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Mizuta et al.

(54) STORAGE PART STRUCTURE OF SADDLE-RIDE-TYPE VEHICLE

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- (58) Field of Classification Search

See application file for complete search history.

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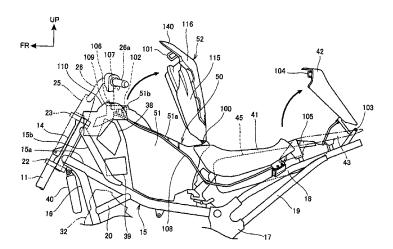
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(57) **ABSTRACT**

A storage part structure of a saddle-ride-type vehicle with a key cylinder for opening or closing of a box lid with a simple structure. The storage part structure for a saddle-ride-type vehicle includes a head pipe, a main frame extending rearwardly from the head pipe, a storage box arranged in the vicinity of the main frame wherein the storage box opens upwardly. A box lid covers an opening portion of the upwardly openable storage box in an openable and closable manner, wherein a key cylinder for operating a box-side locking mechanism for locking the box lid is arranged behind a handle holder and in front of the storage box. The box lid includes an arm portion positioned on a side of the key cylinder.

18 Claims, 7 Drawing Sheets



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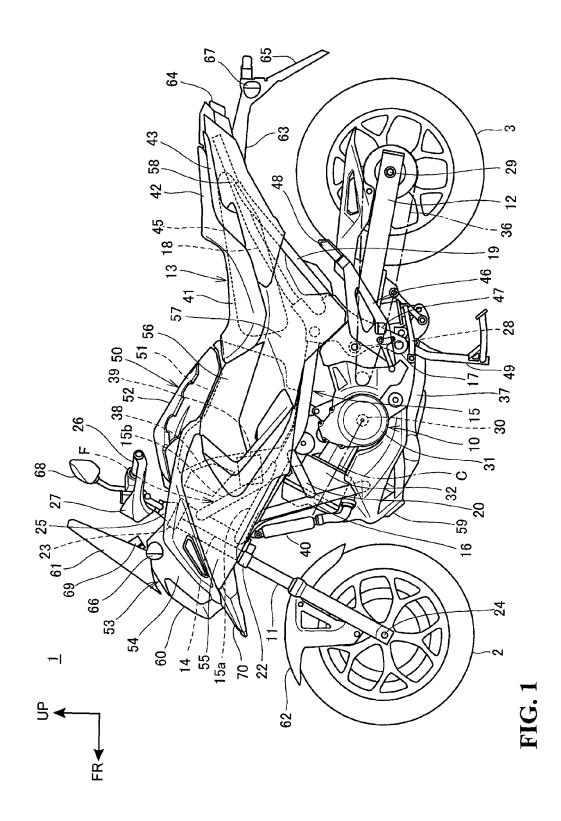
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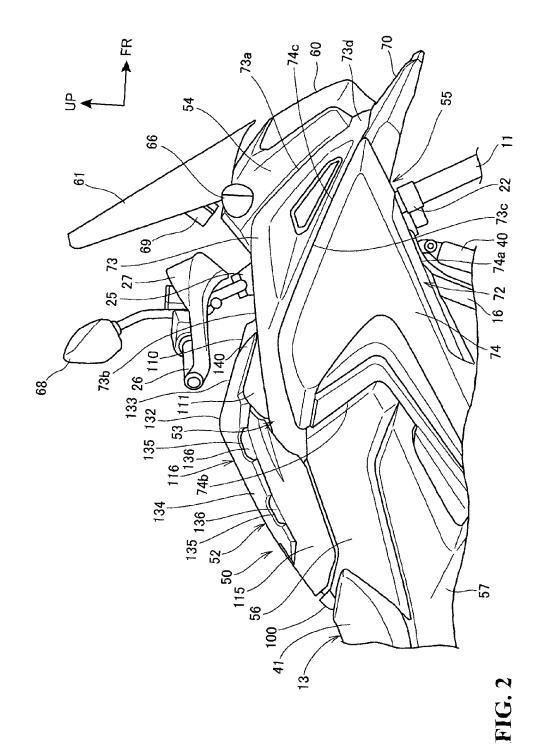
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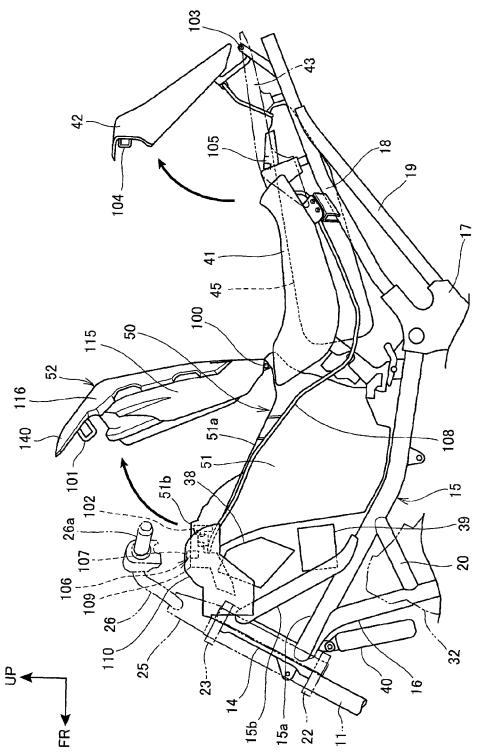
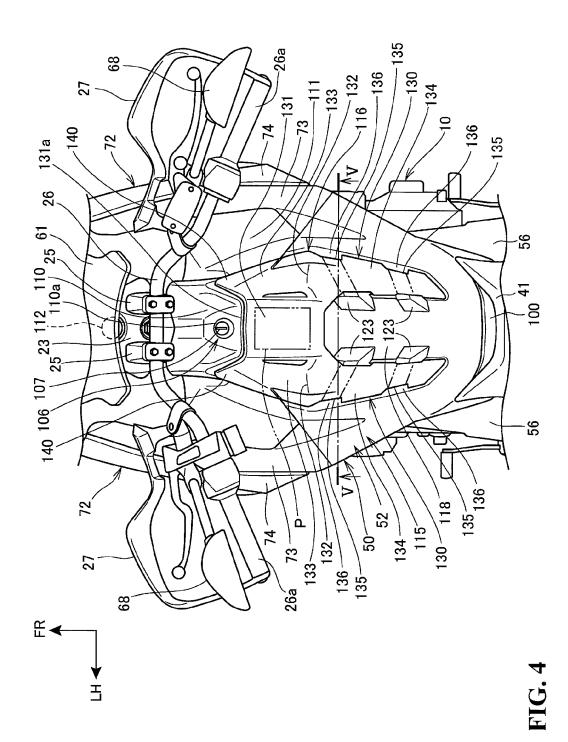


