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Amended claims in accordance with Rule 137(2) EPC.

(54) CORE-REPLACEABLE HOCKEY LOCK

(57) A hockey lock includes a casing (1) having a first recess (11), a path (12) and a guide slot (13) which communicates with the first recess (11) and the path (12). A core (2) is located in a housing (21) which is located in the first recess (11). A mounting member (4) is connected to the core (2) and has a recessed portion (41) which is located corresponding to the guide slot (13) when the core (2) is at the unlocked position. A latch (6) extends through the path (12) and has a groove (61) which is located corresponding to the guide slot (13) when the core (2) is at the locked position. A pin (7) is received in the guide slot (13) and is pushed by the mounting member (4) to be engaged with the groove (61) when the core (2) is at the locked position. The pin (7) is inserted into the recessed portion (41) and disengaged from the groove (61) when the core (2) is at the locked position.

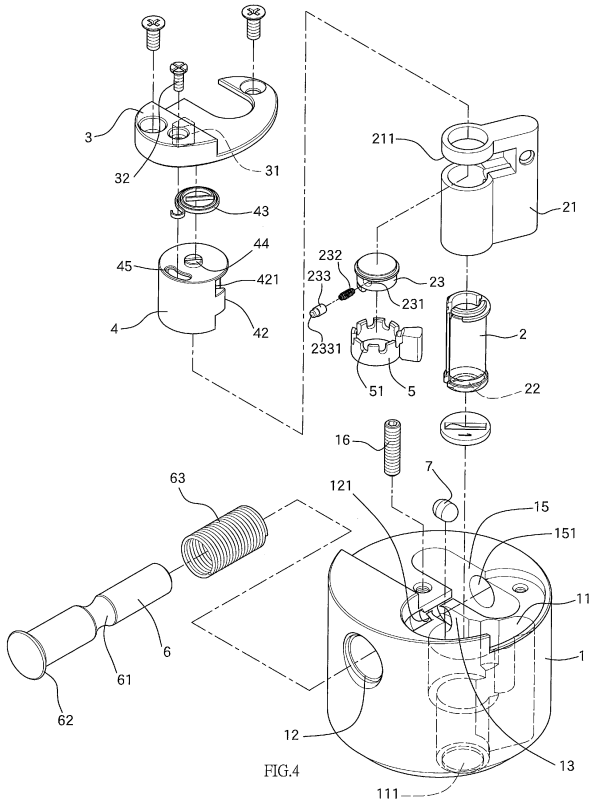

FIG.4

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Description

BACKGROUND OF THE INVENTION

1. Fields of the invention

[0001] The present invention relates to a hockey lock, and more particularly, to a core replaceable hockey lock.

2. Descriptions of Related Art

[0002] As shown in Figs. 1 to 3, the conventional hockey lock is usually used on container or cabinet with a large size door, and generally comprises a casing 10 having an accessible slot 101 in one side thereof, and a installation hole 102 is defined in a periphery of the casing 10. A core 20 is insetalled in the installation hole 102 and has a slot 201 on one side thereof. The core 20 is integrally connected with an engaging member 202. An insertion hole 103 is defined in an inside of the accessible slot 101. When locking the hockey lock, the user rotates the core 20 such that the engaging member 202 is engaged with the insertion hole 103. A threaded hole 104 is defined in the casing 10 and a bolt 30 is threadedly connected to the threaded hole 104 so as to be inserted in the slot 201 to restrict the movement of the core 20.

[0003] However, because the core 20 is located at the periphery of the casing 10 so that the lock hole 203 of the core 20 does not directly face the user, and the user has to find the orientation of the core 20 to insert the key into the lock hole 203. Besides, the core 20 and the engaging portion 202 are integrally formed with each other, which means that each hockey lock has its own key. Assuming that the hockey lock for the gate and the hockey lock for the garage have different cores, the user has to carry two different keys to open them. This is not convenient for the user because the weight and the room required for the keys. In addition, because the core 20 and the engaging portion 202 are integrally formed with each other, once the core 20 needs to be replaced or repaired, the whole hockey lock has to be discarded and purchase a new one.

[0004] The present invention intends to provide a hockey lock to improve the shortcomings mentioned above.

SUMMARY OF THE INVENTION

[0005] The present invention relates to a hockey lock and comprises a casing having a first recess, a path and a guide slot which communicates with the first recess and the path. The first recess has a narrowed opening defined in a first side of the casing. A core is located in a housing and has a lock hole. The housing is located in the first recess. The lock hole is located in the narrowed opening. A cover is connected to first recess of the casing to position the housing. The core is positioned between an unlock position and a locked position. A mounting member is connected to the core and co-rotated with the core. The mounting member has a recessed portion defined radially therein which is located corresponding to the guide slot when the core is positioned at the unlocked position. A latch extends through the path and has a groove which is located corresponding to the guide slot when the core is positioned at the locked position. A pin is received in the guide slot and located corresponding to the recessed portion and the groove. The pin is pushed by the mounting member to be engaged with the groove when the core is positioned at the locked position. The pin is inserted into the recessed portion and disengaged from the groove so that the groove of the latch is removed from the guide slot when the core is positioned at the unlocked position.

[0006] Preferably, the core has a cam member mounted thereto which is co-rotated with the core. The mounting member has two contact portions which are located corresponding to the cam member.

[0007] Preferably, the housing has an open section and the cam member is located corresponding to the open section. The mounting member has a transverse slot defined in the periphery thereof and the transverse slot is located corresponding to the housing. The contact portions are located corresponding to the open section and located on two sides of the transverse slot.

[0008] Preferably, the core has a driving member which is located corresponding to the open section. The cam member is connected to the driving member and has at least one notch. The driving member has a reception hole in which a resilient member and a biasing unit are received. The biasing unit is located corresponding to the at least one notch.

[0009] Preferably, the biasing unit has a tip end which is located corresponding to the at least one notch.

[0010] Preferably, the casing has a reception recess which is located corresponding to the cam member.

[0011] Preferably, the housing is shaped as a pear.

[0012] Preferably, the first recess and the path are perpendicular to each other. The path is defined in the periphery of the casing.

[0013] Preferably, the cover has a block which is located corresponding to the guide slot. The block restricts the pin.

[0014] Preferably, the path has a stop. The latch has a flange extending radially from one end thereof. A resilient member is located between the stop and the flange.

[0015] Preferably, the latch has a guide face recessed in the periphery thereof. The casing has a stop which is located corresponding to the guide face so as to restrict movement of the latch.

[0016] Preferably, the casing has an accessible slot and the latch extends transverse through the accessible slot.

[0017] Preferably, the mounting member has a resilient unit connected thereto which is rotated with the mounted member so as to return the core to the locked position.

[0018] Preferably, the resilient unit is a coil spring. The

mounting member has a positioning member. The cover has a fixing member. Two ends of the resilient unit are respectively connected to the fixing member and the positioning member.

[0019] Preferably, the mounting member has a restriction slot in which the fixing member is inserted.

[0020] The cover and the accessible slot are located on the same side of the casing, and the side with the cover and the accessible slot is connected to the door so that the cover cannot be removed to remove the core. The user can see the lock hole which is located on the outside of the hockey lock to save the user's time.

[0021] When the hockey lock is unlocked, the core can be replaced by removing the cover, while the casing is maintained. Multiple hockey locks may have the same type of cores so that the user only needs one key to be able to unlock all of the hockey locks.

[0022] The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023]

Fig. 1 is an exploded view of a conventional hockey lock;

Fig. 2 is a perspective view to show the conventional hockey lock;

Fig. 3 is a perspective view to show the hockey lock of the present invention;

Fig. 4 is an exploded view of the hockey lock of the present invention;

Fig. 5 shows the arrangement of the hockey lock of the present invention via the cover;

Fig. 6 shows that the biasing unit is engaged with the notch of the cam member;

Fig. 7 shows that the biasing unit is inserted into the reception hole to adjust the angle of the cam member;

Fig. 8 is a cross sectional view, taken along line A-A in Fig. 3;

Fig. 9 shows that when the hockey lock is unlocked, the recessed portion faces the guide slot, the pin is disengage from the groove;

Fig. 10 shows that the hockey lock of the present invention is in unlocked position;

Fig. 11 shows that the mounting member is biased by the resilient unit to position the core at the locked position, and

Fig. 12 shows that the core is rotated to stretch the resilient unit by the mounting member.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0024] Referring to Figs. 3 to 5, the hockey lock of the present invention comprises a casing 1 having a first recess 11, a path 12 and a guide slot 13 which communicates with the first recess 11 and the path 12. The first recess 11 has a narrowed opening 111 defined in the first side of the casing 1. The first recess 11 and the path 12 are perpendicular to each other, and the path 12 is defined in the periphery of the casing 1.

