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(54) **VEHICLE REAR GATE WITH INTEGRATED PANEL**

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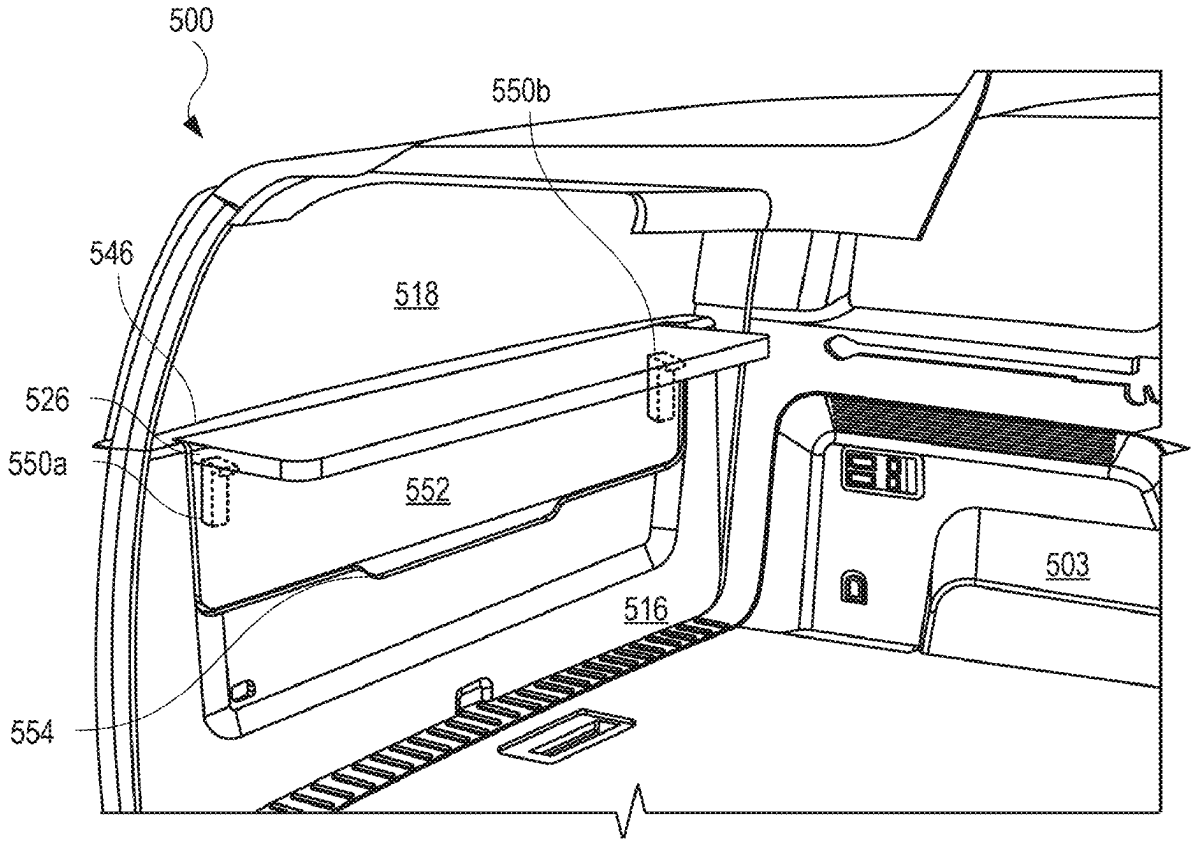
B60N 3/00 (2006.01)

(52) **U.S. Cl.**
CPC ***B60N 3/002*** (2013.01)

(57) **ABSTRACT**

A vehicle includes a panel integrated with a gate. The panel is designed to move relative to the gate and provide a space (e.g., workstation) for passengers or users to place their belongings. The panel may be stored in the gate when not in use. Further, the panel may be opened and closed using brackets that facilitate both linear and rotational movement of the panel. Alternatively, the panel may be opened and closed using hinge assemblies that facilitate rotational movement of the panel.



