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(54) **LOCK MECHANISM OF A STORAGE BOX**

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CPC ***E05B 65/52*** (2013.01); *E05B 83/16* (2013.01)

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See application file for complete search history.

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(57) **ABSTRACT**

A lock mechanism of a storage box can secure and release a lock pin of a lid member with a rotational operation of a cam member, and includes a cam support member for supporting the cam member, and a rotation lock plate for restricting the rotational movement of the cam member, in which the rotation lock plate is configured to restrict the rotational movement of the cam member in a case that the rotation lock plate is at a position along a contact part provided on the cam support member.

6 Claims, 8 Drawing Sheets

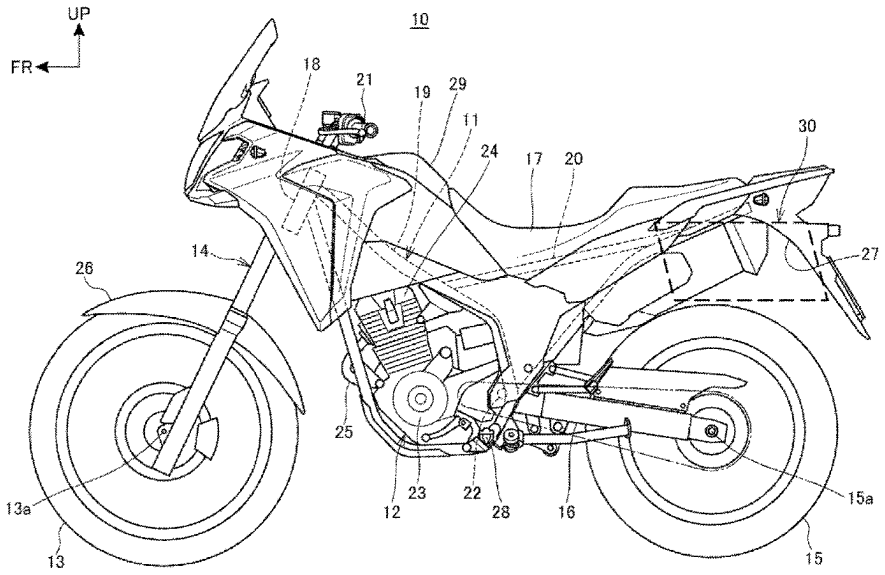

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FIG.1

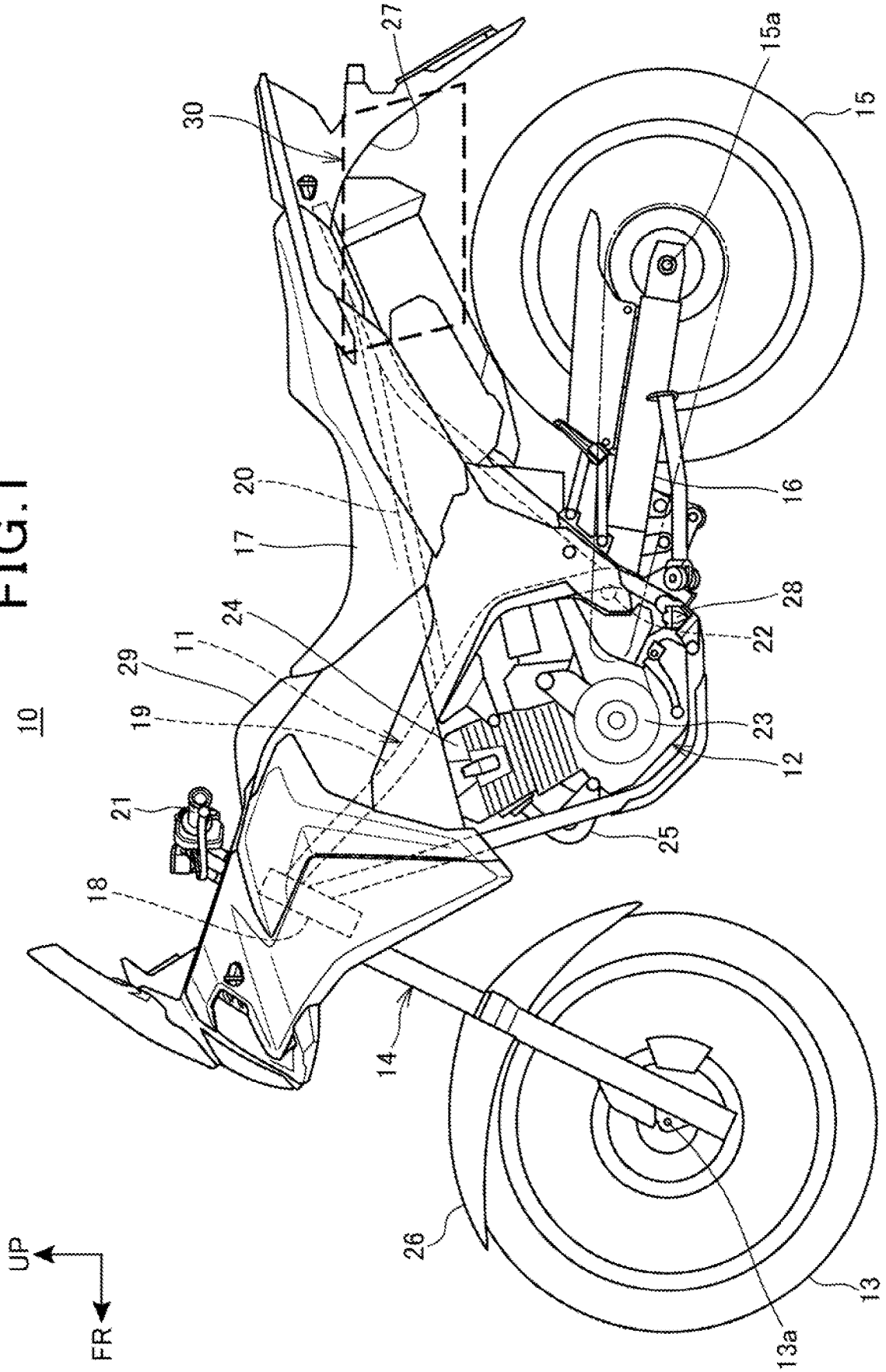
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FIG.2