[0025] A core 2 is located in a housing 21 and has a lock hole 22. The housing 21 is located in the first recess 11. The lock hole 22 is located in the narrowed opening 111. A cover 3 is connected to first recess 11 of the casing 1 to position the housing 21. The cover 3 and the casing 1 can be connected by bolts. The core 2 is positioned between an unlock position and a locked position. A mounting member 4 is connected to the core 2 and co-rotated with the core 2. The mounting member 4 has a recessed portion 41 defined radially therein which is located corresponding to the guide slot 13 when the core 2 is positioned at the unlocked position.

[0026] In one embodiment, the core 2 has a cam member 5 mounted thereto which is co-rotated with the core 2. The mounting member 4 has two contact portions 42 which are located corresponding to the cam member 5. When the core 2 is rotated, the cam member 5 is rotated and pushes the contact portions 42 to rotate the mounting member 4.

[0027] As shown in Fig. 4, the housing 21 has an open section 211 and the cam member 5 is located corresponding to the open section 211 to save space required. The housing 21 is shaped as a pear. In order to ensure that the mounting member 4 to be connected to the core 2, the mounting member 4 has a transverse slot 421 defined in the periphery thereof and the transverse slot 421 is located corresponding to the housing 21. The contact portions 42 are located corresponding to the open section 211 and located on two sides of the transverse slot 421. As shown in Fig. 5, the casing 1 has a reception recess 14 which is located corresponding to the cam member 5 to prevent interference between the cam member 5 and the casing 1, and also restricts the angle that the cam member 5 rotates.

[0028] As shown in Fig. 4, the core 2 has a driving member 23 which is located corresponding to the open section 211. The cam member 5 is connected to the driving member 23 and has at least one notch 51. The driving member 23 has a reception hole 231 in which a resilient member 232 and a biasing unit 233 are received. The biasing unit 233 is located corresponding to the at least one notch 51. The biasing unit 233 has a tip end 2331 which is located corresponding to the at least one notch 51. As shown in Fig. 6, the diameter of the tip end 2331 is smaller than that of the biasing unit 233, so that the biasing unit 233 contacts the inside of the cam member 5, and the tip end 2331 is located at the notch 51 to pre-

vent the biasing unit 233 from removing from its position. The cam member 5 is also positioned and is co-rotated with the core 2, such that the rotational angle of the mounting member 4 is controlled. When the angle of the cam member 5 is to be adjusted, as shown in Fig. 7, the biasing unit 233 is compressed to compress the resilient member 232, so that the top end 2331 is removed from the notch 51 and moved toward the reception hole 231. Therefore, the angle of the cam member 5 is adjusted. When one of the notches 51 is located corresponding to the reception hole 231, the resilient member 232 bounces back and the biasing unit 233 returns to the position in Fig. 6 to position the cam member 5.

[0029] A latch 6 extends through the path 12 and has a groove 61 which is located corresponding to the guide slot 13 when the core 2 is positioned at the locked position. The casing 1 has an accessible slot 15 and the latch 6 extends transverse through the accessible slot 15.

[0030] A pin 7 is received in the guide slot 13 and located corresponding to the recessed portion 41 and the groove 61. The cover 3 has a block 31 which is located corresponding to the guide slot 13. When the cover 3 is connected to the casing 1, the block 31 contacts the pin 7 to restrict the block 31 from disengaging from the guide slot 13.

[0031] As shown in Fig. 8, when the hockey lock is locked, the latch 6 is secured in the accessible slot 15, and the recessed portion 41 of the mounting member 4 is not located corresponding to the guide slot 13, so that the pin 7 is pushed by the mounting member 4 to be engaged with the groove 61 so that the pin 7 restricts the latch 6 from disengaged from the accessible slot 15. An insertion hole 151 is defined in an inside of the accessible slot 15 so that the latch 6 is inserted into the insertion hole 151 when the latch 6 is at locked position. When the hockey lock is connected to a door (not shown), the door has a connection member (not shown) which is inserted into the accessible slot 15, the latch 6 extends through the connection member so as to be secured to the accessible slot 15. The door is connected to the first side of the casing 1, and the cover 3 is located at the first side of the casing 1, so that the cover 3 cannot be removed to pick the core 2 out from the casing 1. Because the first recess 11 is perpendicular to the path 12, and the path 12 is located at the periphery of the casing 1 so that the opening 111 and the lock hole 22 are located at the second side of the casing 1. The user can easily check the opening 111 and the lock hole 22.

[0032] When the core 2 is rotated by using the correct key (not shown), as shown in Fig. 9, the core 2 rotates the block 23 which drives the cam member 5 by the biasing unit 233. The cam member 5 drives the contact portions 42 of the mounting member 4 so that the mounting member 4 is rotated to position the recessed portion 41 to be located corresponding to the guide slot 13, this is the unlocked position for the core 2. The pin 7 can be inserted into the recessed portion 41 so as to be disengaged from the groove 61, such that the groove 61 can be removed from the guide slot 13 as shown in Fig. 10.

[0033] As shown in Figs. 2 and 10, the path 12 has a stop 121, and the latch 6 has a flange 61 extending radially from one end thereof. A resilient member 63 is located between the stop 121 and the flange 61, such that when the flange 61 and the pin 7 are not located at the locked status, the latch 6 is pushed by the resilient member 63 to remove from the groove 15.

[0034] As shown in Figs. 8 to 10, the latch 6 has a guide face 64 recessed in the periphery thereof. The casing 1 has a stop 16 which is located corresponding to the guide face 64 so as to restrict movement of the latch 6. When the latch 6 is at the unlocked position, the stop 16 is engaged with the guide face 64 which is a recessed area, so as to prevent the latch 6 from disengaging from the casing 1.

[0035] As shown in Figs. 11 and 12, the mounting member 4 has a resilient unit 43 connected thereto which is rotated with the mounted member 4 so as to return the core 2 to the locked position. Preferably, the resilient unit 43 is a coil spring. The mounting member 4 has a positioning member 44. The cover 3 has a fixing member 32. The two ends of the resilient unit 43 are respectively connected to the fixing member 32 and the positioning member 44. As shown in Fig. 12, when the mounting member 4 is rotated with the core 2, the positioning member 44 expands the resilient unit 43. When the user does not apply a force to the core 2 by using the key, as shown in Fig. 11, the resilient unit 43 returns and drives the mounting member 4 to rotate toward the locked direction of the core 2. The contact portions 42 push the cam member 5 which drives the driving member 23 and the core 2 by the biasing unit 233 to return the core 2 back to the locked position.

[0036] As shown in Figs. 9 to 12, in order to ensure that the mounting member 4 is located corresponding tot eh guide slot 13 when the core 2 is unlocked, the mounting member 4 has a restriction slot 45 in which the fixing member 32 is inserted. When the core 2 is unlocked, the fixing member 32 contacts one end of the restriction slot 45 to restrict the movement of the mounting member 4.

[0037] While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

Claims

1. A hockey lock comprising:

a casing having a first recess, a path and a guide slot which communicates with the first recess and the path, the first recess having a narrowed opening defined in a first side of the casing;

a core located in a housing and having a lock hole, the housing located in the first recess, the

lock hole located in the narrowed opening, a cover connected to first recess of the casing to position the housing, the core being positioned between an unlock position and a locked position, a mounting member connected to the core and being co-rotated with the core, the mounting member having a recessed portion defined radially therein which is located corresponding to the guide slot when the core is positioned at the unlocked position;
a latch extending through the path and having a groove which is located corresponding to the guide slot when the core is positioned at the locked position, and
a pin received in the guide slot and located corresponding to the recessed portion and the groove, the pin being pushed by the mounting member to be engaged with the groove when the core is positioned at the locked position, the pin being inserted into the recessed portion and disengaged from the groove so that the groove of the latch is removed from the guide slot when the core is positioned at the unlocked position.

2. The hockey lock as claimed in claim 1, wherein the core has a cam member mounted thereto which is co-rotated with the core, the mounting member has two contact portions which are located corresponding to the cam member.