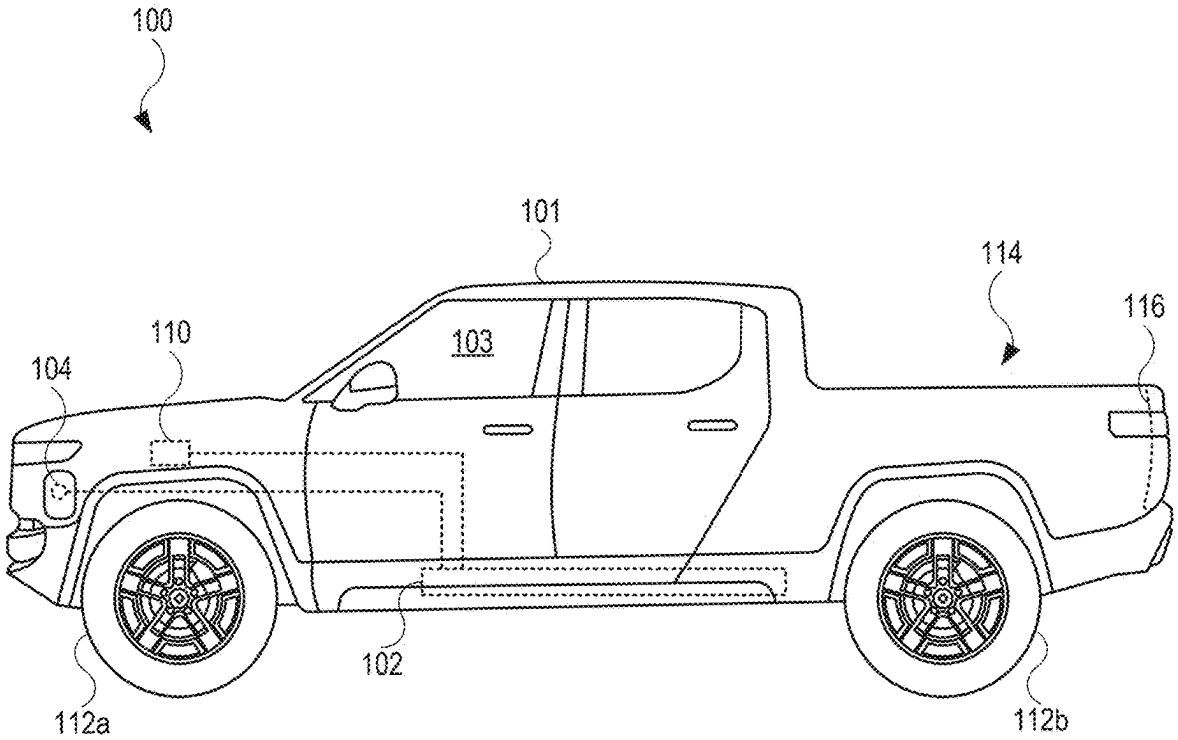


FIG. 1

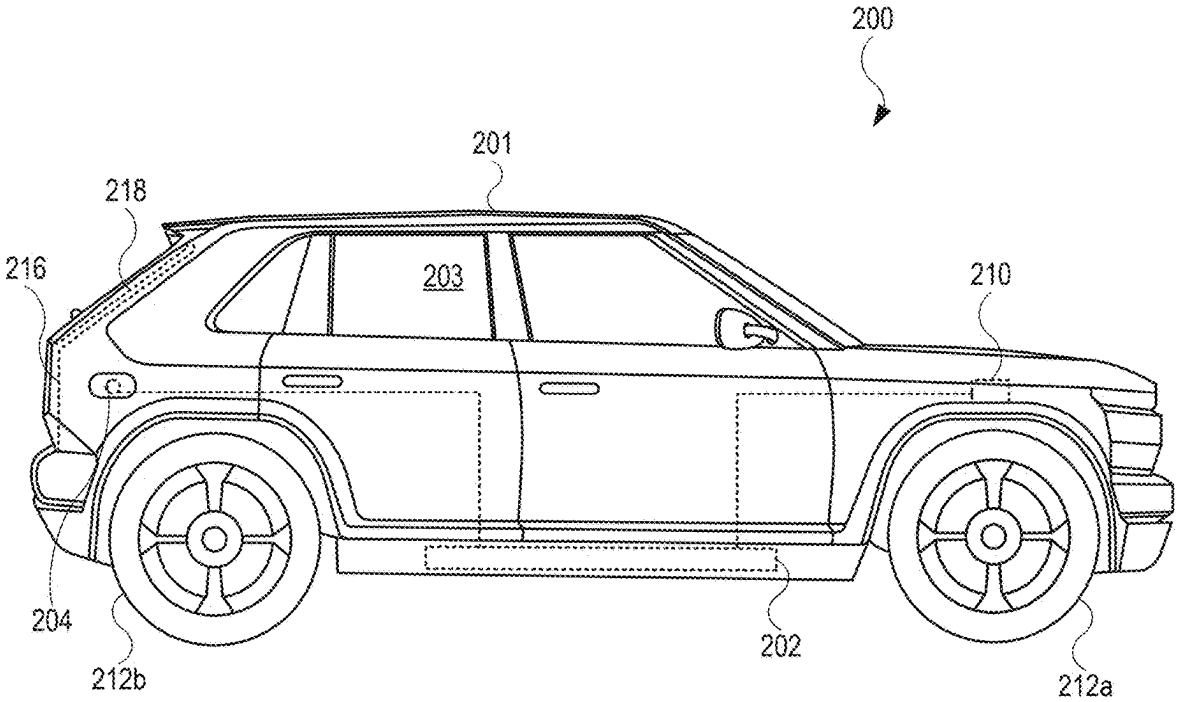


FIG. 2

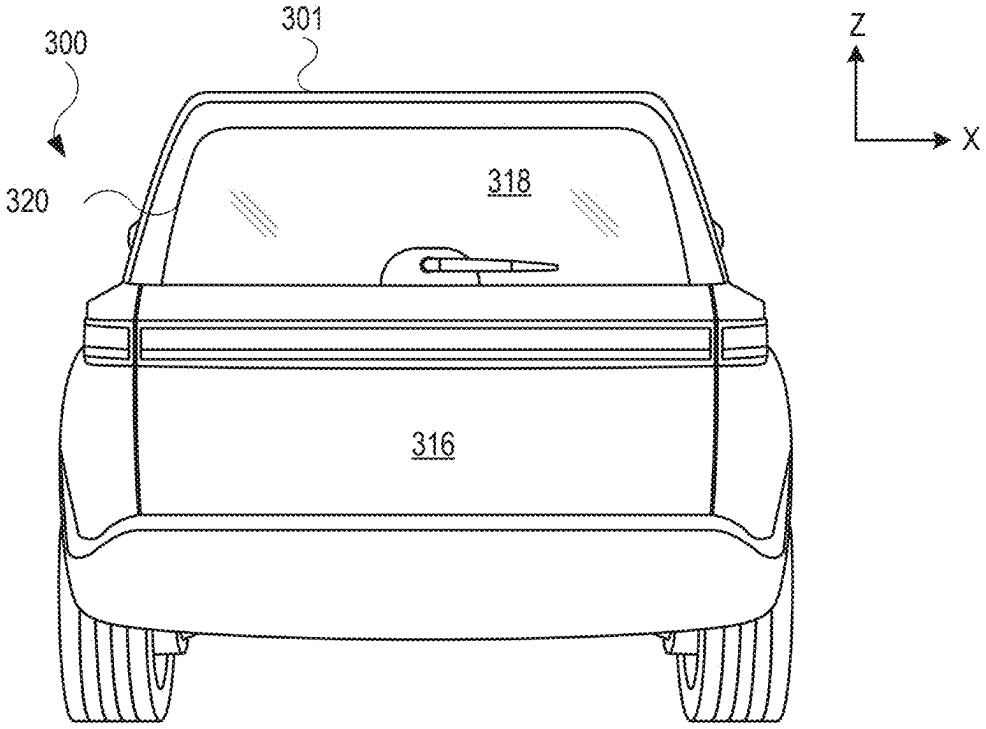


FIG. 3A

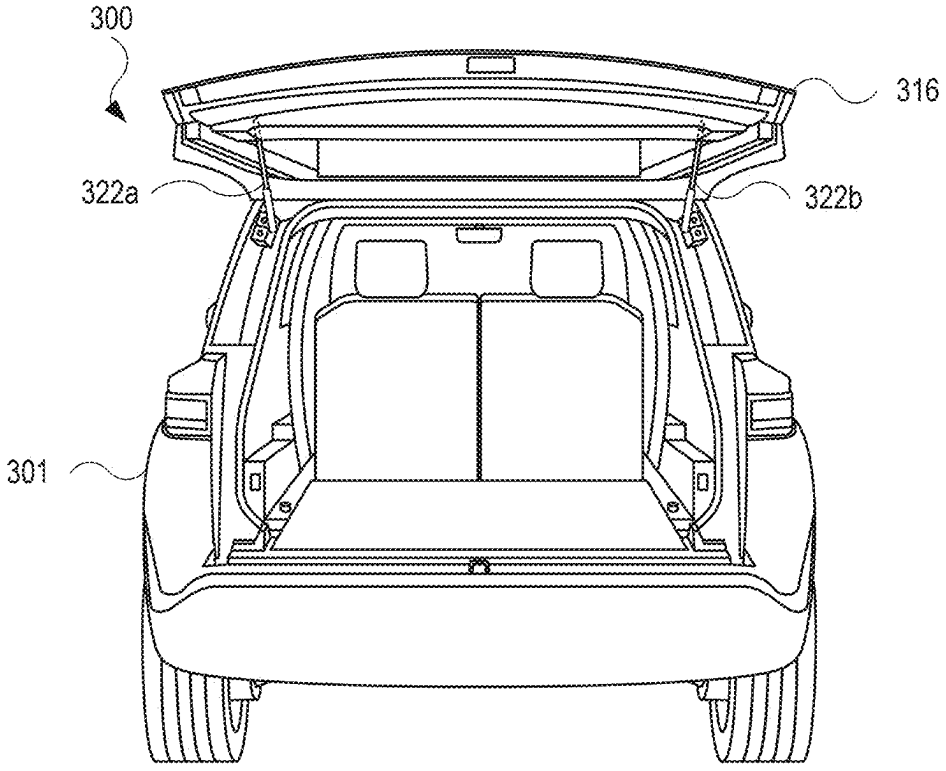


FIG. 3B

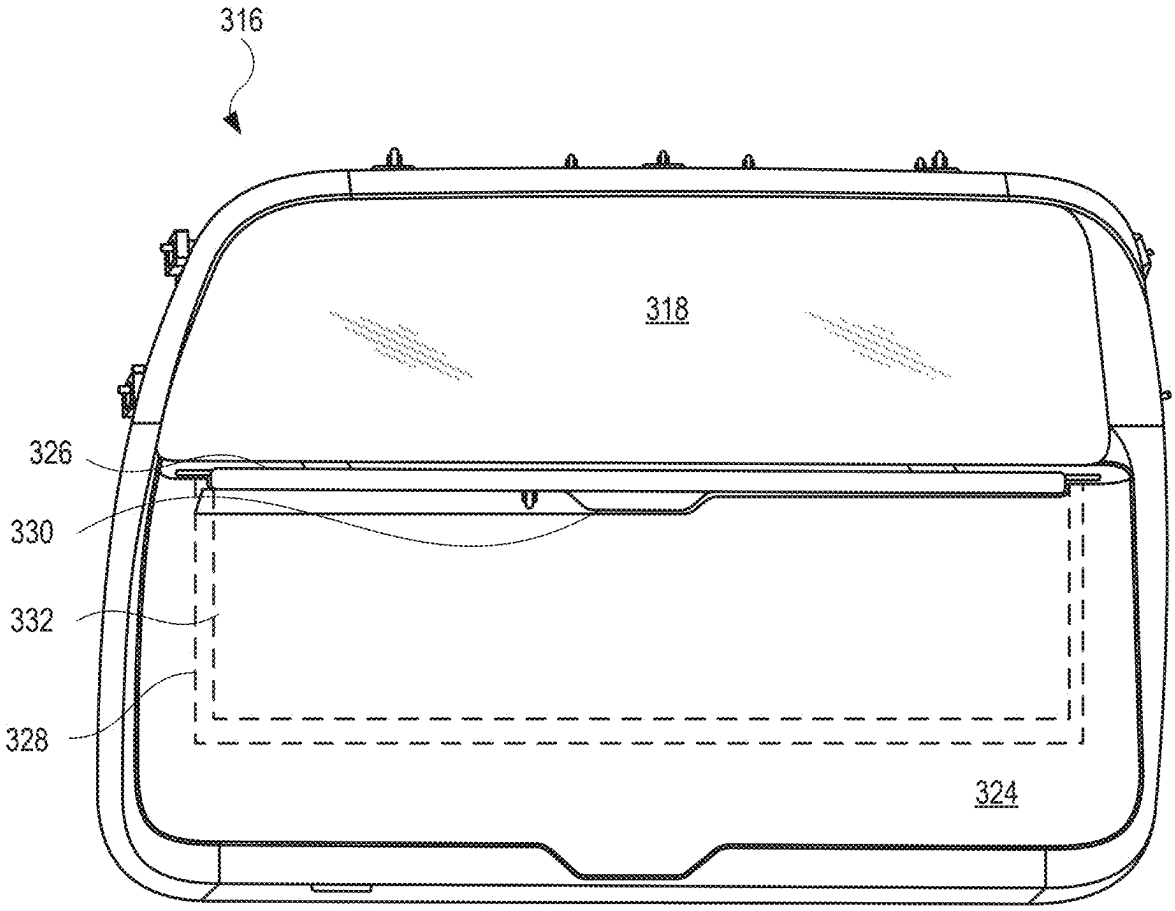


FIG. 4

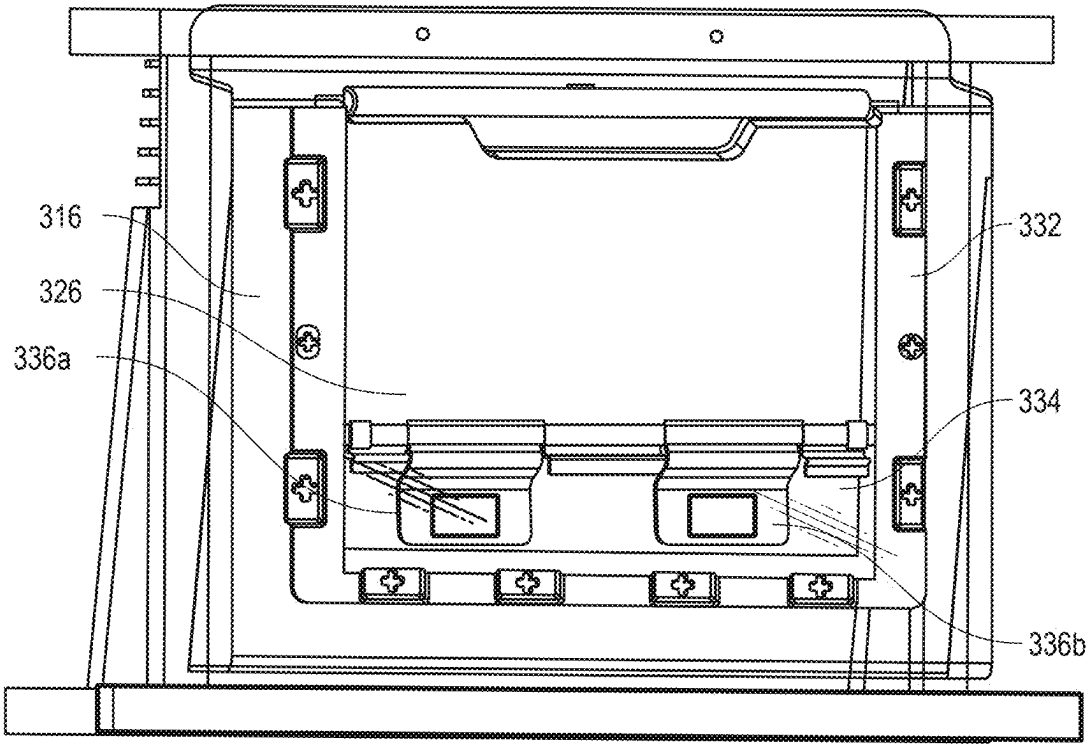


FIG. 5

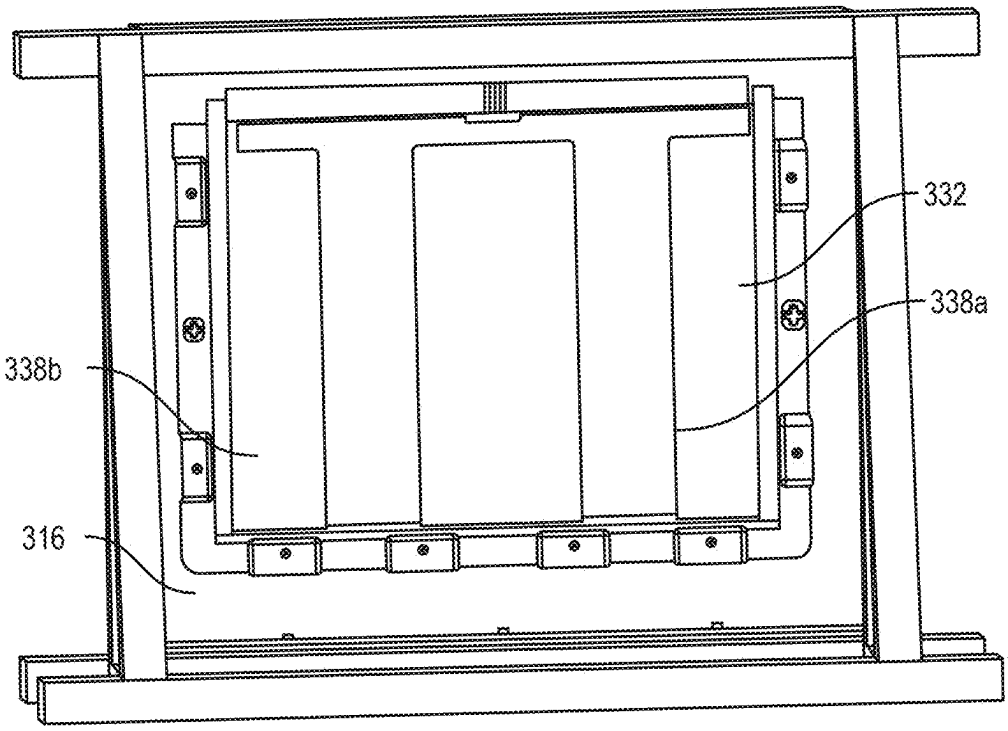


FIG. 6

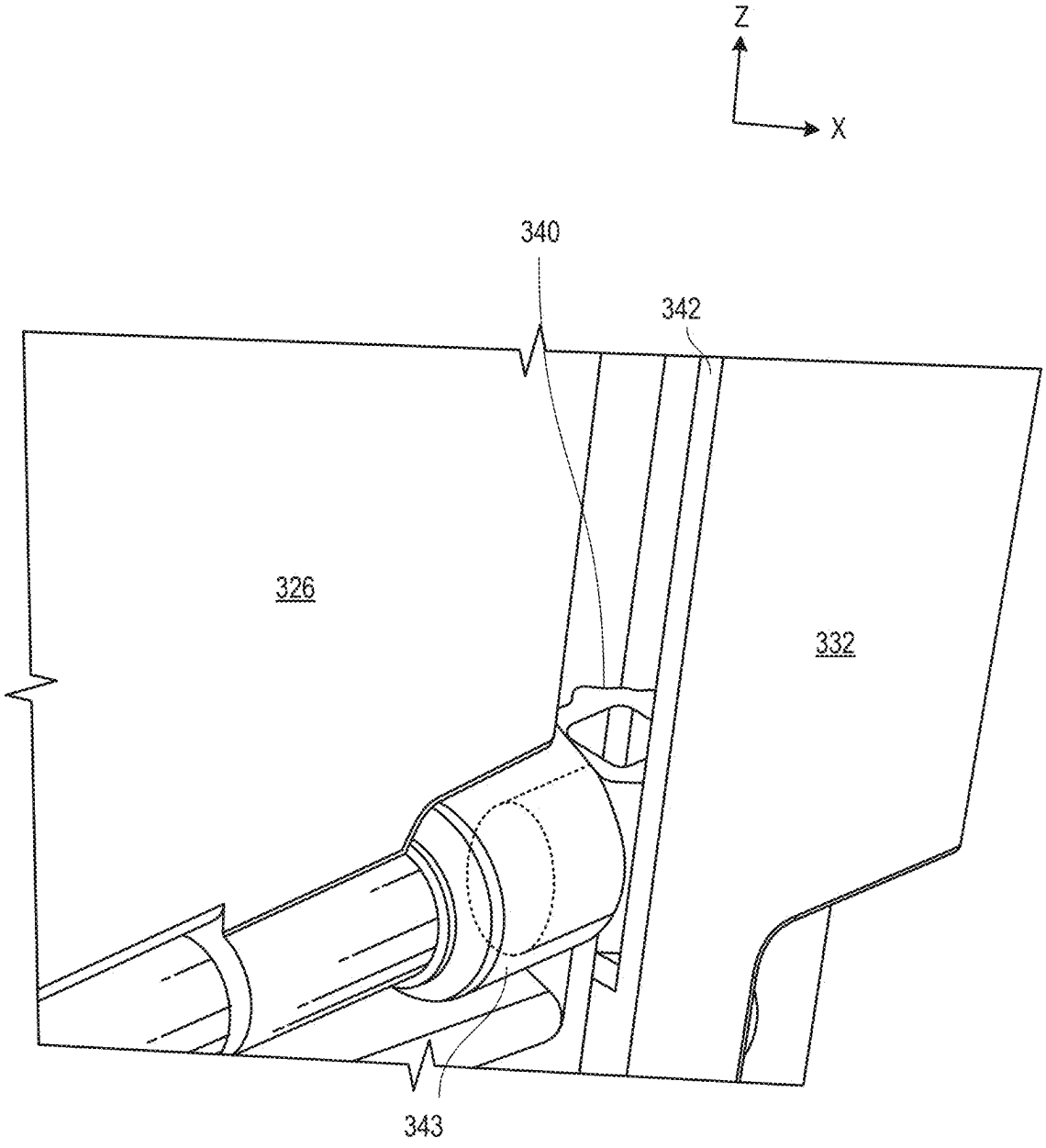