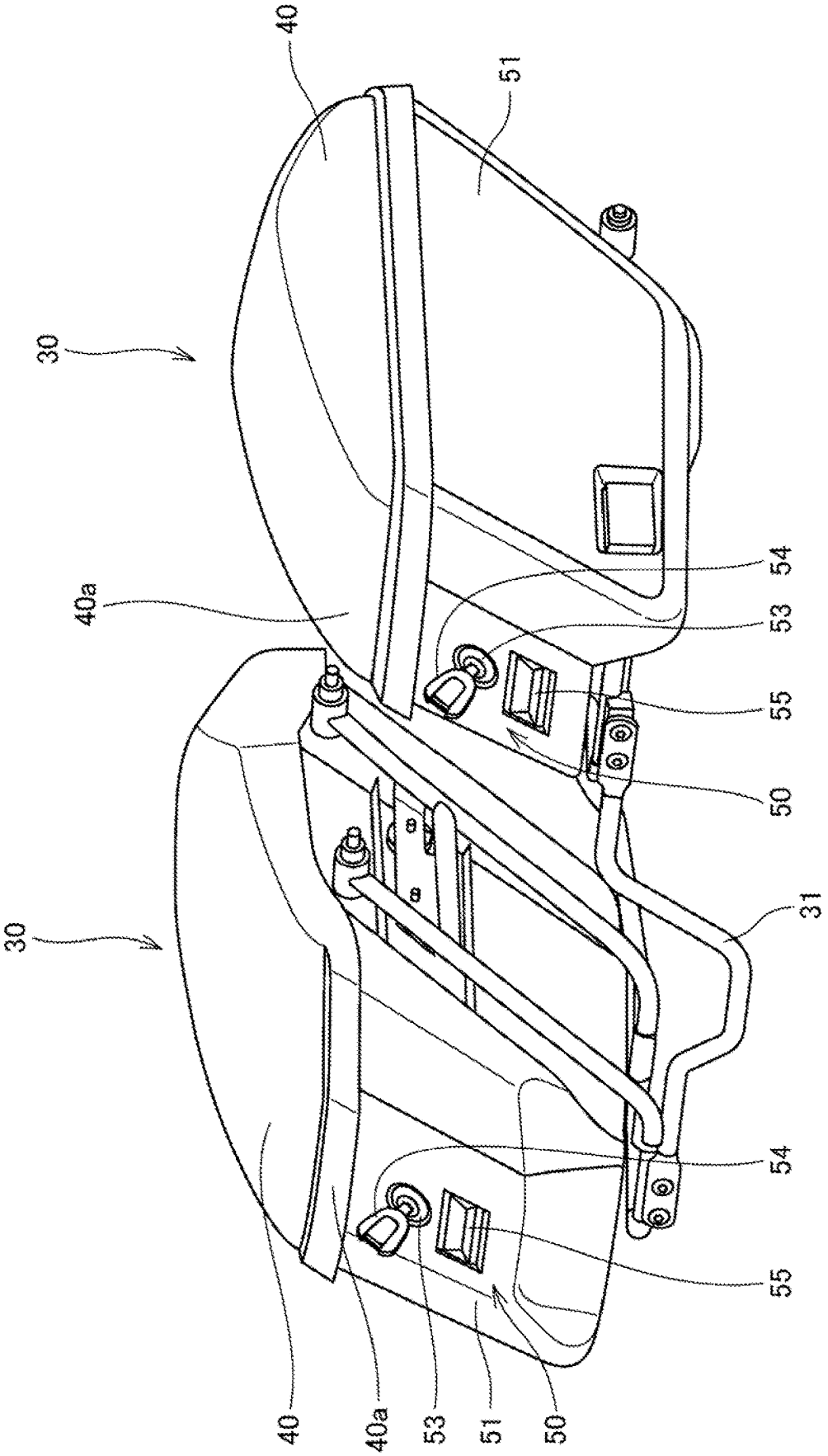
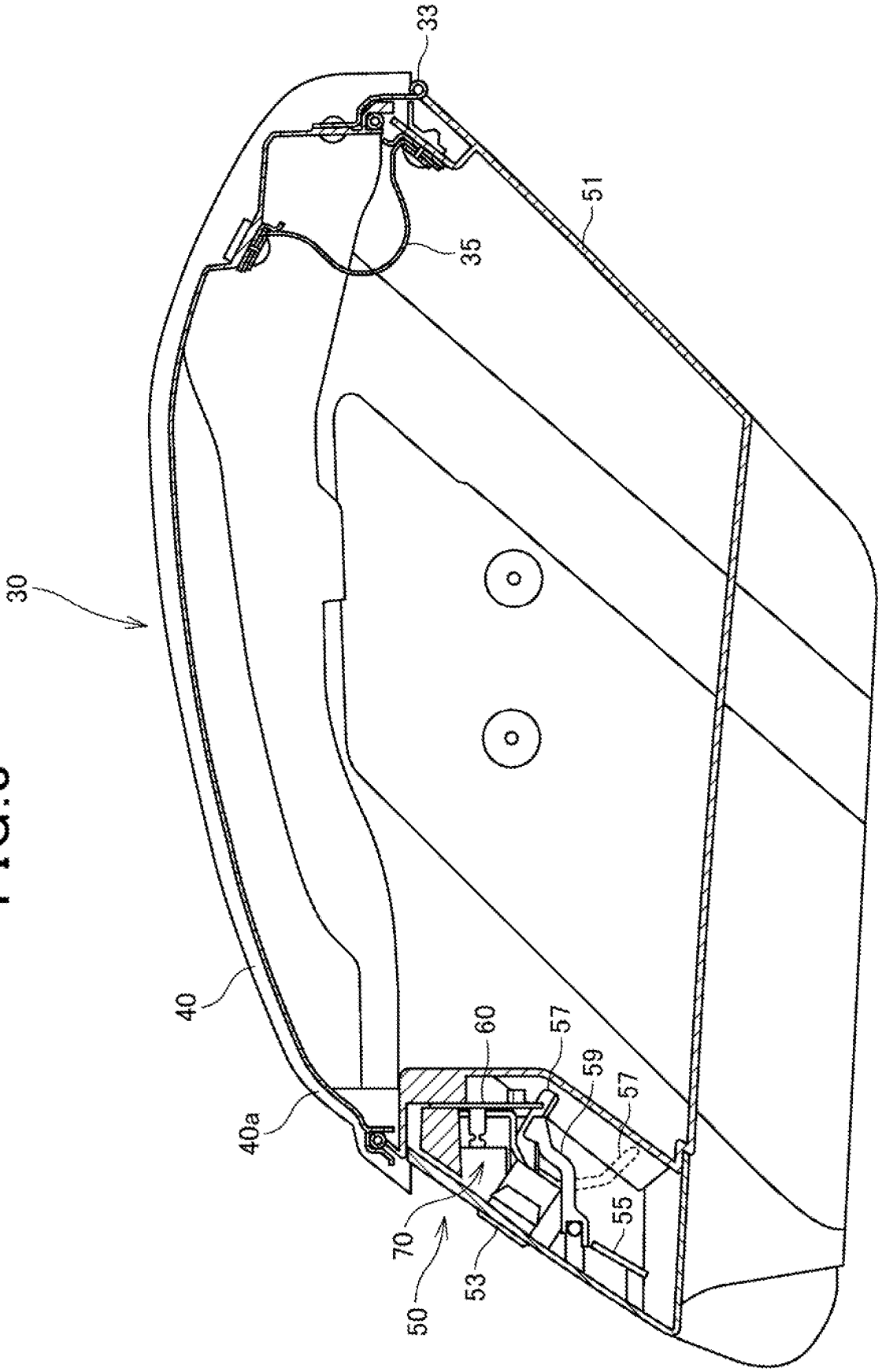


