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CONSOLE ASSEMBLY

Abstract

A console assembly includes a box member, a lid member, a bracket, a first joint part, and a second joint part. The box member defines an opening. The lid member covers the opening of the box member. The bracket is disposed between the box member and the lid member. The first joint part pivotably couples the bracket and the box member about a first rotational axis extending along a first direction to switch the lid member between a closed position and a first open position in which the bracket is attached to the lid member. The second joint part pivotably couples the lid member and the bracket about a second rotational axis extending along a second direction perpendicular to the first direction to switch the lid member between the closed position and a second open position in which the bracket is attached to the box member.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application is a continuation-in-part application of U.S. application Ser. No. 18/440,294, filed on Feb. 13, 2024. The entire disclosure of U.S. application Ser. No. 18/440,294 is hereby incorporated herein by reference.

BACKGROUND
Technical Field
[0002] The present disclosure generally relates to a console assembly. More specifically, the present disclosure relates to a console assembly that allows a lid to be opened from multiple directions that intersect each other.
Background Information
[0003] A vehicle's passenger compartment typically includes a center console assembly between the front seats. U.S. Pat. No. 5,212,849 discloses an automobile console box with a lid that is opened and closed from two directions (i.e., the left and right sides).
SUMMARY
[0004] The conventional console lid design lacks versatility, as it hampers the user's ability to effortlessly open and close the lid from multiple positions, including those of the driver seat, passenger seat, and second-row seating. This limitation diminishes the overall user experience and convenience.
[0005] One object of the present disclosure is to provide a console assembly that allows a lid to be opened and closed from multiple directions that intersect each other.
[0006] According to one embodiment of the present disclosure, a console assembly includes a box member, a lid member, a bracket, a first joint part, and a second joint part. The box member defines an opening. The lid member covers the opening of the box member. The bracket is disposed between the box member and the lid member. The first joint part pivotably couples the bracket and the box member about a first rotational axis extending along a first direction to switch the lid member between a closed position and a first open position in which the bracket is attached to the lid member. The second joint part pivotably couples the lid member and the bracket about a second rotational axis extending along a second direction perpendicular to the first direction to switch the lid member between the closed position and a second open position in which the bracket is attached to the box member.
[0007] The console assembly according to the embodiment of the present disclosure allows the user to open and close the lid from multiple directions, allowing the user to access and utilize the console storage regardless of where the user is seated. This enhances user satisfaction and provides a more user-friendly and adaptable automotive environment.

Description

BRIEF DESCRIPTION OF THE DRAWINGS
[0008] Referring now to the attached drawings, which form a part of this original disclosure:
[0009] FIG. **1** is a top schematic view of a vehicle equipped with a console assembly according to a first embodiment;
[0010] FIG. **2** is a perspective view of a console assembly in accordance with the first embodiment;
[0011] FIG. **3** is a perspective view of the console assembly in a state in which the lid member is opened from the rear side of the console assembly in accordance with the first embodiment;

[0012] FIG. **4** is a perspective view of the console assembly in a state in which a lid member is opened from the left side of the console assembly in accordance with the first embodiment;
[0013] FIG. **5** is a perspective view of the console assembly in a state in which the lid member is opened from the right side of the console assembly in accordance with the first embodiment;
[0014] FIG. **6** is an exploded perspective view showing the lid member, a bracket, and a box member of the console assembly in accordance with the first embodiment;
[0015] FIG. **7** is a bottom perspective view of a part of the lid member of the console assembly in accordance with the first embodiment;
[0016] FIG. **8** is a perspective view showing a part of a frame structure, the box member, the bracket, and guide rods in accordance with the first embodiment;
[0017] FIG. **9** is an exploded perspective view of a second or third joint part in accordance with the first embodiment;
[0018] FIG. **10** includes diagrams for illustrating the operation of a displacement mechanism of the second or third joint part in accordance with the first embodiment;
[0019] FIG. **11** is a schematic side view showing a first modified example of the displacement mechanism in accordance with the first embodiment;
[0020] FIG. **12** is a schematic side view showing a second modified example of the displacement mechanism in accordance with the first embodiment;
[0021] FIG. **13** is a perspective view of a console assembly showing a modified example of the position of the latch mechanism in accordance with the first embodiment;
[0022] FIG. **14** is a perspective view of a console assembly in accordance with a second embodiment;
[0023] FIG. **15** is a perspective view of the console assembly in a state in which the lid member is opened from the rear side of the console assembly in accordance with the second embodiment;
[0024] FIG. **16** is a perspective view of the console assembly in a state in which a lid member is opened from the left side of the console assembly in accordance with the second embodiment;
[0025] FIG. **17** is an exploded perspective view showing the lid member and a bracket of the console assembly in accordance with the second embodiment;
[0026] FIGS. **18**A and **18**B are simplified schematic diagrams for illustrating the operation of a displacement mechanism of the second or third joint part in accordance with the second embodiment; and
[0027] FIG. **19** is a simplified perspective view of an actuator unit and a rod unit in accordance with the second embodiment.

DETAILED DESCRIPTION OF EMBODIMENTS

[0028] Selected embodiments will now be explained with reference to the drawings. It will be apparent to those skilled in the art from this disclosure that the following descriptions of the embodiments are provided for illustration only and not for the purpose of limiting the invention as defined by the appended claims and their equivalents.

First Embodiment

[0029] Referring initially to FIG. **1**, a vehicle V having a console assembly **1** is illustrated in accordance with a first embodiment. The vehicle V has a vehicle body that generally defines a passenger compartment. As shown in FIG. **1**, the passenger compartment has an arrangement of passenger seats, including a front row of driver and passenger seats and a second or rear row of passenger seats. The vehicle V may also include additional rows of seating, as is the case for a typical large SUV, van, or bus. It should be appreciated that the vehicle V may be a motor vehicle, such as a wheeled car, sedan, coupe, truck, SUV, van, or bus, for example, or an airplane, train, boat, or other vehicle capable of transporting one or more passengers and personal items. The driver's seat may be on the left side of the vehicle, as shown in FIG. **1**, or on the right side.
[0030] The console assembly **1** is located between the driver seat and the passenger seat. The console assembly **1** is supported on the floor of the vehicle V and may extend forward towards or

near a dashboard at the front of the passenger compartment and may extend rearward to a position within reach of one or more passengers seated in the rear row of seats. In the embodiment, the rear portion of the console assembly **1** is positioned to allow a passenger seated on one of the seats on the second row to access the console assembly **1**.

