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(54) **Lock assembly for windows**

(57) A window lock assembly includes a fixed piece (1) and a shaft (2), which is pivotably connected to the fixed piece. A number lock (3) is connected to the shaft (2) and a knob (35) is movably connected to a pin (33) of the number lock (3). A plurality of numbered rings (34) are mounted to the pin (33). The knob (35) has side walls which are disengagably engaged with a retaining slot

(10) in the fixed piece (1). The pin (33) has two protrusions (331) which are movably engaged with two curve slots (351) in the two side walls. Each curve slot (351) has a high section and a low section such that the pin (33) with the ring can be pulled upward to set the number so as to allow the user to pull the knob to lock or unlock the number lock (3).

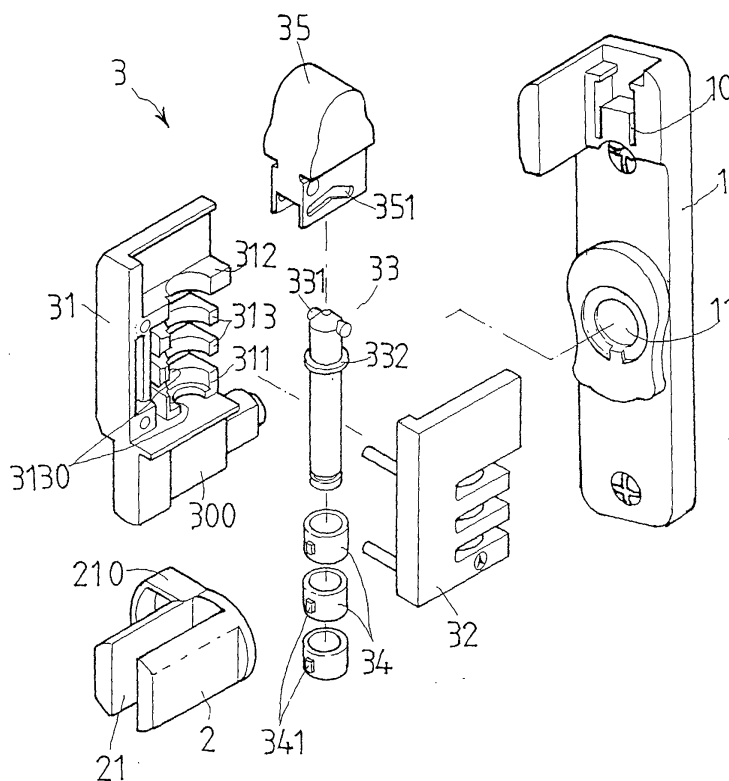


FIG.1

EP 1 378 623 A1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a window lock assembly wherein the latch is controlled by a number-lock so as to prevent from being opened unintentionally.

BACKGROUND OF THE INVENTION

[0002] A conventional window includes an inner part and an outer part, both are slidably engaged on rails. A lock is connected to the inner part and the outer part and includes a latch pivotably connected to the inner part and an engaging piece is connected to the outer part. The latch is engaged with the engaging piece to limit the two parts from being slid relative to each other. When the latch is pivoted from the engaging piece, the inner part can be slid to open the window. In some situations, the lock with the simple mechanism is not suitable because the lock could be unlocked by children and an unexpected result could be happened.

[0003] The present invention intends to provide a lock assembly wherein a number lock is connected with the latch such that the latch can only be pivoted when a correct set of number is input.

SUMMARY OF THE INVENTION

[0004] In accordance with one aspect of the present invention, there is provided a lock assembly which comprises a fixed piece connected to a fixed member and having a retaining slot in an inside thereof. A shaft is pivotably connected to the fixed piece and a hook extends from the shaft so as to hook another member. A number lock is secured to the shaft and comprises a casing and a plurality of plates extend from an inside of the casing. Each plate has a semi-circular recess defined therein and a notch is defined in an inner periphery of each of the semi-circular recesses. A gap is defined between adjacent plates and communicates with the notches. A pin is movably located in the casing and a plurality of numbered rings are rotatably mounted to the pin and each ring has a boss which is removably engaged with the notches. Two protrusions extend from an end of the pin.