FIG. 3



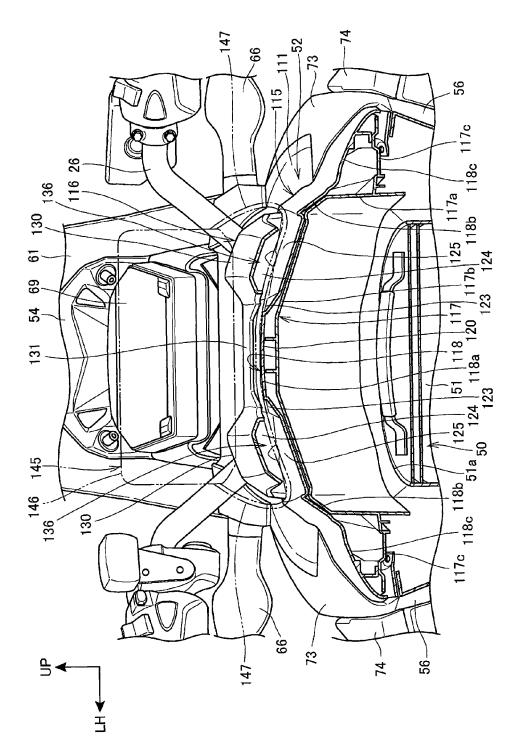
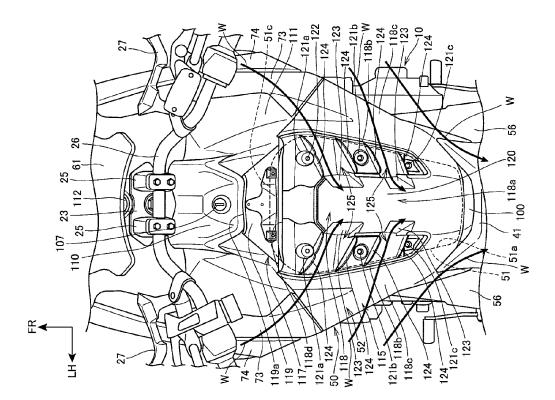


FIG. 5





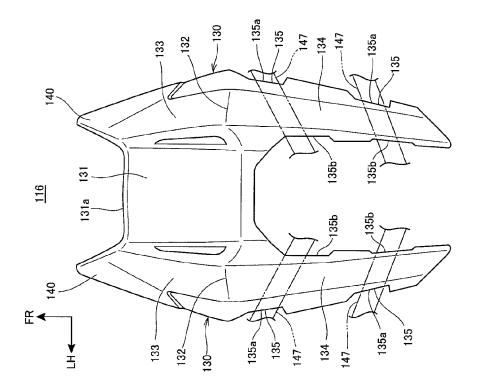


FIG. 7

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STORAGE PART STRUCTURE OF SADDLE-RIDE-TYPE VEHICLE

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application claims priority under 35 USC 119 to Japanese Patent Application No. 2015-011548 filed Jan. 23, 2015 the entire contents of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a storage part structure of ¹⁵ a saddle-ride-type vehicle.

2. Description of Background Art

A storage part structure of a saddle-ride-type vehicle is known that includes a pair of left and right main frames which extend rearward from a head pipe with a storage box ²⁰ arranged between the left and right main frames in a state wherein the storage box opens upward. A box lid covers an opening portion of the storage box in an openable and closable manner. A key cylinder operates the opening/ closing of the box lid and is arranged in front of a front end ²⁵ of the box lid in a closed state. See, for example, JP-A-2012-197011.

However, in the above-mentioned conventional storage part structure for a saddle-ride-type vehicle, the key cylinder is positioned on a front side of the vehicle. Thus, favorable ³⁰ operability of the key cylinder is acquired. However, a front end of the box lid is arranged excessively close to an occupant's body side and the opening or closing of the box lid becomes difficult. In the saddle-ride-type vehicle, a space for arranging parts is limited. Thus, there is a demand for the ³⁵ improvement of the operability of the key cylinder and the operability of opening or closing of the box lid with a simple structure.

SUMMARY AND OBJECTS OF THE INVENTION

The present invention has been made in view of the above-mentioned circumstances. It is an object of an embodiment of the present invention to provide a storage 45 part structure for a saddle-ride-type vehicle which can improve the operability of the key cylinder and the operability of the opening or closing of the box lid with a simple structure.

According to an embodiment of the present invention, a 50 storage part structure of a saddle-ride-type vehicle includes a head pipe (14); a main frame (15) which extends rearwardly from the head pipe (14); a storage box (51) which is arranged in the vicinity of the main frame (15) in a state where the storage box (51) opens upwardly; and a box lid 55 (52) which covers an opening portion (51*a*) of the upwardly openable storage box (51) in an openable and closable manner. A key cylinder (107) operates a box-side locking mechanism (102) for locking the box lid (52) and is arranged behind a handle holder (25) and in front of the storage box 60 (51). The box lid (52) includes an arm portion (140) positioned on a side of the key cylinder (107).

According to an embodiment of the present invention, in the saddle-ride-type vehicle, the key cylinder that operates the box-side locking mechanism for locking the box lid is 65 arranged behind the handle holder and in front of the storage box. The box lid includes the arm portion positioned on a

side of the key cylinder. Due to such a configuration, an occupant can operate the key cylinder which is positioned behind the handle holder and in front of the storage box and not being positioned excessively close to the occupant. Thus, the occupant can easily operate the key cylinder and, at the same time, can easily perform an opening or closing operation of the box lid by grasping the arm portion of the box lid arranged on a side of the key cylinder and not being positioned excessively close to the occupant. Accordingly, operability of the key cylinder and operability of opening or closing of the box lid can be enhanced with a simple structure.

According to an embodiment of the present invention, the box lid (52) includes a lower-side box lid (115); and an upper-side box lid (116) that covers the lower-side box lid (115) from above, wherein the arm portion (140) is formed on the upper-side box lid (116).

According to an embodiment of the present invention, the box lid includes the lower-side box lid; and the upper-side box lid which covers the lower-side box lid from above, and the arm portion is formed on the upper-side box lid. Accordingly, the degree of freedom in setting the shape of the upper-side box lid can be increased. Thus, the arm portion can be easily formed.

According to an embodiment of the present invention, a recessed portion (135, 125) is formed in at least one of the upper-side box lid (116) and the lower-side box lid (115) thus forming a bag mounting hole (136).

According to the invention, the recessed portion is formed in at least one of the upper-side box lid and the lower-side box lid thus forming the bag mounting hole. Thus, a bag can be easily mounted on the box lid without providing a dedicated part or the like for mounting the bag.

According to an embodiment of the present invention, the bag mounting hole (136) is formed so as to allow air to flow toward an inside in a vehicle width direction from an outside in a vehicle width direction and rearwardly.

According to an embodiment of the present invention, the bag mounting hole is formed so as to allow air to flow toward an inside in a vehicle width direction from an outside in a vehicle width direction and rearwardly. Thus, even in the configuration where a height of the box lid becomes high due to the provision of the upper-side box lid, it is possible to make a air efficiently flow rearward whereby the vehicle 45 can ensure an operational performance.

According to an embodiment of the present invention, the upper-side box lid (116) is formed into an approximately H-shape as viewed in a plan view by including a pair of left and right rear extending portions (134) that extends rearward. The bag mounting hole (136) is formed on a side of the upper-side box lid (116) where the pair of left and right rear extending portions (134) is provided.