[0031] FIG. **2** is a perspective view of the console assembly **1** in accordance with the embodiment. The console assembly **1** includes a frame structure F, partially shown in FIG. **2**, which is a structural support structure of the console assembly **1**. The console assembly **1** includes a lid member **20** that covers an opening of a storage compartment when the lid member **20** is in a closed position shown in FIG. **2**. The lid member **20** is configured to be opened and closed from multiple directions, allowing access to the storage compartment by the driver, the passenger, and the passenger(s) on the second-row seating. More specifically, in the embodiment, the lid member **20** is configured to be pivotably opened and closed from three sides, namely, the left side (from the driver seat), the right side (from the passenger seat), and the rear side (from the second-row seating). The console assembly **1** according to the embodiment allows the user to open and close the lid from multiple directions, allowing the user to access and utilize the console storage regardless of where the user is seated. This enhances user satisfaction and provides a more user-friendly and adaptable automotive environment.

[0032] FIG. **3** is a perspective view of the console assembly **1** in a state in which the lid member **20** is in a first open position. In the embodiment, the first open position refers to a state in which the lid member **20** is opened from the rear side of the console assembly **1** so as to allow passenger(s) seated on the second-row seating to access the storage compartment.

[0033] FIG. **4** is a perspective view of the console assembly **1** in a state in which the lid member **20** is in a second open position. In the embodiment, the second open position refers to a state in which the lid member **20** is opened from the left side of the console assembly **1** so as to allow the driver seated in the driver seat to access the storage compartment.

[0034] FIG. **5** is a perspective view of the console assembly **1** in a state in which the lid member **20** is in a third open position. In the embodiment, the third open position refers to a state in which the lid member **20** is opened from the right side of the console assembly **1** so as to allow the passenger seated in the front passenger seat to access the storage compartment.

[0035] As used herein, the terms first, second, and third "open position" encompass more than just the fully open state of the lid member **20**; they include any degree of opening where the lid member **20** is not in the closed position.

[0036] As shown in FIG. **6**, the console assembly **1** includes a box member **10**, the lid member **20**, and a bracket **30** disposed between the box member **10** and the lid member **20**.

[0037] The box member **10** is supported by the frame structure F. The box member **10** defines a storage compartment S that has an upper opening for access. More specifically, the box member **10** includes a box section **11** constituted by lateral walls and a bottom wall, and support portions **12** protruding upwardly at a front end portion of the box section **11**. Each of the support portions **12** defines a through hole **12***a* extending along a lateral direction (the left-right direction of the vehicle V).

[0038] As shown in FIG. **2**, the lid member **20** covers the opening of the box member **10** when the lid member **20** is in the closed position. As shown in FIGS. **6** and **7**, the lid member **20** includes an upper wall **21**, and a pair of side walls **22**. The upper wall **21** defines an upper opening **21***a* at a rear end portion of the lid member **20**. Each of the side walls **22** defines a side opening **22***a*. As shown in FIG. **7**, the upper wall **21** and the side walls **22** define a recess R. As shown in FIGS. **3** and **4**, the lid member **20** may include a bottom cover **25** that covers the recess R.

[0039] The bracket **30** includes a frame part **31** defining an opening that overlaps the opening of the box member **10** when the bracket **30** is attached to the box member **10**. The bracket **30** further includes first support parts **32** and second support parts **33** protruding upwardly from the frame part **31**. The first support parts **32** are arranged at the front end portion of the frame part **31**. Each of the

first support parts **32** defines a first through hole **32***a* extending along the lateral direction. Two of the second support parts **33** are arranged at the front end portion of the frame part **31**, and two of the second support parts **33** are arranged at the rear end portion of the frame part **31**. Each of the second support parts **33** defines a recess **33***a* that extends along the longitudinal direction (the front-rear direction of the vehicle V). The bracket **30** further includes a claw section **34** at the rear end portion of the frame part **31**.

[0040] The console assembly **1** further includes a first joint part **40**, a second joint part **50**R and a third joint part **50**L.

[0041] The first joint part **40** pivotably couples the bracket **30** and the box member **10** about a first rotational axis X**1** (FIGS. **6** and **8**) extending along the lateral direction to switch the lid member **20** between the closed position (FIG. **1**) and the first open position (FIG. **2**). In the first open position, the bracket **30** is attached to the lid member **20** via the second joint part **50**R and the third joint part **50**L as described in more detail below. As shown in FIG. **8**, the first joint part **40** includes a rotational shaft **41** extending along a first rotational axis X**1**. The rotational shaft **41** extends through the through holes **12***a* of the support portions **12** of the box member **10** and the first through holes **32***a* of the first support parts **32** of the bracket **30** to pivotably couple the bracket **30** and the box member **10** about the first rotational axis X**1**. The first joint part **40** further includes biasing members **42** (e.g., springs) coupled to the rotational shaft **41** to apply a biasing force toward the first open position (FIG. **2**).

[0042] Although the illustrated embodiment shows the first joint part **40** having a rotational shaft **41** that directly joins the box member **10** and the bracket **30**, the scope of the present disclosure is not limited thereto. Any hinge structure that is configured to pivotably couple the box member **10** and the bracket **30** can be utilized as the first joint part **40**. For example, a separate hinge member may be provided to pivotably couple the box member **10** and the bracket **30** about the rotational axis X.

[0043] The console assembly **1** further includes a latch mechanism **60** that is configured to engage with the bracket **30**, locking it in the closed position against the biasing force of the biasing member **42** of the first joint part **40**. In this embodiment, the latch mechanism **60** includes a latch cam mechanism that interacts with the claw section **34** of the bracket **30**. Pressing the knob member **61** of the latch mechanism **60** disengages it from the latch claw **34**, causing the bracket **30** and the lid member **20** to pivot together around the first rotational axis X**1**. The knob member **61** is housed in the opening **21***a* of the lid member **20** when the lid member **20** is closed as shown in FIG. **2**. The latch mechanism **60** is not limited to the structure shown in this embodiment. The latch mechanism **60** may employ any latch structure, such as a mechanical latch or a magnetic latch, designed to hold the bracket **30** in the closed position and release it when operated. Additionally, the position of the latch mechanism **60** is not limited to the one shown in this embodiment. For instance, the latch mechanism **60**′ may be positioned on the rear portion of the frame structure F, as shown in FIG. **13**. It is also possible to switch the positions of the latch mechanism **60** and the first joint part **40** (i.e., the first joint part **40** is arranged on the rear side and the latch mechanism **60** is arranged on the front side) if it is desirable for the lid member **20** to be opened/closed from the front side of the console assembly **1**.