3. The hockey lock as claimed in claim 2, wherein the housing has an open section and the cam member is located corresponding to the open section, the mounting member has a transverse slot defined in a periphery thereof and the transverse slot is located corresponding to the housing, the contact portions are located corresponding to the open section and located on two sides of the transverse slot.

4. The hockey lock as claimed in claim 2, wherein the core has a driving member which is located corresponding to the open section, the cam member is connected to the driving member and has at least one notch, the driving member has a reception hole in which a resilient member and a biasing unit are received, the biasing unit is located corresponding to the at least one notch.

5. The hockey lock as claimed in claim 4, wherein the biasing unit has a tip end which is located corresponding to the at least one notch.

6. The hockey lock as claimed in claim 2, wherein the casing has a reception recess which is located corresponding to the cam member.

7. The hockey lock as claimed in claim 2, wherein the housing is shaped as a pear.

8. The hockey lock as claimed in claim 1 to 7, wherein the first recess and the path are perpendicular to each other, the path is defined in a periphery of the casing.

9. The hockey lock as claimed in claim 1 to 7, wherein the cover has a block which is located corresponding to the guide slot, the block restricts the pin.

10. The hockey lock as claimed in claim 1 to 7, wherein the path has a stop, the latch has a flange extending radially from an end thereof, a resilient member is located between the stop and the flange.

11. The hockey lock as claimed in claim 1 to 7, wherein the latch has a guide face recessed in a periphery thereof, the casing has a stop which is located corresponding to the guide face so as to restrict movement of the latch.

12. The hockey lock as claimed in claim 1 to 7, wherein the casing has an accessible slot and the latch extends transverse through the accessible slot.

13. The hockey lock as claimed in claim 1 to 7, wherein the mounting member has a resilient unit connected thereto which is rotated with the mounted member so as to return the core to the locked position.

14. The hockey lock as claimed in claim 13, wherein the resilient unit is a coil spring, the mounting member has a positioning member, the cover has a fixing member, two ends of the resilient unit are respectively connected to the fixing member and the positioning member.

15. The hockey lock as claimed in claim 14, wherein the mounting member has a restriction slot in which the fixing member is inserted.

Amended claims in accordance with Rule 137(2) EPC.

1. A hockey lock comprising:

a casing (1) having a first recess (11), a path (12) and a guide slot (13) which communicates with the first recess (11) and the path (12), the first recess (11) having a narrowed opening (111) defined in a first side of the casing (1);
a core (2) located in a housing (21) and having a lock hole (22), the housing (21) located in the first recess (11), the lock hole (22) located in the narrowed opening (111), a cover (3) connected to first recess (11) of the casing (1) to position the housing (21), the core (2) being positioned between an unlock position and a locked posi-

tion, a mounting member (4) connected to the core (2) and being co-rotated with the core (2), the mounting member (4) having a recessed portion (41) defined radially therein which is located corresponding to the guide slot (13) when the core (2) is positioned at the unlocked position;
a latch (6) extending through the path (12) and having a groove (61) which is located corresponding to the guide slot (13) when the core (2) is positioned at the locked position, and
a pin (7) received in the guide slot (13) and located corresponding to the recessed portion (41) and the groove (61), the pin (7) being pushed by the mounting member (4) to be engaged with the groove (61) when the core (2) is positioned at the locked position, the pin (7) being inserted into the recessed portion (41) and disengaged from the groove (61) so that the groove (61) of the latch (6) is removed from the guide slot (13) when the core (2) is positioned at the unlocked position,

characterized in that
the core (2) has a cam member (5) mounted thereto which is co-rotated with the core (2), the mounting member (4) has two contact portions (42) which are located corresponding to the cam member (5),
the housing (21) has an open section (211) and the cam member (5) is located corresponding to the open section (211), the mounting member (4) has a transverse slot (421) defined in a periphery thereof and the transverse slot (421) is located corresponding to the housing (21), the contact portions (42) are located corresponding to the open section (211) and located on two sides of the transverse slot (421),
the core (2) has a driving member (23) which is located corresponding to the open section (211), the cam member (5) is connected to the driving member (23) and has at least one notch (51), the driving member (23) has a reception hole (231) in which a resilient member (232) and a biasing unit (233) are received, the biasing unit (233) is located corresponding to the at least one notch (51), and
the biasing unit (233) has a tip end (2331) which is located corresponding to the at least one notch (51).

2. The hockey lock as claimed in claim 1, wherein the casing (1) has a reception recess (14) which is located corresponding to the cam member (5).

3. The hockey lock as claimed in claim 1, wherein the housing (21) is shaped as a pear.

4. The hockey lock as claimed in claim 1 to 3, wherein the first recess (11) and the path (12) are perpendicular to each other, the path (12) is defined in a periphery of the casing (1).

5. The hockey lock as claimed in claim 1 to 3, wherein the cover (3) has a block (31) which is located corresponding to the guide slot (13), the block (31) restricts the pin (7).

6. The hockey lock as claimed in claim 1 to 3, wherein the path (12) has a stop (121), the latch (6) has a flange (61) extending radially from an end thereof, a resilient member (232) is located between the stop (121) and the flange (61).

7. The hockey lock as claimed in claim 1 to 3, wherein the latch (6) has a guide face (64) recessed in a periphery thereof, the casing (1) has a stop which is located corresponding to the guide face (64) so as to restrict movement of the latch (6).

8. The hockey lock as claimed in claim 1 to 3, wherein the casing (1) has an accessible slot (15) and the latch (6) extends transverse through the accessible slot (15).

9. The hockey lock as claimed in claim 1 to 3, wherein the mounting member (4) has a resilient unit (43) connected thereto which is rotated with the mounted member (4) so as to return the core (2) to the locked position.

10. The hockey lock as claimed in claim 9, wherein the resilient unit (43) is a coil spring, the mounting member (4) has a positioning member (44), the cover (3) has a fixing member (32), two ends of the resilient unit (43) are respectively connected to the fixing member (32) and the positioning member (44).

11. The hockey lock as claimed in claim 10, wherein the mounting member (4) has a restriction slot (45) in which the fixing member (44) is inserted.

