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(54) **UTILITY VEHICLE FLUID CONTAINMENT SYSTEM**

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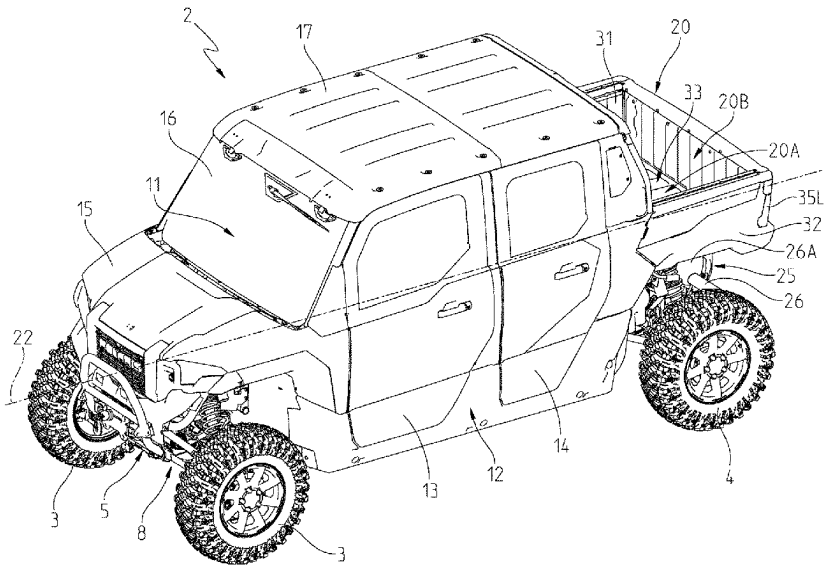
(57) **ABSTRACT**

A vehicle includes a plurality of ground engaging members and a frame supported by the ground engaging members. A powertrain and a utility or cargo bed are supported by the frame. The cargo bed comprises a first wall extending generally longitudinally and a second wall extending generally longitudinally, and the second wall is laterally spaced from the first wall. The cargo bed further comprises a bed floor extending between the first wall and the second wall and a tailgate. The vehicle further comprises a drain coupled to a rearward portion of the utility bed and the drain is configured to direct fluid from the bed floor to a position rearward of the bed floor and away from at least a portion of the powertrain.

20 Claims, 9 Drawing Sheets



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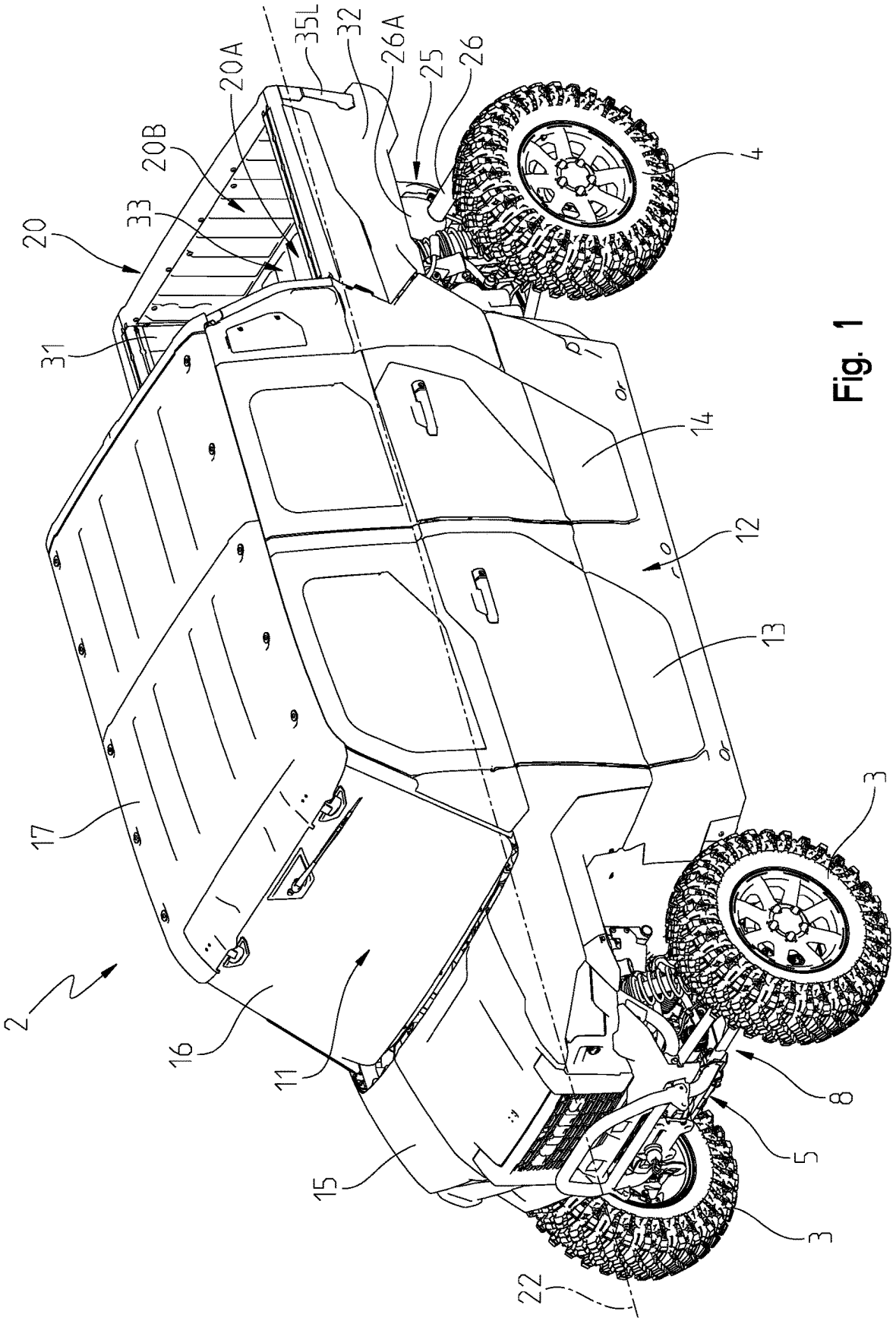