[0044] The second joint part **50**R pivotably couples the lid member **20** and the bracket **30** about a second rotational axis X**2** (FIG. **8**) extending along a longitudinal direction (an example of a second direction) to switch the lid member **20** between the closed position (FIG. **1**) and a second open position (FIG. **3**). The third joint part **50**L pivotably couples the lid member **20** and the bracket **30** about a third rotational axis X**3** (FIG. **8**) parallel to the second rotational axis X**2** to switch the lid member **20** between the closed position (FIG. **1**) and a third open position (FIG. **4**). As shown in FIGS. **3** and **4**, the bracket **30** is secured to the box member **10** by the latch mechanism **60** in the second and third open positions.

[0045] The second joint part **50**R is a mirror image of the third joint part **50**L. Consequently, only

one of the second joint part **50**R and the third joint part **50**L is described below for the sake of brevity. Moreover, only the second joint part **50**R is shown in FIG. **7** for the sake of brevity.
[0046] As shown in FIGS. **7**, **9**, and **10**, the second joint part **50**R includes a rod unit **52** and a displacement mechanism D**1**. The displacement mechanism D**1** is configured to change an axial length of the rod unit **52** between a first length L**1** and a second length L**2** shorter than the first length L**1**. The rod unit **52** includes a pair of guide rods **52***a* and **52***b*. The displacement mechanism D**1** is configured to change the axial length of the rod unit **52** by changing a distance between the guide rods **52***a* and **52***b*. The displacement mechanism D**1** includes a knob part **55** rotatably coupled to the lid member **20**, and a cylinder cam unit **56** operatively coupled to the knob part **55** to convert a rotational movement of the knob part **55** into an axial linear movement. The cylinder cam unit includes outer cylinder portions **57** integrally formed with the knob part **55**, and inner cylinder portions **58** inserted in the outer cylinder portions **57**. Each of the inner cylinder portions **58** includes a guide groove that operatively engages with a protrusion provided on the inner circumference of the corresponding one of the outer cylinder portion **57**. The guide rods **52***a* and **52***b* include clip portions **52***a″* and **52***b″* that are respectively coupled to the inner cylinder potions **58**. The cylinder cam unit **56** is rotatably coupled to the lid member **20** via a support base **54**.
[0047] The displacement mechanism D**1** further includes a biasing member (e.g., springs) applying a biasing force to maintain the rod unit **52** in the first length L**1**. Therefore, when the knob part **55** is in its initial position (i.e., not pressed), the rod unit **52** is maintained in the first length L**1** so that the guide rods **52***a* and **52** b are rotationally coupled to the recesses **33***a* of the second support part **33** of the bracket **30**. FIG. **8** shows a state in which the rod unit **52** of the third joint part **50**L is in the first length L**1** so that the guide rods **52***a* and **52***b* are coupled to the recesses **33***a* of the second support part **33** of the bracket. In FIG. **8**, the parts of the third joint part **50**L other than the guide rods **52***a* and **52***b* are omitted for the sake of brevity. When the user presses the knob part **55**, the displacement mechanism D**1** retracts the guide rods **52***a* and **52***b* to shorten the axial length of the rod unit **52** from the first length L**1** to the second length L**2**, thereby releasing the guide rods **52***a* and **52***b* from the recesses **33***a* of the second support part **33** of the bracket **30**. An axial end portion **52***a′* or **52***b′* of each of the guide rods **52***a* and **52***b* has a tapered shape so that the guide rods **52***a* and **52***b* are readily inserted into the recesses **33***a* when the knob part **55** is returned to its initial position. As shown in FIG. **10**, axial lengths of the guide rods **52***a* and **52***b* are different from each other. Moreover, in this embodiment, the guide rod **52***a* arranged on the front side is shorter than the guide rod **52***b* arranged on the rear side. Therefore, the knob part **55** can be positioned closer to the front side for better accessibility. As shown in FIGS. **2**-**4**, the knob part **55** is accommodated in the side opening **22***a* of the lid member **20**. The structure of the displacement mechanism D**1** is not limited to the one shown in the embodiment. Any mechanism that is configured to change the axial length of the rod unit **52** between the first length L**1** and the second length L**2** shorter than the first length L**1** may be used as the displacement mechanism D**1**. The displacement mechanism D**1** may be configured such that the axial length of the rod unit **52** between the first length L**1** and the second length L**2** is changed when the knob part **55** is pulled outwardly from the initial position.
[0048] Accordingly, when the lid member **20** is opened from the left side (the driver seat side), the knob part **55** of the displacement mechanism D**1** of the third joint part **50**L is pushed to release the guide rods **52***a* and **52***b* from the recesses **33***a*, while the displacement mechanism D**1** of the second joint part **50**R maintains the axial length of the rod unit **52** in the first length L**1**. Therefore, the lid member **20** is able to pivot about the rotational axis X**2** into the second open position. On the other hand, when the lid member **20** is opened from the right side (the passenger seat side), the knob part **55** of the displacement mechanism D**1** of the second joint part **50**R is pushed to release the guide rods **52***a* and **52***b* from the recesses **33***a*, while the displacement mechanism D**1** of the third joint part **50**L maintains the axial length of the rod unit **52** in the first length L**1**. Therefore, the lid member **20** is able to pivot about the rotational axis X**3** into the third open position.
[0049] When the lid member **20** is opened from the rear side, the knob parts **55** on both sides are in

the initial positions. Therefore, the displacement mechanisms D**1** of both the second joint part **50**R and the third joint part **50**L are configured to maintain the axial length of the rod units **52** in the first length L**1**. Thus, the lid member **20** pivots around the rotational axis X**1** at the first joint part **40** in a state in which the bracket **30** is attached to the lid member **20** due to engagement of the guide rods **52***a* and **52***b* with the recesses **33***a* of the bracket **30** on both sides.

[0050] Similarly, when the lid member **20** is in the closed position, the displacement mechanisms D**1** of both the second joint part **50**R and the third joint part **50**L are configured to maintain the axial length of the rod units **52** in the first length L**1**. Therefore, the lid member **20** is secured onto the bracket **30** with two rotating shafts (the rod units **52**) on both sides. When a load is applied to the lid member **20**, it can be supported at four points on both ends of the axis, making it load-bearing.

[0051] Moreover, the lid member **20** can be completely detached from the box member **10** by simultaneously pressing the knob parts **55** of both the second joint part **50**R and the third joint part **50**L. In such a case, the bracket **30** remains attached to the box member **10**

[0052] FIG. **11** is a schematic drawing showing a first modified example of a displacement mechanism D**2**. The displacement mechanism D**2** includes a gear unit including gears **153***a* and **154***a*. When the user operates the knob part **55**, it pulls the upper horizontal shaft **151** outward (i.e., towards the knob part **55**), which in turn causes the lower horizontal shafts **155** to move inward due to the gear unit. This results in the guide rods **152***a* and **152***b* being released from the recesses **33***a* of the second support part **33** of the bracket **30**. A similar mechanism as the displacement mechanism D**1** may be used in the displacement mechanism D**2** to pull the upper horizontal shaft **151** towards the knob part **55** when the knob part **55** is operated.