FIG. 7

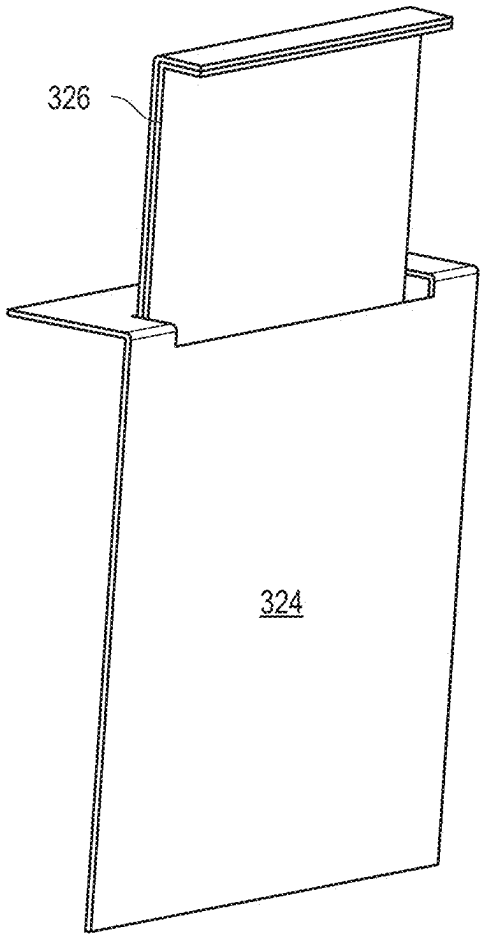


FIG. 8A

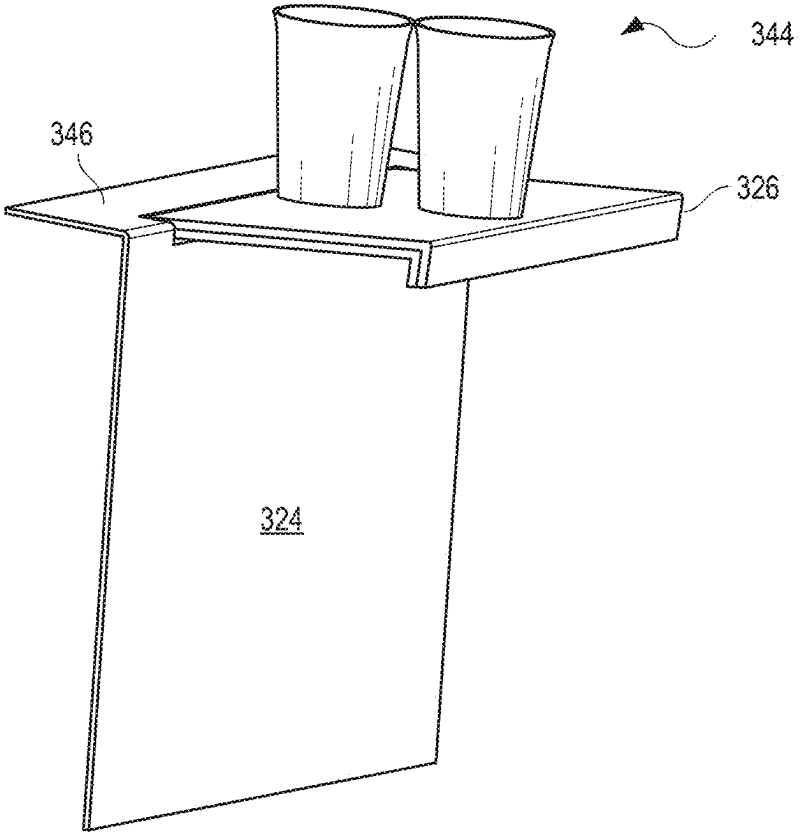


FIG. 8B

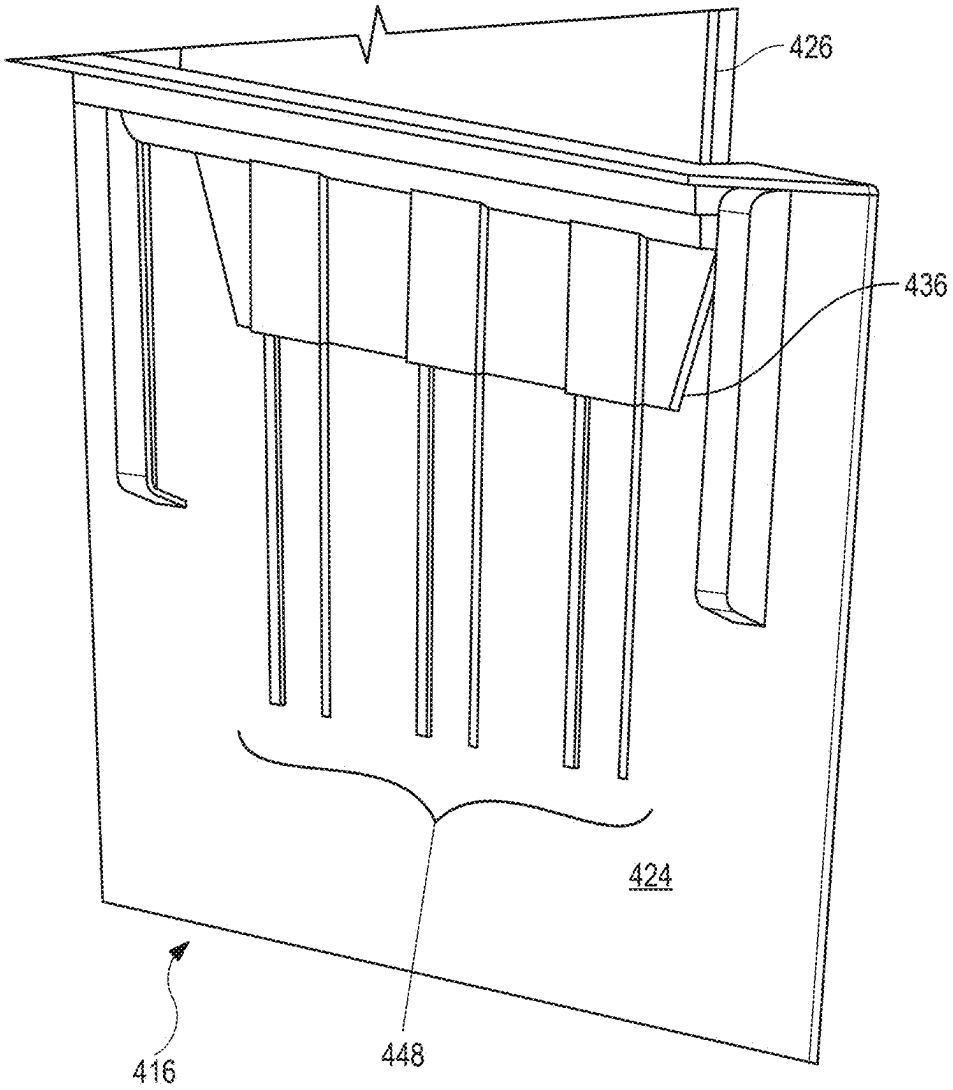


FIG. 9

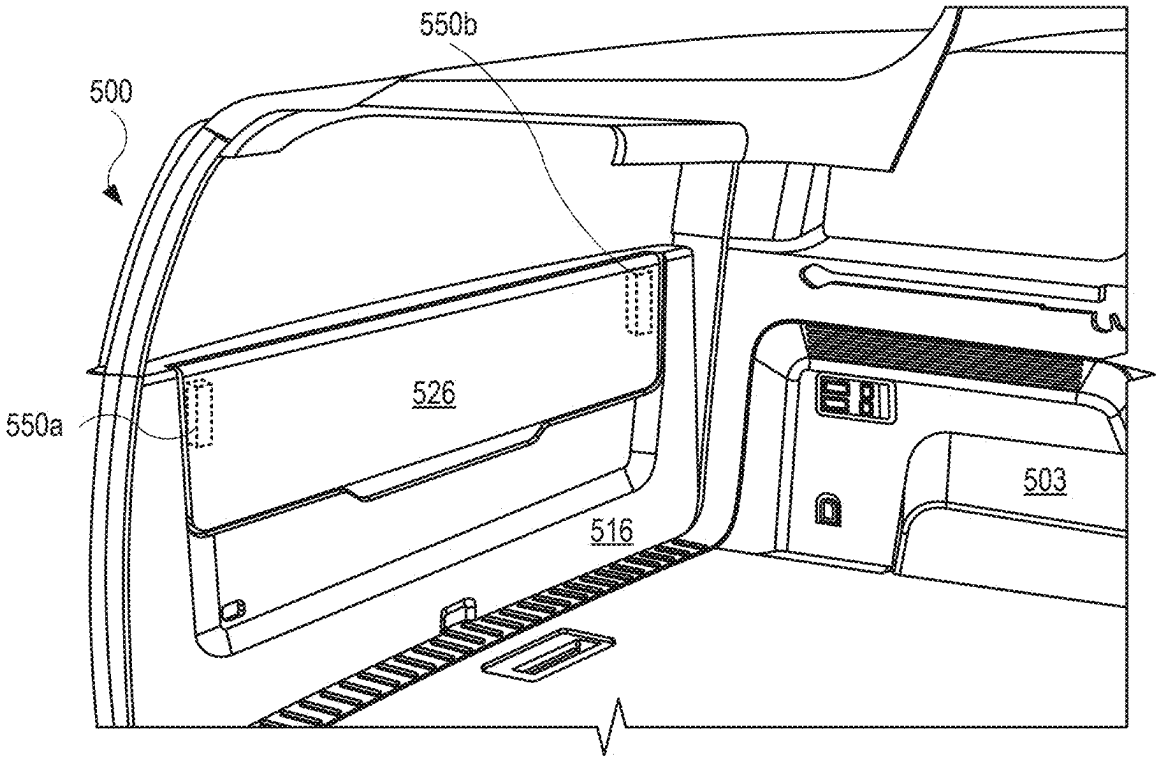


FIG. 10A

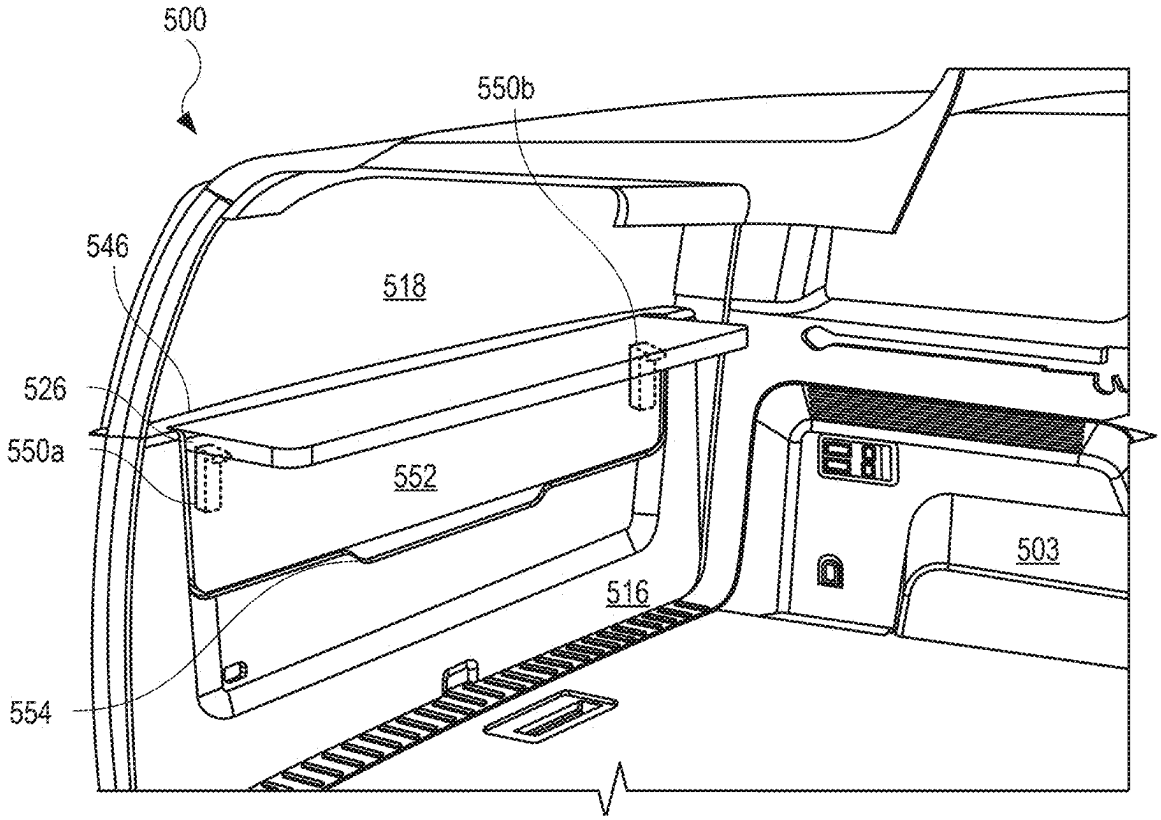


FIG. 10B

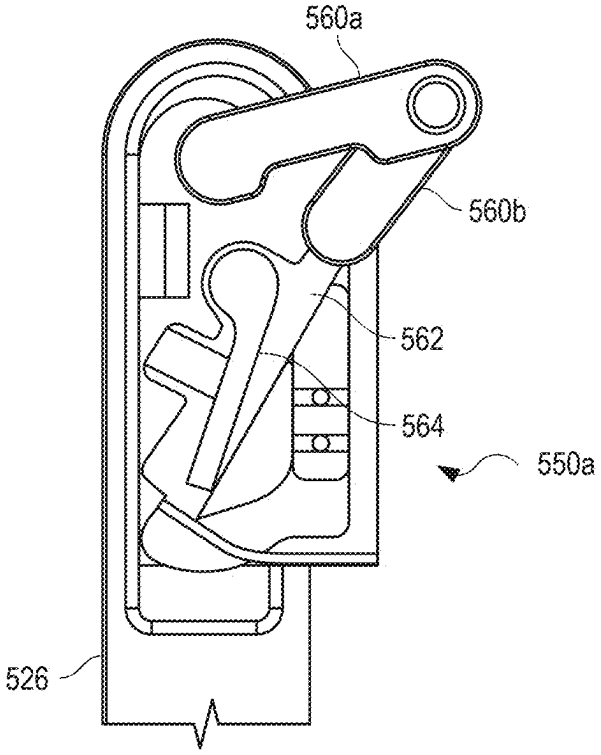


FIG. 11A

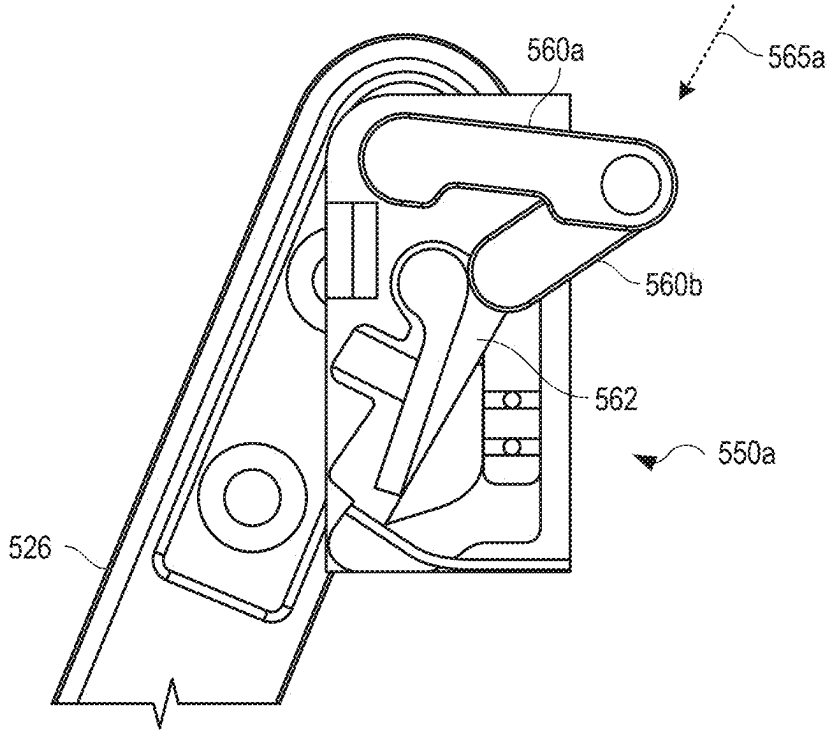


FIG. 11B

