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(54) LATCH DEVICE

(57) A latch device comprises a housing unit (3), a disk unit (4), an electromagnetic lock unit (5), a pressing lock unit (6), and a detecting unit (7). The housing unit includes a housing (31), which has a pressing hole (32) and an insertion slot (33). The disk unit includes a supporting rod (41) positioned through the housing, and two vertical disks (42) pivotally arranged to the supporting rod. The outer perimeter of the two disks is placed with a hook (421), a first engaging portion (422) and a second engaging portion (423). The electromagnetic lock unit includes two electromagnetic mechanisms (51), two retractable bars (52) connected to the two electromagnetic mechanisms, and two electromagnetic latches (53) respectively connected to the two retractable bars. The pressing lock unit includes a pushbutton (61), and a button latch (62) connected to the pushbutton. The detecting unit includes two detectors (71), which are disposed inside the housing for detecting the position of the two electromagnetic latches.

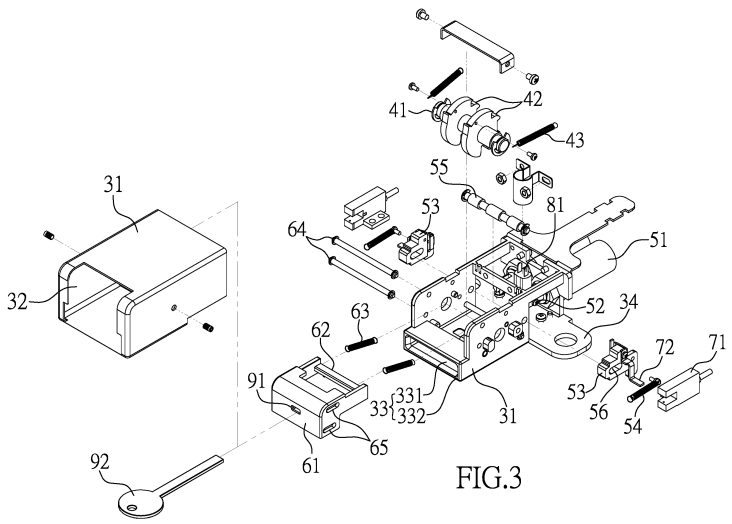

FIG.3

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Description

BACKGROUND OF THE INVENTION

a) Field of the Invention

[0001] The present invention relates to a latch device, and more particularly to a latch device for seat belt.

b) Description of the Prior Art

[0002] Exciting recreational facilities are installed in amusement parks for providing customers a better, joyful and refresh experience. Moreover, with advanced development of virtual reality, every amusement park is equipped with haptic simulation theater, in which seat belts central control system is essential for securing customer safety.

[0003] Please refer to FIG. 1, which concerns Taiwan Patent No. M473859, a latch 200 for seat belt 100. The seat belt 100 is connected to a latch plate with two latching holes, and the latch 200 has an insertion slot for inserting the latch plate. Two vertical locking disks, and an electromagnetic lock and a pressing lock for engaging with the two vertical locking disks are attached inside the latch 200, so that the latch plate of seat belt 100 is secured inside the latch 200.

[0004] In addition, the latch 200 only can be unlatched by means of releasing both the electromagnetic lock and the manual pressing lock, and central control console only can detect whether the electromagnetic lock is powered up, but cannot confirm latched state of the vertical locking disks, so it needs staff to confirm latched state of seat belt 100 one by one.

[0005] Furthermore, dark ambient condition is essential for a haptic simulation theater, which can let customers enjoy realistic experiences, but it is hard for customers to find and latch the latch 200 with the seat belt 100 in a dark theater.

[0006] From the above descriptions, certain problems still exist with current latch for seat belt:

1. Unable to confirm a latched state via central control console
Central control console only can detect whether the electromagnetic lock is powered up, but cannot confirm latched state of the vertical locking disks, so it needs staff to confirm latched state of seat belt 100, which is possible to increase risk of accidents.
2. Unable to find a latch in the dark
Dark ambient condition is essential for a haptic simulation theater, which can let customers enjoy realistic experiences, but it is hard for customers to find a latch on a seat in such dark room.
3. Unable to comply with strict safety regulations
Regulations and standards of recreational facilities vary from country to country, if latched state of the two vertical locking disks cannot be monitored, it may not comply with safety regulations and standards in some countries.
4. Possible to increase risk of accidents
It is hard to detect rotatory position of each lock cylinders in a conventional latch. When one of lock cylinders has a breakdown and cannot be detected from its appearance, and central control console is also unable to receive breakdown information, the other good lock cylinder will still be secured to the latch plate, which enables the damaged latch still be utilized. Under these circumstances, once the good lock cylinder has a breakdown, accident will happen.

SUMMARY OF THE INVENTION

[0007] Therefore, an objective of an embodiment of the present invention is to provide a latch device selectively secured to a latch plate device. The latch plate device comprises a latch plate with two latching holes, while the latch device comprises a housing unit, a disk unit, an electromagnetic lock unit, a pressing lock unit, and a detecting unit.

[0008] The housing unit includes a housing, which has a pressing hole and an insertion slot.

[0009] The disk unit includes a supporting rod positioned through the housing, and two vertical disks pivotally arranged to the supporting rod. A hook, a first engaging portion and a second engaging portion are disposed round an outer perimeter of the two disks.

[0010] The electromagnetic lock unit includes two electromagnetic mechanisms fixed inside the housing, two retractable bars respectively connected to the two electromagnetic mechanisms, and two electromagnetic latches respectively connected to the two retractable bars.

[0011] The pressing lock unit includes a press button slidingly connected to the pressing hole, and a button latch connected to the press button.

[0012] The detecting unit includes two detectors for respectively detecting position of the two electromagnetic latches.

[0013] The two vertical disks can move between an unlatched position and a latched position. When the two vertical disks are on the unlatched position, the latch plate can be inserted from the insertion slot and the two vertical disks can be pushed to the latched position. When the two vertical disks are on the latched position, the two electromagnetic latches are respectively latched with the two first engaging portions, and concurrently the button latch is latched with the two second engaging portions, so that the two vertical disks cannot either move or interfere with the latching holes, and the latch plate device can be secured to the latch device.

[0014] Another technique of an embodiment of the present invention is that the present invention further includes an illuminating unit, wherein an illuminator is disposed inside the housing.

[0015] Another technique of an embodiment of the

present invention is that the disk unit further includes two disk springs for respectively moving the two vertical disks to the unlatched position, and one end of the disk springs are respectively connected to the two vertical disks, and the other ends are connected to the housing.

[0016] Another technique of an embodiment of the present invention is that the electromagnetic lock unit further includes two electromagnetic lock springs, which respectively enables the two electromagnetic latches to push against the two first engaging portions, and one end of the two electromagnetic lock springs are respectively connected to the two electromagnetic latches, while the other ends are connected to the housing.

[0017] Another technique of an embodiment of the present invention is that the pressing lock unit further includes two pressing lock springs, which enables the button latch to be push against the two second engaging portions, and one end of the two pressing lock springs are connected to the press button, while the other ends are connected to the housing.