Fig. 1

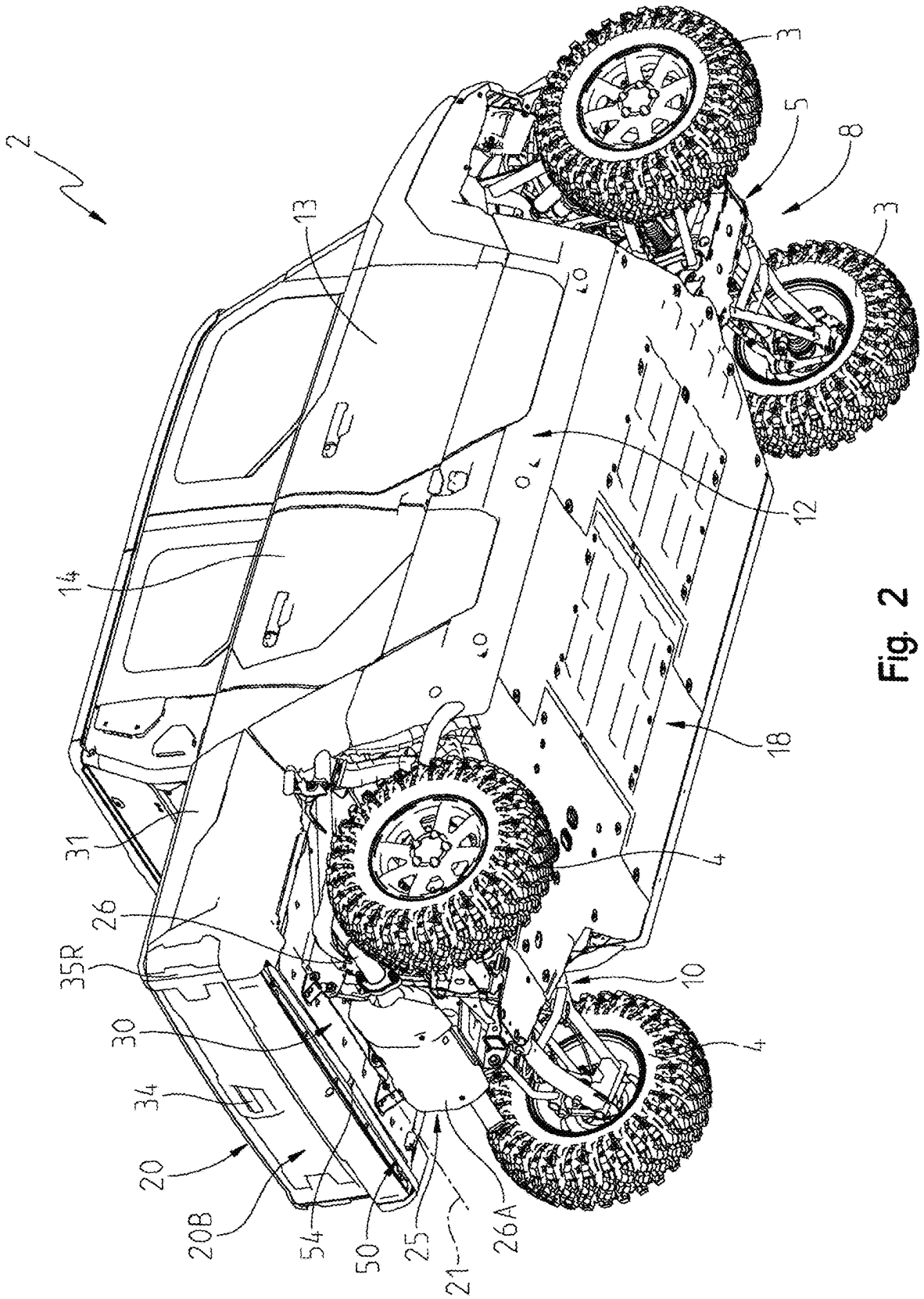


Fig. 2