FIG.3



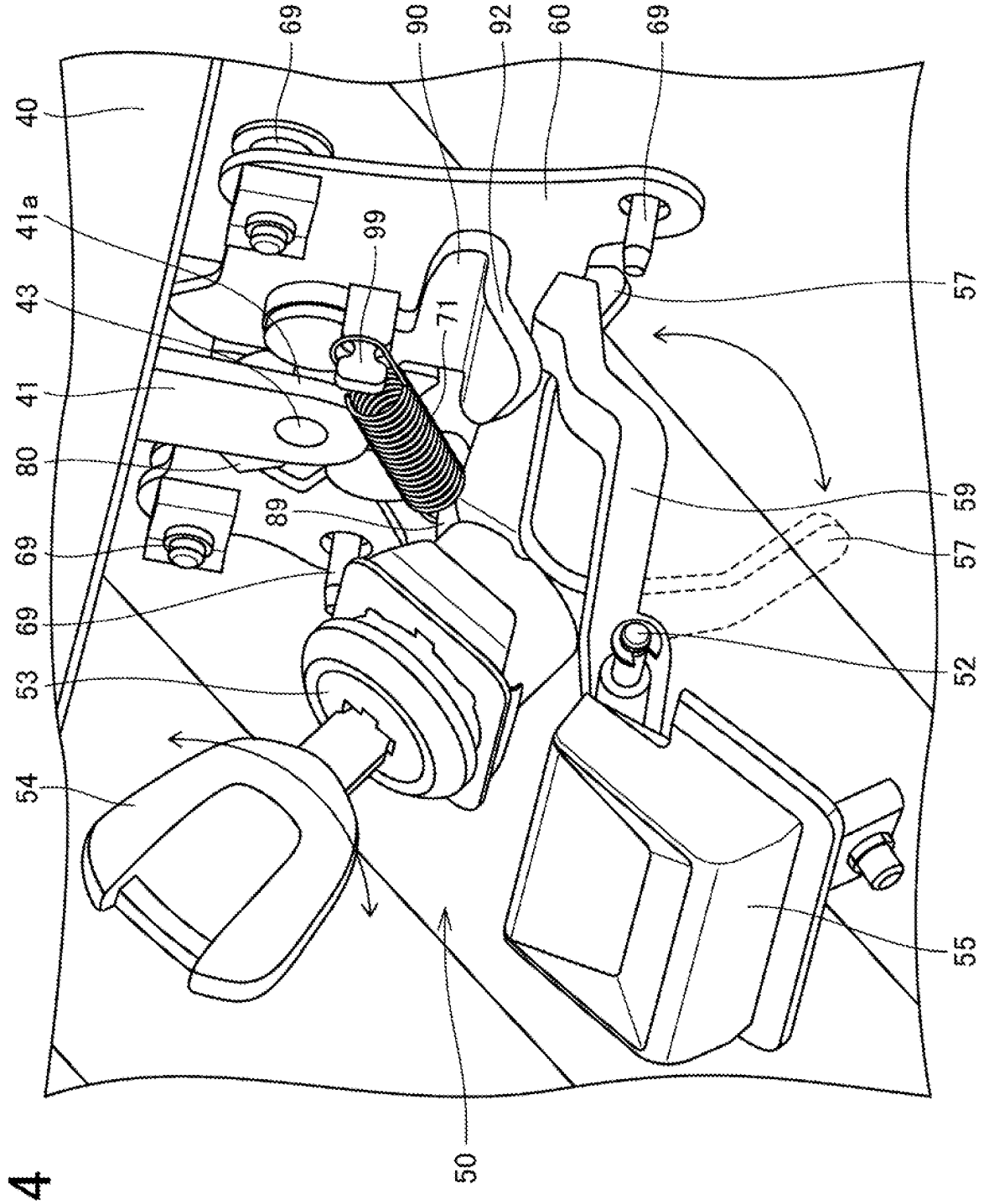


FIG.4

FIG.5

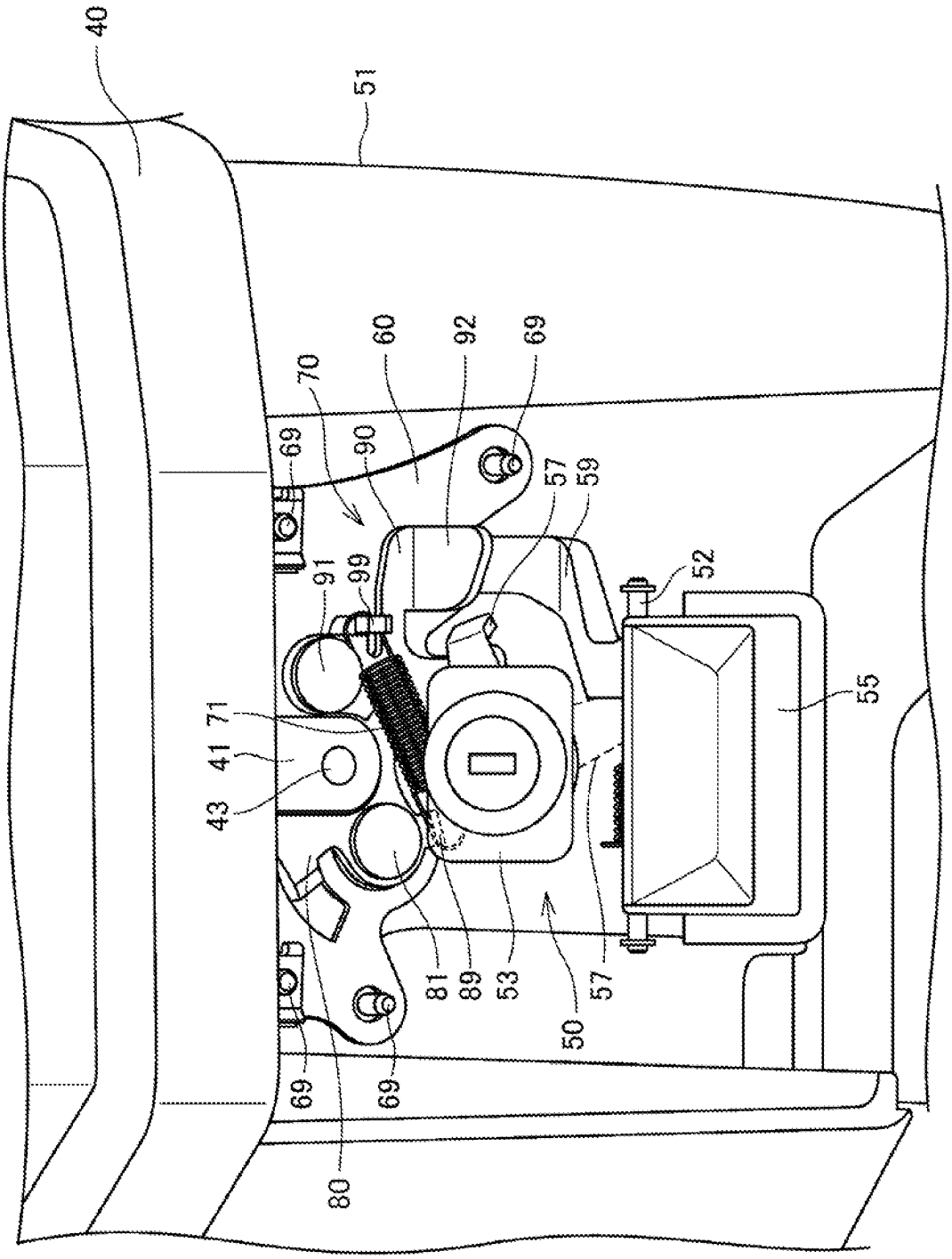

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