a shaft-form hinge receiving part (2A) which is formed integrally with either one of the handle base (5) and the operation handle (3), into a hole-form hinge receiving part (2B) formed on the other, by sliding the operation handle (3) in an axial direction of a rotation shaft from a position where the hinge-forming wall (1) is laid between a hinge plate (6) in which the hinge receiving part (2) at one of the side faces of the operation handle (3) is formed, and the side face of the operation handle (3) facing the hinge plate (6), **characterized in that** an engagement claw (7) protruding from the hinge-forming wall (1) engages elastically with the hinge plate (6) as a result of the mounting operation to thereby restrict movement of the operation handle (3) in a separation direction.
2. The vehicle handle device according to claim 1, wherein on the hinge plate (6) of the operation handle (3), an arc-form peripheral part (8) is formed which is centered at a rotation center of the operation handle (3) and with which the engagement claw (7) engages elastically.
3. The vehicle handle device according to claim 1, wherein the hinge receiving part (2) of the hinge-forming wall (1) is formed in a shaft form, and one of side walls of the lock lever (4) is pivoted on a portion of the shaft-form hinge receiving part (2), the portion projecting from the hinge plate (6).
4. The vehicle handle device according to claim 3, wherein the shaft-form hinge receiving part (2) is formed in a stepped pin form including a small diameter protrusion (9) at a tip thereof, the smaller diameter protrusion being inserted in one side wall section of the lock lever (4) and including a base end part restricting movement of the lock lever (4) toward the operation handle (3).

Patentansprüche

1. Eine Fahrzeuggriffvorrichtung, umfassend: einen Grifffuß (5), welcher eine Scharnier-formende Wandung (1) beinhaltet, welche zwischen einem Paar sich gegenseitig zugewandter Bereiche einer peripheren Wandung des Grifffußes (5) angeordnet ist, und derart eingerichtet ist, dass Scharnieraufnahme-teile (2), gebildet an entgegengesetzten Seiten-flächen eines Bediengriffes (3), drehbar auf Schar-nieraufnahmeteile (2) geschwenkt sind, welche ent-sprechend an einem der einander zugewandten Be-reiche der peripheren Wandung und der Scharnier-formenden Wandung (1) gebildet sind, und gegen-überliegende Seitenflächen eines Rasthebels (4) auf die Scharnier-formende Wandung (1) und den an-deren der sich gegenüberliegenden Bereiche der peripheren Wandung geschwenkt sind, worin der Bediengriff (3) auf den Grifffuß (5) montierbar ist durch das Einsetzen eines schachtförmigen Schar-nieraufnahmeteils (2A), welches integral mit einem von beiden, dem Grifffuß (5) und dem Bediengriff (3), ausgebildet ist, in ein lochförmiges Scharnier-aufnahmeteil (2B), welches auf dem anderen gebil-det ist, durch Einschieben des Bediengriffes (3) in einer axialen Richtung eines Rotationsschachts von einer Position, in welcher die Scharnier-formende Wandung (1) zwischen eine Scharnierplatte (6), in welcher das Scharnieraufnahme-teil (2) an einer der Seitenflächen des Bediengriffes (3) gebildet ist, und der Seitenfläche des Bediengriffes (3) gelegt ist, der Scharnierplatte (6) zugewandt, **dadurch gekenn-zeichnet, dass** eine Eingriffpratze (7), welche aus der Scharnier-formenden Wandung (1) heraussteht, elastisch in die Scharnierplatte (6) eingreift, als ein Resultat der Montageoperation, um dadurch eine Bewegung des Bediengriffes (3) in eine Trennungs-richtung zu beschränken.
2. Die Fahrzeuggriffvorrichtung nach Anspruch 1, wo-rin auf der Scharnierplatte (6) des Bediengriffes (3) ein bogenförmiges peripheres Bauteil (8) gebildet ist, welches auf ein Drehzentrum des Bediengriffes (3) zentriert ist, und elastisch in die Eingriffpratze (7) eingreift.
3. Die Fahrzeuggriffvorrichtung nach Anspruch 1, wo-rin das Scharnieraufnahme-teil (2) der Scharnier-formenden Wandung (1) in einer Schachtform ausge-bildet ist, und eine der Seitenflächen des Rasthebels (4) auf einen Teil des schachtförmigen Scharnier-aufnahmeteils (2) geschwenkt ist, wobei der Teil aus der Scharnierplatte (6) hervorsteht.
4. Die Fahrzeuggriffvorrichtung nach Anspruch 3, wo-rin das schachtförmige Scharnieraufnahme-teil (2) in einer abgestuften Stiftform ausgebildet ist, enthal-tend einen Vorsprung mit einem kleinen Durchmes-