[0005] A knob has two side walls and each side wall has a curve slot. The two protrusions are movably engaged with the two curve slots and each slot includes a high section and a low section. The two side walls of the knob are removably engaged with the retaining slot in the fixed piece.

[0006] The primary object of the present invention is to provide a lock assembly for windows wherein a number lock is connected with the lock assembly so as to prevent the lock assembly from being unlocked unintentionally.

[0007] The present invention will become more obvi-

ous 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

[0008]

Fig. 1 is an exploded view to show the lock assembly of the present invention;

Fig. 2 is a perspective view to show the lock assembly of the present invention;

Fig. 2-1 shows the hook of the lock assembly of the present invention is hooked on a ring;

Fig. 3 shows the knob of the number lock is not yet locked;

Fig. 4 shows that the knob is pushed and the numbered rings are raised and can be rotated;

Fig. 5 shows the numbered rings are rotated and the bosses on the numbered rings are shifted away from the notches of the plates of the number lock; and

Fig. 6 shows the number lock are pivoted about an axis of the shaft.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0009] Referring to Figs. 1, 2, 2-1 and 3, the lock assembly of the present invention comprises a fixed piece 1 which is connected to a fixed member such as one part of a window, and has a retaining slot 10 defined in an inside thereof.

[0010] A shaft 2 is pivotably connected to a hole 11 of the fixed piece 1 and a hook 210 extends from the shaft 2 so as to be hooked with a ring 200 which is connected to the other part of the window as shown in Fig. 2-1. The shaft 2 has a receiving recess 21.

[0011] A number lock 3 comprises a casing which has a flange 300 to be engaged with the receiving recess 21. The casing is composed of a first part 31 and a second part 32. A top plate 312, two plates 313 and a bottom plate 311 respectively extend from an inside of the first part 31 and the second part 32. Each of the top plate 312, the two plates 313 and the bottom plate 311 has a semi-circular recess defined therein and a notch 3130 is defined in an inner periphery of the semi-circular recesses of the two plates 313. A gap is defined between the top plate 312, the two plates 313 and the bottom plate 311 and the gaps communicate with the notches 3130. A pin 33 is movably located between the first part 31 and the second part 32, and three numbered rings 34 are rotatably mounted to the pin 33 and each ring 34 has a boss 341 extending outward which is removably engaged with the notches 3130. Two protrusions 331 extend from an end of the pin 33.

[0012] A knob 35 has two side walls and each side

wall has a curve slot 351. The two protrusions 331 are movably engaged with the two curve slots 351. Each slot 351 includes a high section and a low section. The two side walls of the knob 35 are removably engaged with the retaining slot 10 in the fixed piece 1. When the

[0013] In Fig. 4, when the knob 35 is pushed from left to right, the movement of the knob 35 changes the position of the protrusions 331 from the low section to the high section of the curve slots 351 and the pin 33 is raised. This brings the three numbered rings 34 to a position where the bosses 341 are located in alignment with the gaps between the top plate 312, the two plates 313 and the bottom plate 311, such that the user may rotate the number rings 34 to input a set of number to remove the bosses 341 to a position not in alignment with the notches 3130. In other words, the numbered rings 34 cannot be moved upward or downward. That is to say, the knob 35 cannot be moved from the right to the left, and the two side walls of the knob 35 are engaged with the retaining slot 10 unless a correct set of number is input. If a correct set of number is input, the knob 35 is able to be moved from the right to the left, and the shaft 2 and the number lock 3 can be pivoted about an axis of the shaft 2 as shown in Fig. 6 to disengage the hook 210 from the ring 200.

[0014] 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 lock assembly comprising:

a fixed piece adapted to be connected to a fixed member and having a retaining slot defined in an inside thereof;

a shaft pivotably connected to the fixed piece and a hook extending from the shaft, a number lock secured to the shaft and comprising a casing and a plurality of plates extending from an inside of the casing, each plate having a semi-circular recess defined therein and a notch defined in an inner periphery of each of the semi-circular recesses, a gap defined between adjacent plates and communicating with the notches, a pin movably located in the casing and a plurality of numbered rings rotatably mounted to the pin and each ring having a boss which is removably engaged with the notches, two protrusions extending from an end of the pin, and a knob having two side walls and each side wall

having a curve slot, the two protrusions movably engaged with the two curve slots, each slot including a high section and a low section, the two side walls of the knob removably engaged with the retaining slot in the fixed piece.