FIG.6

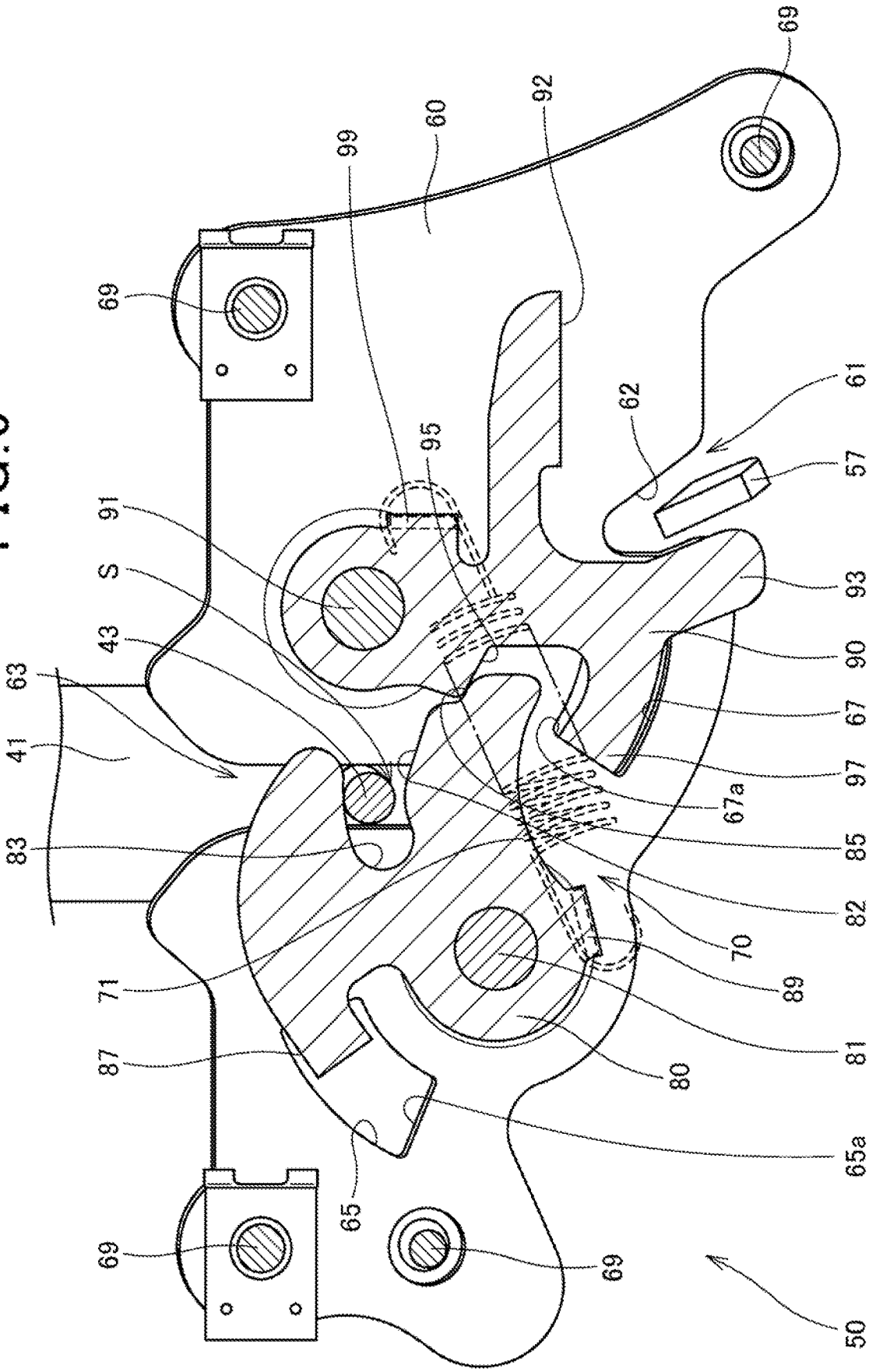
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FIG. 7