ser (9) an einer Spitze davon, wobei der Vorsprung mit kleinem Durchmesser in einen Seitenflächenbereich des Rasthebels (4) eingeschoben ist, und enthaltend ein Basisendteil, welches eine Bewegung des Rasthebels (4) in Richtung des Bediengriffes (3) einschränkt.

Revendications

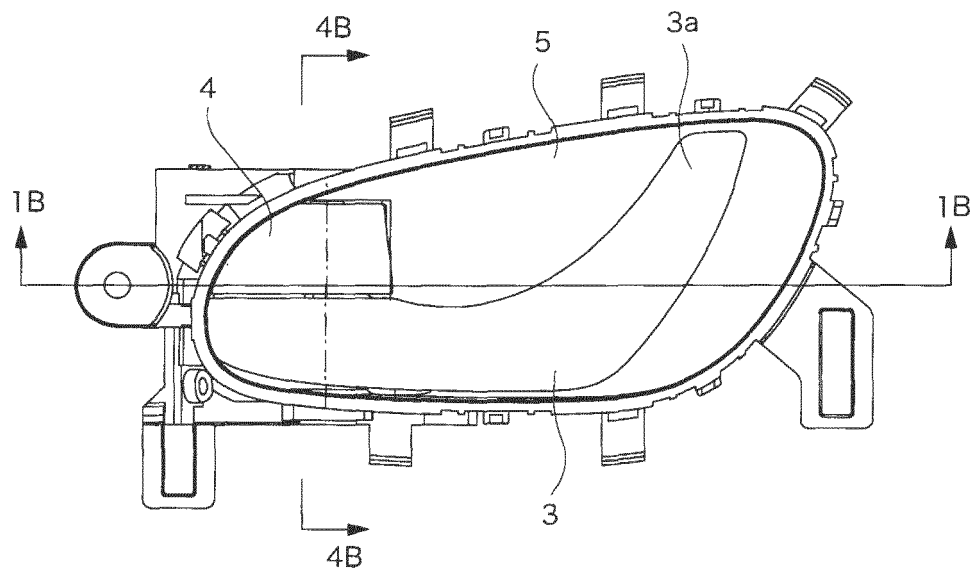
1. Un dispositif de poignée de véhicule, comprenant: une base de poignée (5), que contient une paroi qui forme une charnière (1), laquelle est disposé entre un couple des régions opposés d'une paroi périphérique de la base de poignée (5), et qui est installé tant que parts de réception de la charnière (2), formé dans les faces latérales opposé d'une poignée de commande (3), sont pivoté à émerillon sur des parts de réception de la charnière (2), qui sont respectivement formé dans un des régions opposés d'une paroi périphérique et de la paroi qui forme une charnière (1), et faces latérales opposées d'un levier à cran (4) sont pivoté sur la paroi qui forme une charnière (1) et l'autre des régions opposés d'une paroi périphérique, où la poignée de commande (3) est assemblable sur la base de poignée (5) par l'implantation d'un part de réception de la charnière de forme manche (2A), qui est formé intégralement avec un des deux, la base de poignée (5) et la poignée de commande (3), dans un part de réception de la charnière de forme d'un trou (2B), qui est formé sur l'autre, par insérer la poignée de commande (3) dans une direction axiale d'une buse de rotation à partir d'une position, dans laquelle la paroi qui forme une charnière (1) est formé entre une plaque de charnière (6), dans laquelle le part de réception de la charnière (2) est formé au bord d'une des faces latérales de la poignée de commande (3), et la face latérale des poignée de commande (3), face à la plaque de charnière (6), **caractérisé en ce que** une griffe d'intervention (7), qui fait saillie de la paroi qui forme une charnière (1), intervient élastique dans la plaque de charnière (6) comme un résultat de travail de montage, afin de limiter ainsi un mouvement de poignée de commande (3) dans une direction de séparation.
2. Le dispositif de poignée de véhicule selon la revendication 1, où sur la plaque de charnière (6) de poignée de commande (3) un élément de construction périphérique en forme d'arc (8) est formé, qui est centré sur un centre de rotation de la poignée de commande (3) et s'interpose élastiquement dans la griffe d'intervention (7).
3. Le dispositif de poignée de véhicule selon la revendication 1, où la part de réception de la charnière (2) de la paroi qui forme la charnière (1) est formée dans

une forme de buse, et une des faces latérales de levier à cran (4) est pivoté sur une portion de la part de réception de la charnière (2), la port fait saillie de la plaque de charnière (6).