2. The lock assembly as claimed in claim 1, wherein the shaft has a receiving recess and the casing of the number lock has a flange which is secured in the receiving recess.

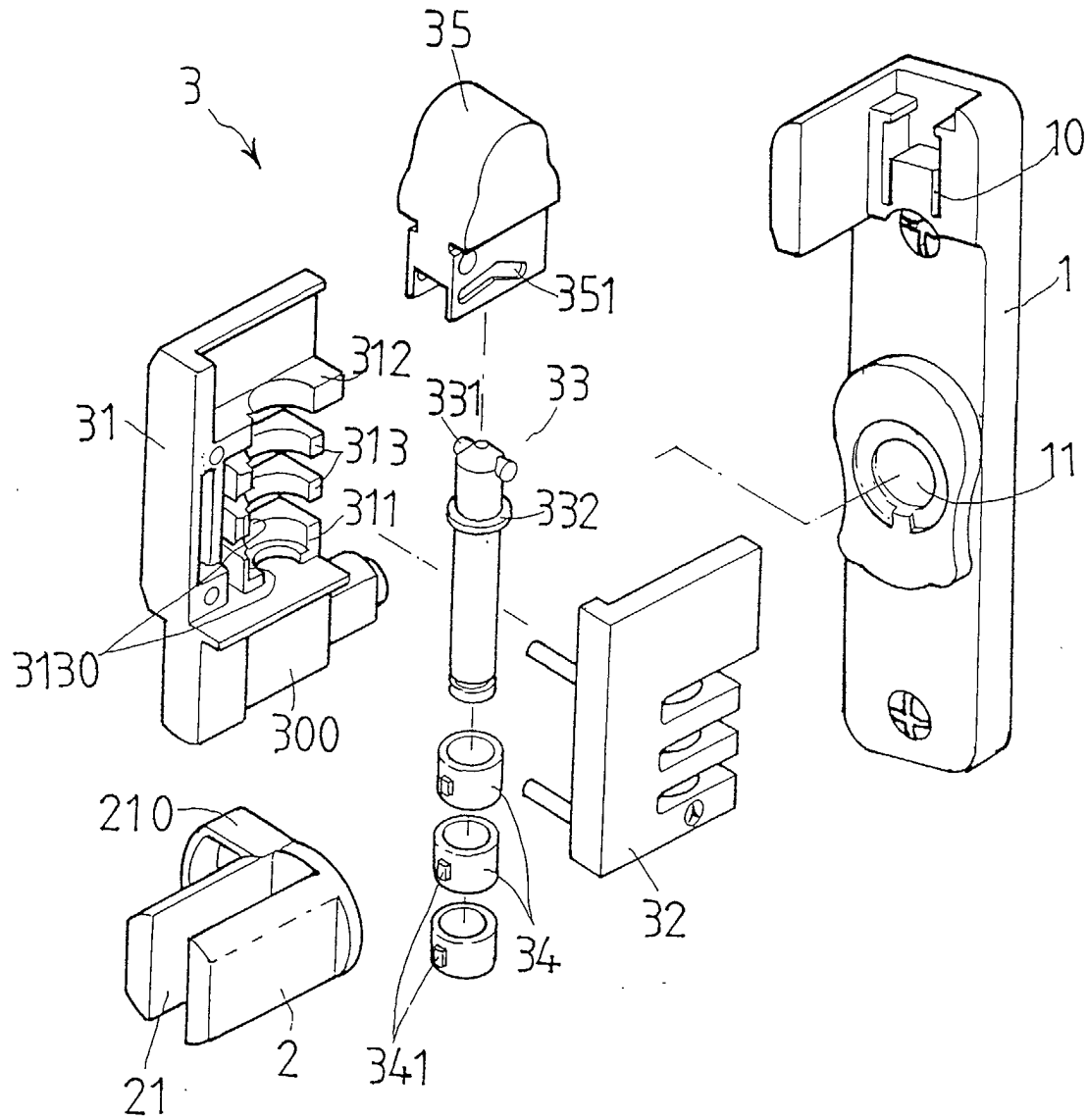