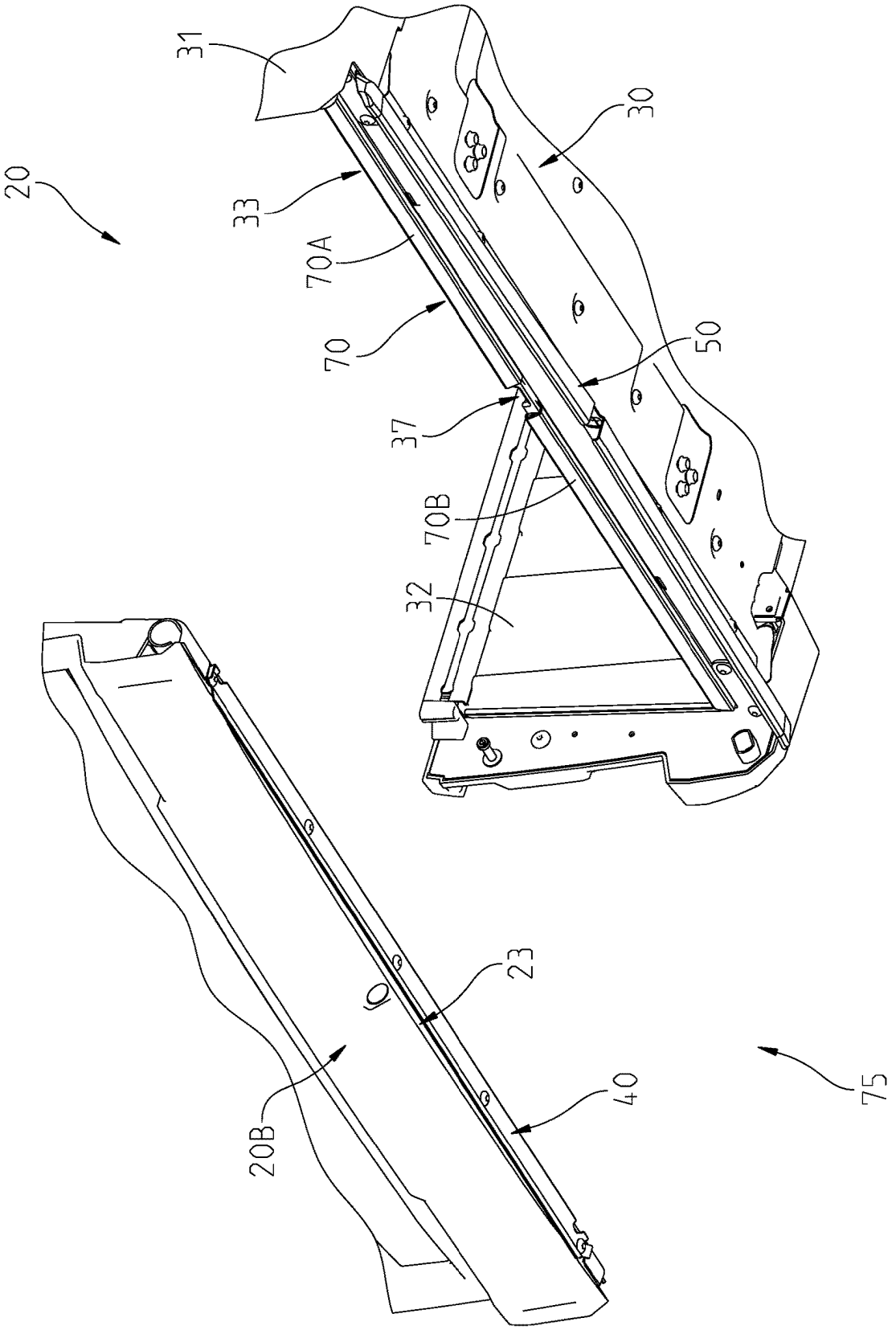


Fig. 3