According to an embodiment of the present invention, the bag mounting hole is formed on a side of the upper-side box lid (116) having an approximate H shape as viewed in a plan view where the pair of left and right rear extending portions is provided. Accordingly, a bag can be supported by the pair of left and right rear extending portions provided to a rear portion the upper-side box lid (116) having an approximate H shape at positions close to the outside in a vehicle width direction. Thus, the bag can be supported firmly and, at the same time, the upper-side box lid can be made lightweight.

According to an embodiment of the present invention, a bent portion (132) where the upper-side box lid (116) is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid (116), the bag mounting hole (136) is formed in the upper-side box lid (116) behind the bent

portion (132), and the arm portion (140) is formed on the upper-side box lid (116) in front of the bent portion (132).

According to an embodiment of the present invention, the bent portion where the upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upperside box lid, the bag mounting hole is formed in the upper-side box lid behind the bent portion, and the arm portion is formed on the upper-side box lid in front of the bent portion. Accordingly, the external appearance of the upper-side box lid at the time of not mounting the bag can be enhanced by the bent portion, and the bag can ensure a large capacity when the bag is mounted. Further, a distance can be ensured between the bag and the arm portion. Thus, the bag minimally becomes an obstacle whereby the operability of the arm portion can be enhanced.

According to an embodiment of the present invention, a bent portion (132) where the upper-side box lid (116) is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid (116), and the upper-side box lid (116) has $_{20}$ a flat portion (131) which is formed approximately flat at the center in a vehicle width direction at a position in front of the bent portion (132) and behind the key cylinder (107).

According to an embodiment of the present invention, the upper-side box lid has the flat portion formed approximately²⁵ flat at the center in a vehicle width direction at the position in front of the bent portion and behind the key cylinder. Accordingly, a smartphone or the like can be arranged on the flat portion formed approximately flat at the center in a vehicle width direction.³⁰

The storage part structure of a saddle-ride-type vehicle according to an embodiment of the present invention can improve operability of the key cylinder and operability of opening or closing of the box lid with the simple structure.

The storage part structure can easily form the arm portion ³⁵ on the upper-side box lid.

The storage part structure can easily mount a bag on the box lid.

Even in the configuration where a height of the box lid becomes high due to the provision of the upper-side box lid, ⁴⁰ it is possible to make air efficiently flow rearwardly whereby the vehicle can ensure an operational performance.

A bag can be supported at a position close to the outside in a vehicle width direction by the rear extending portions. Thus, the bag can be supported firmly and, at the same time, ⁴⁵ the upper-side box lid can be made lightweight.

The external appearance of the upper-side box lid at the time of not mounting the bag can be enhanced by the bent portion, and the bag can ensure a large capacity when the bag is mounted. Further, the operability of the arm portion ⁵⁰ can be enhanced even when the bag is mounted.

Further, a smartphone or the like can be arranged on the flat portion of the upper-side box lid.

Further scope of applicability of the present invention will become apparent from the detailed description given here-⁵⁵ inafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become ⁶⁰ apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

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The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus are not limitative of the present invention, and wherein:

FIG. **1** is a left side view of a motorcycle according to an embodiment of the invention;

FIG. 2 is a right side view of a front portion of the motorcycle;

FIG. **3** is a left side view of an upper portion of the motorcycle in a state where most of a vehicle body cover is removed;

FIG. **4** is a plan view of a box lid and the periphery of the box lid as viewed from above;

FIG. **5** is a cross-sectional view taken along a line V-V in FIG. **4**;

FIG. **6** is a plan view of the box lid with the peripheral portion of the box lid as viewed from above in a state where an upper-side box lid is removed; and

FIG. 7 is a plan view of the upper-side box lid.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, an embodiment of the invention is described with reference to the drawings. In the description, directions of "front," "rear," "left," "right," "up" and "down" are equal to the directions of a vehicle body unless otherwise specified. In the respective drawings, symbol FR indicates a front side of the vehicle body, symbol UP indicates an upper side of the vehicle body, and symbol LH indicates a left side of the vehicle body.

FIG. **1** is a left side view of a motorcycle according to an embodiment of the invention. In FIG. **1**, with respect to each pair of left and right parts, only a left part is illustrated.

The motorcycle 1 is a vehicle wherein an engine 10 which forms a power unit is supported on a vehicle body frame F with a pair of left and right front forks 11, 11 supports a front wheel 2 on a front end of the vehicle body frame F in a steerable manner. A swing arm 12 supports a rear wheel 3 and is mounted on a rear portion side of the vehicle body frame F. The motorcycle 1 is a saddle-ride-type vehicle where a seat 13 on which an occupant sits in a straddling manner is arranged above a rear portion of the vehicle body frame F.

The vehicle body frame F includes a head pipe 14 which is mounted on a front end of the vehicle body frame F; a pair of left and right main frames 15, 15 which extends rearwardly and downwardly from a lower portion of the head pipe 14; a pair of left and right down frames 16, 16 which extends rearwardly and downwardly from front end portions of the main frames 15, 15; a pair of left and right pivot frames 17, 17 which extends downwardly from rear ends of the main frames 15, 15; a pair of left and right seat frames 18, 18 which extends rearwardly and upwardly to a rear end portion of the vehicle from upper ends of the pivot frames 17, 17; and a pair of left and right sub frames 19, 19 which extends rearwardly and upwardly from upper portions of the pivot frames 17, 17 and is connected to rear portions of the seat frames 18, 18.

Each main frame 15 has a main frame body portion 15a which extends rearwardly and downwardly from a lower portion of the head pipe 14 with a relatively gentle inclination and a reinforcing frame portion 15b which connects an upper portion of the head pipe 14 and an intermediate portion of the main frame body portion 15a to each other. The vehicle body frame F also includes a pair of left and right connecting frames 20, 20 which connects the interme-

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diate portions of the main frame body portions 15*a*, 15*a* and the down frames 16, 16 to each other.

A steering shaft (not shown in the drawing) is rotatably and pivotally supported on the head pipe **14**, and a bottom bridge **22** and a top bridge **23** which extend in the vehicle ⁵ width direction are fixed to a lower end portion and an upper end portion of the steering shaft respectively. The front forks **11**, **11** are supported on the bottom bridge **22** and the top bridge **23**, and the front wheel **2** is pivotally supported on a front wheel axle **24** which is mounted on lower ends of the front forks **11**, **11**. The top bridge **23** has a handle holder **25** which extends upwardly from an upper surface of the top bridge **23**. A handle bar **26** for steering extends in the vehicle width direction and is supported on the handle holder **25**. Knuckle guards **27**, **27** are mounted on the handle bar **26**.

The swing arm 12 has a front end portion thereof pivotally supported on a pivot shaft 28 which connects the left and right pivot frames 17, 17 to each other. Thus, the swing arm 12 is swingable in the vertical direction about the pivot shaft 20 28. The rear wheel 3 is pivotally supported on a rear wheel axle 29 which penetrates a rear end portion of the swing arm 12.

A rear suspension (not shown in the drawing) is disposed between the swing arm **12** and the vehicle body frame F.

The engine 10 includes a crankcase 31 which supports a crankshaft 30 extending in the vehicle width direction and a cylinder portion 32 which extends frontwardly and upwardly from a front side of a front portion of the crankcase 31.