4. Le dispositif de poignée de véhicule selon la revendication 3, où la part de forme buse où la part de réception de la charnière (2) dans une forme de paroi est exercé dans une forme échelonné d'une goupille, contenant une épaulement avec un petit diamètre (9) à une pointe, où l'épaulement avec un petit diamètre est inséré dans une région de face latérale de levier à cran (4) et contenant une bloc d'extrémité de base qui limite le mouvement de levier à cran (4) dans le direction de poignée de commande (3).

FIG. 1

(a)



(b)

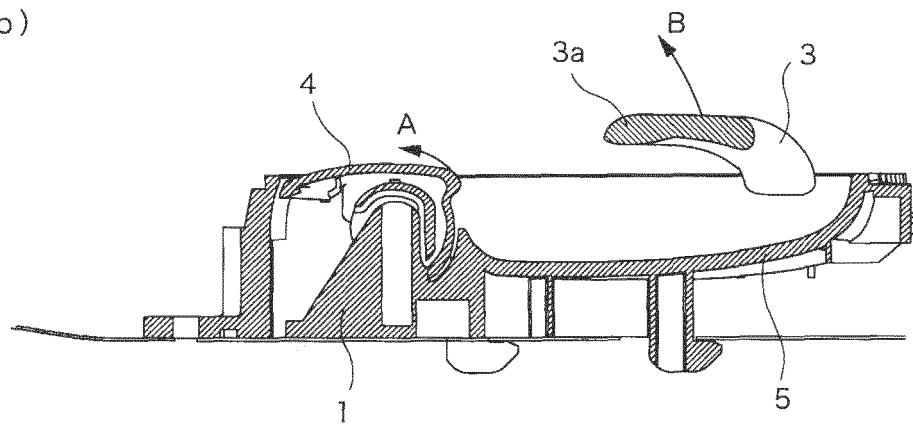
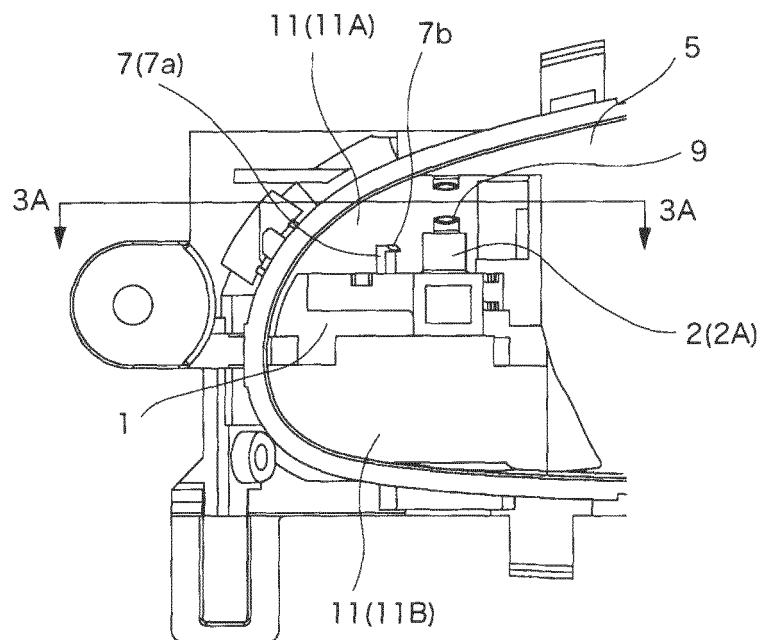


FIG. 2

(a)



(b)