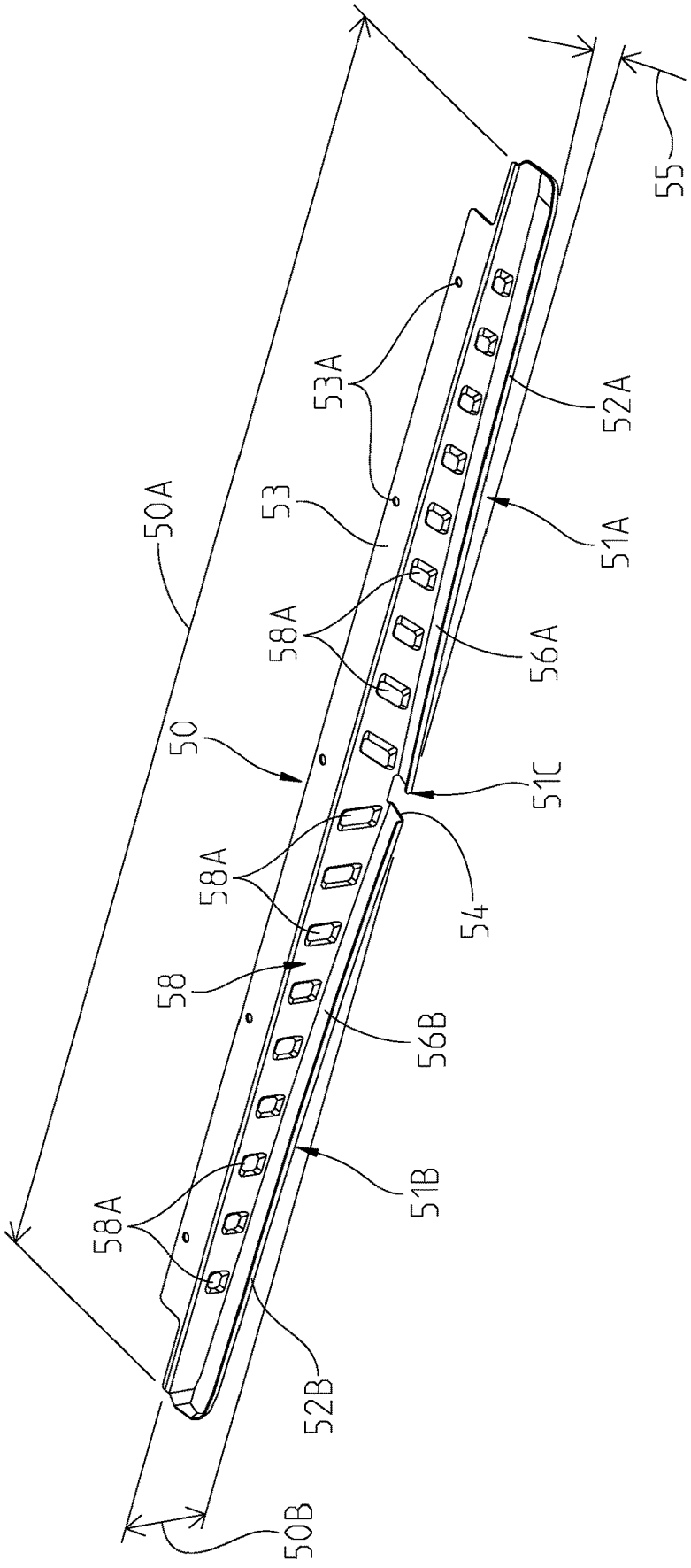
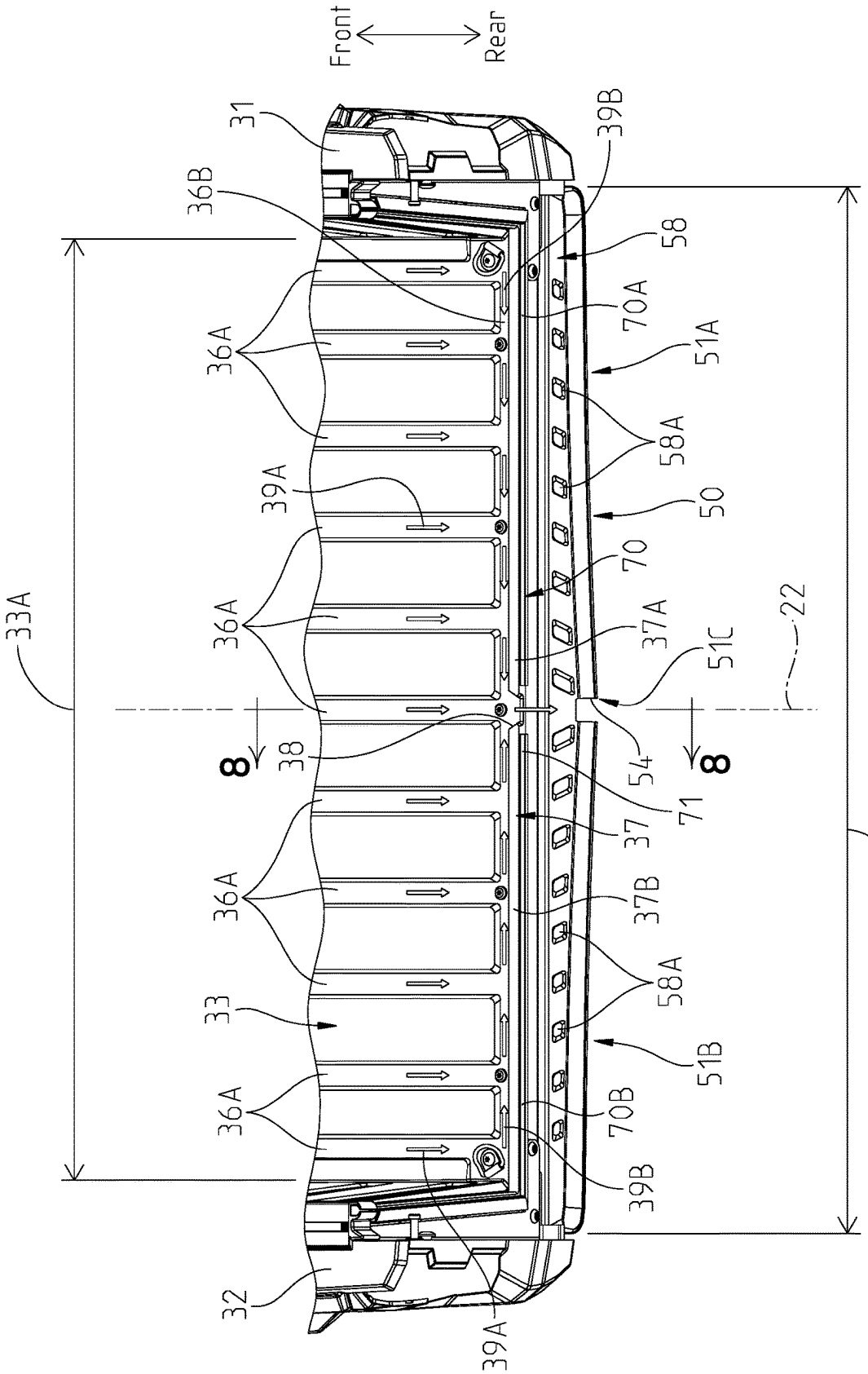