The engine 10 is an engine of a type where a cylinder axis C of the cylinder portion 32 is arranged in a frontwardly inclined manner such that the cylinder axis C is closer to the horizontal direction than the vertical direction. A space for arranging parts is secured above the engine 10.

An output of the engine **10** is transmitted to the rear wheel **3** through a chain **36** provided between an output shaft (not shown in the drawing) of the engine **10** and the rear wheel **3**.

An exhaust pipe 37 of the engine 10 is pulled out $_{40}$ downwardly from a cylinder head of the cylinder portion 32, extends rearwardly after passing through an area below the engine 10, and is connected to a muffler (not shown in the drawing).

An air cleaner box 38 which purifies air supplied to the 45 engine 10 is arranged above front portions of the main frames 15, 15 and behind the head pipe 14. Air which passes through the air cleaner box 38 flows into the cylinder head of the cylinder portion 32 after a flow rate is adjusted by a throttle body (not shown in the drawing). A battery 39 is 50 arranged between the air cleaner box 38 and the main frame body portions 15*a*, 15*a*. A radiator 40 of the engine 10 is arranged below the head pipe 14 and in front of the cylinder portion 32.

The seat 13 includes a front seat 41 for a rider and a rear 55 seat 42 for a pillion passenger which is one step higher than the front seat 41. The front seat 41 is arranged above the pivot frames 17, 17 and the front portions of the seat frames 18, 18, and the rear seat 42 is arranged above the seat frames 18, 18. Grips 43, 43 which the pillion passenger seated on 60 the rear seat 42 grips are disposed on left and right sides of the rear seat 42 respectively.

A fuel tank 45 is arranged between the front seat 41, the rear seat 42, and the seat frames 18, 18.

A pair of left and right step holders **46**, **46** is arranged on 65 outer sides of the pivot frames **17**, **17** respectively with steps **47**, **47** for a rider being fixed to front portions of the

respective step holders **46**. Tandem steps **48**, **48** for a pillion passenger are fixed to rear portions of the respective step holders **46**.

A main stand **49** is connected to lower portions of the pivot frames **17**, **17**.

A storage part **50** is provided above rear portions of the main frames **15**, **15** and between the front seat **41** and the head pipe **14**. The storage part **50** includes a storage box **51** which has an upper surface thereof opened and a box lid **52** which closes an opening formed on the upper surface of the storage box **51** in an openable and closeable manner.

The storage part **50** has enough capacity to store one full face type helmet. The air cleaner box **38** and the battery **39** are arranged between the storage box **51** and the head pipe **14**.

The motorcycle 1 includes a resin-made vehicle body cover 53 for covering the vehicle body. The vehicle body cover 53 includes a front cowl 54 positioned in front of the head pipe 14; a pair of left and right side covers 55, 55 for covering the head pipe 14 and the front portions of the main frames 15, 15 from sides; a pair of left and right box side covers 56, 56 arranged between the side covers 55, 55 and the front seat 41 for covering an upper portion of the storage box 51 from the sides; a pair of left and right middle covers 57, 57 disposed above the main frames 15, 15 for covering a lower portion of the storage box 51 and a lower portion of the front seat 41; a rear cowl 58 disposed below the rear seat 42 for covering the seat frames 18, 18 and the sub frames 19, 19; an under cover 59 for covering the engine 10 from below; and a beak-shaped cowl 70 projecting frontward and downward in a beak shape from a lower side of the front cowl 54. The beak-shaped cowl 70 has a shape tapered toward a distal end side thereof in the vertical direction as well as in the vehicle width direction. The box side covers 56, 56 are also portions which a rider (occupant) grips by his knees.

The headlight **60** is integrally mounted on a center portion of the front cowl **54** in the vehicle width direction. The beak-shaped cowl **70** projects frontward from the headlight **60**.

A wind screen 61 is mounted on an upper portion of the front cowl 54. A front fender 62 is fixed to the front forks 11, 11.

A rear fender 63 is arranged above the rear wheel 3, and covers the fuel tank 45 from below. A tail lamp 64 is mounted on a rear end portion of the rear cowl 58 above a rear end portion of the rear fender 63. A license plate holder 65 is fixed to a rear end of the rear fender 63.

Front blinkers **66**, **66** are fixed to the front cowl **54**, and rear blinkers **67**, **67** are fixed to the rear fender **63**. Rear mirrors **68**, **68** are fixed to the handle bar **26**. Meters **69** for displaying a speed and the like are arranged behind the wind screen **61** and above the front cowl **54**.

FIG. 2 is a right side view of a front portion of the motorcycle 1. The side covers 55, 55 are configured substantially symmetrically in the lateral direction. Thus, the right side cover 55 is explained in this embodiment.

The side cover **55** includes a plate-shaped base side cover (not shown in the drawing) which is mounted on a vehicle body frame F side; and an outer side cover **72** which is mounted on an outer side surface of the base side cover.

The outer side cover 72 includes an upper outer side cover 73 which is contiguously formed with a rear edge portion of the front cowl 54; and a lower outer side cover 74 which extends downwardly contiguously from the upper outer side cover 73.

The upper outer side cover 73 is formed into an elongated plate shape in the longitudinal direction rather than in the vertical direction. The upper outer side cover 73 includes a front upper edge 73*a* extending rearwardly and upwardly along a rear edge portion of the front cowl 54; a rear upper 5 edge 73*b* extending rearwardly and downwardly after being bent at a portion thereof in the vicinity of a rear end of the front cowl 54; and a lower edge 73*c* extending rearwardly along the front upper edge 73*a* and the rear upper edge 73*b*. A front edge 73*d* of the upper outer side cover 73 is 10 positioned between a front end portion of the front cowl 54 and an upper surface of a rear end portion of the beak-shaped cowl 70. A rear end of the upper outer side cover 73 is positioned in the vicinity of an intermediate portion of the box lid 52 in the longitudinal direction.

The upper outer side cover 73 has a front portion thereof positioned in front of the head pipe 14 (FIG. 1) and has a rear portion thereof overlapping with the upper portion of the head pipe 14 as viewed in a side view.

The lower outer side cover 74 extends downward con- 20 tiguously from the lower edge 73c of the upper outer side cover 73, and as illustrated in FIG. 1, covers the head pipe 14, the front portions of the main frames 15, 15, the air cleaner box 38, and the battery 39. A lower edge 74a of the lower outer side cover 74 extends rearwardly and down- 25 wardly along the main frame body portion 15a, and a rear edge 74b of the lower outer side cover 74 is contiguously formed with a front edge of the box side cover 56 and a front edge of the middle cover 57.

FIG. **3** is a left side view of the upper portion of the ³⁰ motorcycle **1** in a state where most of the vehicle body cover **53** is removed.

The storage box **51** includes a hinge mechanism **100** connected to a rear end portion of the box lid **52** on an upper rear end portion thereof. The box lid **52** includes a locking 35 member **101** projecting downwardly on a front end portion thereof. The box lid **52** is maintained in a closed state as the locking member **101** is engaged with and locked to a box-side locking mechanism **102** which is mounted on a front side of the storage box **51**. The box lid **52** is opened by 40 being rotated rearwardly about the hinge mechanism **100**, and the opening portion **51***a* on the upper surface of the storage box **51** is exposed upwardly when the box lid **52** is opened.