FIG.1

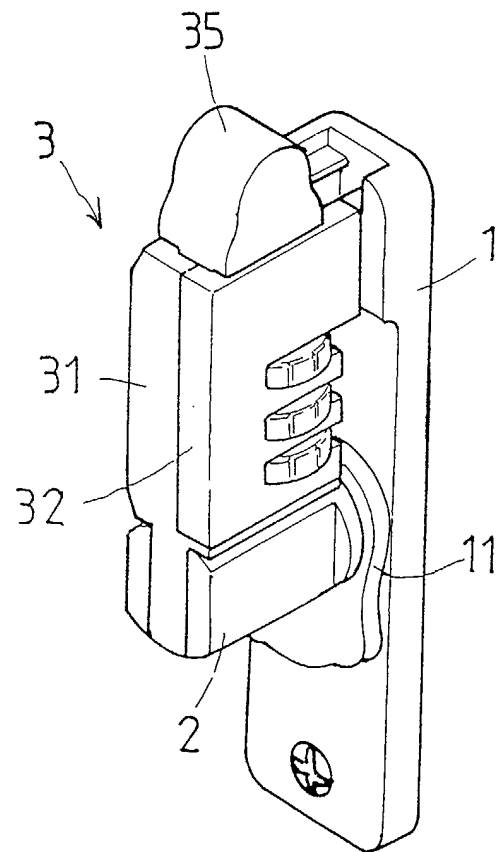


FIG. 2

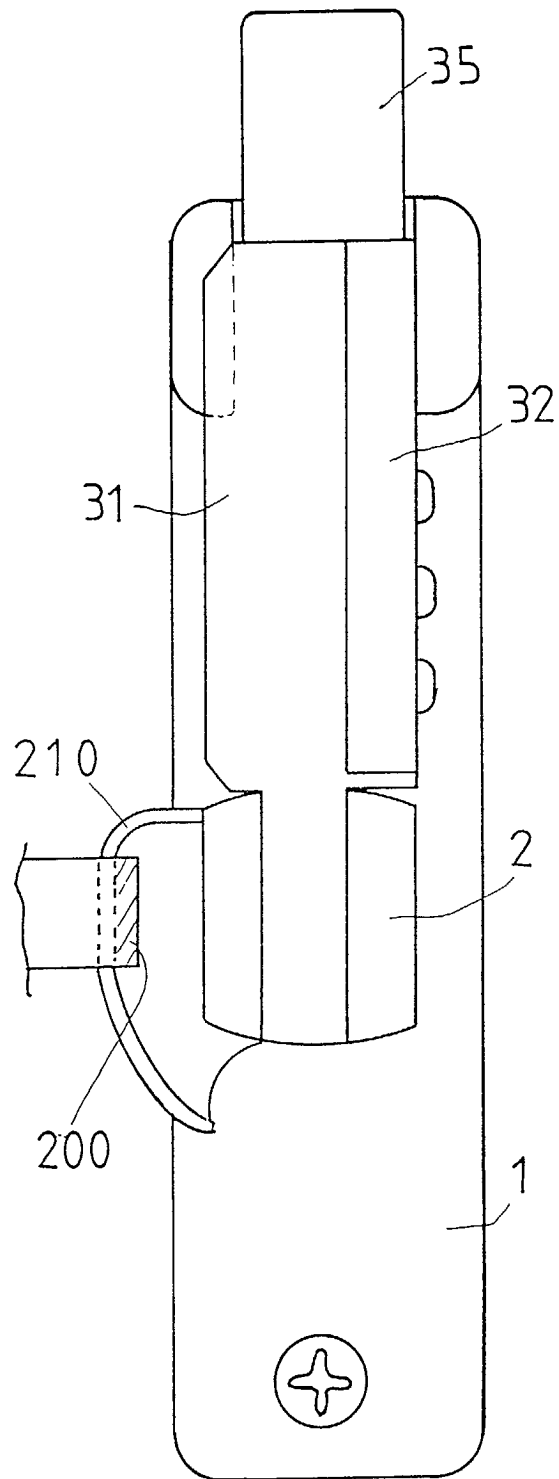


FIG. 2-1

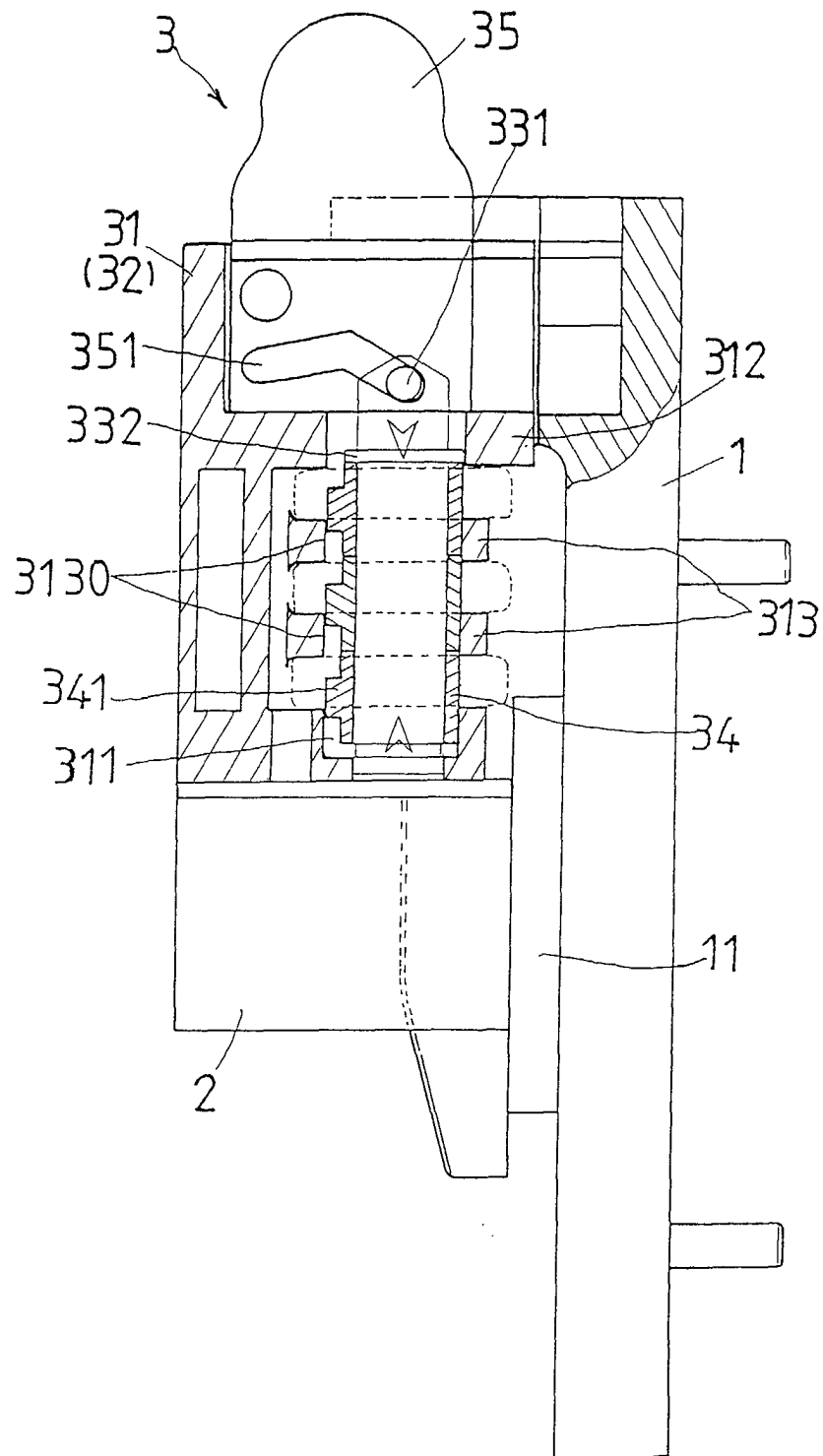
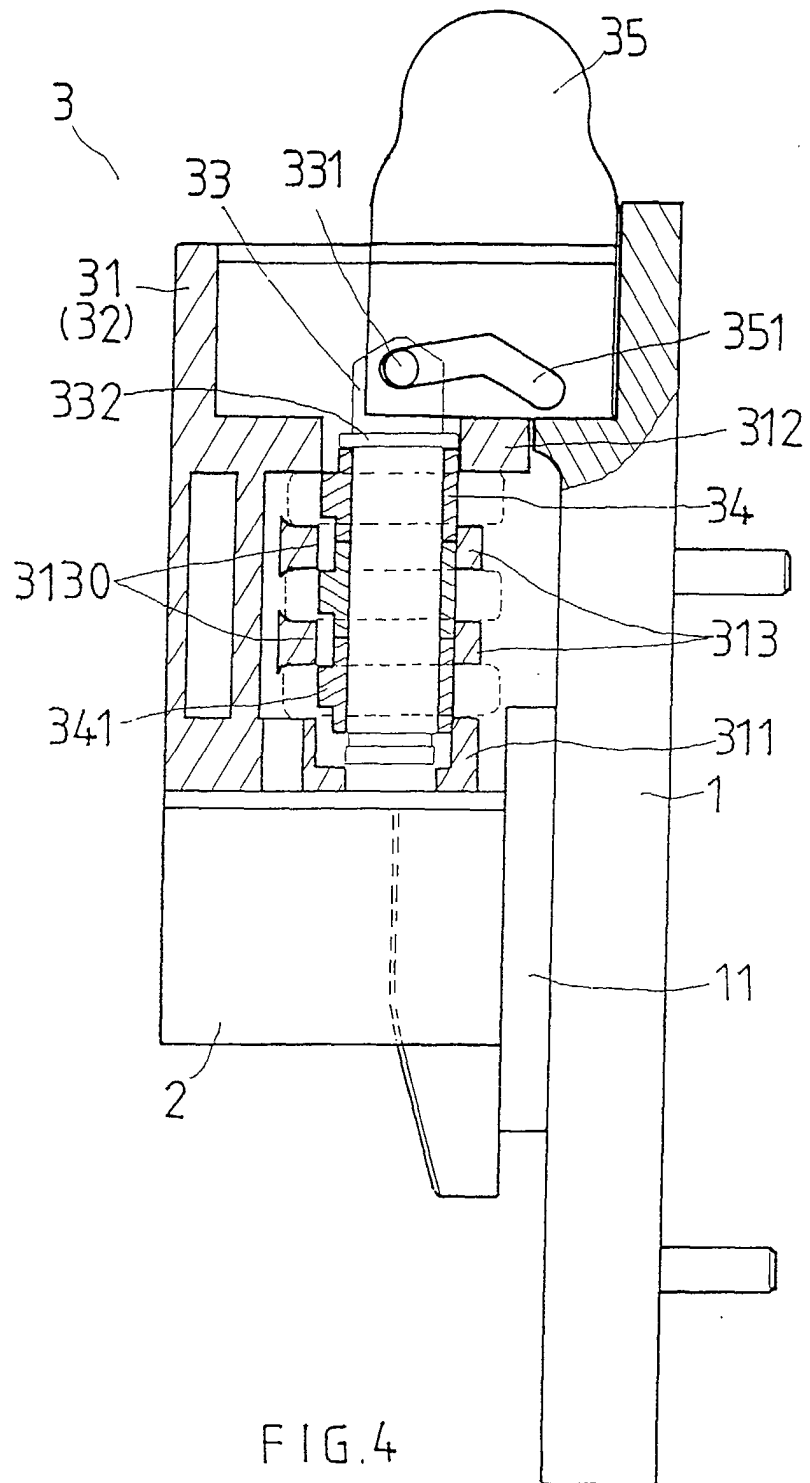
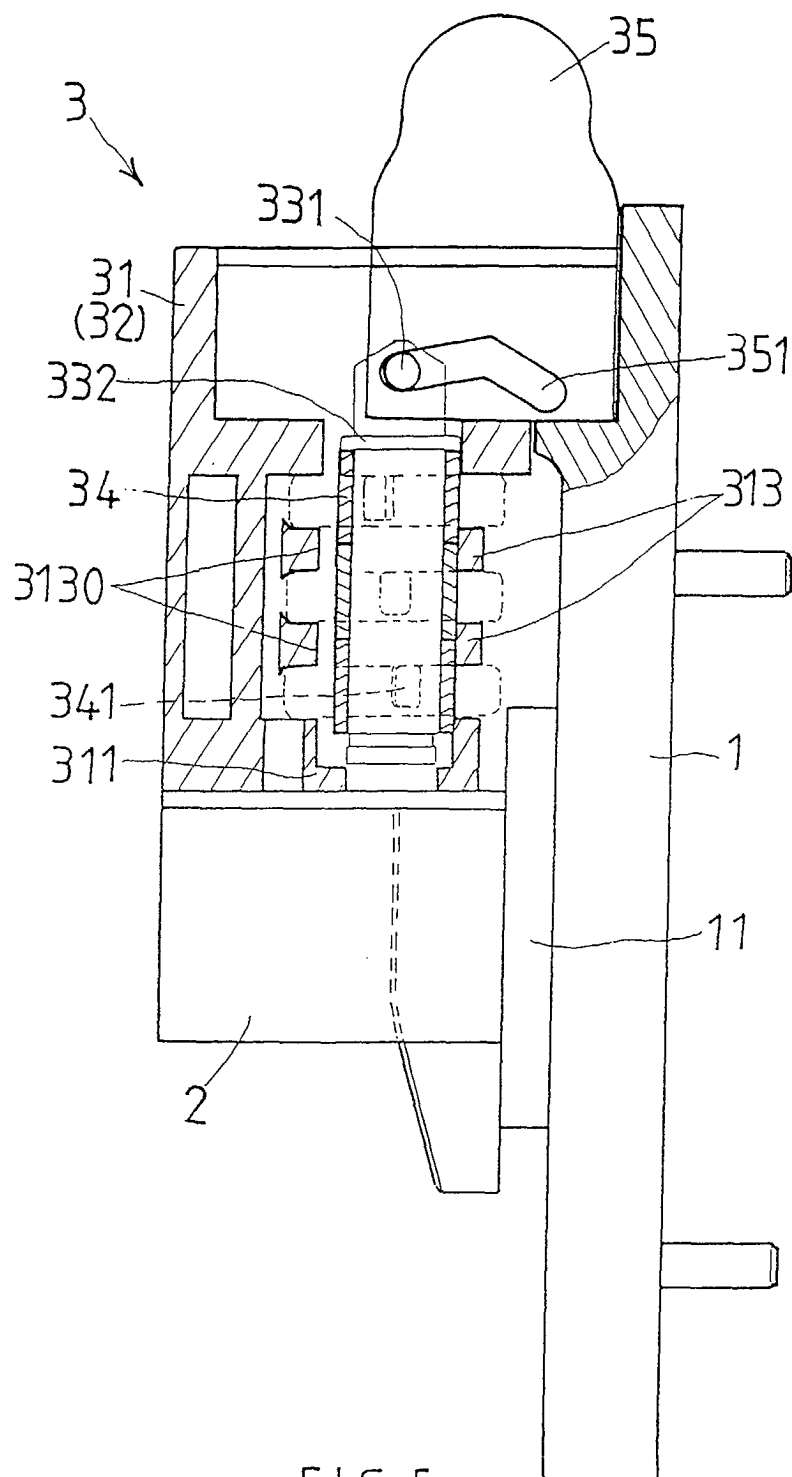