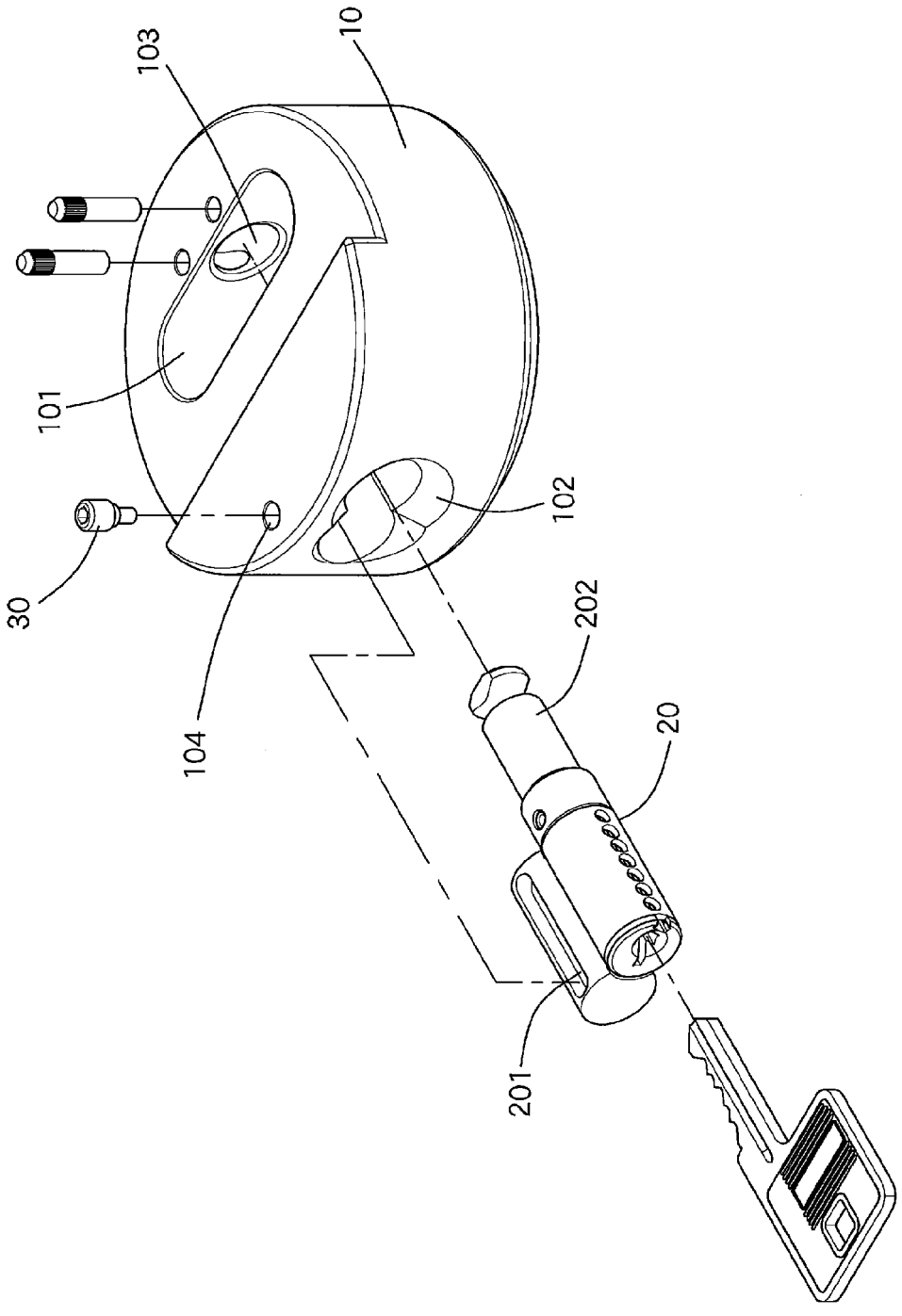


FIG.1(PRIOR ART)

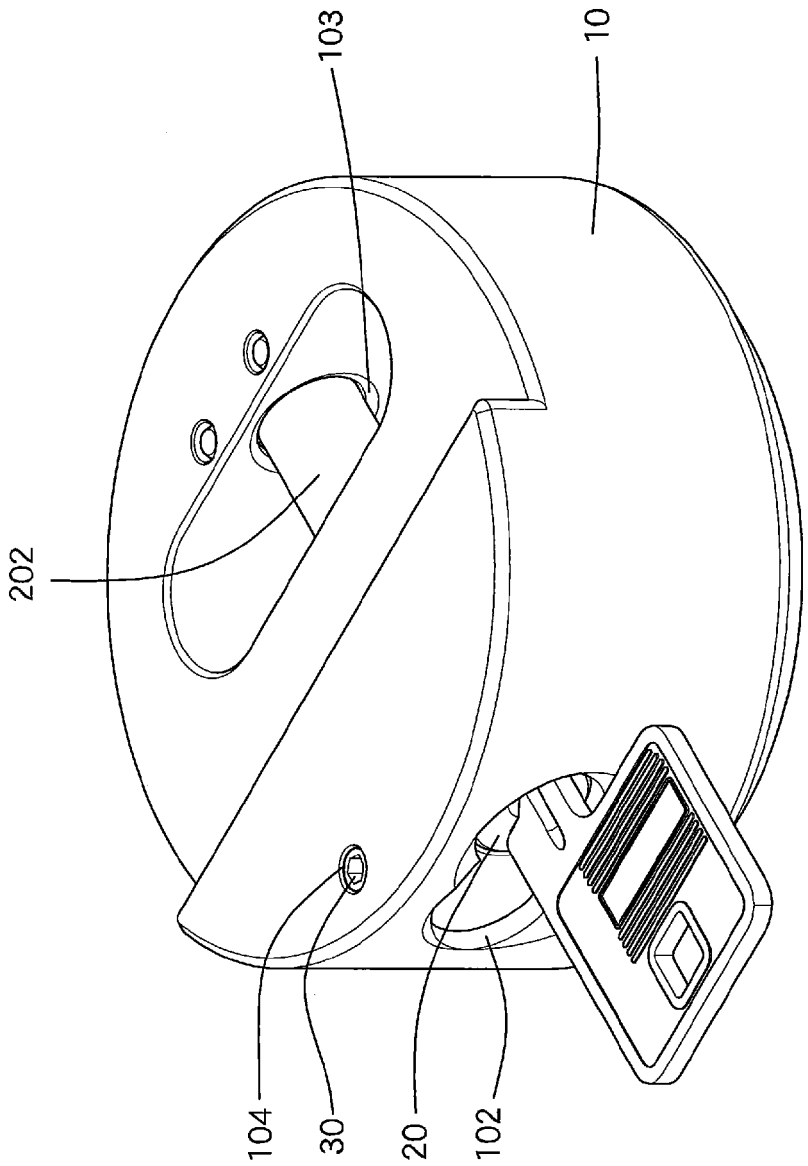