[0018] Another technique of an embodiment of the present invention is that the present invention further includes a forcible release unit, wherein a release hole is opened on the press button, and a release for inserting into the release hole to push the two electromagnetic latches and the button latch.

[0019] Another technique of an embodiment of the present invention is that the housing unit further includes a fixing flange protruding from bottom of the housing.

[0020] Another technique of an embodiment of the present invention is that the insertion slot is provided with a wall for framing a guide passage.

[0021] Another technique of an embodiment of the present invention is that the electromagnetic lock unit further includes an electromagnetic lock guide rod disposed inside the housing, and two electromagnetic channels respectively disposed inside the two electromagnetic latches and positioned through by the electromagnetic lock guide rod.

[0022] Another technique of an embodiment of the present invention is that the pressing lock unit further includes two pressing lock guide rods disposed inside the housing, and two pressing lock channels disposed on the press button and positioned through by the two pressing lock guide rods.

[0023] An advantage of an embodiment of the invention is that by combination of the housing unit, the disk unit, the electromagnetic lock unit, and the pressing lock unit, when the latch plate is inserted into the insertion slot, the two electromagnetic latches can be securely latched with the two first engaging portions, and interfere with the two vertical disks, so that the latch plate device can be fixed inside the latch device. Furthermore, the two detectors can respectively detect position of the electromagnetic latches for confirming whether the two vertical disks are on the latched position, and whether the two electromagnetic latches are latched with the two first engaging portions, so that the central control console of the electromagnetic mechanism can confirm the latched state of the latch device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024]

FIG. 1 is an exploded perspective view of Taiwan Patent No. M473859, a latch for seat belt;

FIG. 2 is an exploded perspective view of a first preferred embodiment according to the present invention;

FIG. 3 is a partially exploded perspective view depicting detailed arrangement of the first preferred embodiment;

FIG. 4 is a cross-sectional side view depicting a latched state of the first preferred embodiment;

FIG. 5 is an operational side view in partial section depicting an electromagnetic lock unit of the first preferred embodiment;

FIG. 6 is a cross-sectional side view depicting an unlatched state of the first preferred embodiment;

FIG. 7 is a side view depicting the latch device secured to a latch device is detected by a detector;

FIG. 8 is a side view depicting the latch device not secured to a latch device is detected by a detector.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0025] Specific structural and functional details disclosed herein will become apparent from the following description of the preferred embodiment of the present invention taken in conjunction with the accompanying drawings.

[0026] With reference to FIGs. 2 and 3, a preferred embodiment according to an embodiment of the present invention is depicted, which applies to a latch device selectively secured to a latch plate device 2. The latch plate device 2 comprises a latch plate 21 with two latching holes 22, while the latch device comprises a housing unit 3, a disk unit 4, an electromagnetic lock unit 5, a pressing lock unit 6, a detecting unit 7, an illuminating unit 8, and a forcible release unit 9.

[0027] The housing unit 3 includes a housing 31, which has a pressing hole 32 and an insertion slot 33, and a fixing flange 34 protruding from bottom of the housing 31. The housing 31 is provided with a frame 311, and a cover 312 mounted on the frame 311. The insertion slot 33 is provided with a wall 332 for framing a guide passage 331. The wall 332 is presented as a Y-shaped radian in an opening of the guide passage 331, and width inside the guide passage 331 can match with width of the latch plate 21, so that the latch plate 21 can be fit into the insertion slot 33.

[0028] A lock hole opened on the fixing flange 34 for fixing the latch device on one side of a seat (not shown in the drawings), and a seat belt is disposed on the other

side of the seat to connect to the latch plate device 2, so that an occupant can be securely held in a seat, which can prevent accident when haptic feedback seats are out of work.

[0029] The disk unit 4 includes a supporting rod 41 positioned through the housing 31, two vertical disks 42 pivotally arranged on the supporting rod 41, and two disk springs 43. The two vertical disks 42 can rotate around the supporting rod 41 within a limited angle. A hook 421, a first engaging portion 422, a second engaging portion 423, and a limiting portion 424 are disposed around an outer perimeter of the two disks. One end of the two disk springs 43 are respectively connected to the two vertical disks 42, and the other ends are connected to two side walls inside the housing 31.

[0030] With reference to FIGs. 4, 5 and 6, the two vertical disks 42 can move between an unlatched and a latched position. The two disk springs 43 will respectively pull the two vertical disks 42 for rotating around the supporting rod 41 at an angle until inner wall of the housing 31 reaches the limiting portion 424. Preferably, a horizontal rod is disposed on the inner wall of the housing 31 for blocking the limiting portion 424, so that the two vertical disks 42 are forced to be on the unlatched position. When the two vertical disks 42 are on the unlatched position, the latch plate 21 can be inserted from the insertion slot 33 and push the two vertical disks 42 against tension of the two disk springs 43, so that the two vertical disks 42 are reversely moved to the latched position.

[0031] The electromagnetic lock unit 5 includes two electromagnetic mechanisms 51 fixedly disposed on the rear end of the housing 31, two retractable bars 52 respectively attracted and controlled by the two electromagnetic mechanisms 51, two electromagnetic latches 53 respectively connected to the two retractable bars 52, two electromagnetic lock springs 54, an electromagnetic lock guide rod 55 disposed inside the housing 31, and two electromagnetic channels 56 respectively disposed on the two electromagnetic latches 53 and positioned through by the electromagnetic lock guide rod 55. The one end of the two electromagnetic lock springs 54 are respectively connected to the two electromagnetic latches 53, and the other ends are connected to the inside of the housing 31.

[0032] When the latch plate 21 is inserted into the insertion slot 33, the two hooks 421 will be pushed for moving the two vertical disks 42 to the latched position. The two electromagnetic lock springs 54 respectively enable the two electromagnetic latches 53 to pull against the two first engaging portions 422, so that the two electromagnetic latches 53 can respectively interfere with the two vertical disks 42. As a result, the two vertical disks 42 cannot move, which causes the two latch holes 22 of the latch plate 21 to be fixed.

[0033] The two electromagnetic mechanisms 51 are electromagnetic elements, when being powered on, magnetic attraction will be produced for pulling the two retractable bars 52, so that the two electromagnetic latches 53 can be separated from the two first engaging portions 422. Meanwhile, the press button 61 is pressed to separate the button latch 62 from the two first engaging portions 423, and the elasticity of the two disk springs 43 can enable the two vertical disks 42 to move to the unlatched position, so that the latch plate 2 can be ejected.

[0034] When the two electromagnetic mechanisms 51 are not powered on, the two electromagnetic latches 53 are respectively moved toward the two vertical disks 42 by the two electromagnetic springs 54, and respectively reach the outer perimeter of the two vertical disks 42 waiting for insertion of the latch plate device 2. When the latch plate 21 of the latch plate device 2 is inserted into the insertion slot 33, the latch plate 21 concurrently pushes the hooks 421 of the two vertical disks 42, so that the two vertical disks 42 can move to the latched position, and the two electromagnetic latches 53 can be respectively moved to the two first engaging portions 422 by the two electromagnetic springs 54.