[0053] FIG. **12** is a schematic drawing showing a second modified example of a displacement mechanism D**3**. The displacement mechanism D**3** includes a linkage unit including a pivotal lever **253** disposed between the knob part **55** and the rod unit **152**. When the user operates the knob part **55**, it pulls the upper horizontal shaft **251** outward (i.e., towards the knob part **55**), which in turn causes the lower horizontal shaft **155** and the shaft **254** to move inward due to the pivotal lever **253** pivoting about the fixed pivot point **25***a*. This results in the guide rods **152***a* and **152***b* being released from the recesses **33***a* of the second support part **33** of the bracket **30**. A similar mechanism as the displacement mechanism D**1** may be used in the displacement mechanism D**3** to pull the upper horizontal shaft **251** towards the knob part **55** when the knob part **55** is operated.

[0054] In the displacement mechanisms D**2** and D**3**, the knob part **55** is disposed above the rod unit **152** (the guide rods **152***a* and **152***b*) with respect to a vertical direction of the lid member **20** when the lid member **20** is in the closed position. This arrangement allows for greater flexibility in the positioning of the knob part **55**.

[0055] The console assembly **1** includes a box member **10**, a lid member **20**, a bracket **30**, a first joint part **40**, and a second joint part **50**R. The box member **10** defines an opening. The lid member **20** covers the opening of the box member **10**. The bracket **30** is disposed between the box member **10** and the lid member **20**. The first joint part **40** pivotably couples the bracket **30** and the box member **10** about a first rotational axis X**1** extending along a first direction (lateral direction) to switch the lid member **20** between a closed position (FIG. **2**) and a first open position (FIG. **3**) in which the bracket **30** is attached to the lid member **20**. The second joint part **50**R pivotably couples the lid member **20** and the bracket **30** about a second rotational axis X**2** extending along a second direction (longitudinal direction) perpendicular to the first direction to switch the lid member **20** between the closed position (FIG. **2**) and a second open position (FIG. **4**) in which the bracket **30** is attached to the box member **10**. The console assembly **1** may further include a third joint part **50**L pivotably coupling the lid member **20** and the bracket **30** about a third rotational axis X**3** parallel to the second rotational axis X**2** to switch the lid member **20** between the closed position (FIG. **2**) and a third open position (FIG. **5**) in which the bracket **30** is attached to the box member **10**.

[0056] Each of the second joint part **50**R and the third joint part **50**L includes a rod unit **52** and a

displacement mechanism D**1**. The displacement mechanism D**1** is configured to change an axial length of the rod unit **52** between a first length and a second length shorter than the first length. The rod unit **52** with the first length is rotationally coupled to the bracket **30** while the rod unit **52** with the second length is released from the bracket **30**.

[0057] The displacement mechanism D**1** of the third joint part **50**L is configured to change the axial length of the rod unit **52** from the first length to the second length to switch the lid member **20** from the closed position to the second open position (FIG. **4**) while the displacement mechanism D**1** of the second joint part **50**R maintains the axial length of the rod unit **52** in the first length, and the displacement mechanism D**1** of the second joint part **50**R is configured to change the axial length of the rod unit **52** from the first length to the second length to switch the lid member **20** from the closed position to the third open position (FIG. **5**) while the displacement mechanism D**1** of the first joint part **40** maintains the axial length of the rod unit **52** in the first length.

[0058] The displacement mechanism D**1** of each of the second joint part **50**R and the third joint part **50**L further includes a biasing member applying a biasing force to maintain the rod unit **52** in the first length.

[0059] In each of the second joint part **50**R and the third joint part **50**L, the rod unit **52** includes a pair of guide rods **52***a* and **52***b*. The displacement mechanism D**1** is configured to change the axial length of the rod unit **52** by changing a distance between the guide rods **52***a* and **52***b*.

[0060] An axial end portion **52***a′* or **52***b′* of each of the guide rods **52***a* and **52***b* has a tapered shape.

[0061] The displacement mechanism D**1** includes a knob part **55** rotatably coupled to the lid member **20**, and a cylinder cam unit operatively coupled to the knob part **55** to convert a rotational movement of the knob part **55** into an axial linear movement.

[0062] Axial lengths of the guide rods **52***a*, **52***b* are different from each other.

[0063] The knob part **55** is disposed above the guide rods **52***a* and **52***b* with respect to a vertical direction of the lid member **20**.

[0064] The displacement mechanism D**1** includes a gear unit (FIG. **11**) disposed between the knob part **55** and the rod unit **52**.

[0065] The displacement mechanism D**1** includes a linkage unit (FIG. **12**) including a pivotal lever disposed between the knob part **55** and the rod unit **52**.

[0066] The displacement mechanisms D**1** of the second joint part **50**R and the third joint part **50**L are configured to maintain the axial length of the rod units **52** in the first length when the lid member **20** is in the first open position FIG. **2**.

[0067] The box member **10** includes a support part **12** defining a through hole **12***a* extending along the first rotational axis X**1**. The bracket **30** includes a first support part **32** defining a first through hole **32***a* extending along the first rotational axis X**1**. The first joint part **40** includes a rotational shaft **41** extending along the first rotational axis X**1** through the through hole **12***a* of the support part **12** of the box member **10** and the first through hole **32***a* of the first support part **32** of the bracket **30**.

[0068] The first joint part **40** further includes a biasing member **42** coupled to the rotational shaft **41** to generate a biasing force toward the first open position FIG. **2**.

[0069] A latch mechanism **60** is configured to engage with the bracket **30** to hold the bracket **30** in the closed position.

[0070] The bracket **30** includes a frame part **31** defining an opening that overlaps the opening of the box member **10** when the bracket **30** is attached to the box member **10**.