FIG.2(PRIOR ART)

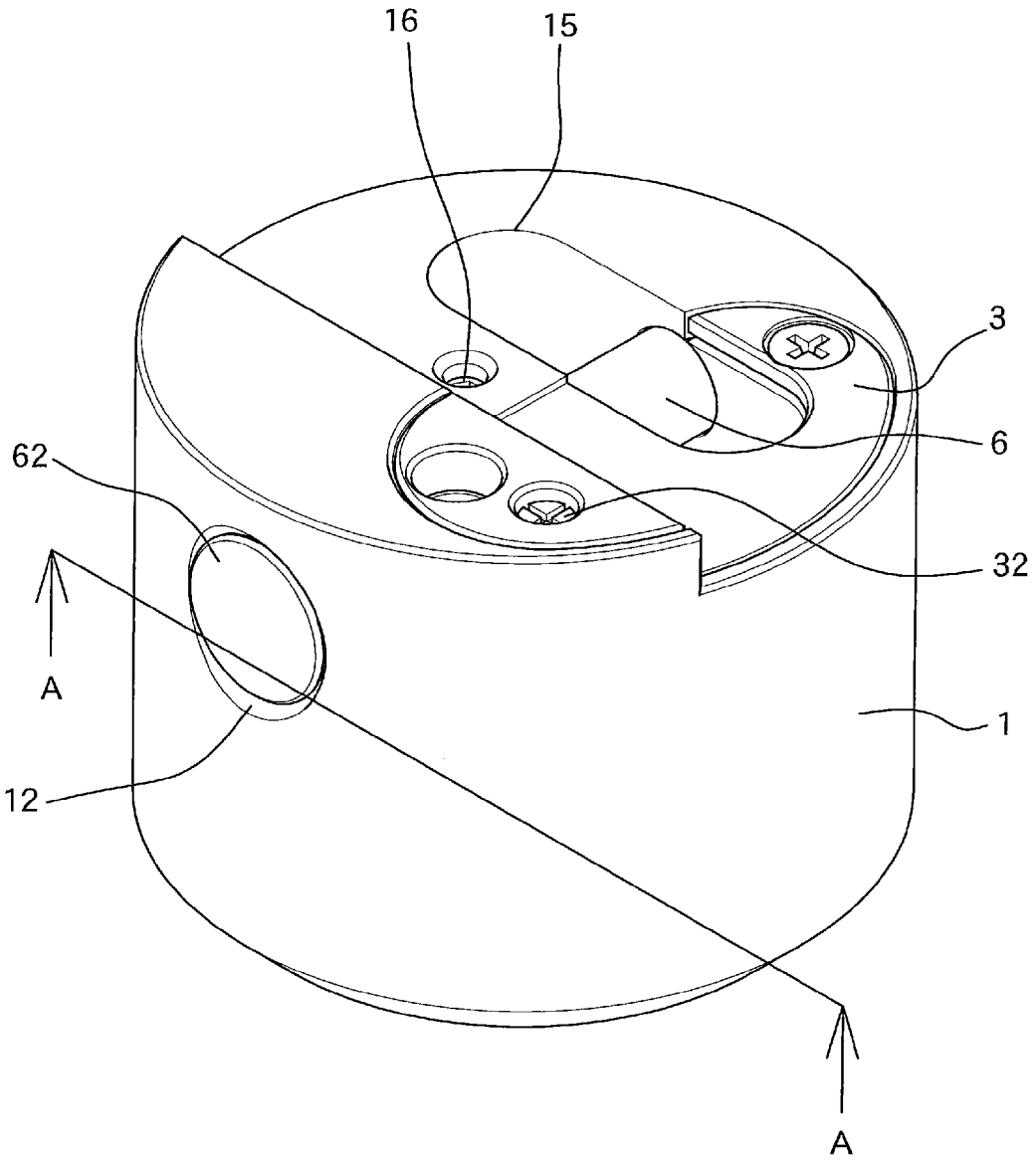
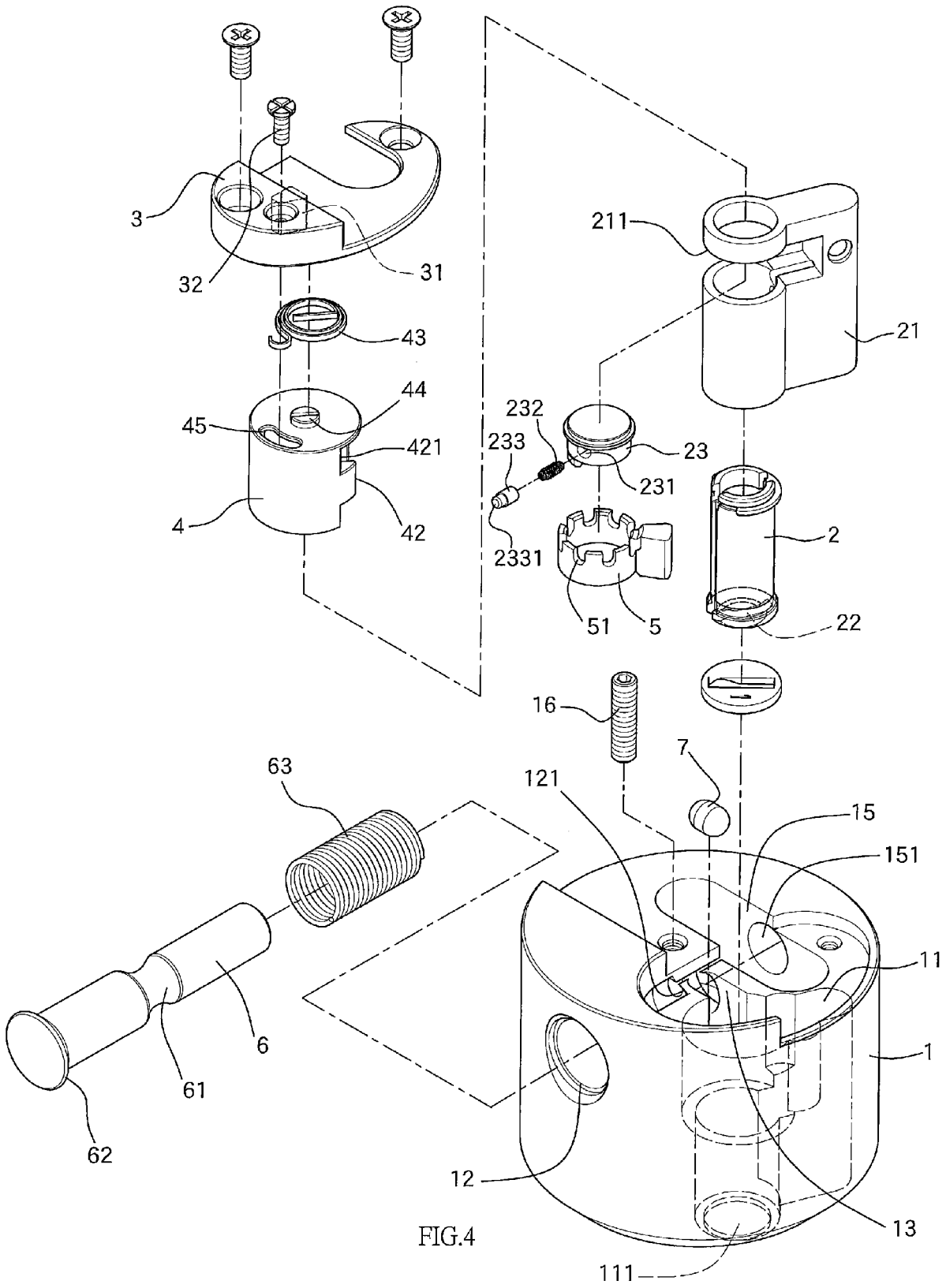