[0035] The electromagnetic lock guide rod 55 is positioned through the electromagnetic channels 56 for controlling the movement of the two electromagnetic latches 53, so when the two electromagnetic lock springs 54 pull the two electromagnetic latches 53, the two electromagnetic latches 53 can precisely engage with the two first engaging portions 422, and the electromagnetic lock guide rod 55 further provides force to the two electromagnetic latches 53 to interfere with the two vertical disks 42, so that the two vertical disks 42 are unable to rotate.

[0036] The pressing lock unit 6 includes a press button 61 slidingly connected to the press hole 32, a button latch 62 connected to the press button 61, two pressing lock springs 63, two pressing lock guide rods 64 disposed inside the housing 31, and two pressing lock channels 65 disposed on the press button 61 and positioned through by the pressing lock guide rods 64. One end of the two pressing lock springs 63 are respectively connected to two side faces of the press button 61, and the other ends are connected to the inside of the housing 31.

[0037] When the latch plate 21 is inserted into the insertion slot 33, and concurrently pushes the two hooks 421 for moving the two vertical disks 42 to the latched position, elasticity of the two pressing lock springs 63 pulls the press button 61, so that the button latch 62 concurrently interfere with the two second engaging portions 423. As a result, the button latch 62 can respectively interfere with the two vertical disks 42, and the two vertical disks 42 cannot move, so that the two latch holes 22 of the latch plate 21 can be secured.

[0038] The press button 61 is exposed outside from the pressing hole 32 for a hand press. When the press button 61 is pressed against elasticity of the two pressing lock springs 63, the button latch 62 is separated from the two second engaging portions 423. When the two electromagnetic latches 53 are separated from the two first engaging portions 422 by the two electromagnetic mechanisms 51, elasticity of the two disk springs 43 can move the two vertical disks 42 to the unlatched position, and

the latch plate device 2 is ejected.

[0039] When the press button 61 is released by hand, the two button latches 62 move toward the two vertical disks 42 via the two pressing lock springs 63, and respectively reach the outer perimeter of the two vertical disks 42 waiting for insertion of the latch plate device 2. When the latch plate 21 is inserted into the insertion slot 33, the latch plate 21 concurrently pushes the hooks 421 of the two vertical disks 42, so that the two vertical disks 42 can move to the latched position, and elasticity of the two pressing lock springs 63 enable the button latch 62 to push against the two first engaging portions 422.

[0040] The two pressing lock channels 65 are respectively positioned through by the two pressing lock guide rods 64, and the two pressing lock guide rods 64 are parallel to the two pressing lock channels 65 for controlling the movement of the button latches 62, so when the two pressing lock springs 63 pull the press button 61, the button latch 62 can precisely engage with the two second engaging portions 423, and the two pressing lock guide rods 64 further provides force to the button latch 62 to interfere with the two vertical disks 42, so that the two vertical disks 42 are unable to move.

[0041] When the two vertical disks 42 are on the latched position, the two electromagnetic latches 53 are respectively latched with the two first engaging portions 422, and the button latch 62 is concurrently latched with the two second engaging portions 423, so that the two vertical disks 42 are unable to move due to dual locking from the electromagnetic lock unit 5 and the pressing lock unit 6, and interfere with the two latching holes 22. As a result, the latch plate device 2 is latched with the latch device by the two latch holes 22.

[0042] With reference to FIG. 7 and 8, the detecting unit 7 includes two detectors 71 disposed inside the housing 31 for detecting position of the two electromagnetic latches 53. In the preferred embodiment, an infrared sensor is served as a detector 71, wherein an infrared emitter and an infrared receiver are provided, and two light barrier members 72 are respectively disposed on the two electromagnetic latches 53. When the two vertical disks 42 are on the latched position, the two electromagnetic latches 53 move toward the two vertical disks 42 by the pushing force of the two electromagnetic lock springs 54 and push against the two first engaging portions 422, so the two light barrier members 72 won't block infrared light, and the infrared receiver can receive infrared light, and can respectively transmit latched state information of the latch device to central control console. In this case, the two detectors 71 can be replaced by any other detecting unit, and shall not be construed as limiting the invention.

[0043] It is worth mentioning that the hook 421, the first engaging portion 422 and the second engaging portion 423 disposed around the outer perimeter of the two vertical disks 42 enable the two latching holes 22, two electromagnetic latches 53, and button latch 62 to be engaged securely only when being on the latched position.

[0044] When the two vertical disks 42 are on the unlatched position, the two electromagnetic latches 53 and the button latch 62 reach only the outer perimeter of the two vertical disks 42, which enables the two light barrier members 72 to move to a specific place for blocking infrared light, so that the infrared receiver cannot receive infrared light, and the two detectors 71 can respectively transmit accurate latched state information to the central control console.

[0045] The illuminating unit 8 includes an illuminator 81 disposed inside the housing 31. In the preferred embodiment, the illuminator 81 is disposed in a space above the two retractable bars 52, and can emit light after being powered on. In addition, the housing 31 surrounds its inner mechanism and electronic construction, and the light emitted by the illuminator 81 will pass through the insertion slot 33 to the outside, so that the users can find the insertion slot 33 and insert the latch plate 21 into the insertion slot 33 in a dark room.

[0046] The latch device further comprises a forcible release unit 9, which includes a release hole 91 opened on the press button 61, and a release 92 being able to insert into the release hole 91 for pushing the two electromagnetic latches 53 and the button latch 62. The release 92 is provided with a first pushing portion for pushing the two electromagnetic latches 53, and a second pushing portion for pushing the press button 61. The distance between the first and the second pushing portions is equal to the pushing distance between the two electromagnetic latches 53 and the press button 61, so that the release 92 can be inserted into the release hole 91, and when pressing the press button 61, the two electromagnetic latches 53 and the button latch 62 are concurrently separated from the two first engaging portions 422 and the second engaging portion 423 by the release 92. As a result, the disk unit 4 is unlatched and the latch plate 21 can be removed from the insertion slot 33.

[0047] The two electromagnetic mechanisms 51 produces electromagnetic force by electricity, which separates the two electromagnetic latches 53 from the two first engaging portions 422. When electricity control is out of work and the two electromagnetic latches 53 cannot be separated from the two first engaging portions 422, the disk unit 4 cannot be unlatched by the press button 61. Under this circumstance, the release 92 is necessary for unlatching.

[0048] It is hard to detect rotary position of each lock cylinders in a conventional latch. When a breakdown is occurred in one of lock cylinders, it is difficult to detect such breakdown from its appearance, and the central control console is also unable to receive breakdown information. However, the other well-functioning lock cylinder will still be secured to the latch plate, which leads the unperceived malfunctioned latch still be utilized. During operation of haptic feedback facilities, once the rest of well-functioning lock cylinder has a breakdown, latch plate will be pulled out immediately and cause accidents.

[0049] The light barrier members 72 are respectively disposed on the electromagnetic latches 53, and the two

detectors 71 confirm the latched state of the two vertical disks 42 by means of double detection. Once one of the vertical disks 42 is out of work, the central control console can immediately obtain information to prevent the customers from seating themselves in a malfunctioned seat, and notify the technical staff of repair, which can improve the safety of conventional latches.