[0071] The bracket **30** includes a second support part **33** defining a recess **33***a* extending along the second rotational axis X**2**. The second joint part **50**R includes a rod unit **52** and a displacement mechanism D**1**. The displacement mechanism D**1** is configured to change an axial length of the rod unit **52** between a first length and a second length shorter than the first length. The rod unit **52** with the first length is inserted into the recess **33***a* of the second support part **33** of the bracket **30** while the rod unit **52** with the second length is spaced apart from the recess **33***a* of the second support

part **33** of the bracket **30**.
[0072] The lid member **20** defines a recess R. The second joint part **50**R is housed within the recess R of the lid member **20**.
[0073] A vehicle V includes the console assembly **1**. The first direction is a lateral direction of the vehicle, and the second direction is a longitudinal direction of the vehicle.
[0074] The first joint part **40** is disposed adjacent to a front side of the box member **10**.
Second Embodiment
[0075] Referring now to FIGS. **14**-**19**, a console assembly **100** in accordance with the second embodiment will be explained.
[0076] FIG. **14** is a perspective view of the console assembly **100** in accordance with the second embodiment. The console assembly **100** can be mounted to the frame structure F, partially shown in FIG. **14**. The console assembly **100** includes a lid member **120** that covers an opening of a storage compartment when the lid member **120** is in a closed position shown in FIG. **14**. The lid member **120** is configured to be opened and closed from multiple directions, allowing access to the storage compartment by the driver, the passenger, and the passenger(s) on the second-row seating. More specifically, similarly to the first embodiment, the lid member **120** is configured to be pivotably opened and closed from three sides, namely, the left side (from the driver seat), the right side (from the passenger seat), and the rear side (from the second-row seating). The console assembly **100** according to the second embodiment allows the user to open and close the lid from multiple directions, allowing the user to access and utilize the console storage regardless of where the user is seated. This enhances user satisfaction and provides a more user-friendly and adaptable automotive environment.
[0077] The console assembly **100** of the second embodiment differs from the console assembly **1** of the first embodiment in that a second joint part **350**R and a third joint part **350**L are attached to a main bracket member **130** (the bracket) rather than the lid member **120**. Additionally, button parts **355** for opening and closing the lid member **120** from either the left or right side are located at the front end of the console assembly **100**.
[0078] FIG. **15** is a perspective view of the console assembly **100** in a state in which the lid member **120** is in a first open position. In the embodiment, the first open position refers to a state in which the lid member **120** is opened from the rear side of the console assembly **100** so as to allow passenger(s) seated on the second-row seating to access the storage compartment.
[0079] FIG. **16** is a perspective view of the console assembly **100** in a state in which the lid member **120** is in a second open position. In the embodiment, the second open position refers to a state in which the lid member **120** is opened from the left side of the console assembly **100** so as to allow the driver seated in the driver seat to access the storage compartment. Similarly to the first embodiment, the lid member **120** is configured to be opened from the right side of the console assembly **100** (a third open position) so as to allow the passenger seated in the front passenger seat to access the storage compartment.
[0080] As used herein, the terms the first, second, and third “open position” encompass more than just the fully open state of the lid member **120**; they include any degree of opening where the lid member **120** is not in the closed position.
[0081] As shown in FIGS. **14**-**16**, the lid member **120** includes an upper wall **121**, and a pair of side walls **122**. Each of the side walls **122** defines a recess portion **122***a* at the front end. In the second embodiment, the bottom side of the lid member **120** includes a pair of engagement portions **124**, each having a plate shape and defining a through hole **124***a*. The axis of each of the through holes **124***a* extends along a longitudinal direction (the front-rear direction of the vehicle V). In this embodiment, two engagement portions **124** are provided on each of the left and right sides of the lid member **120**.
[0082] As shown in FIGS. **14**-**16**, the console assembly **100** includes a box member **110**. The box member **110** is supported by the frame structure F (FIGS. **2** and **14**). The box member **110** defines a

storage compartment S that has an upper opening for access. More specifically, the box member **110** is constituted by lateral walls and a bottom wall to define the storage compartment S.
[0083] As shown in FIG. **17**, the console assembly **100** further includes a front bracket member **112** that is configured to be fixedly coupled to the front end portion of the box member **110**. The front bracket member **112** includes a plurality of support portions **112***a* protruding upwardly. Each of the support portions **112***a* defines a through hole, whose axis extends along the lateral direction (the left-right direction of the vehicle V).
[0084] As shown in FIGS. **15-17**, the console assembly **100** further includes a main bracket member **130**, which constitutes the bracket of the second embodiment. The main bracket member **130** is configured to be disposed between the box member **110** and the lid member **120**. The main bracket member **130** has a frame-shape that defines an opening that overlaps the opening of the box member **110** when the main bracket member **130** is attached to the box member **110**.
[0085] As shown in FIG. **17**, The main bracket member **130** includes a bracket base part **132** and a bracket cover part **134** that are fixed to each other.
[0086] The bracket base part **132** includes a plurality of first support parts **132***a* at the front end of the bracket base part **132**. Each of the first support parts **132***a* defines a through hole, whose axis extends along the lateral direction. The bracket base part **132** further includes a latch claw section **132***b* at the rear end portion of the frame part **31**.
[0087] The bracket cover part **134** includes a plurality slit portions **134***a* at positions corresponding to the engagement portions **124** of the lid member **120**. The engagement portions **124** of the lid member **120** are respectively inserted into the slit portions **134***a* of the bracket cover part **134** when the lid member **120** is in the closed position. The bracket cover part **134** further includes a pair of recessed portions **134***b* arranged on both lateral sides at the front end of the bracket cover part **134**.
[0088] The console assembly **100** further includes a first joint part **140**, the second joint part **350**R and the third joint part **350**L.
[0089] The first joint part **140** pivotably couples the main bracket member **130** and the front bracket member **112** about a first rotational axis X**1** (FIG. **17**) extending along the lateral direction to switch the lid member **120** between the closed position (FIG. **14**) and the first open position (FIG. **15**). In the first open position, the main bracket member **130** is attached to the lid member **120** via the second joint part **350**R and the third joint part **350**L as described in more detail below. As shown in FIG. **17**, the first joint part **140** includes a rotational shaft **141** extending along the first rotational axis X**1**. The rotational shaft **141** extends through the through holes of the support portions **112***a* of the front bracket member **112** and the first through holes of the first support parts **132***a* of the bracket base part **132** to pivotably couple the main bracket member **130** and the front bracket member **112** about the first rotational axis X**1**. The first joint part **140** further includes biasing members **142** (e.g., springs) coupled to the first support parts **132***a* of the bracket base part **132** such that the main bracket member **130** is biased towards the first open position (FIG. **15**).
[0090] Although the second embodiment shows the front bracket member **112** being a separate member that is fixedly coupled to the box member **110**, the scope of the present disclosure is not limited thereto. Any hinge structure that is configured to pivotably couple the box member **110** and the main bracket member **130** can be utilized as the first joint part **140**. The front bracket member **112** may be omitted, and the box member **110** may be provided with the support portions **112***a*, similar to the first embodiment.
[0091] The console assembly **100** further includes a latch mechanism **160** that is configured to engage with the main bracket member **130**, locking it in the closed position against the biasing force of the biasing members **142** of the first joint part **140**. The latch mechanism **160** of the second embodiment is identical to the latch mechanism of the first embodiment. More specifically, the latch mechanism **160** includes a latch cam mechanism that interacts with the latch claw section **132***b* of the main bracket member **130**. Pressing the knob member **161** of the latch mechanism **160** disengages it from the latch claw section **132***b*, causing the main bracket member **130** and the lid