The box-side locking mechanism 102 is mounted on a 45 projecting portion 51b projecting upwardly from a front upper portion of the storage box 51.

The rear seat 42 is connected to a rear end portion of the vehicle body frame F by way of the seat-side hinge mechanism 103 mounted on a rear end portion of the rear seat 42. 50 The rear seat 42 includes a locking member 104 projecting downwardly on a front end portion of the rear seat 42. The rear seat 42 is maintained in a closed state as the locking member 104 is engaged with and locked to a seat-side locking mechanism 105 mounted behind the front seat 41. 55 The rear seat 42 is opened by being rotated rearwardly about the seat-side hinge mechanism 103, and a fuel supply port (not shown in the drawing) of the fuel tank 45 is exposed upwardly when the rear seat 42 is opened.

The motorcycle 1 includes an unlocking mechanism 106 60 for releasing (unlocking) a locking state by operating the box-side locking mechanism 102 and the seat-side locking mechanism 105. The unlocking mechanism 106 includes a key cylinder 107 which is rotationally operated by a key (not shown in the drawing) inserted into the key cylinder 107; a 65 box-lid-use cable (not shown in the drawing) for connecting the key cylinder 107 and the box-side locking mechanism

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102 to each other; and a seat-use cable 108 for connecting the key cylinder 107 and the seat-side locking mechanism 105 to each other.

When the key cylinder **107** is at a rotationally neutral position, the above-mentioned key can be inserted into and removed from the key cylinder **107**, and the box-side locking mechanism **102** and the seat-side locking mechanism **105** are locked.

When the key cylinder **107** is rotationally operated in one direction from the neutral position using the key, only the above-mentioned box-lid-use cable is operated, and the box-side locking mechanism **102** is unlocked so that the box lid **52** is brought into an openable state.

When the key cylinder **107** is rotationally operated in the other direction from the neutral position using the key, only the seat-use cable **108** is operated, and the seat-side locking mechanism **105** is unlocked so that the rear seat **42** is brought into an openable state.

A main key for turning on and off a main power source of the motorcycle **1** can be used. However, the above-mentioned key may be a key different from the main key.

A key cylinder stay **109** for supporting the key cylinder **107** is disposed between a front end of the box lid **52** in a closed state and the handle holder **25**.

A front top cover **110** for covering the key cylinder stay **109** and the air cleaner box **38** from above is disposed between the front end of the box lid **52** in a closed state and the handle holder **25**. The key cylinder stay **109** is supported on the front top cover **110**.

FIG. **4** is a plan view of the box lid **52** and the periphery of the box lid **52** as viewed from above.

The front top cover 110 has an upper surface opening 110a (FIG. 4) at the center thereof in the vehicle width direction. A key insertion port of the key cylinder 107 is exposed upwardly through the upper surface opening 110a.

The key cylinder 107 is arranged between the handle holders 25 and a front edge of the box lid 52 in the longitudinal direction. Such a position of the key cylinder 107 is substantially equal to the positions of the grip portions 26a, 26a on left and right ends of the handle bar 26 which a rider grips in the longitudinal direction, and is the position where the rider seated on the front seat 41 can easily extend his hand to the key cylinder 107 without taking an unusual posture. Accordingly, the rider can easily operate the key cylinder 107.

Front top side covers 111 for covering areas between the front top cover 110 and the left and right upper outer side covers 73, 73 respectively are arranged outside the front top cover 110 in the vehicle width direction.

A main key cylinder **112** into which the main key is inserted is arranged in front of the top bridge **23**.

FIG. **5** is a cross-sectional view taken along a line V-V in FIG. **4**.

As shown in FIG. 4 and FIG. 5, the box lid 52 includes a lower-side box lid 115 for covering the opening portion 51a of the storage box 51; and a plate-like upper-side box lid 116 for covering the lower-side box lid 115 from above.

The lower-side box lid **115** includes a lid base **117** which is brought into contact with an upper edge portion of the storage box **51** and directly covers the opening portion **51**a; and a lid cover **118** which is mounted on an upper surface of the lid base **117**. The hinge mechanism **100** is mounted on a rear end portion of the lid base **117**.

FIG. 6 is a plan view of the box lid 52 and the periphery of the box lid 52 as viewed from above in a state where the upper-side box lid 116 is removed.

As shown in FIG. 4 to FIG. 6, the lid base 117 includes a frame-shaped peripheral wall portion 117a extending upwardly along the upper edge portion of the opening portion 51a of the storage box 51; an upper wall portion 117b which closes an upper surface of the peripheral wall 5 portion 117a; and support wall portions 117c, 117c which extend outwardly in the vehicle width direction from intermediate portions of the peripheral wall portion 117a in the vertical direction. A space formed inside the lid base 117 is also used as a storage space.

The upper wall portion 117b of the lid base 117 includes a frontwardly extending portion 119 (FIG. 6) which extends to the front from a front edge 118d of the lid cover 118 and the front edge 51c of the opening portion 51a of the storage box 51, and a front edge 119a of the frontwardly extending 15 portion 119 is contiguously formed with an upper rear edge of the front top cover 110. The locking member 101 (FIG. 3) is mounted on a lower surface of the frontwardly extending portion 119.

The lid cover **118** has a bent shape projecting upwardly in 20 cross section in the longitudinal direction, and is formed such that a height of the lid cover **118** is gradually decreased from a center portion to an outer side in the vehicle width direction.

The lid cover **118** includes an upper surface cover portion 25 **118***a* for covering the upper wall portion **117***b* of the lid base **117**; stepped portions **118***b*, **118***b* which extend downwardly by being bent from left and right side edges of the upper surface cover portion **118***a*; and side cover portions **118***c*, **118***c* which extend outwardly in the vehicle width direction 30 by being bent from lower edges of the stepped portions **118***b*, **118***b*.

The side cover portions 118c, 118c are supported on the support wall portions 117c, 117c of the lid base 117. Outer edges of the side cover portions 118c, 118c are contiguously 35 formed with upper edges of the box side covers 56, 56.

The upper surface cover portion **118***a* of the lid cover **118** is a portion on which the upper-side box lid **116** is mounted.

The upper surface cover portion 118a includes a ridge portion 120 which projects upwardly on a center portion 40 thereof in the vehicle width direction. The ridge portion 120 extends from a rear portion to a front portion of the upper surface cover portion 118a.

A plurality of lid fixing portions to which the upper-side box lid **116** is fixed are formed on left and right sides of the 45 ridge portion **120** on an upper surface of the upper surface cover portion **118***a*. To be more specific, the lid fixing portions include a pair of front lid fixing portions **121***a*, **121***a* formed on left and right sides of a front portion of the ridge portion **120**; a pair of intermediate lid fixing portions **121***b*, 50 **121***b* formed on left and right sides of an intermediate portion of the ridge portion **120** in the longitudinal direction; and a pair of rear lid fixing portions **121***c*, **121***c* formed on left and right sides of a rear portion of the ridge portion **120**.