[0050] The inventor would like to emphasize that the present invention uses the two detectors 71 for respectively detecting the positon of the two retractable bars 52, which can respectively confirm whether the two vertical disks 42 are on the latched position, and whether the two electromagnetic latches 53 are pushed into the two first engaging portions 422. Furthermore, the detected information of each detector 71 will be transmitted to the central control console, so that the central control console can respectively confirm whether the two lock cylinders of each latch device are well-functioning or not. Therefore, the objective that two independent lock cylinders are disposed in a latch device can be obtained by the present invention.

[0051] When the central control console finds that one of the detectors 71 is out of work, even though the latch plate 21 can successfully insert into the insertion slot 33, the central control console still can detect one of the vertical disks 42 is out of work, and notify the technical staff of repair, so that the two lock cylinders can function well and ensure passengers safety.

[0052] With the aforementioned descriptions, the following benefits of the present method can be obtained:

1. Transmitting latched state information
When the two electromagnetic latches 53 move toward the two vertical disks 42 by pushing force of the two electromagnetic lock springs 54 and push against the two first engaging portions 422, the two light barrier member 72 are unable to block infrared light emitted from the infrared emitter, so that the infrared receiver can respectively receive infrared signal and can transmit latched state information of the latch device to central control console.
2. Ensuring passengers safety
The hook 421, the first engaging portion 422 and the second engaging portion 423 disposed around the outer perimeter of the two vertical disks 42 enable the two latching holes 22, two electromagnetic latches 53, and button latch 62 to be engaged securely only when being on the latched position. When the two vertical disks 42 are on the unlatched position, the two electromagnetic latches 53 and the button latch 62 reach only the outer perimeter of the two vertical disks 42, which enables the two light barrier members 72 to move to a specific place for blocking infrared light.
3. Identifying position under dark ambient condition
The dim light emitted by the illuminator 81 will pass through the insertion slot 33 to the outside, so that the users can find the insertion slot 33 and insert the latch plate 21 into the insertion slot 33 in a dark room.
4. Avoiding the continual use of a malfunctioned latch device
When the central control console finds that one of the detectors 71 is out of work, it will determine one of the vertical disks 42 is out of work and stop operation of haptic feedback facilities, and notify the technical staff of repair, so that the two lock cylinders can function well to ensure the passengers safety. Thus, the present invention is capable of avoiding the continual use of a malfunctioned latch device.

[0053] In conclusion, the two infrared detectors 71 disposed on the space beside the two retractable bars 52 can respectively detect the two light barrier members 72 interlocked with the two electromagnetic latches 53 for respectively confirming rotary position of the two vertical disks 42. The illuminating unit 8 disposed in the space above the two retractable bars 52 can help the users find the insertion slot 33 in a dark room. Therefore, the objective can be obtained by the present invention.

[0054] The foregoing detailed description is merely in relation to a preferred embodiment and shall not be construed as limiting the invention. It is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

Claims

1. A latch device, applied to selectively secure a latch plate device 2, wherein comprises a latch plate 21 with two latching holes 32, comprising:

a housing unit 3, including a housing 31, which has a pressing hole 32 and an insertion slot 33;
a disk unit 4, including a supporting rod 41 positioned through the housing 31, and two vertical disks 42 pivotally arranged to the supporting rod 41, around an outer perimeter of the two vertical disks 42 being placed with a hook 421, a first engaging portion 422 and a second engaging portion 423;
an electromagnetic lock unit 5, including two electromagnetic mechanisms 51 fixed arranged inside the housing 31, two retractable bars 52 respectively connected to the two electromagnetic mechanisms 51, and two electromagnetic latches 53 respectively connected to the two retractable bars 52;
a pressing lock unit 6, including a press button 61 slidingly connected to the press hole 32, and a button latch 62 connected to the press button 61;
a detecting unit 7, including two detectors 71, which are disposed inside the housing 31 for detecting the position of the two electromagnetic

latches 53; wherein the two vertical disks 42 can be moved between an unlatched position and a latched position, and when the two vertical disks 42 are on the unlatched position, the latch plate 21 can be inserted from the insertion slot 33 and push the two vertical disks 42 to the latched position; when the two vertical disks 42 are on the latched position, the two electromagnetic latches 53 are respectively latched with the two first engaging portions 422, and the button latch is concurrently latched with the two second engaging portions 423, so that the two vertical disks 42 cannot either move or interfere respectively with the two latching holes 22, and the latch plate device 2 can be secured to the latch device.

2. The latch device as claimed in claim 1, further includes an illuminating unit 8, wherein an illuminator 81 is disposed inside the housing 31.

3. The latch device as claimed in claim 2, wherein the disk unit 4 further includes two disk springs 43 for respectively moving the two vertical disks 42 to the unlatched position, and one end of the disk springs 43 are respectively connected to the two vertical disks 42, and the other ends are connected to the housing 31.

4. The latch device as claimed in claim 3, wherein the electromagnetic lock unit 5 further includes two electromagnetic lock springs, which respectively enables the two electromagnetic latches 53 to push against the two first engaging portions, and one end of the two electromagnetic lock springs 54 are respectively connected to the two electromagnetic latches 53, while the other ends are connected to the housing 31.

5. The latch device as claimed in claim 4, wherein the pressing lock unit further includes two pressing lock springs 6, which enables the button latch 62 to be pushed against the two second engaging portions 423, and one end of the two pressing lock springs 63 are connected to the press button 61, while the other ends are connected to the housing 31.

6. The latch device as claimed in claim 5, further includes a forcible release unit 9, wherein a release hole 91 is opened on the press button 61, and a release 92 for inserting into the release hole 91 to push the two electromagnetic latches 53 and the button latch 62.

7. The latch device as claimed in claim 6, wherein the housing unit 3 further includes a fixing flange 34 protruding from the bottom of the housing 31.

8. The latch device as claimed in claim 7, wherein the insertion slot 33 is provided with a wall 332 for framing a guide passage 331.

9. The latch device as claimed in claim 8, wherein the electromagnetic lock unit 5 further includes an electromagnetic lock guide rod 64 disposed inside the housing, and two electromagnetic channels 65 respectively disposed inside the two electromagnetic latches 53 and positioned through by the electromagnetic lock guide rod 64.

10. The latch device as claimed in claim 9, wherein the pressing lock unit 6 further includes two pressing lock guide rods 64 disposed inside the housing 31, and two pressing lock channels 65 disposed on the press button 61 and positioned through by the two pressing lock guide rods 64.