member **120** to pivot together around the first rotational axis X**1**. The latch mechanism **160** is positioned on the rear portion of the frame structure F, as shown in FIGS. **14**-**16**. The latch mechanism **160** is not limited to the structure shown in this embodiment. The latch mechanism **160** may employ any latch structure, such as a mechanical latch or a magnetic latch, designed to hold the main bracket member **130** in the closed position and release it when operated. Additionally, the position of the latch mechanism **160** is not limited to the one shown in this embodiment. Furthermore, it is also possible to switch the positions of the latch mechanism **160** and the first joint part **140** (i.e., the first joint part **140** is arranged on the rear side and the latch mechanism **160** is arranged on the front side) if it is desirable for the lid member **120** to be opened/closed from the front side of the console assembly **100**.

[0092] The second joint part **350**R pivotably couples the lid member **120** and the main bracket member **130** about a second rotational axis X**2** (FIG. **17**) extending along a longitudinal direction (an example of a second direction) to switch the lid member **120** between the closed position (FIG. **14**) and a second open position (FIG. **16**). The third joint part **350**L pivotably couples the lid member **120** and the main bracket member **130** about a third rotational axis X**3** (FIG. **17**) parallel to the second rotational axis X**2** to switch the lid member **120** between the closed position (FIG. **1**) and a third open position. As shown in FIG. **16**, the main bracket member **130** is secured to the box member **110** by the latch mechanism **160** in the second and third open positions, and the storage compartment S is accessible through the opening defined by the main bracket member **130**.

[0093] The second joint part **350**R and the third joint part **350**L are mirror images of each other. Consequently, only one of the second joint part **350**R and the third joint part **350**L is described below for the sake of brevity. More specifically, only the third joint part **350**L is shown in FIGS. **18**A and **18**B for the sake of brevity. FIGS. **18**A and **18**B are simplified schematic diagrams for explaining the operation of the third joint part **350**L. In FIGS. **18**A and **18**B, the main bracket member **130** is shown in the broken lines, and the engagement portions **124** of the lid member **120** are shown in cross-section.

[0094] As shown in FIGS. **17**, **18**A, **18**B, and **19**, the third joint part **350**L includes a rod unit **352** and a displacement mechanism D**11**. The rod unit **352** includes a pair of hook portions **352***a* arranged at the positions adjacent to the slit portions **134***a* of the bracket cover part **134**. The displacement mechanism D**11** is configured to move the rod unit **352** to change the relative position of each of the hook portions **352***a* from a first position (FIG. **18**A) to a second position (FIG. **18**B). The displacement mechanism D**11** includes a button part **355** and an actuator unit **356** operatively coupled to the button part **355** to convert a linear movement of the button part **355** in the lateral direction into a linear movement of the rod unit **352** in the longitudinal direction.

[0095] In the second embodiment, the second joint part **350**R and the third joint part **350**L are incorporated in the main bracket member **130**. More specifically, the rod unit **352** is accommodated in the space formed below the bracket cover part **134** and supported by the bracket base part **132**. The button part **355** and the actuator unit **356** of the displacement mechanism D**11** are placed in a corresponding one of the recessed portions **134***b* formed in the bracket cover part **134**. The front end of the bracket cover part **134** is covered by a front cover **134***c* (FIG. **16**) to conceal the actuator unit **356** and the recessed portions **134***b*.

[0096] As shown in FIG. **19**, the actuator unit **356** includes a frame member through which the distal end of the rod unit **352** is inserted. The actuator unit **356** includes a guide protrusion **356***a* on an inner surface facing the rod unit **352**. The distal end of the rod unit **352** is provided with an inclined guide rail surface **352***a* that contacts the guide protrusion **356***a*. When the button part **355** is pushed, the guide protrusion **356***a* of the actuator unit **356** slides along the guide rail surface **352***a* and pushes the rod unit **352** toward the rear side of the vehicle. Thus, the actuator unit **356** is configured to transfer the linear motion of the button part **355** along the lateral direction into the linear motion of the rod unit **352** along the longitudinal direction. The actuator unit **356** includes a biasing member **356***b* (e.g., a spring) applying a biasing force to maintain the rod unit **352** in the

first position (FIG. **18**A). Therefore, when the button part **355** is in its initial position (i.e., not pressed), the rod unit **352** is maintained in the first position so that the hook portions **352***a* are inserted into the through holes **124***a* of the engagement portions **124** of the lid member **120** as shown in FIG. **18**A. More specifically, the hook portions **352***a* are pivotably inserted into the through holes **124***a* of the engagement portions **124** to form the third rotational axis X**3**. FIG. **18**A shows a state in which the hook portions **352***a* of the rod unit **352** are in the first position so that the hook portions **352***a* are inserted through the through holes **124***a* of the engagement portions **124** of the lid member **120**. As shown in FIG. **18**B, when the user presses the button part **355**, the displacement mechanism D**11** moves (extends) the rod unit **352** toward the rear side of the vehicle to switch the position of the hook portions **352***a* from the first position to the second position, thereby releasing the hook portions **352***a* from the through holes **124***a* of the engagement portions **124** of the lid member **120**. An axial end portion of each of the hook portions **352***a* has a tapered shape so that, when the lid member **120** is closed, the engagement portions **124** of the lid member **120** push and slide along the tapered surfaces of the hook portions **352***a* to slightly move the hook portions **352***a* toward the rear side of the vehicle against the biasing force of the biasing member **356***b*. Therefore, the hook portions **352***a* readily engage with the engagement portions **124** of the lid member **120** when the lid member **120** is closed.

[0097] The structure of the displacement mechanism D**11** is not limited to the one shown in the embodiment. Any mechanism that is configured to move the rod unit **352** to switch the position of the hook portions **352***a* between the first position (FIG. **18**A) and the second position (FIG. **18**B) may be used as the displacement mechanism D**11**. Moreover, any conventional structure for changing the direction of the linear motion by 90 degrees can be used in the actuator unit **356**. Such mechanisms include, but are not limited to, a bell-crank system, a sliding connection, a latch system, a linkage system, a cam and follower system, a hydraulic, electronic, or pneumatic system, and the like. Moreover, the displacement mechanism D**11** may be configured to transfer a rotational movement of the button part into the linear movement of the rod unit similar to the first embodiment.