Bolts **122** (symbol indicating the bolt at only one portion) 55 are fastened to a lower surface of the upper-side box lid **116** penetrate the front lid fixing portions **121***a*, **121***a*, the intermediate lid fixing portions **121***b*, **121***b*, and the rear lid fixing portions **121***c*, **121***c* respectively from the back surface side of the respective fixing portions. Accordingly, the 60 bolts **122** are not visually recognized from the outside thus enhancing the external appearance of the motorcycle **1**.

On respective side portions of the ridge portion **120**, a side recessed portion **123** formed by indenting a side portion of the ridge portion **120** inward in the vehicle width direction 65 is formed at a position between the front lid fixing portion **121***a* and the intermediate lid fixing portion **121***b* as well as

at a position between the intermediate lid fixing portion 121b and the rear lid fixing portion 121c, respectively.

A plurality of ribs **124** are formed on the upper surface of the upper surface cover **118**a in such a manner that the ribs **124** are contiguously with front ends and rear ends of the side recessed portions **123** and extend outwardly in the vehicle width direction toward areas in the vicinity of the stepped portions **118**b.

Due to the formation of each side recessed portion **123** and a pair of ribs **124**, **124** which is contiguously formed with the side recessed portion **123**, a lower recessed portion **125** which appears to be downwardly indented as viewed in a side view is formed on an upper surface of the upper surface cover portion **118***a* at four positions. Each lower recessed portion **125** (recessed portion) is arranged so as to be inclined such that the lower recessed portion **125** is directed inward in the vehicle width direction and rearwardly with an outer end of the lower recessed portion **125** in the vehicle width direction set as a proximal end as 20 viewed in a plan view.

FIG. 7 is a plan view of the upper-side box lid 116.

To explain the embodiment with reference to FIG. 2, and FIG. 4 to FIG. 7, the upper-side box lid 116 includes a pair of left and right longitudinally extending portions 130, 130 which extends in the longitudinal direction in a spaced-apart manner in the vehicle width direction; and a center connecting portion 131 (flat portion) which connects the longitudinally extending portions 130, 130 to each other in the vehicle width direction at a center position in the vehicle width direction. The longitudinally extending portions 130, 130 and the center connecting portion 131 are formed into an integral body by resin molding.

The upper-side box lid **116** includes bent portions **132**, **132** where the upper-side box lid **116** is bent in the longitudinal direction at an approximately center position thereof in the longitudinal direction. Bent lines of the bent portions **132**, **132** extend in the vehicle width direction. The upper-side box lid **116** is formed in an upwardly projecting manner as viewed in a side view by being bent at the bent portions **132**, **132** so as to conform with a shape of the upper surface of the lid cover **118**.

The longitudinally extending portions 130, 130 are respectively formed into a gutter shape bent in an upwardly projecting manner in cross section as viewed from a rear side in FIG. 5. The longitudinally extending portions 130, 130 respectively include, with each of the left and right bent portions 132, 132 set as a boundary: a front extending portion 133, 133 which extends to the front; and a rear extending portion 134, 134 which extends rearwardly. In the upper-side box lid 116, as viewed in a side view in FIG. 2, the bent portions 132 form apex portions, the front extending portions 133, 133 extend to the front in the frontward and downward direction from the bent portions 132, 132 respectively, and the rear extending portions 134, 134 extend rearwardly in the rearward and downward direction from the bent portions 132, 132 respectively.

The center connecting portion **131** which is formed into an approximately rectangular flat plate shape connects inner edges of the front extending portions **133**, **133** to each other in the vehicle width direction. The center connecting portion **131** is arranged approximately horizontally behind the key cylinder **107**. Thus, an article, for example, equipment such as a plate-like smart phone P (FIG. **4**) can be placed on an upper surface of the center connecting portion **131**.

The front extending portions 133, 133 include a pair of left and right arm portions 140, 140 which extends to the front from a front edge 131a of the center connecting portion

131. The arm portions 140, 140 have a tapered shape where a width is gradually decreased toward a front end side.

In the upper-side box lid 116, the longitudinally extending portions 130, 130 are connected to each other by the center connecting portion 131 at center portions thereof in the 5 longitudinal direction, and the arm portions 140, 140 project to the front, and the rear extending portions 134, 134 project rearwardly. Accordingly, the upper-side box lid 116 has an approximately H shape as viewed in a plan view.

Each rear extending portion 134, 134 has upper recessed 10 portions 135 (recessed portions) at positions where the rear extending portions 134, 134 overlap with the lower recessed portions 125 of the lid cover 118 respectively from above as viewed in a plan view. More specifically, the upper recessed portions 135 are formed on four portions corresponding to 15 positions of the respective lower recessed portions 125. When the upper-side box lid 116 is viewed in a side view, the upper recessed portions 135 are formed by cutting out portions of lower edges of the rear extending portions 134, 134 upwardly, and penetrate the rear extending portions 134, 20 134 in the vehicle width direction respectively. Each upper recessed portion 135 is arranged in an inclined manner such that the upper recessed portion 135 is directed inwardly in the vehicle width direction and rearwardly with an outer end 135*a* of the upper recessed portion 135 in the vehicle width 25direction set as a proximal end as viewed in a plan view. More specifically, an inner end 135b of each upper recessed portion 135 in the vehicle width direction is positioned behind the outer end 135a of the upper recessed portion 135.

The upper-side box lid 116 is arranged such that the rear 30 extending portions 134, 134 are positioned on left and right sides of the ridge portion 120 of the lid cover 118 respectively, and the upper-side box lid 116 is fixed by bolts 122 (FIG. 6). The rear extending portions 134, 134 are positioned outside the respective side recessed portions 123 of 35 the lid cover **118** in the vehicle width direction. Accordingly, the respective side recessed portions 123 are exposed upwardly.

When the upper-side box lid 116 is mounted on the lid cover 118, the upper recessed portions 135 and the lower 40 134, 134. To be more specific, the respective connecting recessed portions 125 are combined with each other so that a plurality of bag mounting holes 136 which penetrate lower portions of the respective rear extending portions 134, 134 in the vehicle width direction are formed. In this embodiment, a pair of bag mounting holes 136 is formed in each 45 rear extending portion 134 in the longitudinal direction of the vehicle. More specifically, the bag mounting hole 136 are formed in four portions in total. The bag mounting hole 136 is formed in an inclined manner such that the bag mounting hole 136 is directed inwardly in the vehicle width direction 50 and rearwardly with an outer end thereof in the vehicle width direction set as a proximal end.

Further, when the upper-side box lid 116 is mounted on the lid cover 118, the front extending portion 119 (FIG. 6) of the lid base 117 is covered by a front portion of the 55 upper-side box lid 116 from above.

As shown in FIG. 4, in a state where the box lid 52 is closed, the front edge 131a of the center connecting portion 131 of the upper-side box lid 116 is contiguously formed with an upper rear edge of the front top cover 110, and the 60 arm portions 140, 140 are positioned on left and right sides of the key cylinder 107 respectively.

To be more specific, the arm portions 140, 140 are arranged at positions substantially equal to the position of the key cylinder 107 in the longitudinal direction of the 65 vehicle, and are positioned outside the key cylinder 107 respectively in the vehicle width direction. More specifi-

cally, the arm portions 140, 140 are arranged so as to surround the key cylinder 107 from left and right sides.

In a state where the box lid **52** is closed, the arm portions 140, 140 cover an upper portion of the front top side cover 111 (FIG. 6).