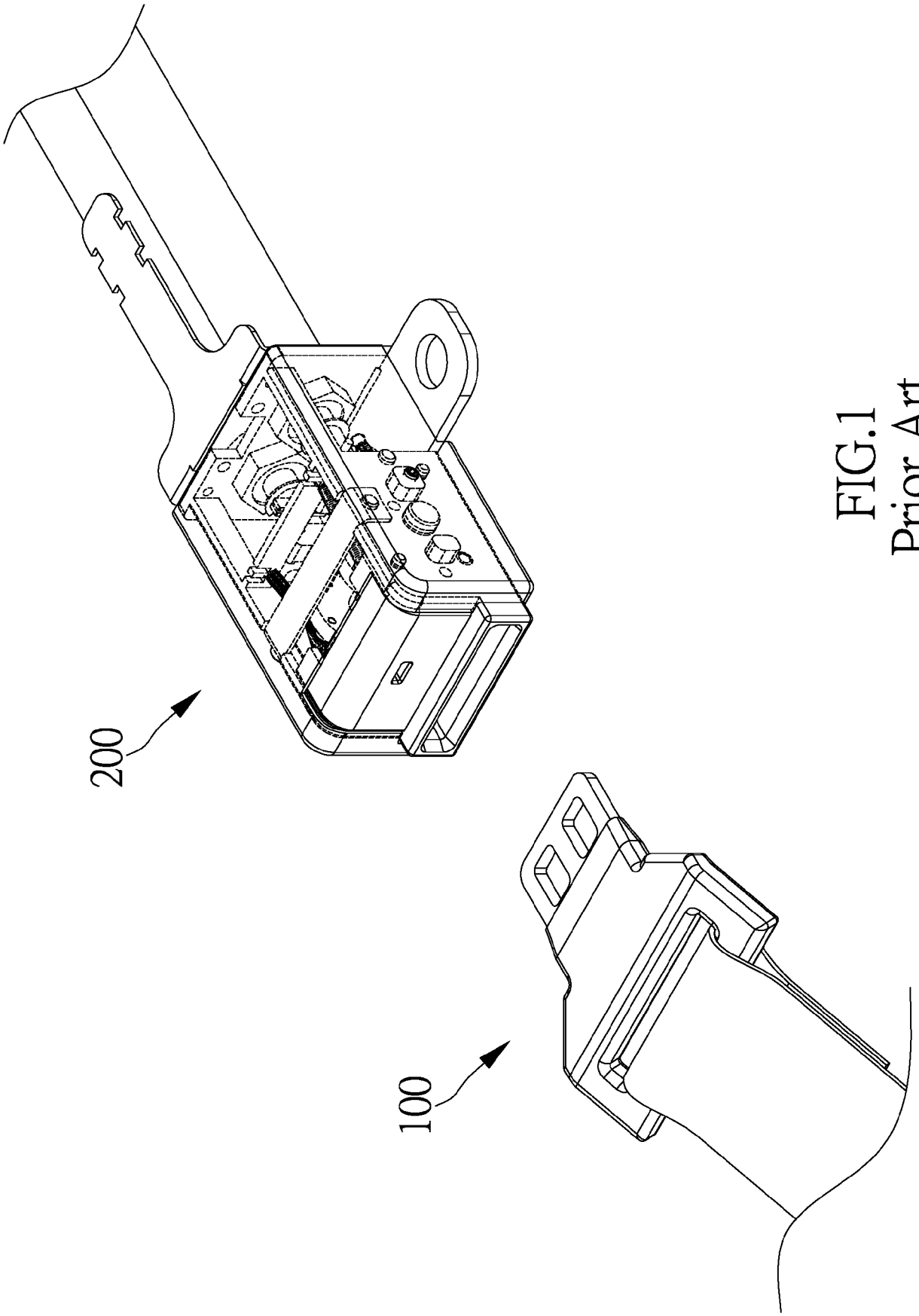

FIG.1
Prior Art

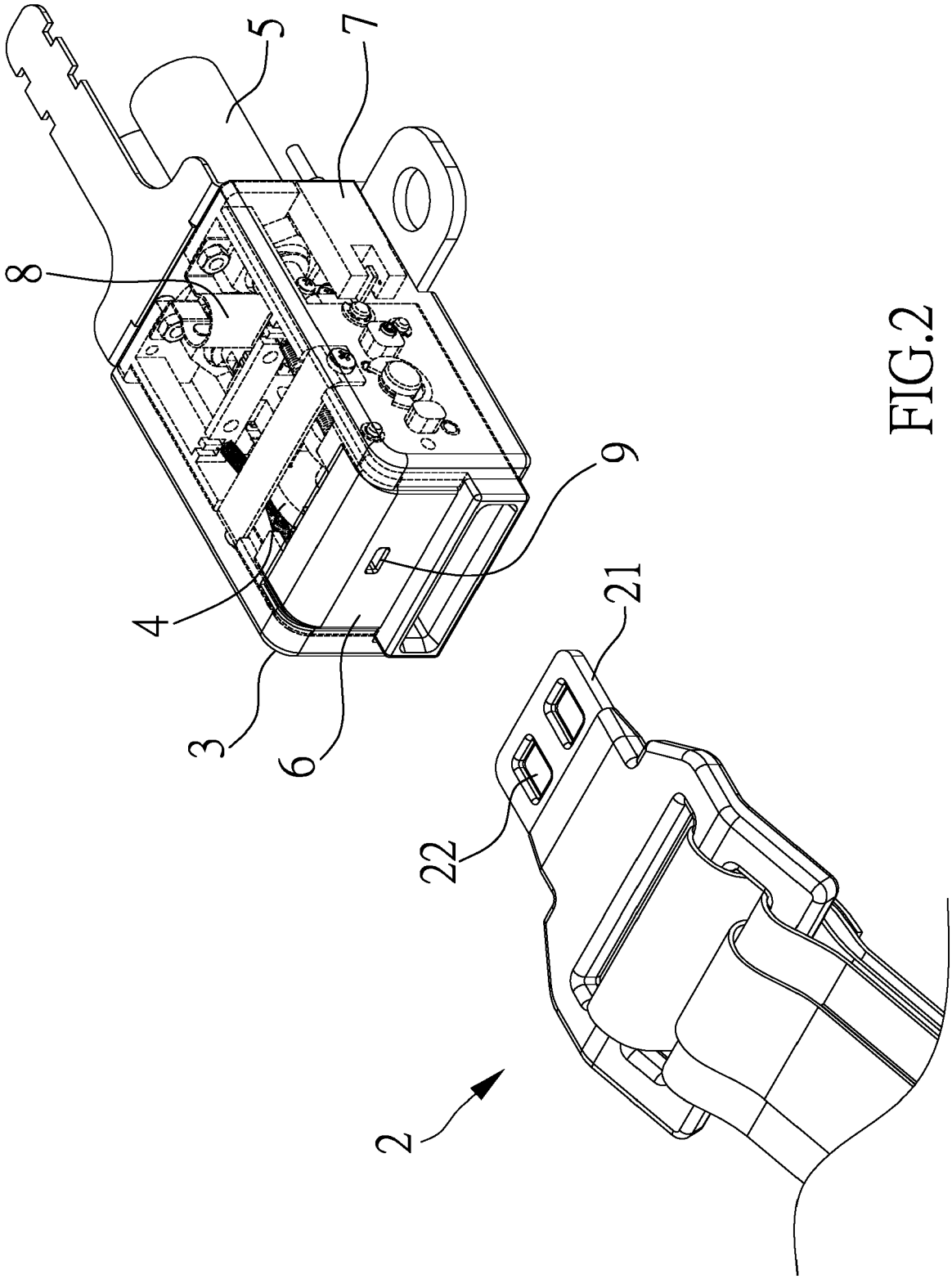

FIG.2

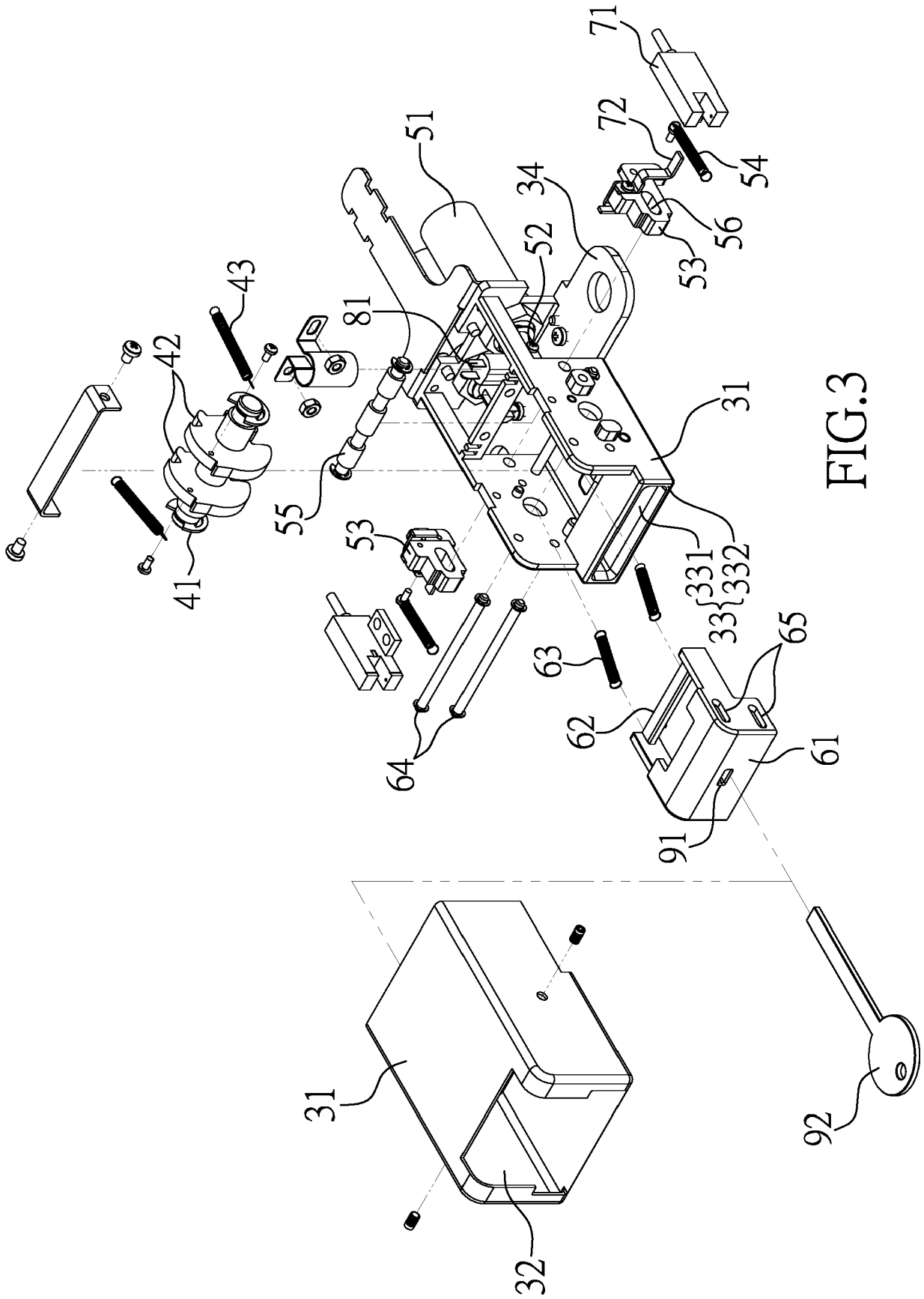