[0098] Accordingly, when the lid member **120** is opened from the left side (the driver seat side), the button part **355** of the displacement mechanism D**11** of the third joint part **350**L is pushed to release the hook portions **352***a* from the through holes **124***a* of the engagement portions **124** of the lid member **120**, while the displacement mechanism D**11** of the second joint part **350**R maintains the hook portions **352***a* being inserted through the through holes **124***a* of the engagement portions **124** of the lid member **120**. Therefore, the lid member **120** is able to pivot about the second rotational axis X**2** into the second open position. On the other hand, when the lid member **120** is opened from the right side (the passenger seat side), the button part **355** of the displacement mechanism D**11** of the second joint part **350**R is pushed to release the hook portions **352***a* from the through holes **124***a* of the engagement portions **124** of the lid member **120**, while the displacement mechanism D**11** of the third joint part **350**L maintains the hook portions **352***a* being inserted through the through holes **124***a* of the engagement portions **124** of the lid member **120**. Therefore, the lid member **120** is able to pivot about the third rotational axis X**3** into the third open position.

[0099] When the lid member **120** is opened from the rear side, the button parts **355** on both sides are in the initial positions. Therefore, the displacement mechanisms D**11** of both the second joint part **350**R and the third joint part **350**L are configured to maintain the engagement between the hook portions **352***a* and the engagement portions **124** of the lid member **120**. Thus, as shown in FIG. **15** the lid member **120** pivots around the rotational axis X**1** at the first joint part **140** in a state in which the main bracket member **130** is attached to the lid member **120** due to engagement of the hook portions **352***a* of the second joint part **350**R and the third joint part **350**L and the engagement portions **124** of the lid member **120**.

[0100] Similarly, when the lid member **120** is in the closed position, the displacement mechanisms D**11** of both the second joint part **350**R and the third joint part **350**L are configured to maintain the

engagement between the hook portions **352***a* and the engagement portions **124** of the lid member **120**. Therefore, the lid member **120** is secured onto the main bracket member **130** with two rotating axes passing through the hook portions **352***a* of the rod units **352** on both sides. When a load is applied to the lid member **120**, it can be supported at two points at the engagement portions **124** on each of the axes, making it load-bearing.

[0101] Moreover, the lid member **120** can be completely detached from the box member **110** by simultaneously pressing the button parts **355** of both the second joint part **350**R and the third joint part **350**L. In such a case, the main bracket member **130** remains attached to the box member **110**.

[0102] The console assembly **100** includes a box member **110**, a lid member **120**, a main bracket member **130**, a first joint part **140**, and a second joint part **350**R and/or a third joint part **350**L. The box member **110** defines an opening. The lid member **120** covers the opening of the box member **110**. The main bracket member **130** is disposed between the box member **110** and the lid member **120**. The first joint part **140** pivotably couples the main bracket member **130** and the box member **110** about a first rotational axis X**1** extending along a first direction (lateral direction) to switch the lid member **120** between a closed position (FIG. **14**) and a first open position (FIG. **15**) in which the main bracket member **130** is attached to the lid member **120**. The second joint part **350**R pivotably couples the lid member **120** and the main bracket member **130** about a second rotational axis X**2** extending along a second direction (longitudinal direction) perpendicular to the first direction to switch the lid member **120** between the closed position (FIG. **14**) and a second open position (FIG. **16**) in which the main bracket member **130** is attached to the box member **110**. The console assembly **100** may further include a third joint part **350**L pivotably coupling the lid member **120** and the main bracket member **130** about a third rotational axis X**3** parallel to the second rotational axis X**2** to switch the lid member **120** between the closed position (FIG. **14**) and a third open position in which the main bracket member **130** is attached to the box member **110**.

[0103] A latch mechanism **160** is configured to engage with the main bracket member **130** to hold the main bracket member **130** in the closed position.

[0104] The main bracket member **130** defines an opening that overlaps the opening of the box member **110** when the main bracket member **130** is attached to the box member **110**.

[0105] A vehicle V includes the console assembly **100**. The first direction is a lateral direction of the vehicle, and the second direction is a longitudinal direction of the vehicle.

[0106] The first joint part **140** is disposed adjacent to a front side of the box member **110**.

[0107] Each of the second joint part **350**R and the third joint part **350**L includes a rod unit **352** including at least one hook portion **352***a*, and a displacement mechanism D**11** configured to move the rod unit **352** to change a position of the hook portion **352***a* with respect to the main bracket member **130** between a first position (FIG. **18**A) and a second position (FIG. **18**B). The lid member **120** includes at least a pair of engagement portions **124** respectively arranged at a position corresponding to a position of the at least one hook portion **352***a* of a corresponding one of the second joint part **350**R and the third joint part **350**L. The at least one hook portion **352***a* is engaged with a corresponding one of the engagement portions **124** of the lid member **120** in the first position (FIG. **18**A), and released from the corresponding one of the engagement portions **124** in the second position (FIG. **18**B).

[0108] The displacement mechanism D**11** of the third joint part **350**L is configured to move the rod unit **352** to change the position of the hook portion **352***a* from the first position to the second position to switch the lid member **120** from the closed position (FIG. **14**) to the second open position (FIG. **16**) while the displacement mechanism D**11** of the second joint part **350**R maintains the position of the hook portion **352***a* in the first position. The displacement mechanism of the second joint part **350**R is configured to move the rod unit **352** to change the position of the hook portion **352***a* from the first position to the second position to switch the lid member **120** from the closed position (FIG. **14**) to the third open position while the displacement mechanism D**11** of the third joint part **350**L maintains the position of the hook portion **352***a* in the first position.