An operator seated on the front seat 41 can easily and quickly open the box lid 52 in such a manner that the rider unlocks the box-side locking mechanism 102 by manually operating the key cylinder 107. Thereafter, the operator directly moves his/her hand sideward so as to grip at least either one of the arm portions 140, 140, and rotates the box lid 52 rearwardly while gripping the arm portion 140. The key cylinder 107 is arranged at the position where the rider can easily extend his hand to the key cylinder 107, and the side of the key cylinder 107 is also arranged at the position where the rider can easily extend his hand to the side in the same manner as the key cylinder 107. Thus, the rider can easily grip the arm portions 140, 140 and can perform opening and closing of the box lid 52.

Further, when the box-side locking mechanism 102 is unlocked, the box lid 52 slightly moves in the opening direction due to a biasing force of a spring (not shown in the drawing) mounted on the box lid 52, the box-side locking mechanism 102 or the like. Accordingly, a rider can easily grip the arm portions 140, 140.

As shown in FIG. 5, a bag 145 which can store an article therein may be mounted on the box lid 52. The bag 145 includes a box-shaped bag body 146 and a connecting member 147 which connects the bag body 146 to the box lid 52. In this embodiment, the connecting member 147 is formed of a left-and-right pair of strings disposed on a front portion of a lower portion of the bag body 146; and a left-and-right pair of strings disposed on a rear portion of the lower portion of the bag body 146. These strings are connected to each other by buckles, for example. However, a connection state of the connecting members 147 is not particularly limited.

The bag 145 is arranged on a rear portion of the upper-side box lid 116, and is connected to the rear extending portions members 147 are made to pass through the respective bag mounting holes 136 in the vehicle width direction, and are connected to the rear extending portions 134, 134 in a binding manner.

In this embodiment, the respective connecting members 147 are connected to the pair of left and right rear extending portions 134, 134 which are away from each other in the vehicle width direction. More specifically, it is possible to increase a distance between the positions where the bag 145 is connected so that the bag 145 can be firmly connected to the box lid 52.

Further, a space is formed between the left and right rear extending portions 134, 134. Thus, it is possible to make the upper-side box lid 116 lightweight. Even when the upperside box lid 116 is made lightweight, the bag 145 can be firmly connected.

The rear extending portions 134, 134 extend rearwardly and downwardly. Thus, the bag 145 that has a large height can be mounted on the box lid 52 without becoming an obstacle to a rider. Thus, the capacity of the bag 145 can be increased. Since the bag 145 minimally becomes an obstacle, even in a state where the bag 145 is mounted on the box lid 52, the rider can grip the arm portions 140, 140 and can easily perform an opening and closing of the box lid 52.

A portion of a flow of air W (FIG. 6) from a front side which flows along the periphery of the box lid 52 enters the inside of the bag mounting holes 136 from outer ends of the respective bag mounting holes **136** in the vehicle width direction, and is discharged toward an upper side of the ridge portion **120** from inner ends of the respective bag mounting holes **136** in the vehicle width direction. More specifically, the respective bag mounting holes **136** are formed so as to 5 allow a flow of air (wind) to flow toward the inside in the vehicle width direction from the outside in the vehicle width direction and rearwardly. Accordingly, even in the configuration where a height of the box lid **52** becomes high due to the provision of the upper-side box lid **116**, the flow of air 10 W can be made to efficiently flow rearwardly. Thus, the motorcycle **1** can ensure operational performance.

As has been explained heretofore, according to the embodiment to which the invention is applied, the motorcycle 1 includes the head pipe 14; the main frames 15, 15 which extends rearwardly from the head pipe 14; the storage box 51 which is arranged in the vicinity of the main frames 15, 15 in a state where the storage box 51 opens upwardly; and the box lid 52 which covers the opening portion 51a of the upwardly openable storage box 51 in an openable and 20 closable manner, wherein the key cylinder 107 which operates the box-side locking mechanism 102 for locking the box lid 52 is arranged behind the handle holder 25 and in front of the storage box 51, and the box lid 52 includes the arm portions 140, 140 positioned on sides of the key cylinder 25 107. Due to such a configuration, a rider can operate the key cylinder 107 which is positioned behind the handle holder 25 and in front of the storage box 51 thus not being positioned excessively close to the occupant. Thus, the occupant can easily operate the key cylinder 107 and, at the 30 same time, can easily perform an opening or closing operation of the box lid 52 by gripping the arm portions 140, 140 of the box lid 52 being arranged on sides of the key cylinder 107 and not being positioned excessively close to the rider. Accordingly, operability of the key cylinder 107 and oper- 35 ability of opening or closing of the box lid 52 can be enhanced with the simple structure.

The box lid **52** includes the lower-side box lid **115** and the upper-side box lid **116** for covering the lower-side box lid **115** from above, wherein the arm portions **140**, **140** are 40 formed on the upper-side box lid **116**. Accordingly, the degree of freedom in setting the shape of the upper-side box lid **116** can be increased. Thus, the arm portions **140**, **140** can be easily formed.

The upper recessed portions 135 and the lower recessed 45 portions 125 are formed in the upper-side box lid 116 and the lower-side box lid 115 respectively thus forming the bag mounting holes 136. Accordingly, the bag 145 can be easily mounted on the box lid 52 without providing a dedicated part or the like for mounting the bag 145. 50

The bag mounting holes **136** are formed so as to allow a flow of air to flow toward the inside in the vehicle width direction from the outside in the vehicle width direction and rearwardly. Thus, even in the configuration where a height of the box lid **52** becomes high due to the provision of the 55 upper-side box lid **116**, it is possible to make the flow of air W efficiently flow rearwardly whereby the motorcycle **1** can ensure an operational performance.

The upper-side box lid **116** is formed into an approximately H-shape as viewed in a plan view by including a pair ⁶⁰ of left and right rear extending portions **134,134** which extends rearwardly, and the bag mounting hole **136** is formed on a side of the upper-side box lid **116** where the pair of left and right rear extending portions **134,134** is provided. With such a configuration, the bag **145** can be supported by ⁶⁵ the pair of left and right rear extending portions **134,134** provided to a rear portion of the upper-side box lid **116**

having an approximately H shape at positions close to the outside in a vehicle width direction. Thus, the bag **145** can be supported firmly and, at the same time, the upper-side box lid **116** can be made lightweight.

The bent portions 132,132 where the upper-side box lid 116 is bent in a longitudinal direction of the vehicle 1 is formed on the upper-side box lid 116, the bag mounting holes 136 are formed in the upper-side box lid 116 behind the bent portions 132, 132, and the arm portions 140, 140 are formed on the upper-side box lid 116 in front of the bent portions 132, 132. Accordingly, the external appearance of the upper-side box lid 116 at the time of not mounting the bag 145 can be enhanced by the bent portions 132, 132, and the bag 145 can ensure a large capacity when the bag 145 is mounted. Further, a distance can be ensured between the bag 145 and the arm portions 140, 140. Thus, the bag 145 minimally becomes an obstacle whereby the operability of the arm portions 140, 140 can be enhanced.