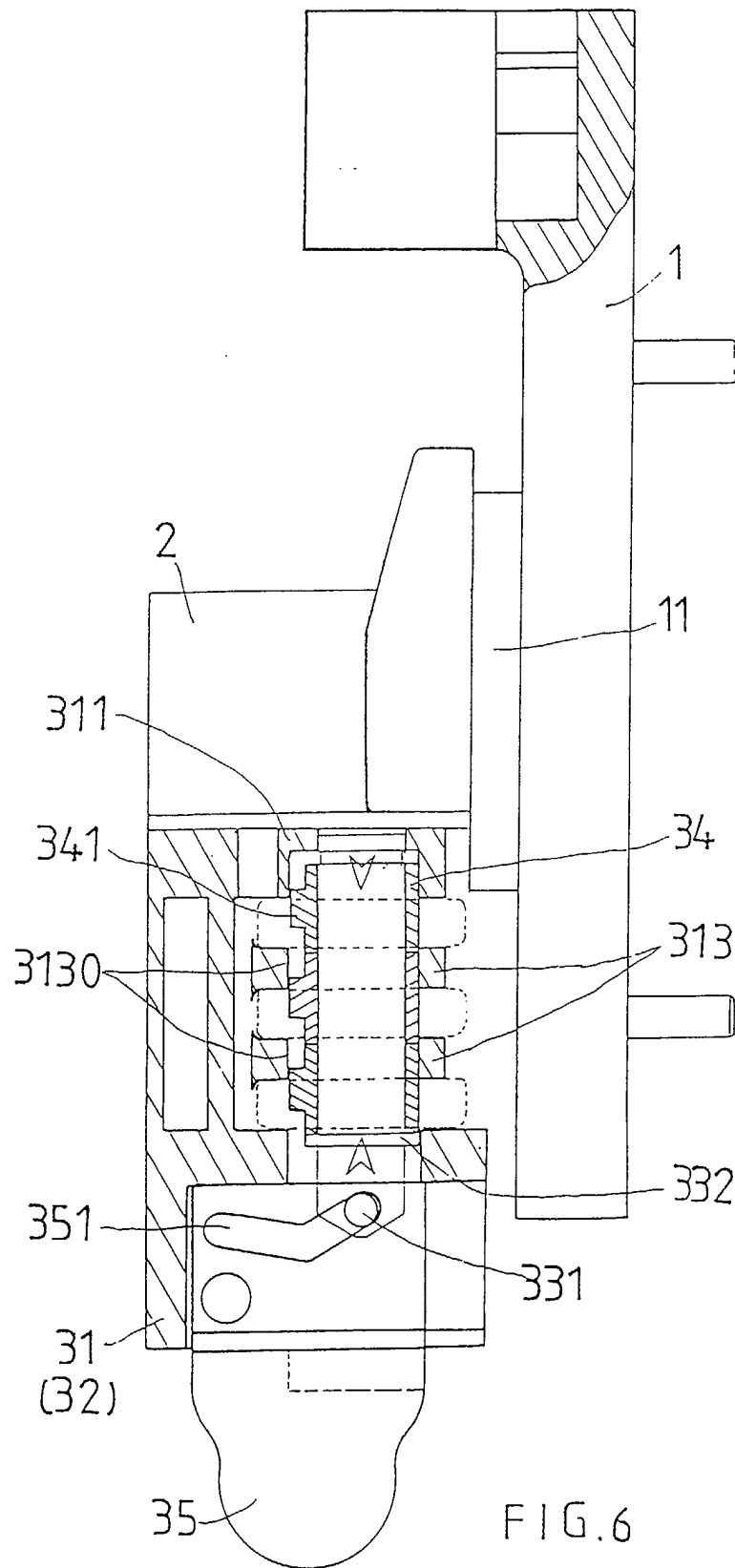


FIG. 3









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EUROPEAN SEARCH REPORT

Application Number
EP 02 01 5026

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 5 355 700 A (SUZUKI) 18 October 1994 (1994-10-18) * the whole document * ---	1	E05B65/08 E05C3/04 E05B37/02
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E05B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 9 January 2003	Examiner Westin, K
CATEGORY OF CITED DOCUMENTS 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 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 & : member of the same patent family, corresponding document			

EPO FORM 1503 03 82 (P4C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 02 01 5026

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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