Fig. 4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Rear
31
39B
36B
58
70A
51A
36A
58A
39A
50
70
37A
51C
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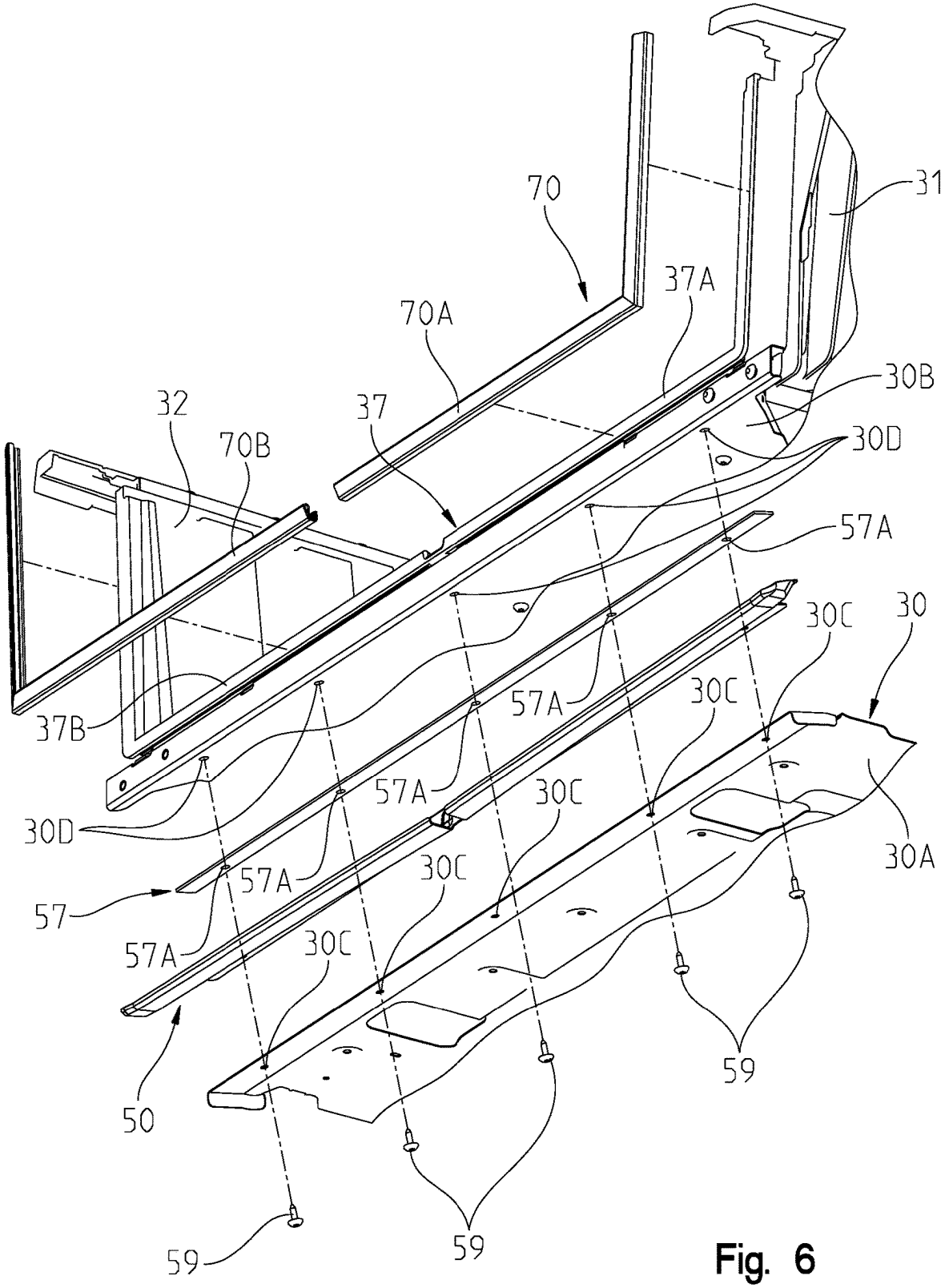
33A
8
38
54
71
37
37B
50A
33
51B
70B
32
39A

Fig. 5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30C
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37B
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59
59