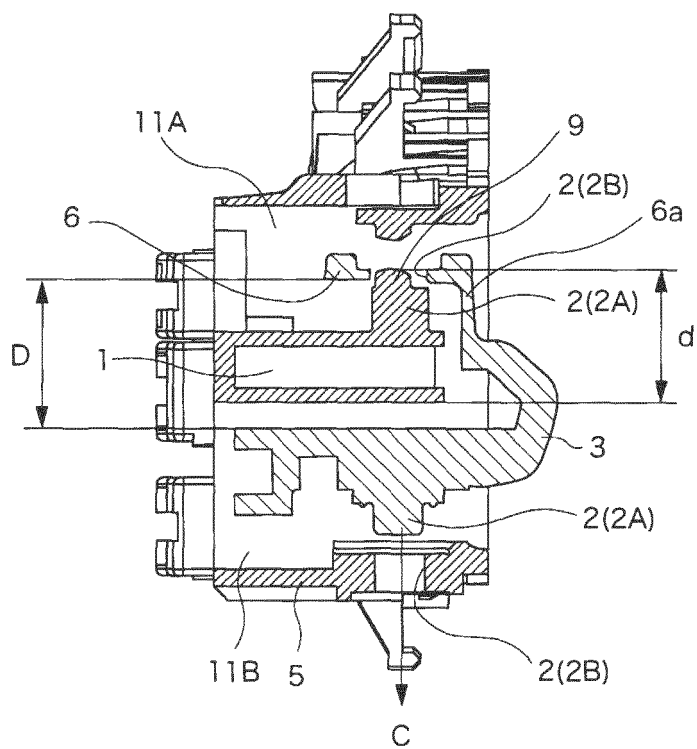
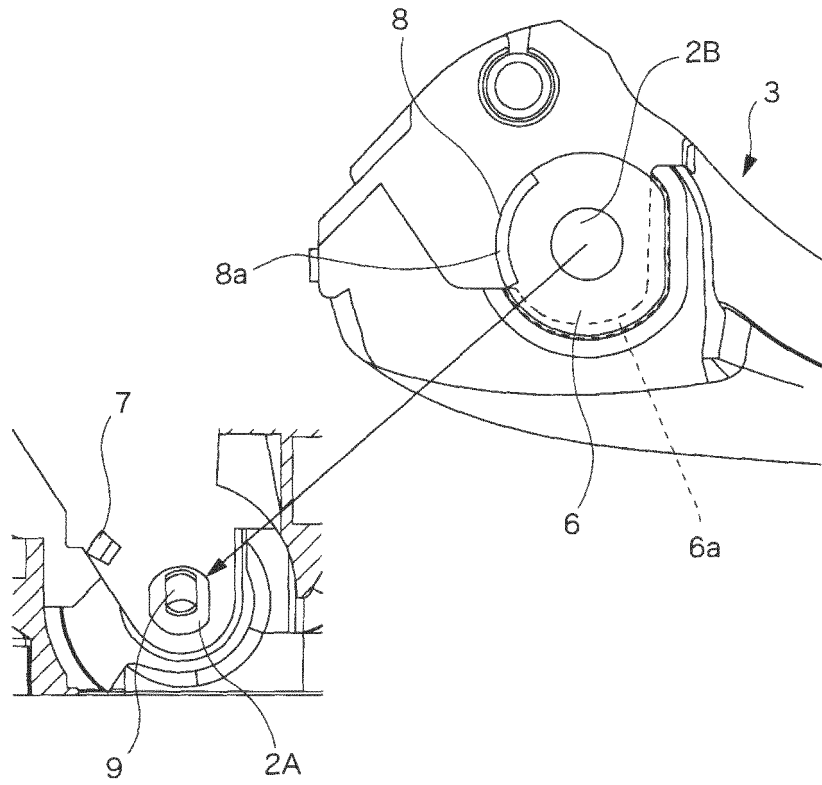


FIG. 3

(a)



(b)