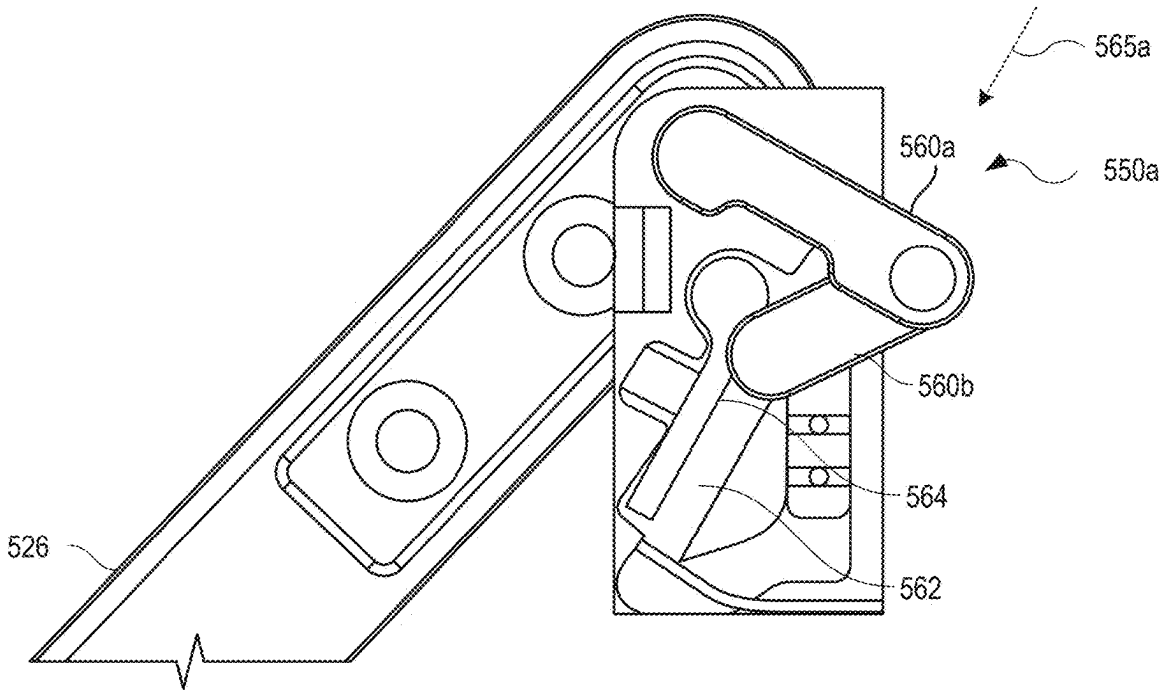


FIG. 11C

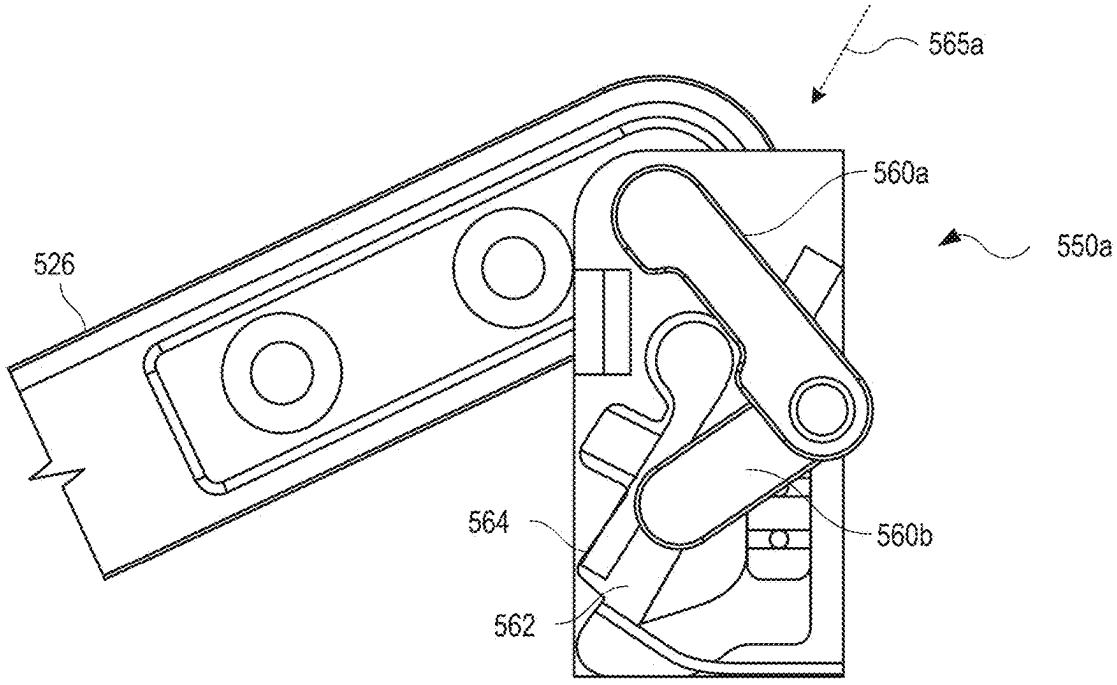


FIG. 11D

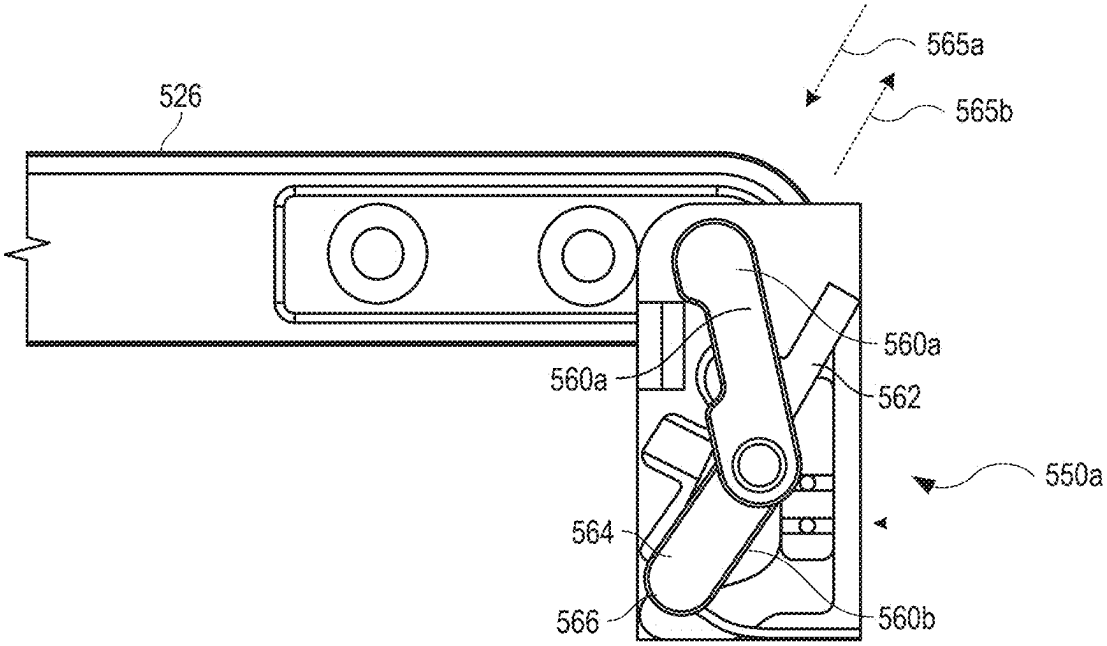


FIG. 11E

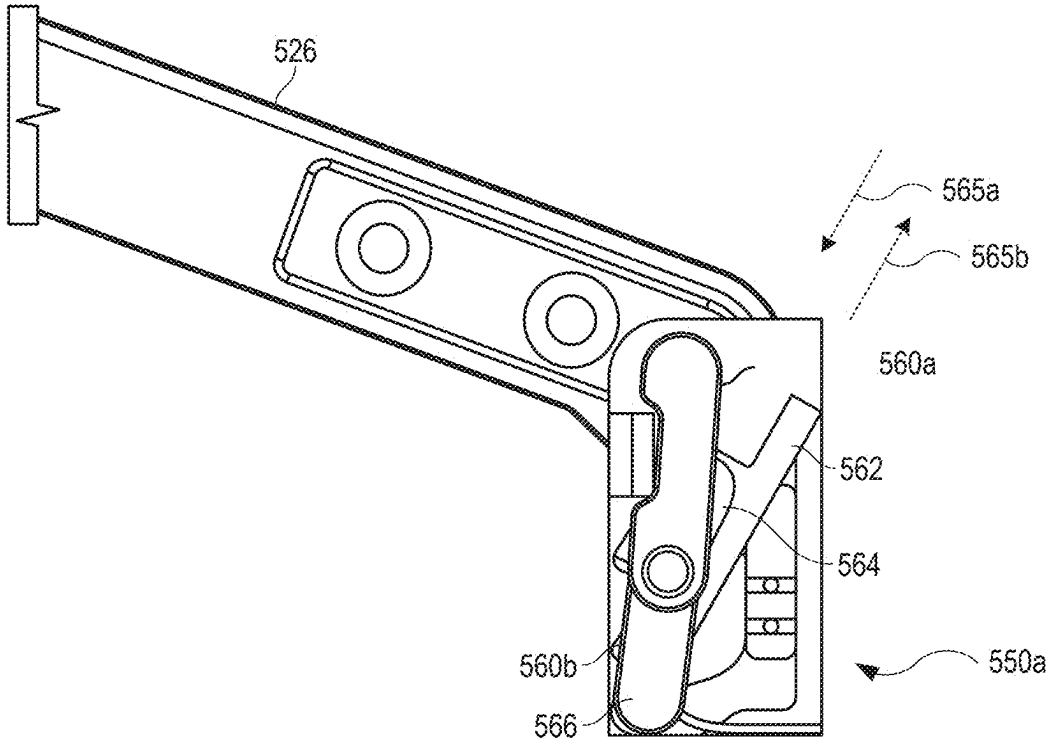


FIG. 11F

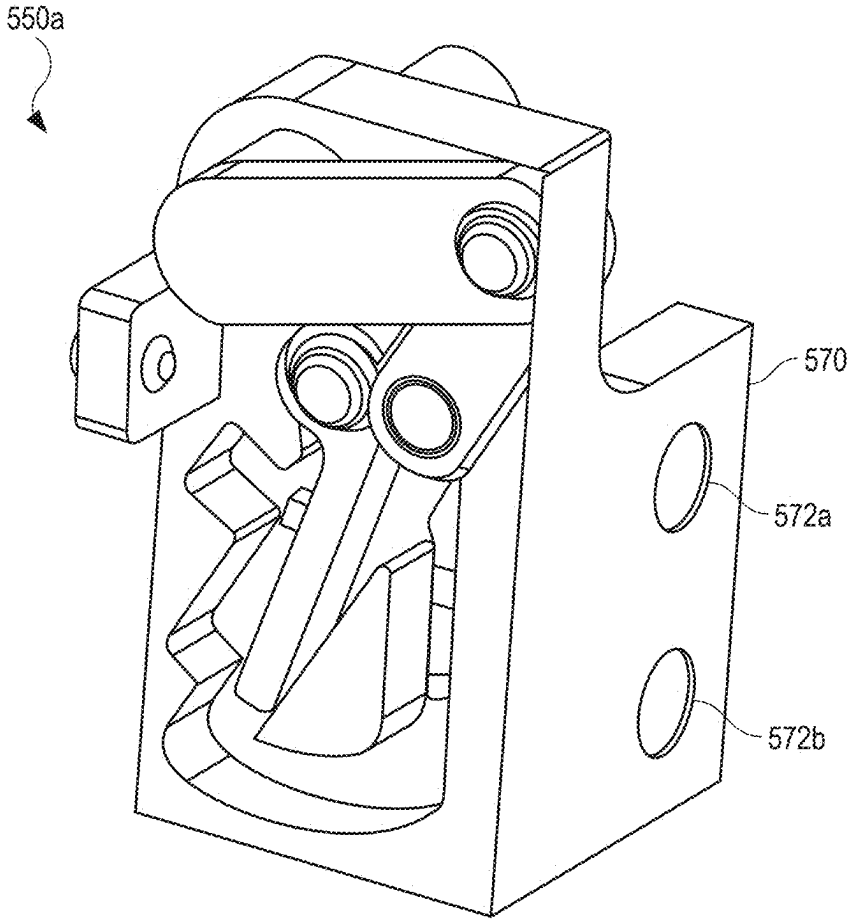


FIG. 12

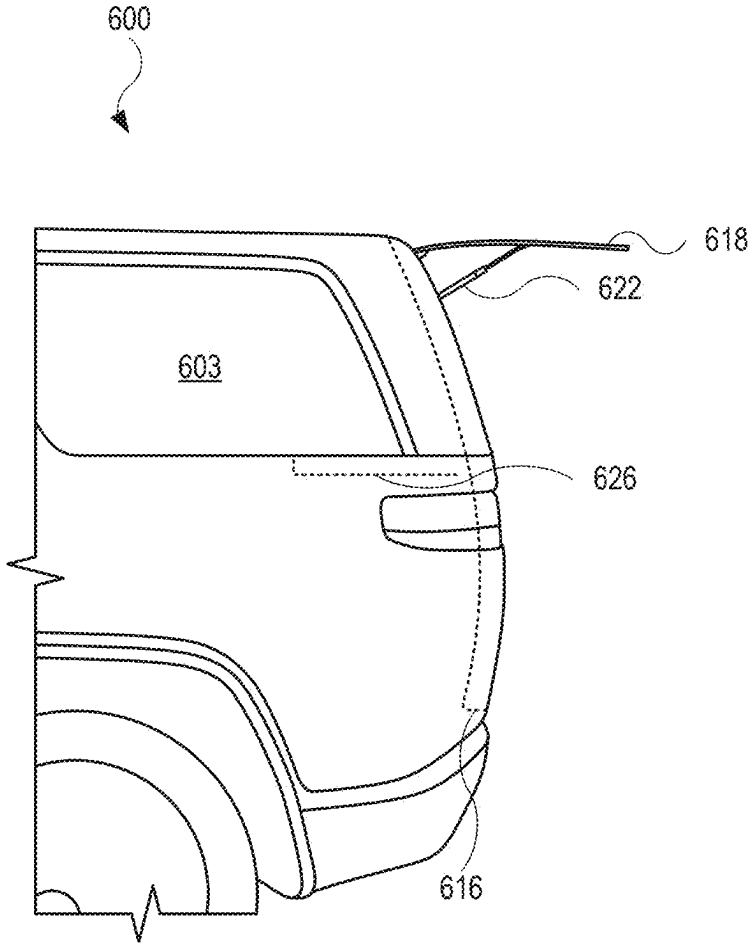


FIG. 13

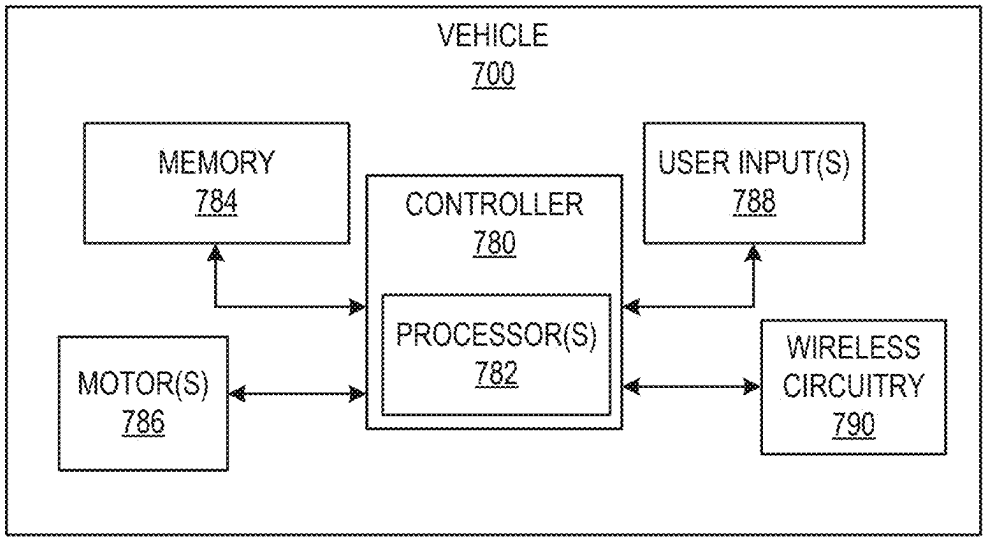

VEHICLE
700
MEMORY
784
CONTROLLER
780
USER INPUT(S)
788
PROCESSOR(S)
782
MOTOR(S)
786
WIRELESS
CIRCUITRY
790

FIG. 14

VEHICLE REAR GATE WITH INTEGRATED PANEL

CROSS REFERENCE TO RELATED APPLICATION(S)

[0001] The present application claims the benefit of U.S. Provisional Application No. 63/560,589 entitled "VEHICLE REAR GATE WITH INTEGRATED PANEL", filed Mar. 1, 2024, the entirety of which is incorporated herein for reference.