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FIG.3

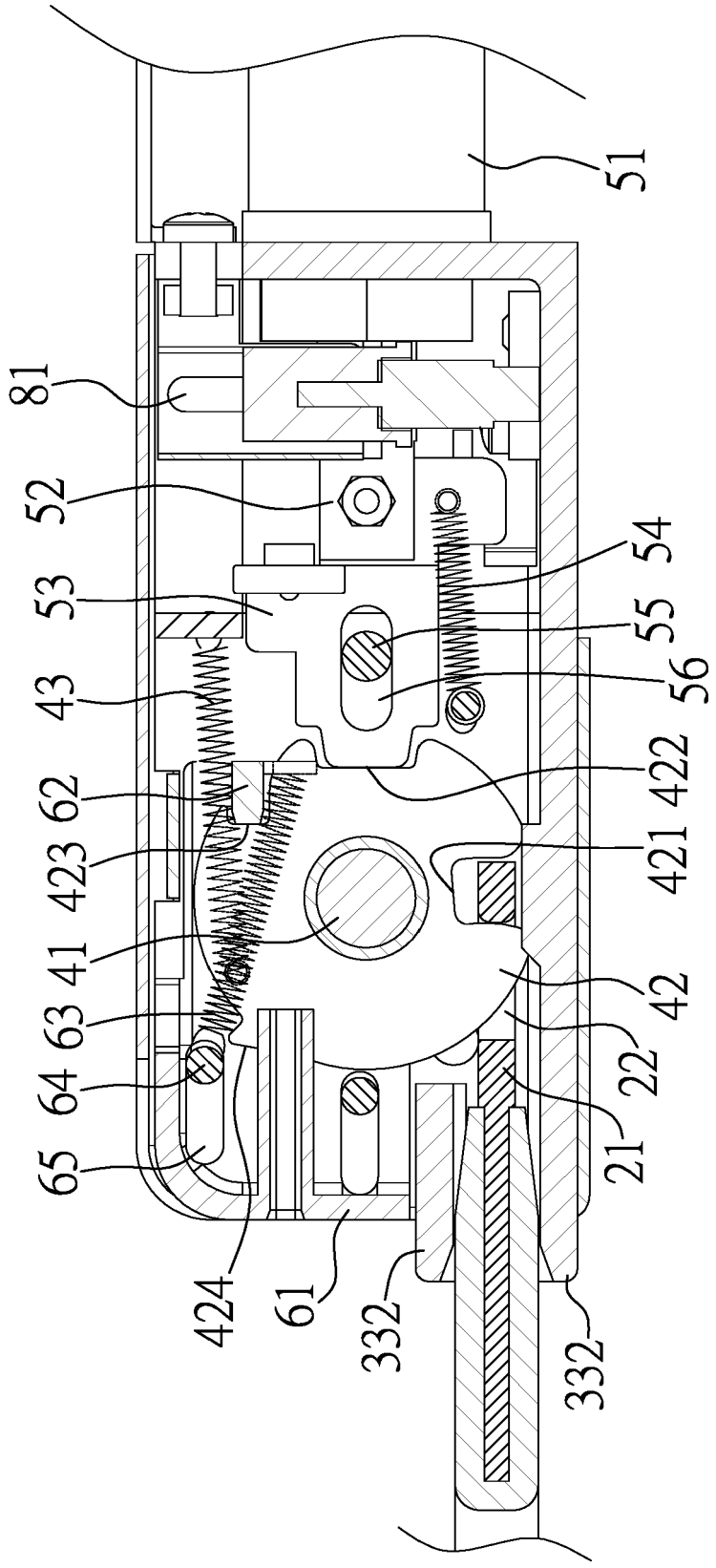
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FIG.4