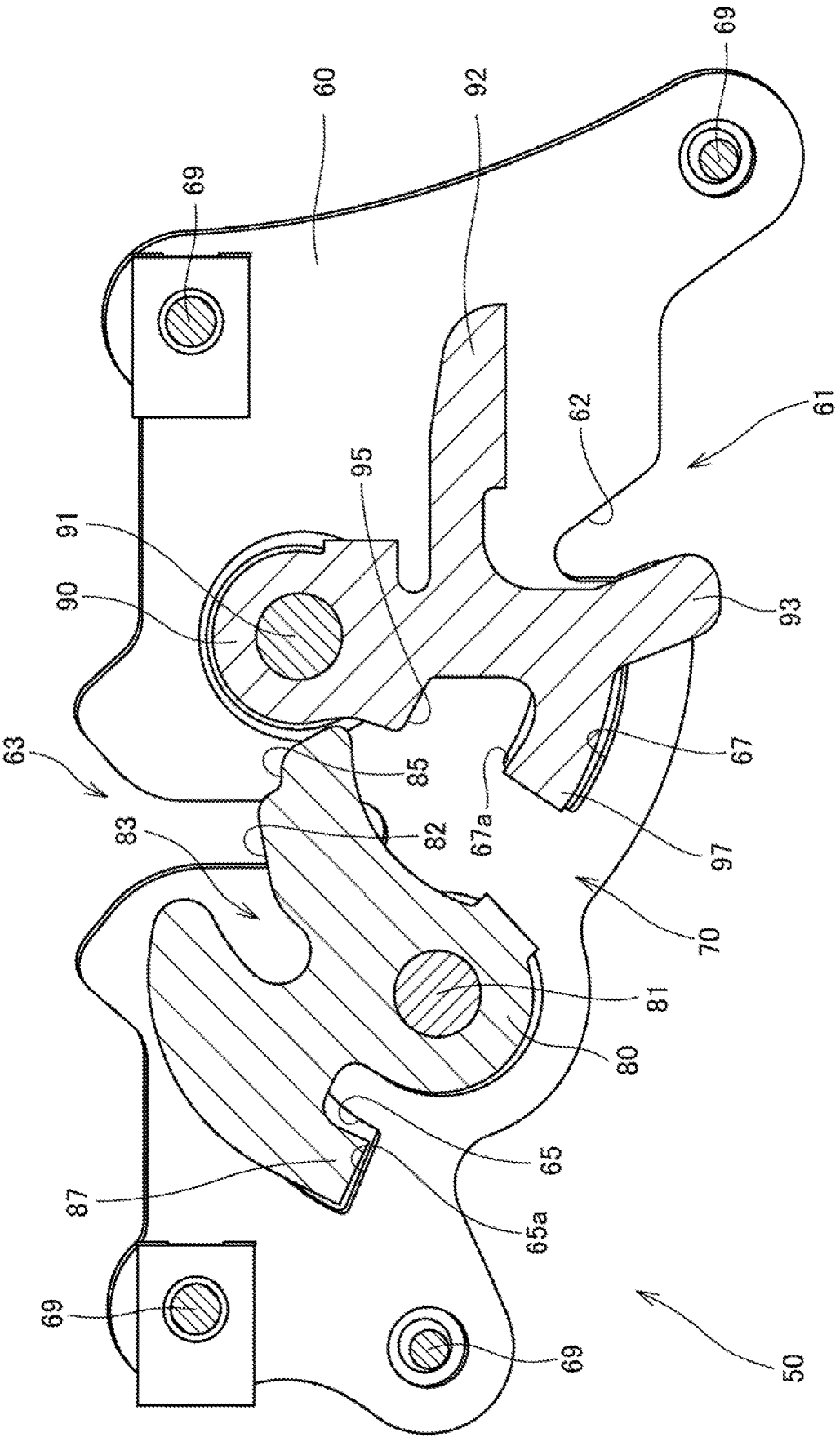
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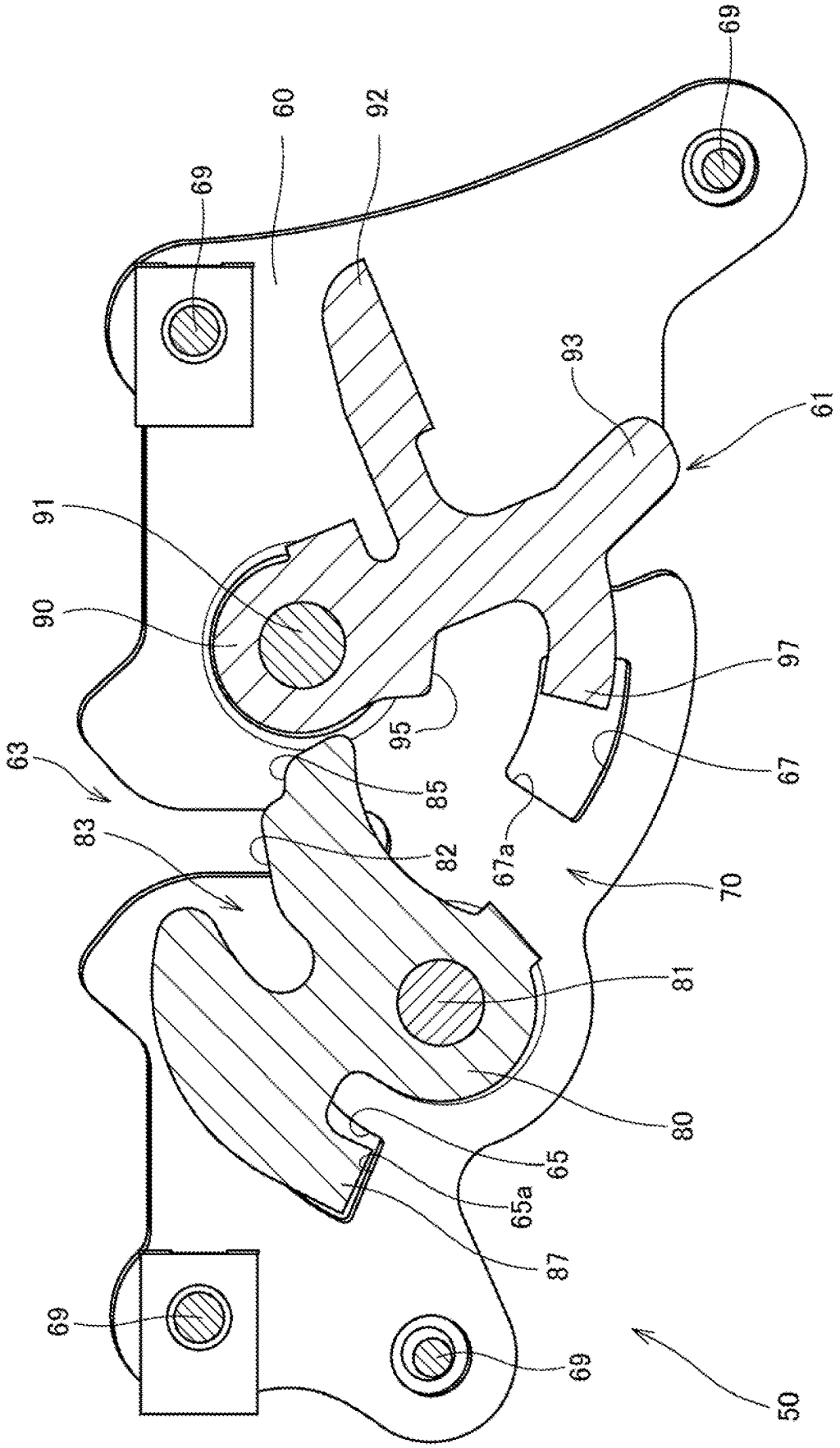
FIG.8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LOCK MECHANISM OF A STORAGE BOX

INCORPORATION BY REFERENCE

The present application claims priority under 35 U.S.C.§ 119 to Japanese Patent Application No. 2021-162264 filed on Sep. 30, 2021. The content of the application is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a lock mechanism of a storage box.

Description of the Related Art

Conventionally, a storage box apparatus is known that includes a lock mechanism capable of securing and releasing a lock pin of a lid member with a rotational operation of a cam member (see, e.g., Japanese Patent Laid-Open No. 62-146379). A storage box apparatus of this type includes a link mechanism that enables a rotational movement of a cam member and releasing the engagement of the link mechanism disables the rotational movement of the cam member and locks the storage box apparatus.

However, there is a problem in the related art in that the number of parts of the link mechanism is large, which leads to a complex movement of the link mechanism.

SUMMARY OF THE INVENTION

A lock mechanism of a storage box is capable of securing and releasing a lock pin of a lid member with a rotational operation of a cam member, and includes a cam support member for supporting the cam member, and a rotation lock plate for restricting a rotational movement of the cam member. In the lock mechanism, the rotation lock plate is configured to restrict the rotational movement of the cam member in a case that the rotation lock plate is at a position along a contact part provided on the cam support member.

To restrict the rotational movement of the cam member, it is just needed to move the rotation lock plate to a position where the rotation lock plate contacts the cam member. Therefore, the link mechanism is not needed, the number of parts is reduced, and the structure is simplified.

Also, even in a case that a large load is applied to the cam member, a rotational movement of the cam member is restricted by a cooperation between the rotation lock plate and the contact part of the cam support member, and thus strength of the rotation lock plate is reinforced.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of a saddle-ride vehicle according to an embodiment;

FIG. **2** is a perspective view of a storage box according to the embodiment;

FIG. **3** is a vertical cross-sectional view in a front-rear direction of the storage box according to the embodiment;

FIG. **4** is a perspective view of a lock mechanism according to the embodiment;

FIG. **5** is a perspective view seen from the rear of the lock mechanism according to the embodiment;

FIG. **6** is a cross-sectional view illustrating a cam member in a state where the lock mechanism is locked according to the embodiment;

FIG. **7** is a cross-sectional view illustrating the cam member in a state where the lock mechanism is unlocked according to the embodiment; and

FIG. **8** is a cross-sectional view illustrating a cam member at the time when the lock mechanism is being unlocked according to the embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

An embodiment of the present invention will be described below with reference to the drawings. Unless otherwise mentioned, directions including front-rear, left-right, and up-down mentioned in the description are the same as those directions relative to a vehicle body. Reference signs FR, UP, and LH shown in the drawings indicate a vehicle body front side, a vehicle body upper side, and a vehicle body left side, respectively.

Embodiment

FIG. **1** is a side view of a saddle-ride vehicle **10** according to an embodiment of the present invention.

The saddle-ride vehicle **10** is a vehicle including a vehicle body frame **11**, a power unit **12** supported on the vehicle body frame **11**, a front fork **14** that supports a front wheel **13** in a steerable manner, a swing arm **16** that supports a rear wheel **15**, and a seat **17** for a rider.