Fig. 6

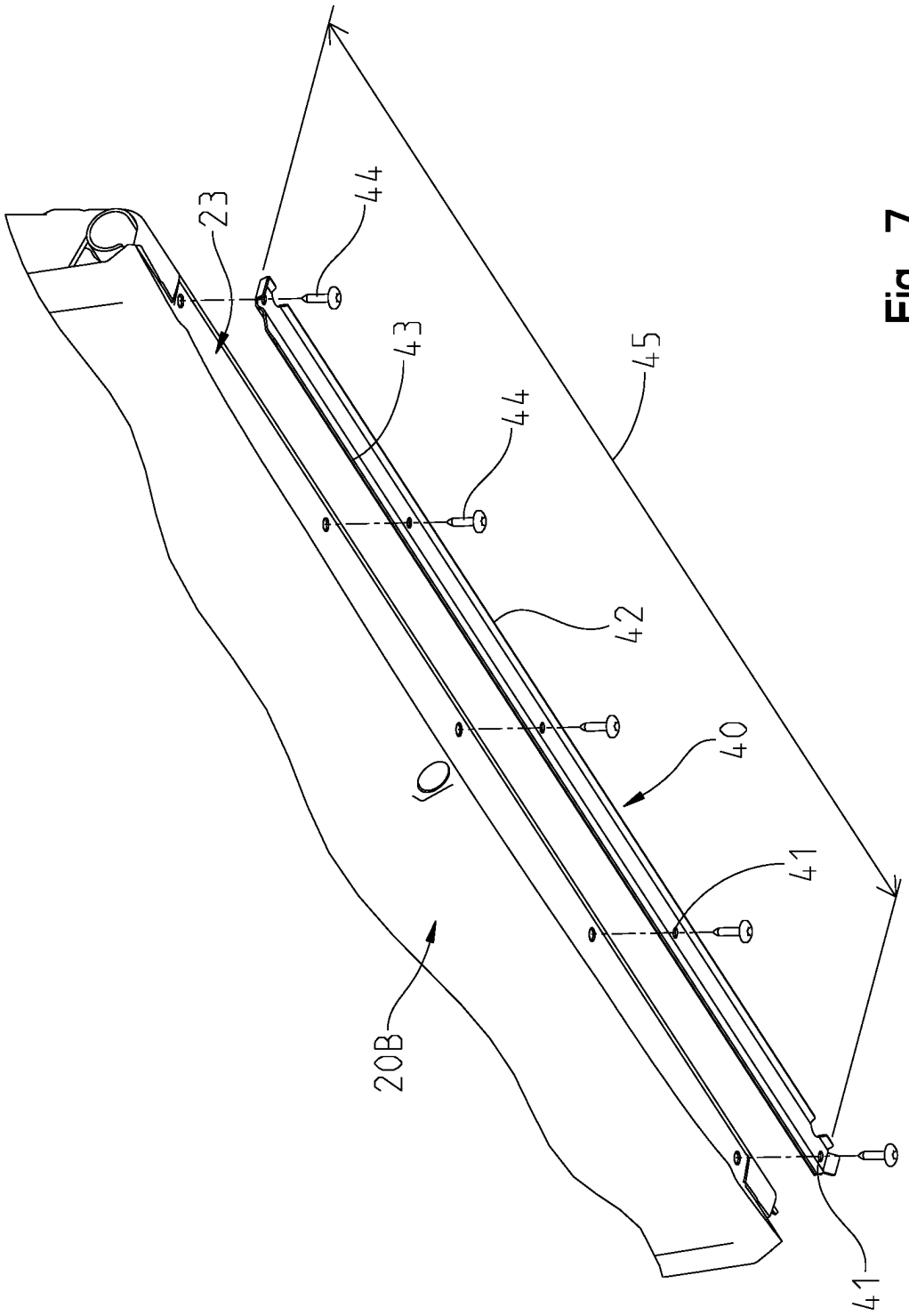
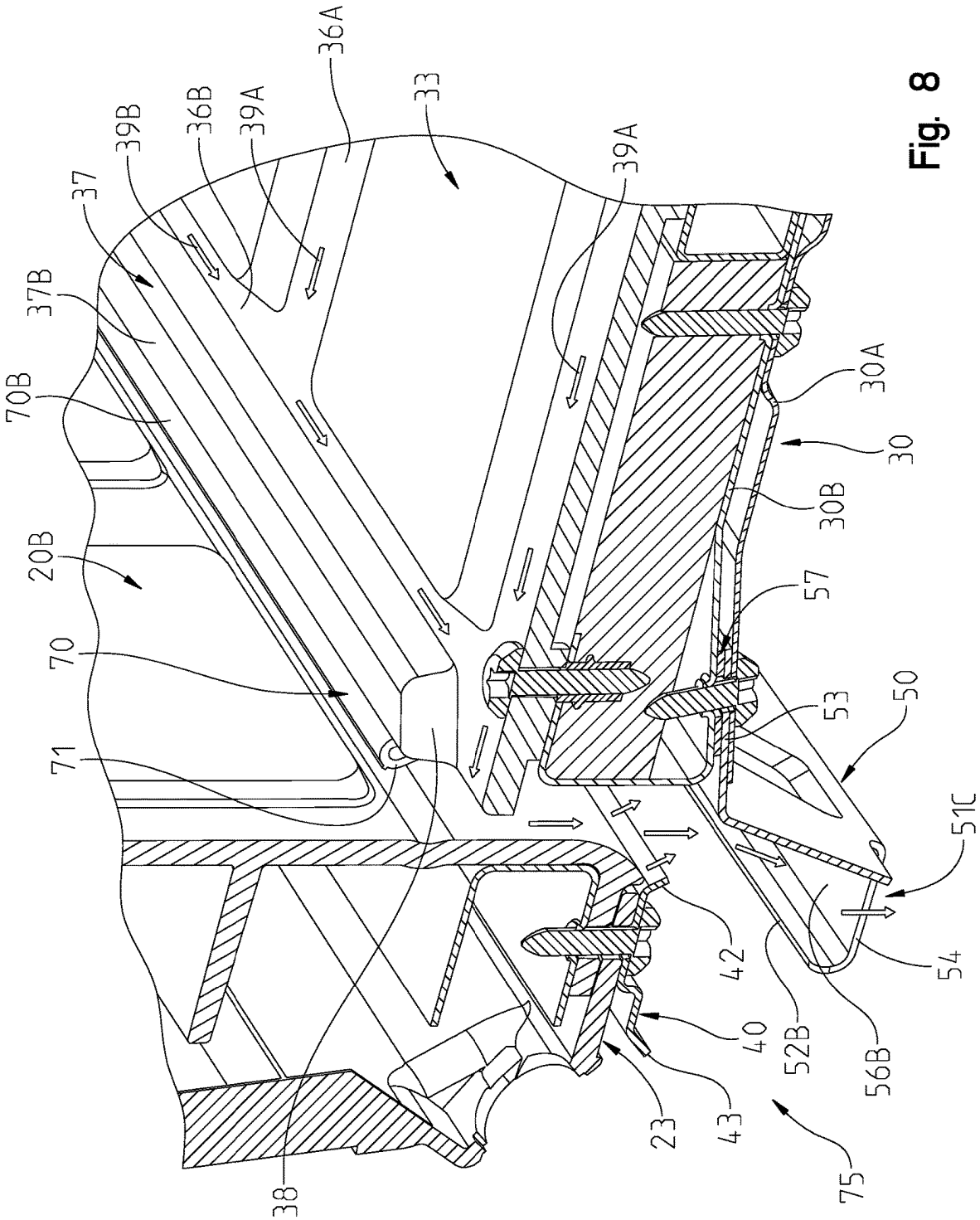