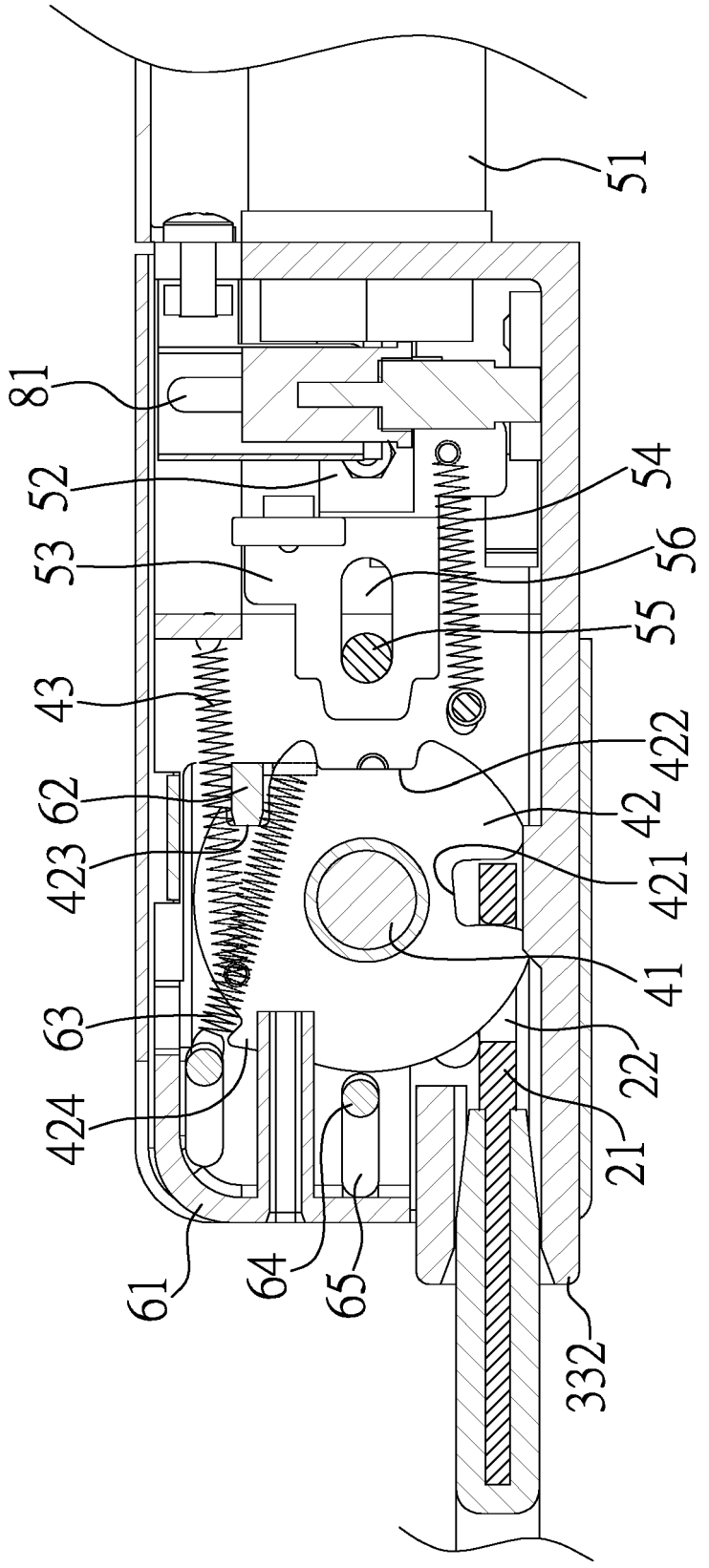

FIG.5

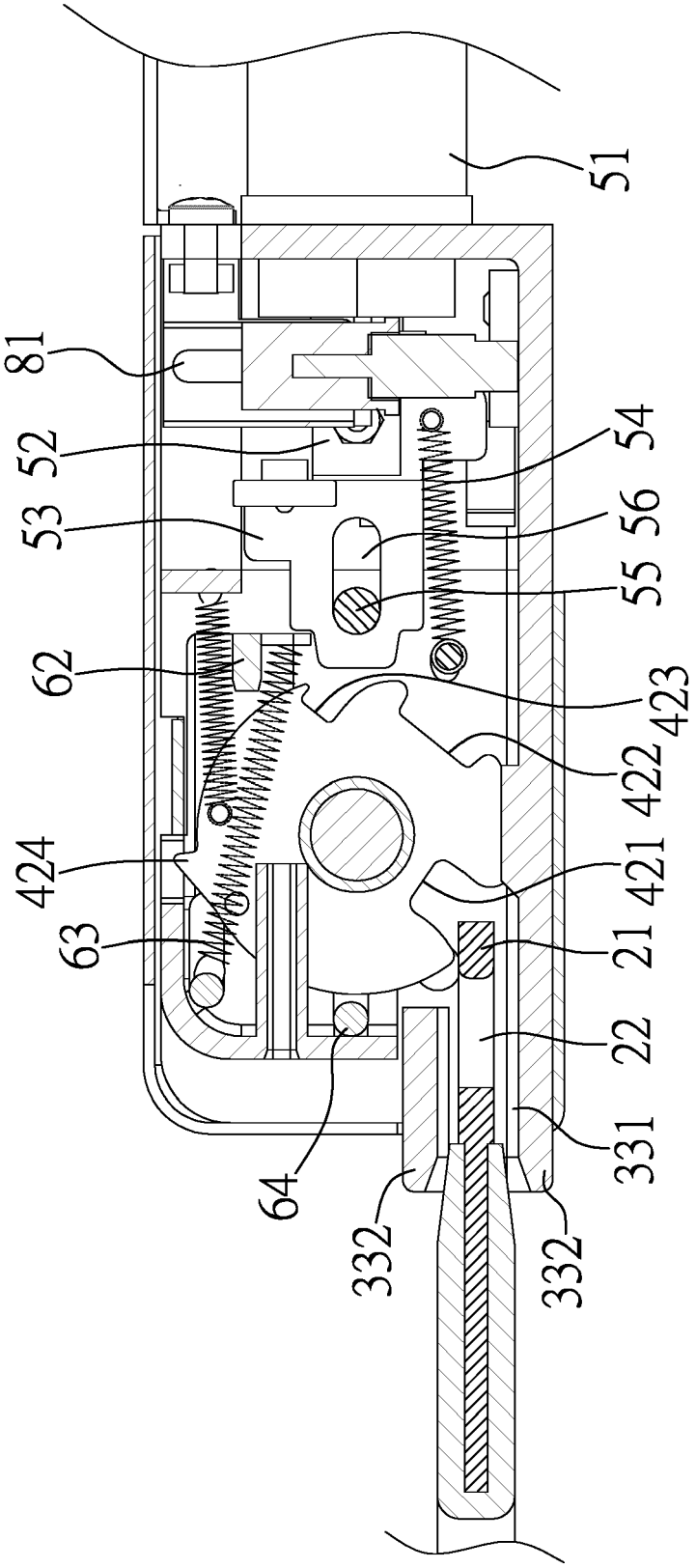

FIG.6

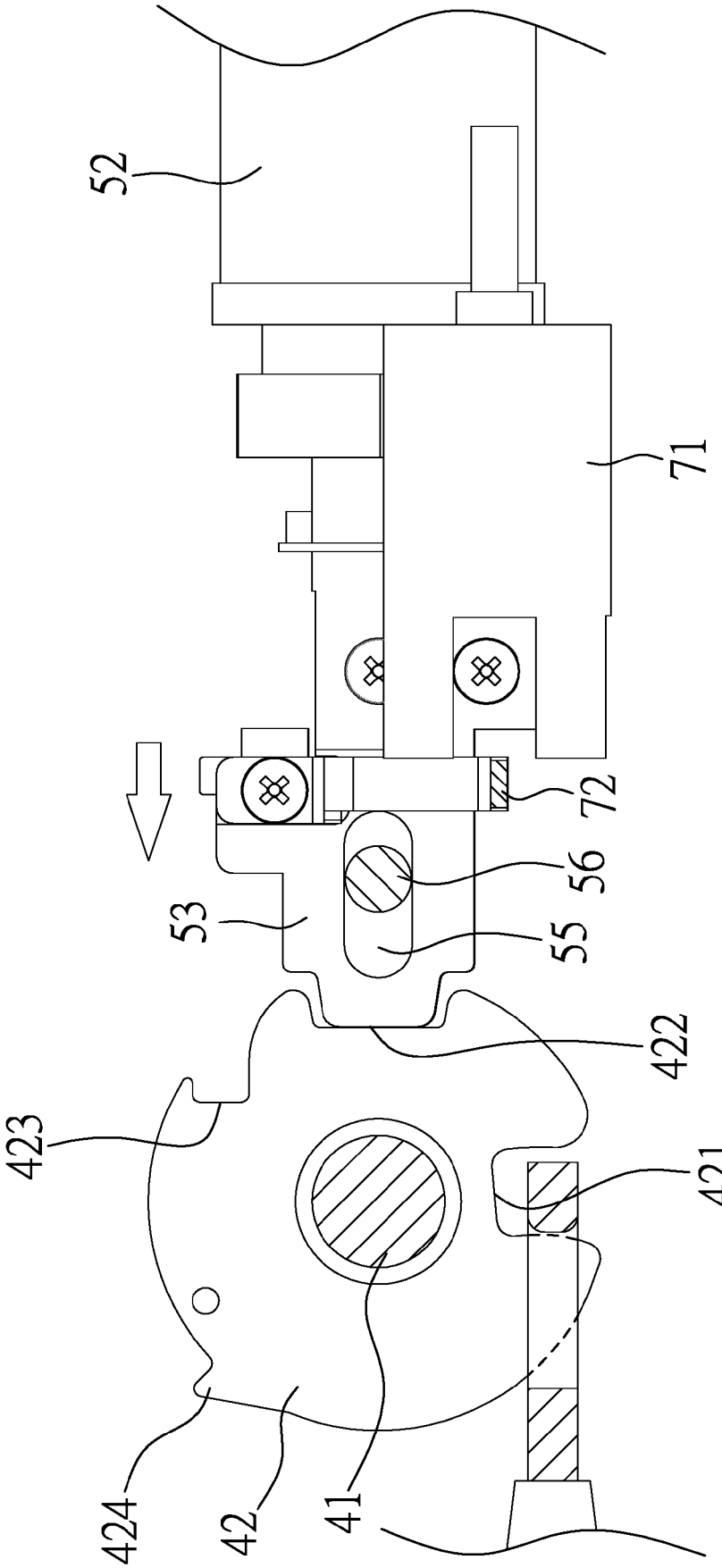

FIG.7

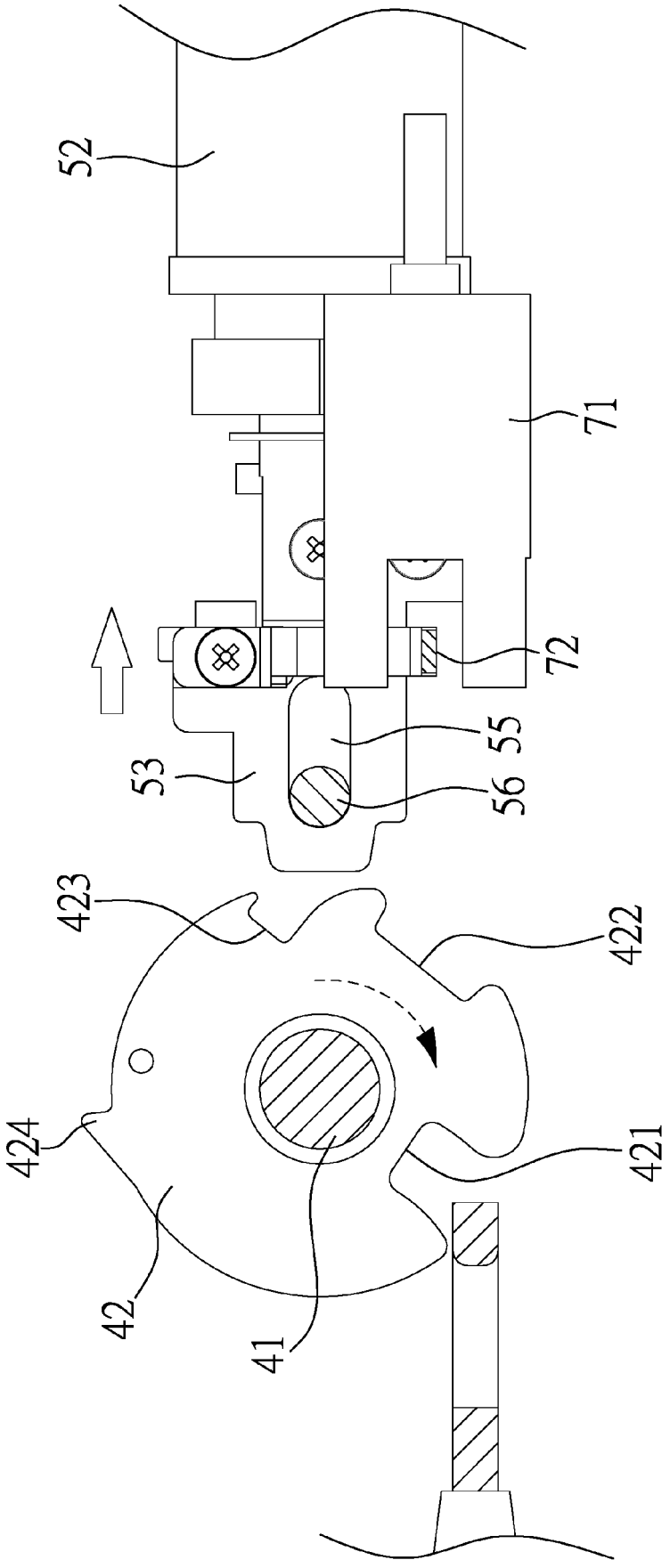

FIG.8

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EUROPEAN SEARCH REPORT

Application Number
EP 17 19 7236

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 February 2018	da Silva, José

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