The saddle-ride vehicle **10** is a vehicle on which the rider sits astride the seat **17**. The seat **17** is provided above a rear part of the vehicle body frame **11**.

The vehicle body frame **11** includes a head pipe **18** provided at a front end portion of the vehicle body frame **11**, a front frame **19** located on a rear side of the head pipe **18**, and a rear frame **20** located on a rear side of the front frame **19**. A front end portion of the front frame **19** is connected to the head pipe **18**.

The seat **17** is supported on the rear frame **20**.

The front fork **14** is supported on the head pipe **18** in such a manner that it can be steered left and right. The front wheel **13** is supported on an axle **13***a* provided at a lower end portion of the front fork **14**. A handle **21** for steering that the rider grasps is mounted at an upper end portion of the front fork **14**.

The swing arm **16** is supported on a pivot shaft **22** that is supported on the vehicle body frame **11**. The pivot shaft **22** is a shaft extending horizontally in a vehicle width direction. The pivot shaft **22** is passed through a front end portion of the swing arm **16**. The swing arm **16** swings up and down around the pivot shaft **22**.

The rear wheel **15** is supported on an axle **15***a* provided at a rear end portion of the swing arm **16**.

The power unit **12** is disposed between the front wheel **13** and the rear wheel **15** and supported on the vehicle body frame **11**.

The power unit **12** is an internal combustion engine. The power unit **12** includes a crankcase **23** and a cylinder **24** that houses a reciprocating piston. An exhaust device **25** is connected to an exhaust port of the cylinder **24**.

An output of the power unit **12** is transmitted to the rear wheel **15** through a drive power transmission member that connects the power unit **12** and the rear wheel **15** to each other.

The saddle-ride vehicle **10** further includes a front fender **26** that covers the front wheel **13** from above, a rear fender **27** that covers the rear wheel **15** from above, footrests **28** on which the rider places his or her feet, and a fuel tank **29** that stores fuel to be used by the power unit **12**.

The front fender **26** is mounted on the front fork **14**. The rear fender **27** and the footrests **28** are provided on a lower side relative to the seat **17**. The fuel tank **29** is supported on the vehicle body frame **11**.

The saddle-ride vehicle **10** includes a storage box **30** on a rear side of the vehicle.

FIG. **2** is a perspective view of the storage box **30**, and FIG. **3** is a vertical cross-sectional view in a front-rear direction of the storage box **30**.

A pair of storage boxes **30** are attached to left and right sides of the vehicle body frame **11** via a pipe-shaped attachment member **31**.

Because the left and right storage boxes **30** have the same structures, the storage box **30** attached to the right side is described below, and regarding the storage box **30** attached to the left side, the same reference numbers are added to the same parts and the description is omitted.

The storage box **30** includes a lid member **40** and a box-shaped housing **51** having an opening at its top part. As illustrated in FIG. **3**, the lid member **40** is connected to a front part of the housing **51** via a hinge **33**, and the lid member **40** is opened by lifting up a rear part **40***a* of the lid member **40**. The hinge **33** is covered by a cover **35** from a rear side. The movable range of the lid member **40** is limited by the cover **35** so that the lid member **40** does not open too much.

A lock mechanism **50** is provided at the rear side of the housing **51**. As illustrated in FIG. **2**, the lock mechanism **50** includes, outside the housing **51**, a key cylinder **53** and an operation member **55**. And as illustrated in FIG. **3**, the lock mechanism **50** includes, inside the housing **51**, a tabular, cam support member **60** and a cam mechanism **70** attached to the cam support member **60**.

The operation member **55**, in response to being pushed down, tilts a lever **59** to move the cam mechanism **70**, which releases the lock between the rear part **40***a* of the lid member **40** and a rear part of the housing **51**. Thus, opening and closing of the lid member **40** is enabled.

A key **54** can be inserted into the key cylinder **53** to rotate. In a case that the key **54** is rotated to a lock position, a rotation lock plate **57** attached to the key cylinder **53** is rotated to lock the lock mechanism **50** so that a lock between the lid member **40** and the housing **51** cannot be released even if the operation member **55** is pushed down. While the lock mechanism **50** is locked, the rotation lock plate **57** is at a position illustrated with solid lines in FIG. **3** and, while the lock mechanism **50** is not locked, the rotation lock plate **57** is at a position illustrated with dashed lines in FIG. **3**.

In the present embodiment, the operation member **55** is a button that can be pushed down, an application of the present invention is not limited to the button-type operation member **55**. For example, the operation may be carried out with a handle-type operation member or a cable which can be pulled to release a lock between the rear part **40***a* of the lid member **40** and the rear part of the housing **51**.

FIG. **4** is a perspective view of a lock mechanism **50**, and FIG. **5** is a perspective view seen from the rear of the lock mechanism **50**.

The lid member **40** includes, as illustrated in FIG. **4**, a pin fixing member **41** and a lock pin **43**.

The pin fixing member **41** is fixed to the lid member **40** at its top part. The pin fixing member **41** includes two protruding members **41***a* at its bottom part, which are formed to sandwich the cam support member **60** and a first cam **80** between the two protruding members **41***a* arranged in a front-rear direction. The lock pin **43** is fixed between the two protruding members **41***a*.

As illustrated in FIG. **5**, according to the present embodiment, the key cylinder **53** is provided at a position between the operation member **55** and the cam mechanism **70**, which allows for a compact arrangement of the lock mechanism.

The cam support member **60** is attached to the rear part of the housing **51** with a fixture **69**. The cam mechanism **70** includes the first cam **80** and a second cam **90**. The first cam **80** and the second cam **90** are rotatably attached to the cam support member **60** via a first cam support shaft **81** and a second cam support shaft **91**, respectively.

The lever **59** connected to the operation member **55** is arranged at a position where the lever **59**, in response to a tilt around a lever support shaft **52**, pushes up a lever receiving part **92** provided on the second cam **90**. The lever **59** is configured to be supported by an elastic member (not illustrated) such as a spring so that the lever **59** goes back to its home position.

As illustrated in FIGS. **4** and **5**, a tension spring **71** is provided in a tensioned state between a first spring connection part **89** of the first cam **80** and a second spring connection part **99** of the second cam.

The first cam **80** is, with tension of the tension spring **71**, constantly urged in a counterclockwise direction in FIG. **5** around the first cam support shaft **81**, and the second cam **90** is constantly urged in a clockwise direction in FIG. **5** around the second cam support shaft **91**.

FIG. **6** is a cross-sectional view in a cross-section including the first cam **80** and the second cam **90**. In FIG. **6**, the lock mechanism **50** is in a locked state, and the tension spring **71** is illustrated with dashed lines for convenience of explanation.

The first cam **80** includes a first concave part **83** into which the lock pin **43** is inserted, and a first engaging part **85** that contacts the second cam **90**. The first cam **80** also includes a first engaging protrusion (a part of the cam member) **87** that is inserted into a first guide part (a guide part) **65** of the cam support member **60**, and a first curved part **82** that contacts the lock pin **43** when the lid member **40** is being closed.

The first guide part **65** is a hole that is formed in a shape of a circular arc centered around the first cam support shaft **81**, suppresses rattling of the first cam **80**, by sliding the first engaging protrusion **87** therein, and also limits a rotation angle of the first cam **80**.