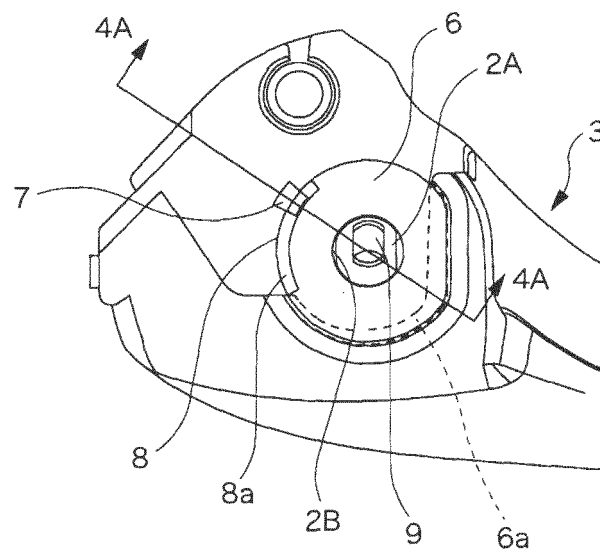
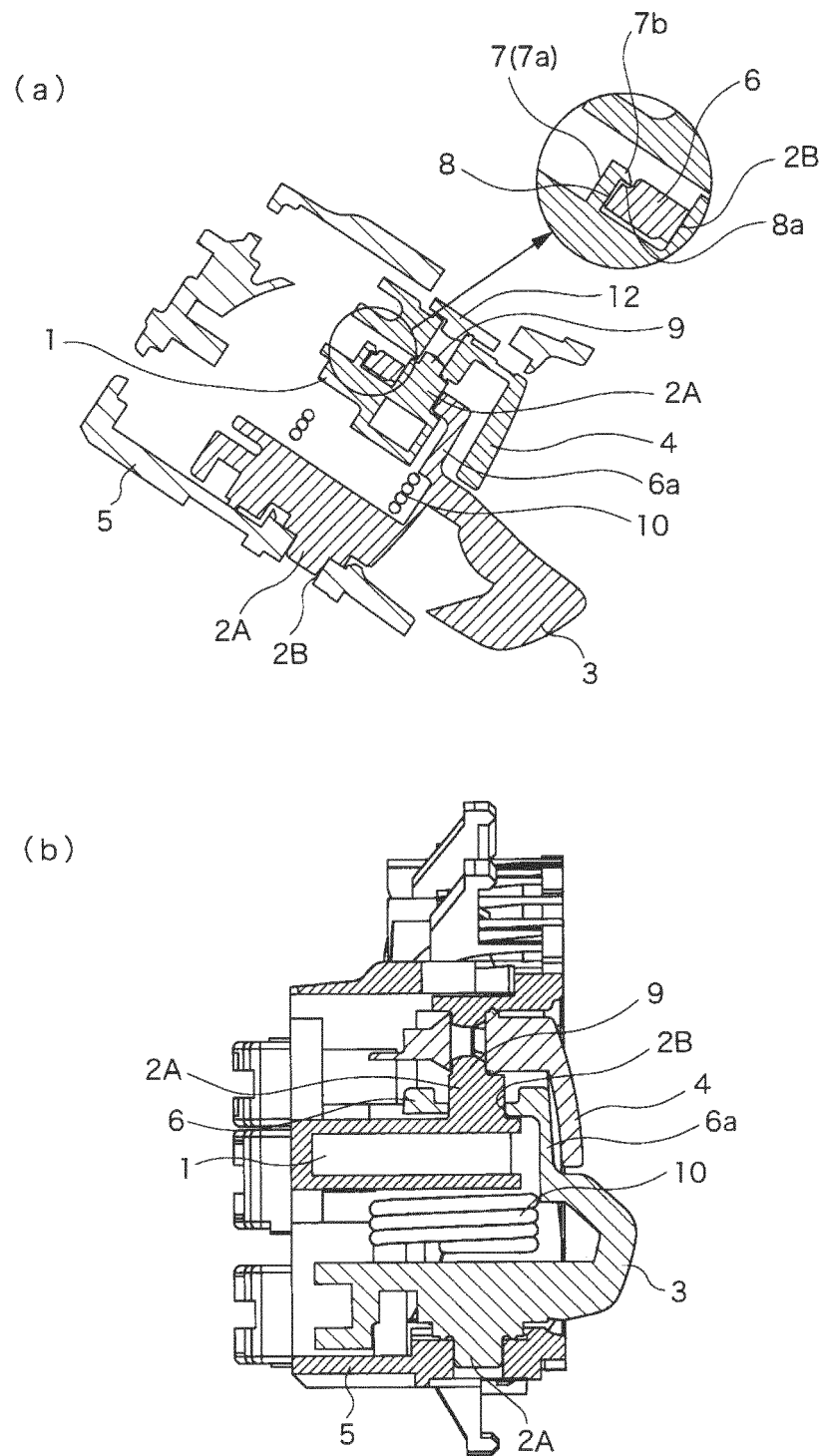


FIG. 4



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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