[0109] The displacement mechanism D**11** and the rod unit **352** of each of the second joint part **350**R and the third joint part **350**L are coupled to the main bracket member **130** both when the lid member **120** is in the closed position (FIG. **14**) and when the lid member is in the first open position.
[0110] The displacement mechanism D**11** of each of the second joint part **350**R and the third joint part **350**L further includes a biasing member applying a biasing force to maintain a position of the rod unit **352** so that the hook portion **352***a* stays in the first position.
[0111] The displacement mechanism D**11** includes a button part **355** movably coupled to the main bracket member **130** and an actuator unit **356** operatively coupled to the button part **355** to convert a linear movement of the button part **355** along the first direction into a linear movement of the rod unit **352** along the second direction.
[0112] The console assembly **100** further includes a front bracket member **112** fixedly coupled to a front part of the box member **110**. The front bracket member **112** includes a support portion **112***a* defining a through hole extending along the first rotational axis. The main bracket member **130** includes a first support part **132***a* defining a first through hole extending along the first rotational axis. The first joint part **140** includes a rotational shaft **141** extending along the first rotational axis through the through hole of the support portion **112***a* of the front bracket member and the first through hole of the first support part **132***a* of the main bracket member **130**.
[0113] The various portions of the vehicle not described herein are conventional components that are well-known in the art. Since these portions of the vehicle are well known in the art, these structures will not be discussed or illustrated in detail herein. Rather, it will be apparent to those skilled in the art from this disclosure that the components can be any type of structure that can be used to carry out the present invention.
[0114] In understanding the scope of the present invention, the term “comprising” and its derivatives, as used herein, are intended to be open ended terms that specify the presence of the stated features, elements, components, groups, integers, and/or steps, but do not exclude the presence of other unstated features, elements, components, groups, integers and/or steps. The foregoing also applies to words having similar meanings such as the terms, “including”, “having” and their derivatives. Also, the terms “part,” “section,” “portion,” “member” or “element” when used in the singular can have the dual meaning of a single part or a plurality of parts. Also as used herein to describe the above embodiment(s), the following directional terms “forward”, “rearward”, “front”, “rear”, “above”, “downward”, “vertical”, “horizontal”, “lateral”, “below”, “longitudinal” and “transverse” as well as any other similar directional terms refer to those directions of a vehicle equipped with the console assembly. Accordingly, these terms, as utilized to describe the present invention should be interpreted relative to a vehicle equipped with the console assembly.
[0115] The term “configured” is used herein to describe a component, section or part of a structure that is constructed to carry out the desired function.
[0116] The terms of degree such as “substantially”, “about” and “approximately” as used herein mean a reasonable amount of deviation of the modified term such that the end result is not significantly changed.
[0117] While only selected embodiments have been chosen to illustrate the present invention, it will be apparent to those skilled in the art from this disclosure that various changes and modifications can be made herein without departing from the scope of the invention as defined in the appended claims. For example, the size, shape, location or orientation of the various components can be changed as needed and/or desired. Components that are shown directly connected or contacting each other can have intermediate structures disposed between them. The functions of one element can be performed by two, and vice versa. The structures and functions of one embodiment can be adopted in another embodiment. It is not necessary for all advantages to be present in a particular embodiment at the same time. Every feature that is unique from the prior art, alone or in combination with other features, also should be considered a separate description of

further inventions by the applicant, including the structural and/or functional concepts embodied by such features. Thus, the foregoing descriptions of the embodiments according to the present invention are provided for illustration only, and not for the purpose of limiting the invention as defined by the appended claims and their equivalents.

Claims

1. A console assembly comprising: a box member defining an opening; a lid member covering the opening of the box member; a bracket disposed between the box member and the lid member; a first joint part pivotably coupling the bracket and the box member about a first rotational axis extending along a first direction to switch the lid member between a closed position and a first open position in which the bracket is attached to the lid member; and a second joint part pivotably coupling the lid member and the bracket about a second rotational axis extending along a second direction perpendicular to the first direction to switch the lid member between the closed position and a second open position in which the bracket is attached to the box member.
2. The console assembly according to claim 1, further comprising a third joint part pivotably coupling the lid member and the bracket about a third rotational axis parallel to the second rotational axis to switch the lid member between the closed position and a third open position in which the bracket is attached to the box member.
3. The console assembly according to claim 1, wherein the box member includes a support part defining a through hole extending along the first rotational axis, the bracket includes a first support part defining a first through hole extending along the first rotational axis, and the first joint part includes a rotational shaft extending along the first rotational axis through the through hole of the support part of the box member and the first through hole of the first support part of the bracket.
4. The console assembly according to claim 3, wherein the first joint part further includes a biasing member coupled to the rotational shaft to generate a biasing force toward the first open position.
5. The console assembly according to claim 1, further comprising a latch mechanism configured to engage with the bracket to hold the bracket in the closed position.
6. The console assembly according to claim 1, wherein the bracket includes a frame part defining an opening that overlaps the opening of the box member when the bracket is attached to the box member.
7. The console assembly according to claim 3, wherein the bracket includes a second support part defining a recess extending along the second rotational axis, and the second joint part includes a rod unit and a displacement mechanism, the displacement mechanism being configured to change an axial length of the rod unit between a first length and a second length shorter than the first length, the rod unit with the first length being inserted into the recess of the second support part of the bracket while the rod unit with the second length being spaced apart from the recess of the second support part of the bracket.
8. The console assembly according to claim 7, wherein the lid member defines a recess; and the second joint part is housed within the recess of the lid member.
9. A vehicle comprising: the console assembly according to claim 1, wherein the first direction is a lateral direction of the vehicle, and the second direction is a longitudinal direction of the vehicle.
10. The vehicle according to claim 9, wherein the first joint part is disposed adjacent to a front side of the box member.
11. The console assembly according to claim 2, wherein each of the second joint part and the third joint part includes a rod unit including at least one hook portion, and a displacement mechanism configured to move the rod unit to change a position of the hook portion with respect to the bracket between a first position and a second position, the lid member includes at least a pair of engagement portions respectively arranged at a position corresponding to a position of the at least one hook portion of a corresponding one of the second joint part and the third joint part, and the at

least one hook portion is engaged with a corresponding one of the engagement portions of the lid member in the first position, and released from the corresponding one of the engagement portions in the second position.

12. The console assembly according to claim 11, wherein the displacement mechanism of the third joint part is configured to move the rod unit to change the position of the hook portion from the first position to the second position to switch the lid member from the closed position to the second open position while the displacement mechanism of the second joint part maintains the position of the hook portion in the first position, and the displacement mechanism of the second joint part is configured to move the rod unit to change the position of the hook portion from the first position to the second position to switch the lid member from the closed position to the third open position while the displacement mechanism of the third joint part maintains the position of the hook portion in the first position.

13. The console assembly according to claim 12, wherein the displacement mechanism and the rod unit of each of the second joint part and the third joint part are coupled to the bracket both when the lid member is in the closed position and when the lid member is in the first open position.

14. The console assembly according to claim 11, wherein the displacement mechanism of each of the second joint part and the third joint part further includes a biasing member applying a biasing force to maintain a position of the rod unit so that the hook portion stays in the first position.

15. The console assembly according to claim 2, wherein the displacement mechanism includes a button part movably coupled to the bracket, and an actuator unit operatively coupled to the button part to convert a linear movement of the button part along the first direction into a linear movement of the rod unit along the second direction.

16. The console assembly according to claim 1, further comprising a front bracket member fixedly coupled to a front part of the box member, wherein the front bracket member includes a support part defining a through hole extending along the first rotational axis, the bracket includes a first support part defining a first through hole extending along the first rotational axis, and the first joint part includes a rotational shaft extending along the first rotational axis through the through hole of the support part of the front bracket member and the first through hole of the first support part of the bracket.