The second cam **90** includes a second protruding part **93** that contacts the rotation lock plate **57**, and a second engaging part **95** that contacts the first engaging part **85** of the first cam **80**.

The second cam **90** also includes a second engaging protrusion (a part of the cam member) **97** that is inserted into the second guide part (a guide part) **67** of the cam support member **60**.

The second guide part **67** is a hole that is formed in a shape of a circular arc centered around the second cam support shaft **91**, suppresses rattling of the second cam **90**, by sliding the second engaging protrusion **97** therein, and also limits a rotation angle of the second cam **90**.

The cam support member **60** includes a plate-receiving concave part **61** into which the rotation lock plate **57** is inserted, a contact part **62** provided on the plate-receiving

concave part **61**, and a pin-receiving concave part **63** into which the lock pin **43** is inserted when the lid member **40** is closed.

In the present embodiment, the rotation lock plate **57** is inserted into the plate-receiving concave part **61**, and, while the rotation lock plate **57** is at a position along the contact part **62**, interferes with the second protruding part **93** to restrict the rotational (or pivotal) movement of the second cam **90**.

In a case that the second cam **90** is rotated counterclockwise by an action of an excessive force, in a state where the rotation of the second cam **90** is restricted, the rotation lock plate **57** contacts the contact part **62** of the plate-receiving concave part **61**, and the rotation of the second cam **90** in a counterclockwise direction is restricted by the contact part **62**.

The contact part **62**, instead of being provided on the plate-receiving concave part **61**, may be provided on the cam support member **60**, as long as it is in a rotation range of the second cam **90**, and at a plane or a side of the cam support member **60** facing against a rotational direction of the second cam **90** moved by the lever **59**. For example, even though the contact part **62** is provided on a protrusion formed on the cam support member **60**, the rotation of the second cam **90** due to the action of the excessive force can be restricted by the contact part **62**.

Regarding the lock mechanism of the storage box **30** of the above-described configuration, its operation is described below with reference to FIGS. **6** through **8**.

(In a State where the Lid Member **40** is Opened)

In this state, as illustrated in FIG. **7**, the rotation lock plate **57** is out of the plate-receiving concave part **61** formed in the cam support member **60**.

The first cam **80** is urged in a counterclockwise direction in FIG. **7**, by a spring force of the tension spring **71**, and the first engaging protrusion **87** contacts an end wall **65***a* of the first guide part **65**. The second cam **90** is urged in a clockwise direction in FIG. **7**, by a spring force of the tension spring **71**, and the second engaging protrusion **97** contacts an end wall **67***a* of the second guide part **67**.

(Operation for Closing the Lid Member **40**)

While the lid member **40** is being closed, the lock pin **43** provided at the lid member **40** is first inserted into the pin-receiving concave part **63** formed in the cam support member **60**, and then contacts the first curved part **82** of the first cam **80** and pushes the first curved part **82**.

When the lid member **40** is being closed further, the lock pin **43** makes the first cam **80** start to rotate clockwise in FIG. **7** against a spring force of the tension spring **71**, and is inserted into the first concave part **83** of the first cam **80**.

In a case that the first cam **80** is rotated, the first engaging part **85** of the first cam **80** engages with the second engaging part **95** of the second cam **90** and rotates the second cam **90** in a counterclockwise direction against a spring force of the tension spring **71**. In a case that the first engaging part **85** climbs over the second engaging part **95**, the second cam **90** moves back by a spring force of the tension spring **71** to rotate clockwise, and the first engaging part **85** and the second engaging part **95** are engaged with each other as illustrated in FIG. **6**.

In a case that the lid member **40** is completely closed, the lock pin **43** is bound in a substantially rectangular-shaped region S (see FIG. **6**) surrounded by the first concave part **83** and the pin-receiving concave part **63**.

(Operation for Opening the Lid Member **40**)

While the lid member **40** is closed, the lock pin **43** is bound in the region S as illustrated in FIG. **6**. In a case that the lock mechanism **50** is not locked, such as in a situation immediately after the lid member **40** has been closed as described above, the rotation lock plate **57** in FIG. **6** is retracted and is out of the plate-receiving concave part **61**.

In this state, if the operation member **55** is pushed down, the lever **59** is tilted around the lever support shaft **52** and lifts the lever receiving part **92** up. In a case that the lever receiving part **92** is lifted up, the second cam **90** rotates counterclockwise as illustrated in FIG. **8** and the second engaging part **95** detaches from the first engaging part **85** of the first cam **80**. By the detachment, the restriction of the rotation of the first cam **80** is released, and the first cam **80** starts to rotate counterclockwise by the tension spring **71**.

By the rotation of the first cam **80**, the lock pin **43** escapes from the first concave part **83** and the pin-receiving concave part **63** and the lid member **40** is opened.

(Operation for Locking the Lock Mechanism **50**)

On the other hand, after the lid member **40** is completely closed, as illustrated in FIG. **4**, the key **54** can be inserted into the key cylinder **53** and the key **54** can be rotated to a lock position. By the operation of the key, the rotation lock plate **57** is, as illustrated in FIG. **6**, inserted into the plate-receiving concave part **61** and rotates to a position along the contact part **62**, and the lock mechanism **50** is locked.

The rotation lock plate **57** does not need to be provided at the key cylinder **53**. For example, the rotation lock plate **57** may be rotated by an electronically controlled device. The rotation lock plate **57** does not need to be rotated, as long as it is able to lock the lock mechanism **50** by being positioned along the contact part **62** and is provided movable to a position where it does not lock the lock mechanism **50**.

(Function of the Lock Mechanism **50** in a Locked State)

While the lock mechanism **50** is in a locked state, if the operation member **55** is pushed down, the lever **59** of the operation member **55** lifts up the lever receiving part **92**. In a case that the lever receiving part **92** is lifted up, the second cam **90** is rotated counterclockwise in FIG. **7**. However, in this case, the second protruding part **93** of the second cam **90** contacts the rotation lock plate **57** and the rotation of the second cam **90** is restricted.

In a case that the rotation of the second cam **90** is restricted, because the second engaging part **95** continues contacting the first engaging part **85** of the first cam **80**, a state where the rotation of the first cam **80** is restricted can be maintained even though the operation member **55** is pushed down. Therefore, because a state where the lock pin **43** is surrounded all around by the first concave part **83** and the pin-receiving concave part **63** is maintained, the lid member **40** is kept unopened.

In this state, the second protruding part **93** contacts the rotation lock plate **57** to restrict the rotation of the second cam **90**, so that a movable range of the lever receiving part **92** is also limited. Therefore, in a state where the lock mechanism **50** is locked, a range of a pushing operation on the operation member **55** is also limited.

As described above, in a case that the lock mechanism **50** is locked, the pushing operation on the operation member **55** itself is restricted, the operator pushing the operation member **55** can determine that the lock mechanism **50** is locked, with a touch feel when the operation member **55** is pushed down.

Also, while the lock mechanism **50** is locked, the operation member **55** can be pushed down with a large load by any reason.

In such a situation, the second protruding part **93** can be strongly pushed to the rotation lock plate **57**. This can bend or deform the rotation lock plate **57** in a rotational direction of the second cam **90**.