Fig. 7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36B
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30A
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20B
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51C
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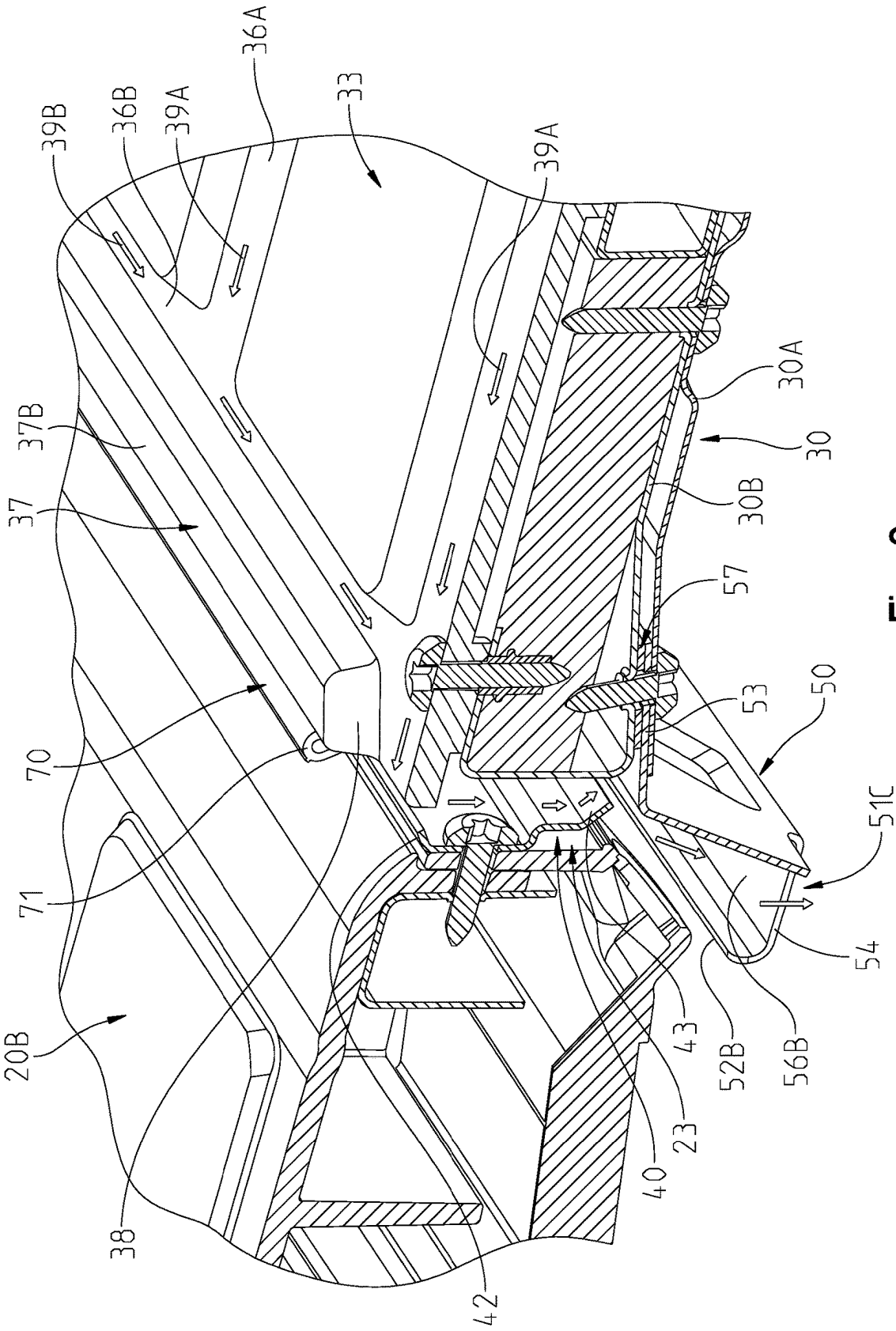
54
40
52B
56B
23
43
75
38