FIG.3


3
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13
111

FIG.4

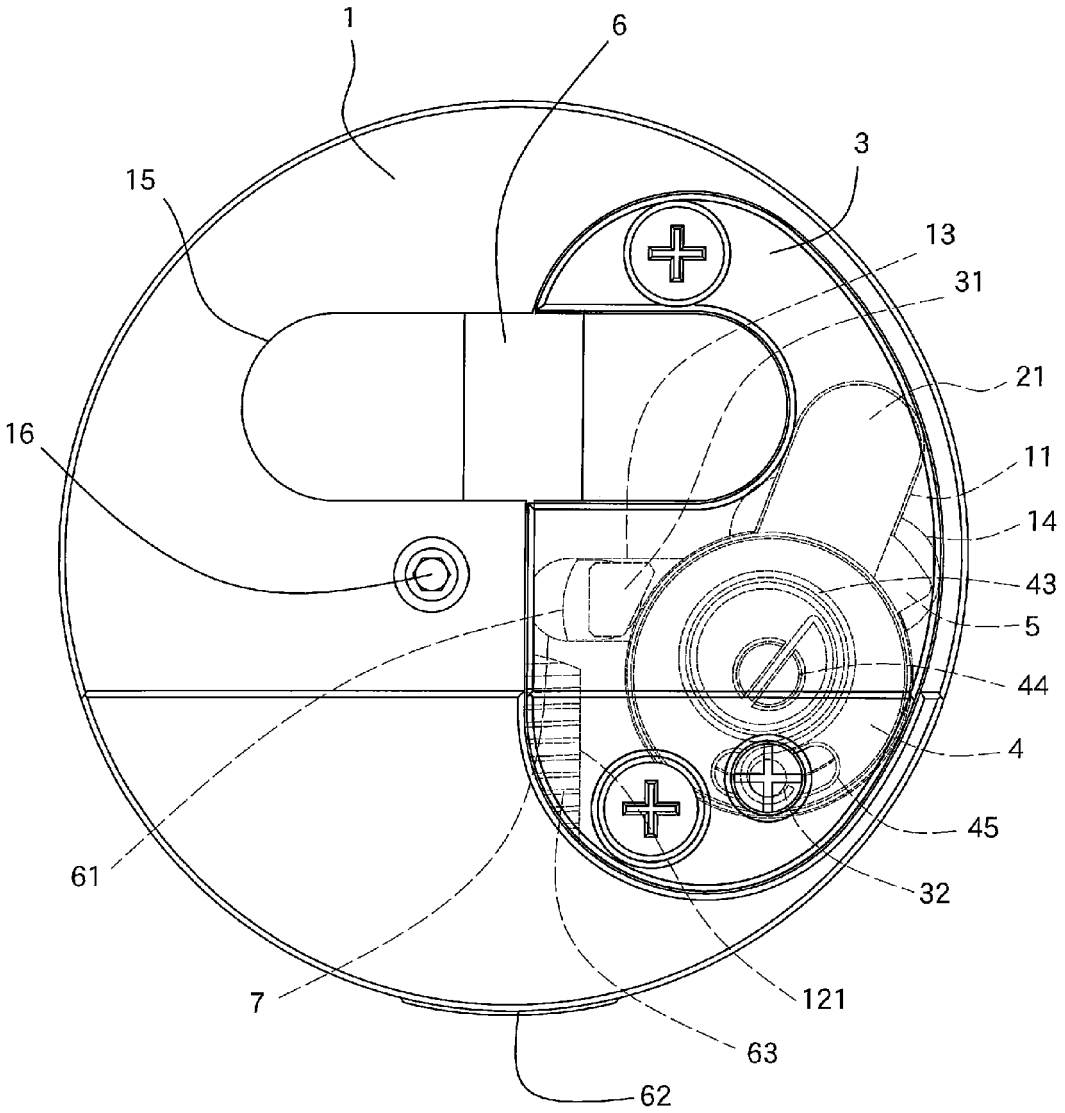

FIG.5

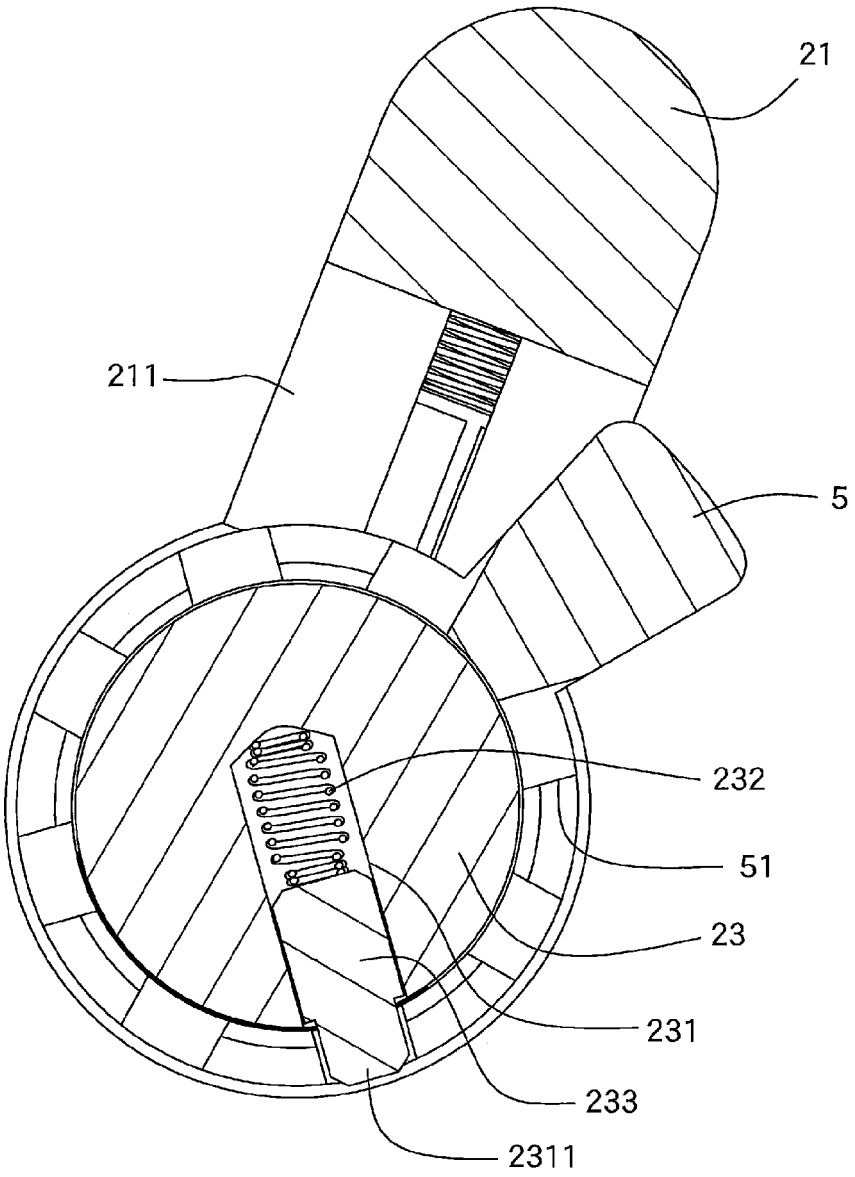

FIG.6

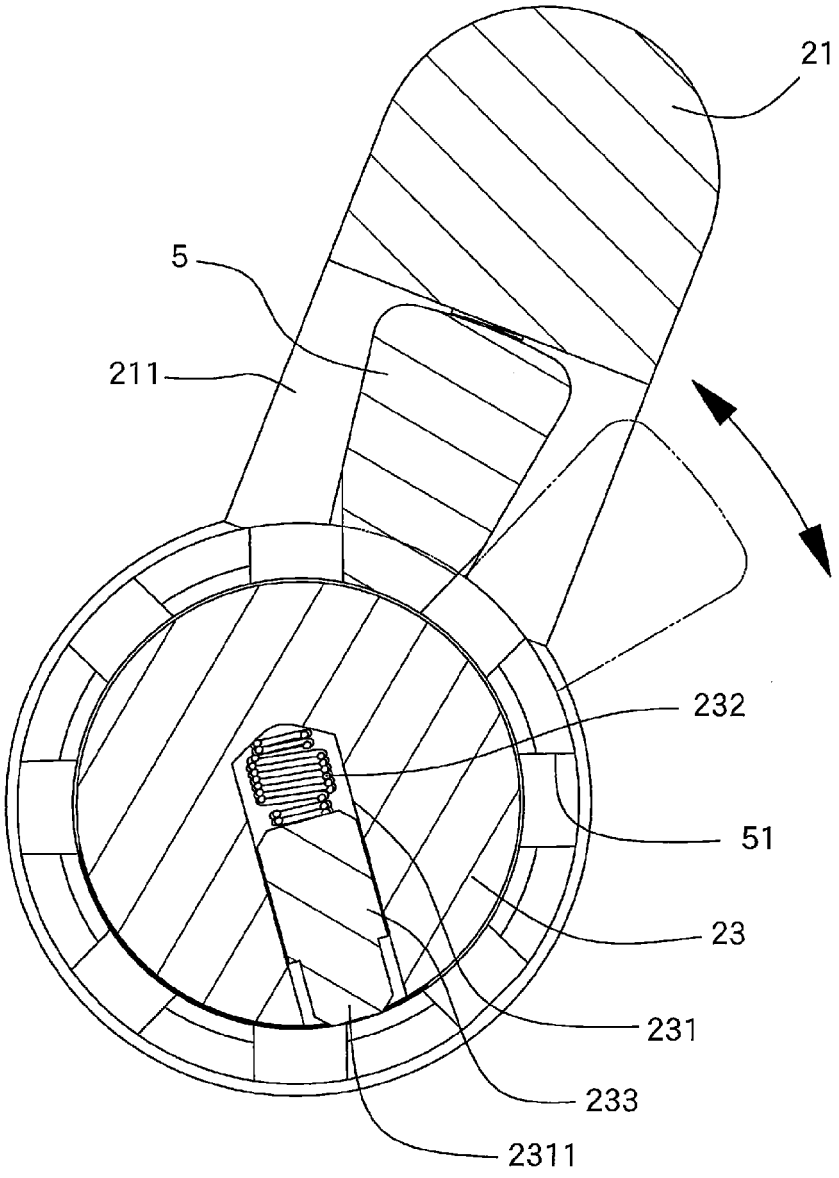

FIG.7

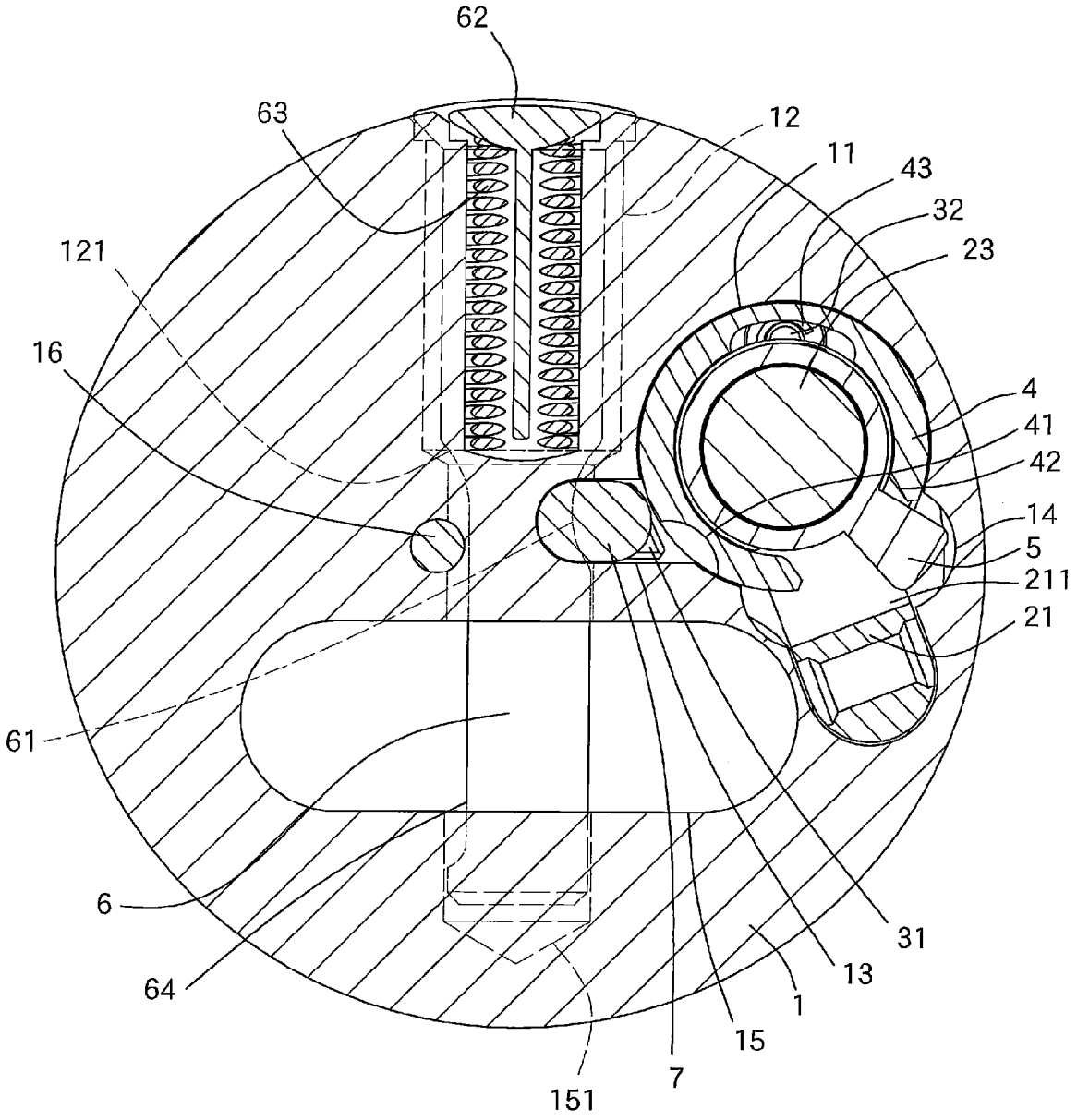