INTRODUCTION

[0002] This application is directed to vehicles, and more particularly, to vehicles with gates with a built-in movable panel.

SUMMARY

[0003] Vehicles may include a gate designed to move from a closed position to an open position, or vice versa, based upon a desired use. For example, a gate, in the closed position, encloses objects or cargo inside the vehicle. Gates described herein may further include a panel that may be deployed from the gate, thereby providing an area for users to place items (e.g., computing devices, work-related items, personal items, etc.).

[0004] Vehicles may include a gate designed to move from a closed position to an open position, or vice versa, based upon a desired use. For example, a gate, in the closed position, encloses objects or cargo inside the vehicle. Gates described herein may further include a panel that may be deployed from the gate, thereby providing an area for users to place items (e.g., computing devices, work-related items, personal items, etc.).

[0005] In one or more aspects of the present disclosure, an apparatus is described. The apparatus may include a panel configured to provide a receiving surface for one or more objects. The apparatus may further include a carrier including a recess configured to receive the panel in a first position, the carrier including a guide. The apparatus may further include a bracket coupled to the panel. The bracket may be configured to move along the guide and transition the panel to a second position different from the first position. In the second position, the panel may be removed from the recess. In the second position, the panel may be rotated relative to the carrier. In the second position, the panel may be perpendicular with respect to the carrier.

[0006] The carrier may be configured to secure within a gate body of a vehicle, the panel, in the first position, may be stowed in the gate body, and the panel, in the second position, may be deployed from the gate body. The panel, in the second position, may provide the receiving surface.

[0007] The apparatus may further include a bushing coupled with the panel. The carrier may include a rail, and the bushing may be located in the rail. The bushing may be configured to move with the panel. The panel may be configured to rotate from the first position to the second position based on the bushing.

[0008] In one or more aspects of the present disclosure, a gate for a vehicle is described. The gate may include a gate body including an opening. The gate may further include a carrier coupled with the gate body and positioned in the opening. The carrier may include a rail. The gate may further include a bushing located in the rail. The gate may further include a panel coupled with the bushing. In a first position, the panel may be positioned in the opening, and in a second position, the panel may be moved out the carrier and the opening and rotated relative to the gate body.

[0009] The bushing may be configured to move along the rail, and the panel may be configured to rotate relative to the bushing. The gate body may include an edge, and the panel, in the second position, may be flush with the edge.

[0010] The gate may further include an enclosure. The enclosure may be configured to: occupy an opening of the gate body, and may be further configured to move relative to the opening and into the gate body. The enclosure may include glass. The panel, in the second position, may provide a receiving surface for one or more objects. The carrier may include a recess, and the panel, in the first position, may be positioned in the recess.

[0011] In one or more aspects of the present disclosure, a vehicle is described. The vehicle may include a vehicle body that defines a cabin. The vehicle may further include a gate configured to move relative to the vehicle body. The gate may include a gate body including an opening. The gate may further include a carrier coupled with the gate body and positioned in the opening, the carrier including a rail. The gate may further include a bushing located in the rail. The gate may further include a panel coupled with the bushing. In a first position, the panel may be positioned in the opening, and in a second position, the panel may be moved out the carrier and the opening and rotated relative to the gate body.

[0012] The panel, in the second position, may extend into the cabin. The bushing may be configured to move along the rail, and the panel may be configured to rotate relative to the bushing. The gate body may include an edge, and the panel, in the second position, may be flush with the edge.

[0013] In one or more aspects of the present disclosure, a panel for a gate of a vehicle is described.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Certain features of the subject technology are set forth in the appended claims. However, for purpose of explanation, several embodiments of the subject technology are set forth in the following figures.

[0015] FIG. **1** illustrates a side view of an example of a vehicle, in accordance with one or more aspects of the present disclosure.

[0016] FIG. **2** illustrates a side view of an alternate example of a vehicle, in accordance with one or more aspects of the present disclosure.

[0017] FIG. **3**A illustrates a rear view of a vehicle, showing a gate of the vehicle in a closed position, in accordance with one or more aspects of the present disclosure.

[0018] FIG. **3**B illustrates a rear view of a vehicle, showing a gate of the vehicle in an open position, in accordance with one or more aspects of the present disclosure.

[0019] FIG. **4** illustrates a perspective view of an example of a gate, in accordance with one or more aspects of the present disclosure.

[0020] FIG. **5** illustrates a perspective view of the gate, showing the panel positioned within the gate, in accordance with one or more aspects of the present disclosure.

[0021] FIG. **6** illustrates an alternate perspective view of the gate, showing additional features of the carrier, in accordance with one or more aspects of the present disclosure.

[0022] FIG. **7** illustrates an enlarged perspective view of a panel and a carrier, showing a bushing positioned in a rail of the carrier, in accordance with one or more aspects of the present disclosure.

[0023] FIG. **8**A and FIG. **8**B illustrate perspective views of a panel moving relative to a gate, in accordance with one or more aspects of the present disclosure.

[0024] FIG. **9** illustrates a perspective view of an alternate example of a gate, in accordance with one or more aspects of the present disclosure.

[0025] FIG. **10**A and FIG. **10**B illustrate interior views of a vehicle, in accordance with one or more aspects of the present disclosure.

[0026] FIG. **11**A, FIG. **11**B, FIG. **11**C, FIG. **11**D, FIG. **11**E, and FIG. **11**F illustrate side views of a hinge assembly and a panel, in accordance with one or more aspects of the present disclosure.

[0027] FIG. **12** illustrates an alternate perspective view of a hinge assembly, showing additional features of the hinge assembly, in accordance with one or more aspects of the present disclosure.

[0028] FIG. **13** illustrates a side view of an alternate example of a vehicle, showing an enclosure in an open position, in accordance with one or more aspects of the present disclosure.

[0029] FIG. **14** illustrates a block diagram of a vehicle, in accordance with one or more aspects of the present disclosure.

DETAILED DESCRIPTION

[0030] The detailed description set forth below is intended as a description of various configurations of the subject technology and is not intended to represent the only configurations in which the subject technology may be practiced. The appended drawings are incorporated herein and constitute a part of the detailed description. The detailed description includes specific details for the purpose of providing a thorough understanding of the subject technology. However, it will be clear and apparent to those skilled in the art that the subject technology is not limited to the specific details set forth herein and may be practiced without these specific details. In some instances, well-known structures and components are shown in block diagram form in order to avoid obscuring the concepts of the subject technology.

[0031] The present disclosure is directed to gates (e.g., liftgates) for vehicles that include a panel designed to move (e.g., rotate) away from the gate and provide space that may be utilized as a workstation, staging area, or the like. Accordingly, the panel may function as a table or desk for passengers of the vehicle. When not in use, the panel is stowed inside the gate and does not extend into the cabin of the vehicle. When deployed from the gate, the panel provides a horizontal receiving surface for various items. In this regard, the panel may couple with the gate by components such as bushings (as non-limiting examples) that facilitate both linear and rotational movement of the panel.

[0032] FIG. **1** illustrates an example of a vehicle **100**, in accordance with one or more aspects of the present disclosure. In the example shown in FIG. **1**, the vehicle **100** takes the form of a truck. Generally, the vehicle **100** may take the form of any motorized vehicle, including motorized vehicles with an internal combustion engine and/or one or more electric motors. Accordingly, other implementations of the vehicle **100** may include land-based vehicles, such as a car (e.g., sedan, hatchback), a van, or a commercial truck, as non-limiting examples.

[0033] The vehicle **100** may include a battery pack **102**. The battery pack **102** may be carried by a vehicle body **101** of the vehicle **100**, with the vehicle body **101** defining a cabin **103** that provides a space for passengers. The battery pack **102** may be coupled (e.g., electrically coupled) to one or more electrical systems of the vehicle **100** to provide power to the one or more electrical systems. For example, the vehicle **100** may include a port **104** (e.g., charge port) designed to receive a cable connector (not shown in FIG. **1**) used to transmit power (e.g., alternating current (AC) power) that is converted to direct current (DC) power to charge the battery pack **102**. As another exemplary electrical system, the vehicle **100** may include a drive unit **110**, representative of one or more additional drive units of the vehicle **100**. The battery pack **102** may couple to a drive unit **110**. While the drive unit **110** is shown as generally being in the front of the vehicle **100**, the drive unit **110** may be located in the rear of the vehicle **100**. Further, when multiple drive units are used, at least one drive unit may be in the front of the vehicle **100** to drive the front wheels (e.g., wheel **112***a*), and at least one drive unit may be in the rear of the vehicle **100** to drive the rear wheels (e.g., wheel **112***b*). The drive unit **110** may include, for example, a motor, an inverter, a gear box, and a differential. In the example shown in FIG. **1**, the drive unit **110** takes the form of an electric motor. In this regard, the drive unit **110** may use energy (e.g., electrical energy) stored in the battery pack **102** for propulsion in order to drive (e.g., rotationally drive) wheels of the vehicle **100**.

[0034] The vehicle **100** may further include a bed **114** that may be used as a storage area for the vehicle **100**. In order to access the bed **114**, the vehicle **100** may further include a gate **116**. Based on its position on the vehicle **100**, the gate **116** may take the form of a closure, such as a rear gate or a tailgate. The gate **116** is designed to open, via rotation, thereby allowing further access to the bed **114**.

[0035] FIG. **2** illustrates a side view of an alternate example of a vehicle **200**, in accordance with one or more aspects of the present disclosure. As shown, the vehicle **200** takes the form of a sport utility vehicle (SUV). The vehicle **200** may include several features shown and/or described for the vehicle **100** (shown in FIG. **1**). For example, the vehicle **200** may include a vehicle body **201**, a battery pack **202**, a cabin **203**, a port **204** (e.g., charge port), a drive unit **210** (representative of one or more additional drive units), a wheel **212***a* (representative of an additional front wheel), and a wheel **212***b* (representative of an additional rear wheel).

[0036] The cabin **203** of the vehicle **200** may extend to a rear portion of the vehicle **200**. In order to access the rear portion of the cabin **203**, the vehicle **200** may further include a gate **216**. Based on its position on the vehicle **200**, the gate **216** may take the form of a rear gate or a liftgate. The gate **216** is designed to open, via rotation, thereby allowing access to the cabin **203**. Additionally, the vehicle **200** may include an enclosure **218**. In one or more implementations, the enclosure **218** takes the form of a glass panel. Similar to the gate **216**, the enclosure **218** is designed to open, via rotation, thereby allowing further access to the cabin **203**.