Further, the bent portions 132, 132 where the upper-side box lid 116 is bent in a longitudinal direction of the vehicle 1 is formed on the upper-side box lid 116, and the upper-side box lid 116 has the center connecting portion 131 which is formed approximately flat at the center in a vehicle width direction at a position in front of the bent portions 132, 132 and behind the key cylinder 107. Accordingly, the smartphone P or the like can be arranged on the center connecting portion 131 formed approximately flat at the center in the vehicle width direction.

The above-mentioned embodiment merely shows one mode to which the invention is applied, and the invention is not limited to the above-mentioned embodiment.

An explanation has been made with respect to the case where the bag mounting holes **136** are formed by forming the upper recessed portions **135** and the lower recessed portions **125** on the upper-side box lid **116** and the lowerside box lid **115** respectively. However, the invention is not limited to such a configuration. The bag mounting holes may be formed by forming recessed portions on at least one of the upper-side box lid **116** and the lower-side box lid **115**.

An explanation has been made with respect to the case where the pair of arm portions 140, 140 is arranged so as to surround the key cylinder 107 from left and right sides. However, the invention is not limited to such a configuration, and the arm portion 140 may be formed only either on a left side or on a right side.

In the above embodiment, the storage part **50** is disposed above the rear portions of the main frames **15**, **15**. However, the invention is not limited to such a configuration, and the storage part **50** may be disposed between the left and right main frames **15**, **15** or above a main frame when the main frame is formed of a single frame.

A motorcycle is used as an example of a saddle-ride-type vehicle. However, the saddle-ride-type vehicle may be a vehicle having three or more wheels, for example.

The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

What is claimed is:

1. A storage part structure of a saddle-ride vehicle comprising:

a head pipe;

- a main frame extending rearwardly from the head pipe; a storage box arranged adjacent to the main frame
 - wherein the storage box opens upwardly; and

- a box lid for covering an opening portion of the upwardly openable storage box in an openable and closable manner;
- wherein a key cylinder for operating a box-side locking mechanism for locking the box lid is arranged behind 5

a handle holder and in front of the storage box; and the box lid includes:

an arm portion positioned on a side of the key cylinder; a lower-side box lid; and

an upper-side box lid for covering the lower-side box lid 10 from above; wherein the arm portion is formed on the upper-side box lid.

2. The storage part structure of a saddle-ride vehicle according to claim 1, wherein a recessed portion is formed in at least one of the upper-side box lid and the lower-side 15 box lid thus forming a bag mounting hole.

3. The storage part structure of a saddle-ride vehicle according to claim **2**, wherein the bag mounting hole is formed so as to allow air to flow toward an inside in a vehicle width direction from an outside in a vehicle width 20 direction and rearwardly.

4. The storage part structure of a saddle-ride vehicle according to claim **2**, wherein the upper-side box lid is formed into an approximately H-shape as viewed in a plan view by including a pair of left and right rear extending 25 portions extending rearwardly, and the bag mounting hole is formed on a side of the upper-side box lid where the pair of left and right rear extending portions is provided.

5. The storage part structure of a saddle-ride vehicle according to claim **3**, wherein the upper-side box lid is 30 formed into an approximately H-shape as viewed in a plan view by including a pair of left and right rear extending portions extending rearwardly, and the bag mounting hole is formed on a side of the upper-side box lid where the pair of left and right rear extending portions is provided. 35

6. The storage part structure of a saddle-ride vehicle according to claim 1, wherein a bent portion where the upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid, the bag mounting hole is formed in the upper-side box lid behind the bent 40 portion, and the arm portion is formed on the upper-side box lid in front of the bent portion.

7. The storage part structure of a saddle-ride vehicle according to claim 2, wherein a bent portion where the upper-side box lid is bent in a longitudinal direction of the 45 vehicle is formed on the upper-side box lid, the bag mounting hole is formed in the upper-side box lid behind the bent portion, and the arm portion is formed on the upper-side box lid in front of the bent portion.

8. The storage part structure of a saddle-ride vehicle ⁵⁰ according to claim **3**, wherein a bent portion where the upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid, the bag mounting hole is formed in the upper-side box lid behind the bent portion, and the arm portion is formed on the upper-side box ⁵⁵ lid in front of the bent portion.

9. The storage part structure of a saddle-ride vehicle according to claim **4**, wherein a bent portion where the upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid, the bag mount- ⁶⁰ ing hole is formed in the upper-side box lid behind the bent portion, and the arm portion is formed on the upper-side box lid in front of the bent portion.

10. The storage part structure of a saddle-ride vehicle according to claim **1**, wherein a bent portion where the 65 upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid, and the upper-

side box lid has a flat portion formed approximately flat at the center in a vehicle width direction at a position in front of the bent portion and behind the key cylinder.

11. The storage part structure of a saddle-ride vehicle according to claim 2, wherein a bent portion where the upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid, and the upper-side box lid has a flat portion formed approximately flat at the center in a vehicle width direction at a position in front of the bent portion and behind the key cylinder.

12. The storage part structure of a saddle-ride vehicle according to claim 3, wherein a bent portion where the upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid, and the upper-side box lid has a flat portion formed approximately flat at the center in a vehicle width direction at a position in front of the bent portion and behind the key cylinder.

13. The storage part structure of a saddle-ride vehicle according to claim 4, wherein a bent portion where the upper-side box lid is bent in a longitudinal direction of the vehicle is formed on the upper-side box lid, and the upper-side box lid has a flat portion formed approximately flat at the center in a vehicle width direction at a position in front of the bent portion and behind the key cylinder.

14. A storage part structure of a saddle-ride vehicle comprising:

a head pipe;

- a main frame extending rearwardly from the head pipe;
- a storage box operatively connected to the main frame wherein the storage box opens upwardly; and
- a storage box lid for covering an opening portion of the upwardly openable storage box in an openable and closable manner;
- a box-side locking mechanism for locking the storage box lid;
- a key cylinder for operating the box-side locking mechanism for locking and unlocking the box lid, said key cylinder being arranged behind a handle holder and in front of the storage box; and

the storage box lid includes:

an arm portion positioned on a side of the key cylinder; a lower-side box lid; and

an upper-side box lid for covering the lower-side box lid from above; wherein the arm portion is formed on the upper-side box lid.

15. The storage part structure of a saddle-ride vehicle according to claim **14**, wherein a recessed portion is formed in at least one of the upper-side box lid and the lower-side box lid thus forming a bag mounting hole.

16. The storage part structure of a saddle-ride vehicle according to claim **14**, wherein the bag mounting hole is formed for allowing air to flow toward an inside in a vehicle width direction from an outside in a vehicle width direction and rearwardly.

17. The storage part structure of a saddle-ride vehicle according to claim **16**, wherein the upper-side box lid is formed into an approximately H-shape as viewed in a plan view by including a pair of left and right rear extending portions extending rearwardly, and the bag mounting hole is formed on a side of the upper-side box lid where the pair of left and right rear extending portions is provided.

18. The storage part structure of a saddle-ride vehicle according to claim **14**, wherein the upper-side box lid is formed into an approximately H-shape as viewed in a plan view by including a pair of left and right rear extending portions extending rearwardly, and the bag mounting hole is

formed on a side of the upper-side box lid where the pair of left and right rear extending portions is provided.

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