FIG.8

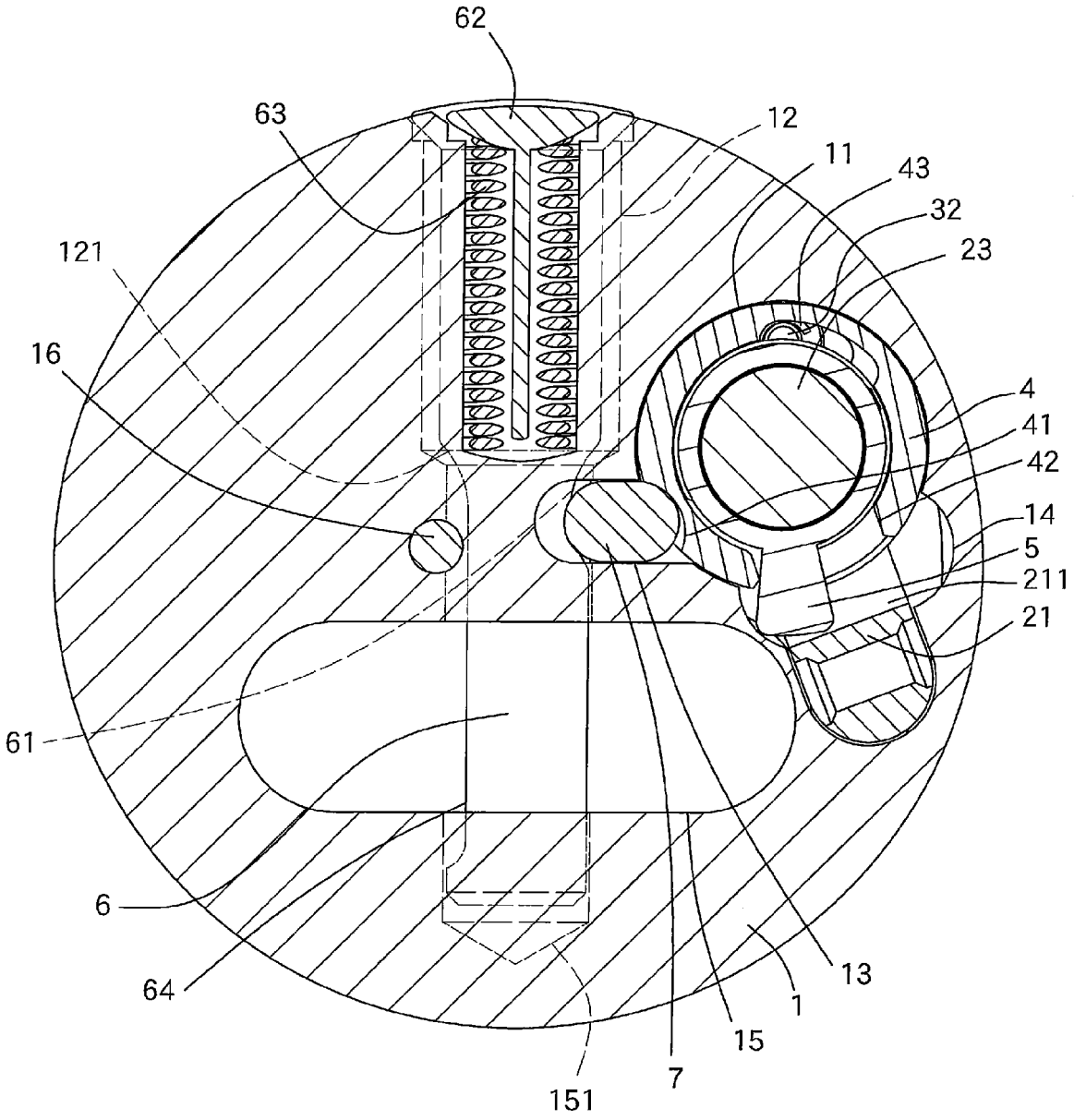

FIG.9

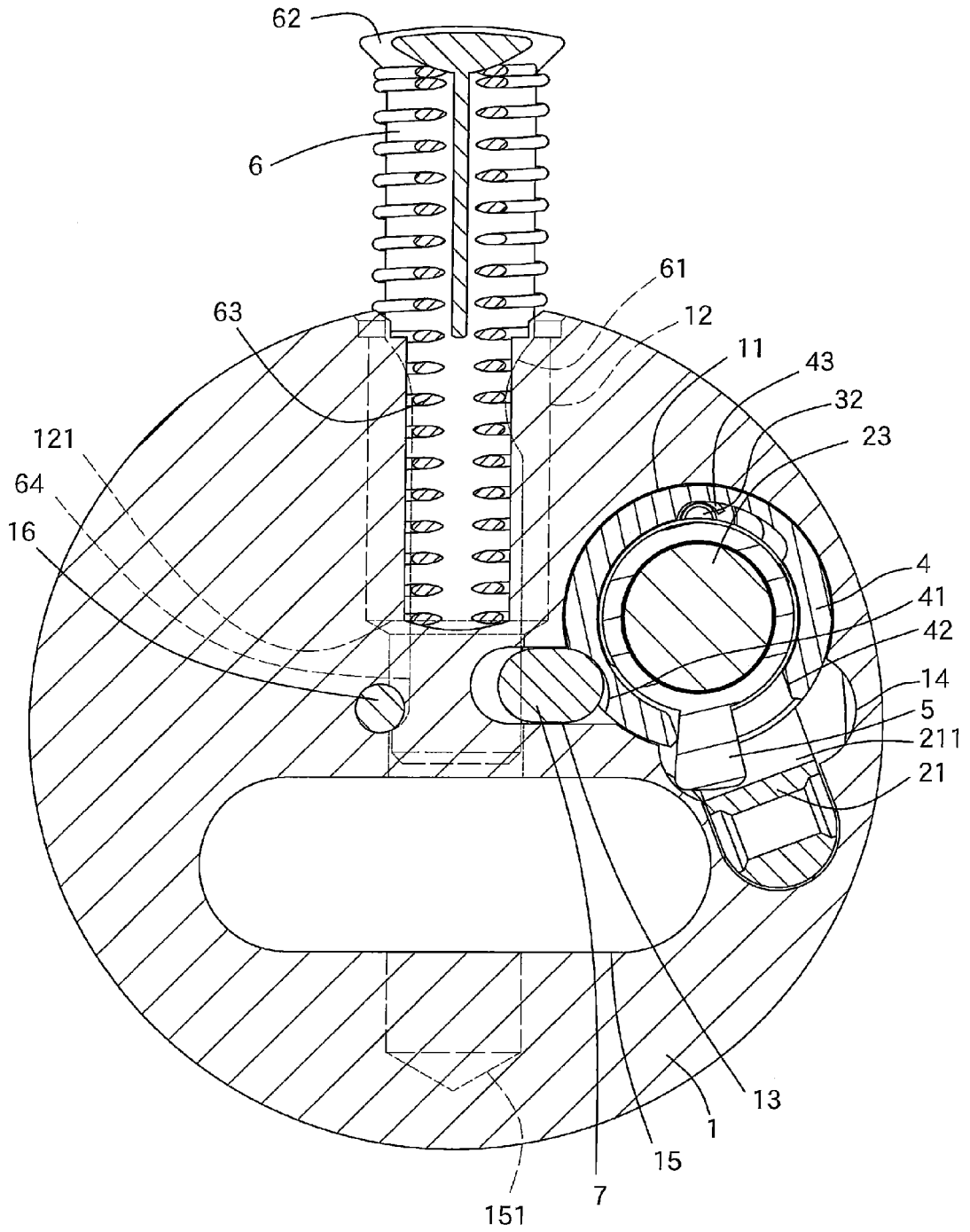

FIG.10

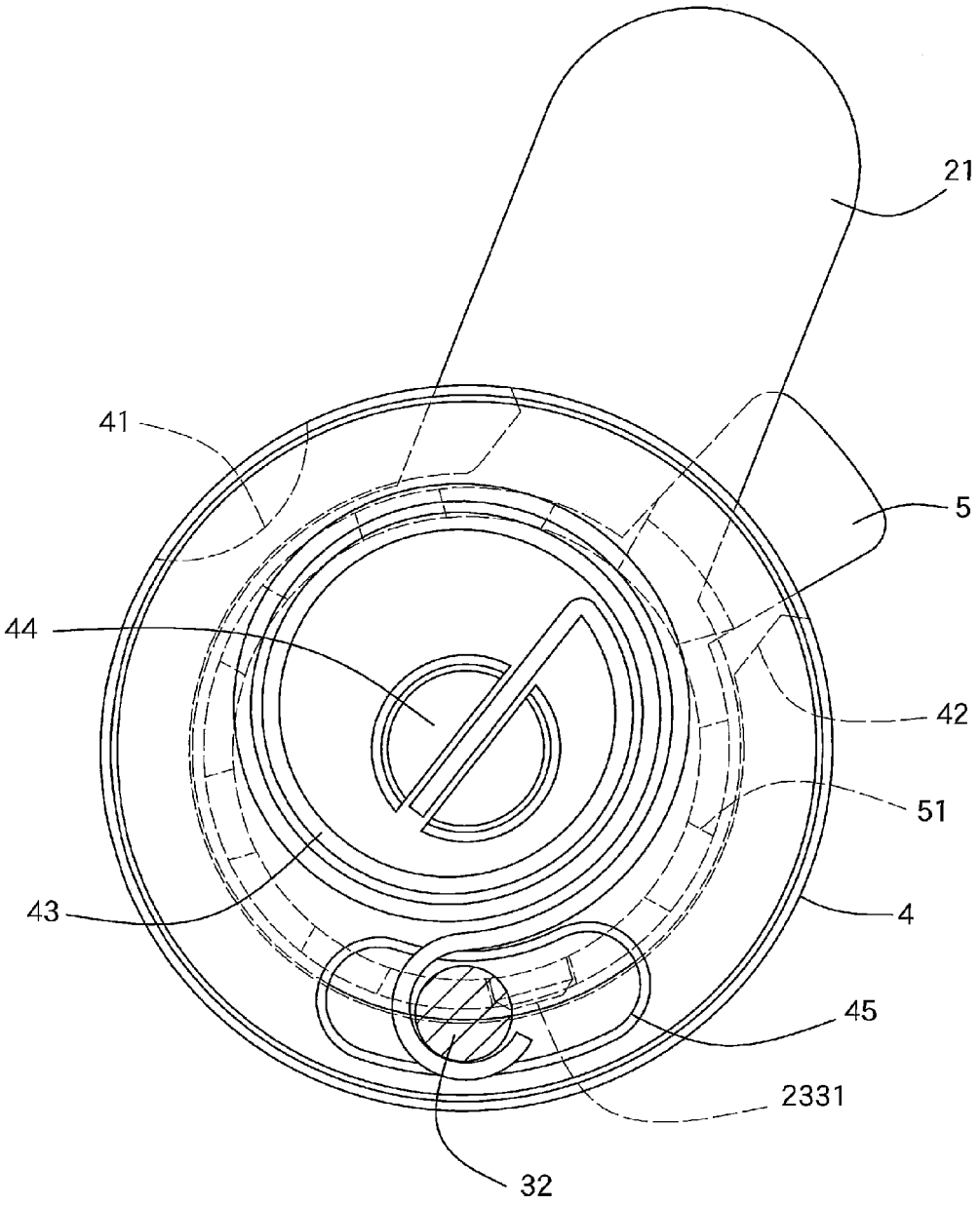

FIG.11

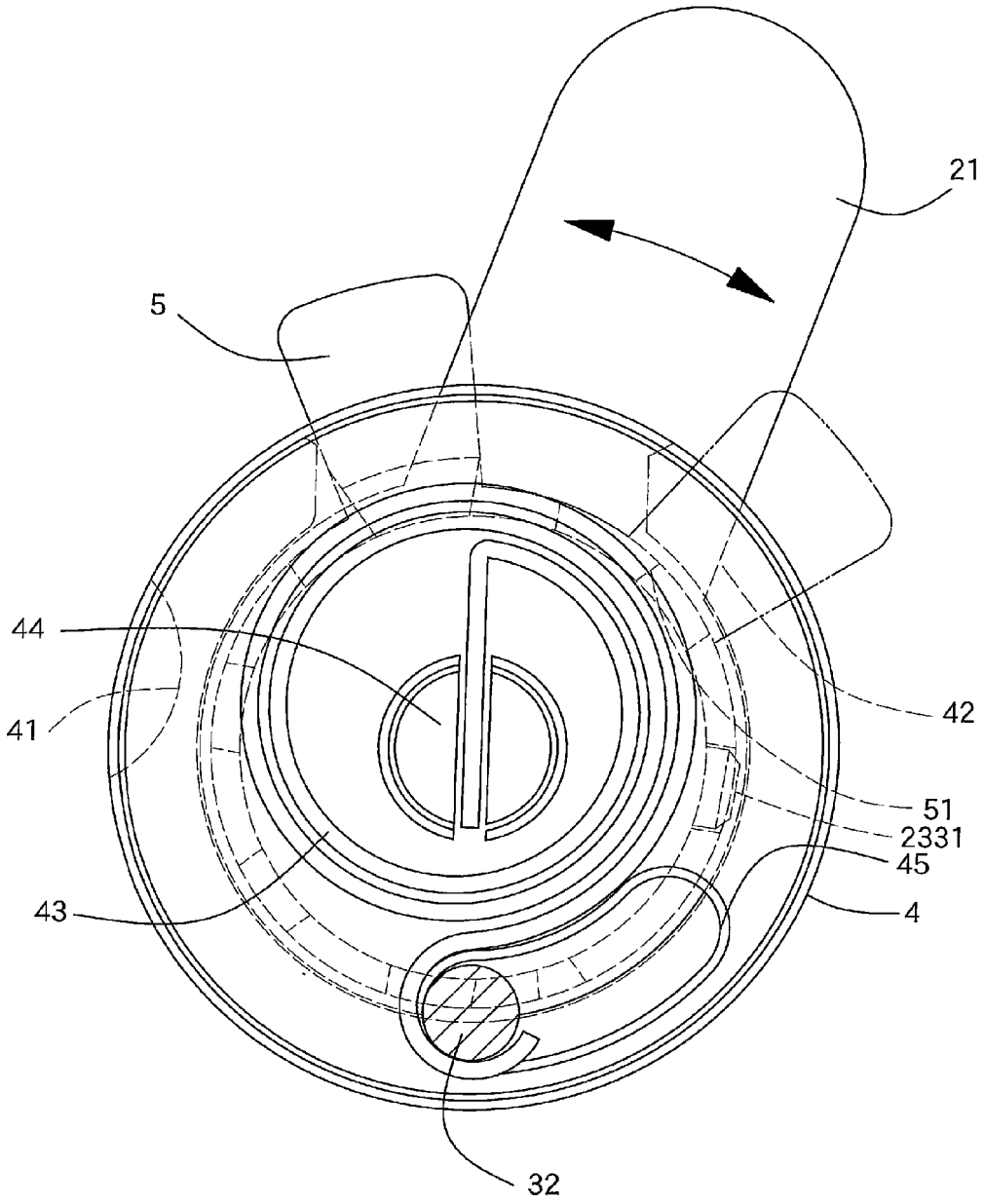

FIG.12

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EUROPEAN SEARCH REPORT

Application Number
EP 15 16 3958

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Place of search	Date of completion of the search	Examiner
The Hague	23 October 2015	Antonov, Ventseslav

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82