[0037] FIG. **3**A illustrates a rear view of the vehicle **300**, showing a gate **316** of the vehicle **300** in a closed position, in accordance with one or more aspects of the present

disclosure. In the example shown in FIG. **3**, the vehicle **300** takes the form of an SUV that includes a vehicle body **301**. The gate **316** may couple (e.g., rotationally couple) with the vehicle body **301**. As shown, the vehicle **300** includes an enclosure **318** carried by the gate **316**. The gate **316** includes an opening **320** and the enclosure **318** occupies the opening **320**. In one or more implementations, the enclosure **318** takes the form of a glass panel (or other transparent material) designed to move vertically relative to the gate **316**. In this regard, the enclosure **318** may be actuated (e.g., by one or more motors) into the gate **316** (e.g., lowered in the Z-direction of Cartesian coordinates), thus allowing user access into the vehicle **300** through the opening **320**.

[0038] FIG. **3**B illustrates a rear view of the vehicle **300**, showing the gate **316** in an open position, in accordance with one or more aspects of the present disclosure. As shown, the gate **316** is movable relative to the vehicle body **301**. In order to open the gate **316**, the vehicle **300** may include a strut **322***a* and a strut **322***b*. Each of the struts **322***a* and **322***b* may be coupled (e.g., fastened, secured, adhered, or the like) to the gate **316**. In one or more implementations, each of the struts **322***a* and **322***b* takes the form of a power strut or motorized strut. In this regard, each of the struts **322***a* and **322***b* may be operated by, for example, a motor (e.g., electric motor).

[0039] Referring to FIG. **3**A and FIG. **3**B, the enclosure **318** may be opened and closed by automated means. In this regard, the struts **322***a* and **322***b* may be operated by a user from a remote location, such as when the user is a driver or passenger sitting in the vehicle **300** or by using a software application (e.g., app) running on a mobile wireless communication device (e.g., smartphone). Beneficially, movement of the enclosure **318** may be controlled by a user without manually grasping or otherwise contacting the enclosure **318**. Additionally, the gate **316** may be automatically opened and closed by similar means.

[0040] FIG. **4** illustrates a perspective view of the gate **316**, in accordance with one or more aspects of the present disclosure. The gate **316** may include a gate body **324** that carries components, such as the enclosure **318**. In one or more implementations, the gate body **324** is designed to carry a panel **326**. In this regard, the gate body **324** may include an opening **328** and the panel **326** may be stowed in the opening **328**, as shown in FIG. **4**. However, the panel **326** may be removed from the opening **328** as well. This will be shown and described in further detail below. In order to remove the panel **326**, the gate body **324** may include an indentation **330** that provides an area for a user to grasp the panel **326**.

[0041] The gate body **324** of the gate **316** may include multiple surfaces (e.g., formed body panels), including an interior surface facing a cabin of a vehicle as well as an exterior surface facing an ambient environment external to the vehicle. In a stowed position (shown in FIG. **4**), the panel **326** and the carrier **332** are positioned between the interior surface (shown in FIG. **4**) and an exterior surface of the gate body **324**.

[0042] FIG. **5** illustrates a perspective view of the gate **316**, showing the panel **326** positioned within the gate **316**, in accordance with one or more aspects of the present disclosure. Additional features may be included in the gate **316**. For example, the gate **316** may include a carrier **332** designed to hold, or carry, the panel **326**. The carrier **332** may include a recess **334** that receives the panel **326** in a stowed position of the panel **326**. Also, a bracket **336***a* and a bracket **336***b* may couple with the panel **326**.

[0043] FIG. **6** illustrates an alternate perspective view of the gate **316**, showing additional features of the carrier **332**, in accordance with one or more aspects of the present disclosure. As shown, the carrier **332** may include a guide **338***a* and a guide **338***b* designed to receive the bracket **336***a* and the bracket **336***b*, respectively, with the brackets **336***a* and **336***b* shown in FIG. **5**. The guide **338***a* and the guide **338***b* provide a space along which the bracket **336***a* and the bracket **336***b*, respectively, may move. This may result in movement of the panel **326** out of the gate **316**.

[0044] FIG. **7** illustrates an enlarged perspective view of the panel **326** and the carrier **332**, showing a bushing **340** positioned in a rail **342** of the carrier **332**, in accordance with one or more aspects of the present disclosure. The bushing **340** and the rail **342** may be representative of an additional bushing and an additional rail, respectively. The bushing **340** is designed to move along the rail **342** (e.g., in the Z-direction). As shown, the panel **326** includes a receptacle **343** designed to receive the bushing **340**.

[0045] FIG. **8**A and FIG. **8**B illustrate perspective views of the panel **326** moving relative to a gate **316**, in accordance with one or more aspects of the present disclosure. Referring to FIG. **8**A, the panel **326** is moved out of the gate body **324**. As shown, the panel **326** may move in a direction parallel, or approximately, parallel with respect to the gate body **324**. In this regard, the panel **326** may move vertically or in a linear manner. Referring to FIG. **8**B, the panel **326** is removed from the gate body **324** and rotated with respect to the gate body **324**, thus providing a receiving surface for objects **344**. As shown in FIG. **8**B, the gate body **324** may include an edge **346**, and the panel **326** may be flush, or co-planar, with respect to the edge **346**. Also, the panel **326** may be perpendicular, or substantially perpendicular, with respect to the gate body **324**.

[0046] Referring again to FIG. **5**, FIG. **6**, and FIG. **7**, the panel **326** is in a stowed position, in which the panel **326** is positioned in the gate **316**, including the gate body **324** (shown in FIG. **4**). When the panel **326** is being removed from the gate **316**, the bushing **340** (shown in FIG. **7**) may move along the rail **342** (shown in FIG. **7**). Additionally, each of the brackets **336***a* and **336***b* may function as a hinge. In this regard, when moved out of the carrier **332** (shown in FIG. **5**), the panel **326** may rotate relative to the gate body **324** and transition to a deployed position, thus providing a horizontal, or substantially horizontal, receiving surface. The panel **326**, the carrier **332**, the brackets **336***a* and **336***b*, and the bushing **340** may be assembled as an apparatus for vehicles shown and/or described herein.

[0047] FIG. **9** illustrates a perspective view of an alternate example of a gate **416**, in accordance with one or more aspects of the present disclosure. The gate **416** may include a gate body **424** and a panel **426**. The panel **426** may be coupled with a bracket **436**. The gate body **424** may grooves **448**. The grooves **448** may provide a track along which the bracket **436** may move. In this regard, the panel **426** may move with the bracket **436**. Further, the bracket **436** may function as a hinge, thus allowing the panel **426** to rotate with respect to the gate body **424**.

[0048] FIG. **10**A and FIG. **10**B illustrate interior views of a vehicle **500**, in accordance with one or more aspects of the present disclosure. In particular, a cabin **503** of the vehicle **500** is shown. Referring to FIG. **10**A, the vehicle **500**

includes a panel **526** integrated with the gate **516** (defining a gate body). As shown, the panel **526** is in a closed position, or stowed position, and is stored in the gate **516**. The panel **526** is designed to move relative to the gate **516** when, for example, the gate **516** is in a closed position as shown in FIG. **10**A. In this regard, the vehicle **500** may include a hinge assembly **550***a* and a hinge assembly **550***b,* each of which may be used to move the panel **526**.

[0049] Referring to FIG. **10**B, the panel **526** is transitioned to an open position, or deployed position. In this regard, the panel **526** moves relative to the gate **516** and out of a recess **552** formed in the gate **516**. Each of the hinge assemblies **550***a* and **550***b* may include one or more movable arms to facilitate moving the panel **526**. Also, each of the hinge assemblies **550***a* and **550***b* may be hidden, or at least substantially hidden, from view from passengers or users. In this regard, the panel **526** and/or one or more interior features in the vehicle **500** (e.g., in the cabin **503**) may cover, or otherwise obscure, the hinge assemblies **550***a* and **550***b* from view. This may not only enhance the overall aesthetics of the cabin **503**, but also prevent passengers or users from inadvertently contacting either or both of the hinge assemblies **550***a* and **550***b.* In one or more implementations, each of the hinge assemblies **550***a* and **550***b* takes to form of a motorized hinge that may be operated or controlled remotely. As a result, the panel **526** may be moved by automated means. Additionally or alternatively, the panel **526** may be moved by manual means. For example, the gate **516** may further include an indentation **554** extending from the recess **552**, with the indentation **554** providing an area by which a passenger can grasp and move the panel **526**.

[0050] In the open position, the panel **526** extends, or is moved, into the cabin **503**. Also, when the panel **526** is in the open position, the panel **526** may be flush, or co-planar, with respect to an edge **546** of the gate **516**. Beneficially, the panel **526**, in the open position, forms a table that can be used as a workstation, staging area, etc. Further, the vehicle **500** may include an enclosure **518**, or glass structure. As shown, the enclosure **518** is in a closed positioned, and passengers within the cabin **503** may utilize the panel **526**. However, the enclosure **518** may transition to an open position, where the enclosure **518** is positioned in the gate **516** (e.g., the enclosure **518** occupies an opening of the gate body of the gate **516**), thus allowing users outside the vehicle **500** to access and utilize the panel **526**.

[0051] FIG. **11**A, FIG. **11**B, FIG. **11**C, FIG. **11**D, FIG. **11**E, and FIG. **11**F illustrate side views of the hinge assembly **550***a* and a panel **526**, in accordance with one or more aspects of the present disclosure. The hinge assembly **550***a* may be representative of the hinge assembly **550***b* (shown in FIGS. **10**A and **10**B), and accordingly, the hinge assembly **550***b* may include any features shown and/or described for the hinge assembly **550***a.*

[0052] Referring to FIG. **11**A, the hinge assembly **550***a* positions the panel **526** in a stowed positioned (e.g., in a recess **552** of a gate **516**, shown in FIG. **10**B). The hinge assembly **550***a* may include an arm **560***a* and an arm **560***b* coupled (e.g., rotationally coupled) with the arm **560***a*. The arms **560***a* and **560***b* may function as levers designed to rotate, thus rotating and moving the panel **526**. The hinge assembly **550***a* may further include a track **562**. The arm **560***b* is positioned, or at least partially positioned by way of a pin (not shown in FIG. **11**A), in the track **562**. In this regard, the arm **560***b* is designed to move along the track **562** in either of two directions. The hinge assembly **550***a* may further include a pin **564**. As shown, the pin **564** is positioned, or at least partially positioned, in the track **562**. In some instances, the pin **564** may permit movement of the arm **560***a* along the track **562**. Conversely, in other instances, the pin **564** may prevent of the arm **560***b* from moving along the track **562**, thus locking the arm **560***b*, and in turn the panel **526**, in place.

[0053] Referring to FIG. **11**B, the hinge assembly **550***a* permits movement of the panel **526**. Movement of the panel **526** may be initiated by manual or automated means. As shown, each of the arms **560***a* and **560***b* rotate, with the arm **560***b* moving along the track **562** in a direction of an arrow **565***a.*

[0054] Referring to FIG. **11**C, the hinge assembly **550***a* permits further movement of the panel **526**. As shown, each of the arms **560***a* and **560***b* rotate, with the arm **560***b* further moving along the track **562** (in the direction of the arrow **565***a*) and engaging the pin **564**, causing the pin **564** to move (e.g., rotate) out of, or at least further out of, the track **562**.

[0055] Referring to FIG. **11**D, the hinge assembly **550***a* permits further movement of the panel **526**. As shown, each of the arms **560***a* and **560***b* rotate, with the arm **560***b* further moving along the track **562** (in the direction of the arrow **565***a*) and causing further movement of the pin **564** out of, or at least further out of, the track **562**.

[0056] Referring to FIG. **11**E, the hinge assembly **550***a* permits further movement of the panel **526**. As shown, each of the arms **560***a* and **560***b* rotate, with the arm **560***b* further moving along the track **562** (in the direction of the arrow **565***a*) and causing further movement of the pin **564**. As shown, the arm **560***b* includes a pin **566**. Based on the additional movement of the arm **560***b,* the pin **566** is moved along the track **562** past the pin **564**, causing the pin **564** to move into, or at least further into, the track **562**. In this regard, the pin **564** may prevent movement of the arm **560***b* from returning to a prior position. Put another way, the pin **564** may engage the pin **566** and prevent the arm **560***b* from moving along the track in a direction of an arrow **565***b,* with the direction of the arrow **565***b* being opposite that of the arrow **565***a*. As shown, the pin **564** is positioned over, and engaged with, the pin **566** in a manner such that the pin **566**, and in turn, the arm **560***b,* is prevented from moving along the track **562** in the direction of the arrow **565***b*. Based in part on the weight of the panel **526**, the pins **564** and **566** remain engaged with each other. As a result, the panel **526** remains fixed in a deployed position as shown in FIG. **11**E.