In the present embodiment, the rotation lock plate **57** that is bent or deformed at a certain amount or more is pushed to the contact part **62** of the plate-receiving concave part **61**. This makes the rotation lock plate **57** reinforced by the contact part **62**, and reduces possibility of disengagement of the rotation lock plate **57** from the second protruding part **93** of the second cam **90** due to the bending or deformation of the rotation lock plate **57**.

Therefore, even in a case that the operation member **55** is pushed down with a large load, the rotation lock plate **57** makes it easier to continue restricting the rotation of the second protruding part **93**, thus the lock state of the lock mechanism **50** is maintained more easily.

As described above, according to the embodiment of the present invention, the lock mechanism **50** of the storage box **30** can secure and release the lock pin **43** of the lid member **40** with the rotational operation of the first cam **80** and the second cam **90**. The lock mechanism **50** of the storage box **30** includes the cam support member **60** that supports the first cam **80** and the second cam **90**, and a rotation lock plate **57** that restricts the rotational movement of the first cam **80** and the second cam **90**. The rotation lock plate **57** restricts the rotational movement of the first cam **80** and the second cam **90** while the rotation lock plate **57** is at a position along the contact part **62** provided on the cam support member **60**.

According to this configuration, the rotation lock plate **57** that restricts the rotation of the first cam **80** and the second cam **90**, is reinforced by the contact part **62** provided on the cam support member **60**. Therefore, in a case that the rotation lock plate **57** is at a position along the contact part **62**, it is difficult to release the lock of the lock mechanism **50** even though a large force is applied to the rotation lock plate **57**.

The second cam **90** is rotated by the movement of the operation member **55** activated by a user's operation and the rotational movement of the second cam **90** is restricted by the rotation lock plate **57**.

According to this configuration, the rotation movement of the second cam **90** interlocked with the operation member **55** is restricted by the rotation lock plate **57**, and a movable range of the operation member **55** itself is also limited. Thus, the operator can confirm whether the lock mechanism **50** is locked, by a touch feel when the operator operates the operation member **55**.

The cam support member **60** includes the first guide part **65** in which the first engaging protrusion **87** of the first cam **80** slides, and the second guide part **67** in which the second engaging protrusion **97** of the second cam **90** slides.

According to this configuration, the first guide part **65** and the second guide part **67** guide rotation of the first cam **80** and the second cam **90**, respectively, and thus rattling of the first cam **80** and the second cam **90** can be suppressed. Also, the rotation ranges of the first cam **80** and the second cam **90** are limited, and thus the rotation of the first cam **80** and the second cam **90** to an unexpected angle can be restricted.

The rotation lock plate **57** is operated to be rotated by the rotation of the key cylinder **53**, and the key cylinder **53** is arranged between the operation member **55** and the cam mechanism **70** including the first cam **80** and the second cam **90**.

According to this configuration, the lock mechanism **50** provided with the storage box **30** can be arranged compactly.

[Configurations Supported by the Above-Described Embodiment]

The above-described embodiment supports configurations described below.

(Configuration 1)

A lock mechanism of a storage box, the lock mechanism being capable of securing and releasing a lock pin of a lid member with a rotational operation of a cam member, the lock mechanism including a cam support member for supporting the cam member, and a rotation lock plate for restricting a rotational movement of the cam member, in which the rotation lock plate is configured to restrict the rotational movement of the cam member in a case that the rotation lock plate is at a position along a contact part provided on the cam support member.

According to this configuration, the rotation lock plate that restricts the rotational movement of the cam member, is reinforced by the contact part provided on the cam support member. Thus, it is difficult to release the lock between the housing and the lid even though a large force is applied to the rotation lock plate.

(Configuration 2)

The lock mechanism of the storage box of Configuration 1, in which the cam member comprises a first cam and a second cam, and the second cam is rotated by a movement of an operation member activated by an operation of a user and the rotational movement of the second cam is restricted by the rotation lock plate.

According to this configuration, the rotation of the second cam interlocked with the operation member is restricted by the rotation lock plate, and a movable range of the operation member is also limited. Thus, the user can confirm whether the lock mechanism is locked, by a touch feel when the user operates the operation member.

(Configuration 3)

The lock mechanism of the storage box of Configuration 1 or 2, in which the cam support member comprises a guide part for guiding a sliding movement of a part of the cam member.

According to this configuration, the guide part guides rotation of the cam member, which can suppress rattling of the cam member. Also, a rotation range of the cam member is limited, which can restrict rotation of the cam member to an unexpected angle.

(Configuration 4)

The lock mechanism of the storage box of Configuration 2, in which the rotation lock plate is operated to be rotated by a rotation of a key cylinder, and the key cylinder is arranged between the operation member and a cam mechanism including the cam member.

According to this configuration, the lock mechanism can be arranged compactly.

REFERENCE SIGNS LIST

10 saddle-ride vehicle
30 storage box
40 lid member
43 lock pin
50 lock mechanism
53 key cylinder
55 operation member
57 rotation lock plate
60 cam support member
62 contact part
65 first guide part (guide part)
67 second guide part (guide part)

70 cam mechanism
80 first cam (cam member)
83 first concave part
87 first engaging protrusion (part of cam member)
90 second cam (cam member)
93 second protruding part
97 second engaging protrusion (part of cam member)

What is claimed is:

1. A lock mechanism of a storage box comprising a housing having an opening at a top part thereof and a lid member that is connected to the housing and movable so as to open and close, the lock mechanism being capable of securing and releasing a lock pin of the lid member with a rotational operation of a first cam member and a second cam member, wherein

the housing includes a cam support member for supporting the first cam member and the second cam member that are rotatable in opposite directions to each other, and a rotation lock plate for restricting rotational movements of the first cam member and the second cam member,

the second cam member includes a second protruding part that contacts the rotation lock plate,

the cam support member includes a contact part provided in a rotation range of the second protruding part and at a plane or a side of the cam support member facing against a rotational direction of the second cam member,

the lock pin is inserted into a first concave portion of the first cam member while the lid member is being closed,

a first engaging part of the first cam member engages with a second engaging part of the second cam member so as to lock the lid member,

the second cam member rotates, in a direction in which an engagement between the first engaging part and the second engaging part is released, while being pushed down by a lever of an operation member, and

when the operation member is operated in a state where the lock mechanism is locked, the second protruding part comes into contact with the rotation lock plate and the rotation lock plate comes into contact with the contact part so as to restrict the rotational movement of the second cam member.

2. The lock mechanism of the storage box of claim **1**, wherein

the second cam member is rotated by a movement of the operation member activated by an operation of a user and the rotational movement of the second cam member is restricted by the rotation lock plate.

3. The lock mechanism of the storage box of claim **1**, wherein

the cam support member comprises a guide part for guiding a sliding movement of at least one of the first and second cam members.

4. The lock mechanism of the storage box of claim **2**, wherein

the rotation lock plate is operated to be rotated by a rotation of a key cylinder, and

the key cylinder is arranged between the operation member and a cam mechanism including the first and second cam members.

5. The lock mechanism of the storage box of claim **1**, wherein

the rotation lock plate is configured to restrict the rotational movement of the second cam member in a case that the rotation lock plate is at a position along a contact part provided on the cam support member.

6. The lock mechanism of the storage box of claim **1**, wherein

the contact part is provided on a plate-receiving concave part of the cam support member, and wherein the rotation lock plate is inserted into the plate-receiving concave part.

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