[0057] Referring to FIG. **11**F, in order to return the panel **526** from the deployed position (shown in FIG. **11**E) to the stowed position (shown in FIG. **11**A), the panel **526** may be further moved (e.g., lifted) to a position above a horizontal axis. By moving the panel **526** in the manner shown in FIG. **11**F, the arm **560***b* may further move along the track **562** in a direction of the arrow **565***a,* causing the pins **564** and **566** to disengage. The pin **564** may out of the track **562**, or at least partially out of the track **562**, allowing the arm **560***b* to move in a direction of the arrow **565***b*. Accordingly, the arms **560***b* and **560***b* may rotate, which in turn allows the panel **526** to return to the stowed position.

[0058] It should be noted that the aforementioned features (e.g., panel, carrier, etc.) are shown as being integrated with a gate. However, other components of a vehicle (e.g., vehicle door, console, dashboard) may also integrate features, such as the panel, the carrier, etc.

[0059] FIG. **12** illustrates an alternate perspective view of the hinge assembly **550***a*, showing additional features of the hinge assembly **550***a*, in accordance with one or more aspects of the present disclosure. As shown, the hinge assembly **550***a* may include a base **570** that includes an opening **572***a* and an opening **572***b*, with each of the openings **572***a* and **572***b* designed to receive an object such as fastener, a rivet, or the like. Accordingly, using the base **570**, the hinge assembly **550***a* may couple to a vehicle body or a gate.

[0060] FIG. **13** illustrates a side view of an alternate example of a vehicle **600**, showing an enclosure **618** in an open position, in accordance with one or more aspects of the present disclosure. As shown, the vehicle **600** may include a gate **616**. The enclosure **618** (e.g., glass panel) may move relative to the gate **616** by, for example, a strut **622** (representative of an additional strut). Also, the gate **616** may include a panel **626** (shown as dotted lines). As shown, the panel **626** is in a deployed position and extends into a cabin **603** of the vehicle **600**. However, when the enclosure **618** is in the open position, users outside the vehicle **600** may utilize the panel **626**.

[0061] FIG. **14** illustrates a block diagram of a vehicle **700**, in accordance with one or more aspects of the present disclosure. As shown, the vehicle **700** may include a controller **780**. In one or more implementations, the controller **780** includes one or more processors **782**. The one or more processors **782** may include processing circuitry, such as a central processing unit (CPU), a graphics processing unit (GPU), one or more microcontrollers, an application specific integrated circuit (ASIC), or a combination thereof, as non-limiting examples. Additionally, the vehicle **700** may further include memory **784** that stores instructions and/or code, each of which being executable by the one or more processors **782**. The memory **784** may include read-only memory (ROM) and/or random access memory (RAM).

[0062] The vehicle **700** one or more motors **786**. In one or more implementations, at least some of the one or more motors **786** are utilized to actuate one or more brackets (e.g., brackets **336***a* and **336***b*, shown in FIG. **5**). In this regard, the vehicle **700** may include a panel (e.g., panel **326** shown in FIG. **8**B) that may be moved, for example, from a stowed position to a deployed position, or vice versa, by automated means (e.g., through controlling the brackets). Alternatively, at least some of the one or more motors **786** are utilized to actuate one or more hinge assemblies (e.g., hinge assemblies **550***a* and **550***b*, shown in FIG. **10**A). In this regard, the vehicle **700** may include a panel (e.g., panel **526** shown in FIG. **10**B) that may be moved, for example, from a stowed position to a deployed position, or vice versa, by automated means (e.g., through controlling the hinge assemblies).

[0063] The vehicle **700** may further include one or more user inputs **788**. As non-limiting examples, the one or more user inputs **788** may include a display, a button, a dial, a microphone, or a combination thereof. The one or more user inputs **788** may be utilized to operate the one or more motors **786**. In an exemplary operation, a touch input or gesture to a display, or touchscreen, of the one or more user inputs **788** provides an input to the controller **780**. The one or more processors **782** may execute instructions stored on the memory **784**, which results in instructions or commands to actuate the one or more motors **786**.

[0064] While the one or more user inputs **788** are shown as being part of, or integrated with, the vehicle **700**, the one or more user inputs **788** may be non-integrated user inputs (e.g., mobile wireless communication device, fob). In this regard, the vehicle **700** may further include wireless circuitry **790** designed to communicate (e.g., receive) wireless transmission, such as radio frequency (RF) communication, from a non-integrated user input. As non-limiting examples, the RF communication may include wireless circuitry **790** operating in accordance with protocol such as BLUETOOTH® or WI-FI®. When the selected user input of the one or more user inputs **788** is non-integrated with the vehicle, the wireless circuitry **790** may be used to receive wireless data from the user input.

[0065] As used herein, the phrase "at least one of" preceding a series of items, with the term "and" or "or" to separate any of the items, modifies the list as a whole, rather than each member of the list (i.e., each item). The phrase "at least one of" does not require selection of at least one of each item listed; rather, the phrase allows a meaning that includes at least one of any one of the items, and/or at least one of any combination of the items, and/or at least one of each of the items. By way of example, the phrases "at least one of A, B, and C" or "at least one of A, B, or C" each refer to only A, only B, or only C; any combination of A, B, and C; and/or at least one of each of A, B, and C.

[0066] When an element is referred to herein as being "connected" or "coupled" to another element, it is to be understood that the elements can be directly connected to the other element, or have intervening elements present between the elements. In contrast, when an element is referred to as being "directly connected" or "directly coupled" to another element, it should be understood that no intervening elements are present in the "direct" connection between the elements. However, the existence of a direct connection does not exclude other connections, in which intervening elements may be present.

[0067] The predicate words "configured to", "operable to", and "programmed to" do not imply any particular tangible or intangible modification of a subject, but, rather, are intended to be used interchangeably. In one or more implementations, a processor configured to monitor and control an operation or a component may also mean the processor being programmed to monitor and control the operation or the processor being operable to monitor and control the operation. Likewise, a processor configured to execute code can be construed as a processor programmed to execute code or operable to execute code.

[0068] Phrases such as an aspect, the aspect, another aspect, some aspects, one or more aspects, an implementation, the implementation, another implementation, some implementations, one or more implementations, an embodiment, the embodiment, another embodiment, some embodiments, one or more embodiments, a configuration, the configuration, another configuration, some configurations, one or more configurations, the subject technology, the disclosure, the present disclosure, other variations thereof and alike are for convenience and do not imply that a disclosure relating to such phrase(s) is essential to the subject technology or that such disclosure applies to all configurations of the subject technology. A disclosure relating to such phrase(s) may apply to all configurations, or one or more configurations. A disclosure relating to such phrase (s) may provide one or more examples. A phrase such as an

aspect or some aspects may refer to one or more aspects and vice versa, and this applies similarly to other foregoing phrases.

[0069] The word "exemplary" is used herein to mean "serving as an example, instance, or illustration". Any embodiment described herein as "exemplary" or as an "example" is not necessarily to be construed as preferred or advantageous over other embodiments. Furthermore, to the extent that the term "include", "have", or the like is used in the description or the claims, such term is intended to be inclusive in a manner similar to the term "comprise" as "comprise" is interpreted when employed as a transitional word in a claim.

[0070] All structural and functional equivalents to the elements of the various aspects described throughout this disclosure that are known or later come to be known to those of ordinary skill in the art are expressly incorporated herein by reference and are intended to be encompassed by the claims. Moreover, nothing disclosed herein is intended to be dedicated to the public regardless of whether such disclosure is explicitly recited in the claims. No claim element is to be construed under the provisions of 35 U.S.C. § 112, sixth paragraph, unless the element is expressly recited using the phrase "means for" or, in the case of a method claim, the element is recited using the phrase "step for".

[0071] The previous description is provided to enable any person skilled in the art to practice the various aspects described herein. Various modifications to these aspects will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other aspects. Thus, the claims are not intended to be limited to the aspects shown herein, but are to be accorded the full scope consistent with the language claims, wherein reference to an element in the singular is not intended to mean "one and only one" unless specifically so stated, but rather "one or more". Unless specifically stated otherwise, the term "some" refers to one or more. Pronouns in the masculine (e.g., his) include the feminine and neuter gender (e.g., her and its) and vice versa. Headings and subheadings, if any, are used for convenience only and do not limit the subject disclosure.

What is claimed is:

1. An apparatus, comprising:
- a panel configured to provide a receiving surface for one or more objects;
- a carrier comprising a recess configured to receive the panel in a first position, the carrier comprising a guide; and
- a bracket coupled to the panel, the bracket configured to move along the guide and transition the panel to a second position different from the first position.

2. The apparatus of claim **1**, wherein in the second position, the panel is removed from the recess.

3. The apparatus of claim **2**, wherein in the second position, the panel is rotated relative to the carrier.

4. The apparatus of claim **2**, wherein in the second position, the panel is perpendicular with respect to the carrier.

5. The apparatus of claim **1**, wherein:
- the carrier is configured to secure within a gate body of a vehicle,
- the panel, in the first position, is stowed in the gate body, and
- the panel, in the second position, is deployed from the gate body.

6. The apparatus of claim **1**, wherein the panel, in the second position, provides the receiving surface.

7. The apparatus of claim **1**, further comprising a bushing coupled with the panel, wherein:
- the carrier comprises a rail, and
- the bushing is located in the rail.

8. The apparatus of claim **7**, wherein the bushing is configured to move with the panel.

9. The apparatus of claim **7**, wherein the panel is configured to rotate from the first position to the second position based on the bushing.

10. A gate for a vehicle, the gate comprising:
- a gate body comprising an opening;
- a carrier coupled with the gate body and positioned in the opening, the carrier comprising a rail;
- a bushing located in the rail; and
- a panel coupled with the bushing, wherein:
  - in a first position, the panel is positioned in the opening, and
  - in a second position, the panel is moved out the carrier and the opening and rotated relative to the gate body.

11. The gate of claim **10**, wherein:
- the bushing is configured to move along the rail, and
- the panel is configured to rotate relative to the bushing.

12. The gate of claim **10**, wherein:
- the gate body comprises an edge, and
- the panel, in the second position, is flush with the edge.

13. The gate of claim **10**, further comprising an enclosure, wherein the enclosure is configured to:
- occupy an opening of the gate body, and
- move relative to the opening and into the gate body.

14. The gate of claim **13**, wherein the enclosure comprises glass.

15. The gate of claim **10**, wherein the panel, in the second position, provides a receiving surface for one or more objects.

16. The gate of claim **10**, wherein:
- the carrier comprises a recess, and
- the panel, in the first position, is positioned in the recess.

17. A vehicle, comprising:
- a vehicle body that defines a cabin; and
- a gate configured to move relative to the vehicle body, the gate comprising:
  - a gate body comprising an opening;
  - a carrier coupled with the gate body and positioned in the opening, the carrier comprising a rail;
  - a bushing located in the rail; and
  - a panel coupled with the bushing, wherein:
    - in a first position, the panel is positioned in the opening, and
    - in a second position, the panel is moved out the carrier and the opening and rotated relative to the gate body.

18. The vehicle of claim **17**, wherein the panel, in the second position, extends into the cabin.

19. The vehicle of claim **17**, wherein:
- the bushing is configured to move along the rail, and
- the panel is configured to rotate relative to the bushing.

20. The vehicle of claim **17**, wherein:
- the gate body comprises an edge, and
- the panel, in the second position, is flush with the edge.

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