Fig. 8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30B
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51C
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52B
56B
20B
23
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38
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Fig. 9

UTILITY VEHICLE FLUID CONTAINMENT SYSTEM

TECHNICAL FIELD

The present disclosure relates to a cargo box assembly for a utility, recreational, or off-road vehicle.

BACKGROUND

Utility, recreational, or off-road vehicles often have cargo box assemblies that are configured to store cargo. Due to spills of liquid cargo, weather elements such as rain or snow, and/or other factors, fluid may be retained within the cargo box assembly.

SUMMARY

The present disclosure relates to configurations of the cargo box assembly which prevent fluid build-up therein and are configured for directing fluid flow from the cargo box.

In some examples, a vehicle may include a frame supported by a plurality of ground engaging members, a powertrain supported by the frame, and a cargo bed supported by the frame. The cargo bed may include a bed floor extending between a first wall and a second wall. A drain may be coupled to a rearward portion of the cargo bed. The drain may be configured to direct fluid from the bed floor to a position rearward of the bed floor and away from at least a portion of the powertrain.

In some examples, a cargo box assembly for a utility vehicle may include a cargo bed comprising a bed floor, a first wall, a second wall, as well as a tailgate, a seal, and a drain. The first wall may be sealingly coupled to a first edge of the bed floor. The second wall may be sealingly coupled to a second edge of the bed floor, such that the first edge is opposing and substantially parallel to the second edge. The tailgate may extend from a third edge of the bed floor, between the first wall and the second wall. The seal may be positioned intermediate at least a portion of the tailgate and the bed floor. Additionally, the seal may define a seal opening configured to allow fluid to pass between the bed floor and the tailgate. The drain may be coupled to the cargo bed and define a drain opening positioned vertically below the seal opening. The drain may be configured to direct the fluid away from a selected portion of the utility vehicle.

In some examples, a drain assembly for a cargo box assembly may include a drain, a seal, and a wick. The cargo box assembly may include a cargo bed having a cargo bed width and a tailgate coupled to a rearward portion of the cargo bed. The drain of the drain assembly may be coupled to a rearward portion of the cargo bed along a drain width. Also, the drain may define a drain opening directed generally downwardly. The seal may be positioned intermediate the cargo bed and the tailgate, and define a seal opening fluidly coupled to the drain. The wick may be coupled to a bottom of the tailgate and configured to direct fluid from the tailgate toward the drain.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front left perspective view of a vehicle of the present disclosure;

FIG. **2** is a rear right perspective view of the vehicle of FIG. **1**;

FIG. **3** is an exploded view of a portion of a cargo box assembly of the vehicle of FIG. **1**;

FIG. **4** is a perspective view of a drain of a drain assembly of the cargo box assembly of FIG. **3**;

FIG. **5** is a top view of a cargo bed of the cargo box assembly of FIG. **3** without a tailgate of the cargo box assembly;

FIG. **6** is an exploded view of the drain assembly of FIG. **4** coupled to the cargo box assembly;

FIG. **7** is an exploded view of a wick of the drain assembly of the cargo box assembly of FIG. **3**;

FIG. **8** is a cross-sectional view of the cargo box assembly of the vehicle of FIG. **1**, taken along line **8-8** of FIG. **5** illustrating an exemplary fluid path with the tailgate in a closed position; and

FIG. **9** is a cross-sectional view of the cargo box assembly of the vehicle of FIG. **1**, taken along line **8-8** of FIG. **5** illustrating an exemplary fluid path with the tailgate in an open position.

DETAILED DESCRIPTION

For the purposes of promoting an understanding of the principles of the present disclosure, reference is now made to the embodiments illustrated in the drawings, which are described below. The embodiments disclosed below are not intended to be exhaustive or limit the present disclosure to the precise form disclosed in the following detailed description. Rather, the embodiments are chosen and described so that others skilled in the art may utilize their teachings. Therefore, no limitation of the scope of the present disclosure is thereby intended. Corresponding reference characters indicate corresponding parts throughout the several views.

The terms "couples", "coupled", "coupler", and variations thereof are used to include both arrangements wherein two or more components are in direct physical contact and arrangements wherein the two or more components are not in direct contact with each other (e.g., the components are "coupled" via at least a third component, but still cooperates or interact with each other).

In some instances throughout this disclosure and in the claims, numeric terminology, such as first, second, third, and fourth, is used in reference to various operative transmission components and other components and features. Such use is not intended to denote an ordering of the components. Rather, numeric terminology is used to assist the reader in identifying the component being referenced and should not be narrowly interpreted as providing a specific order of components.

The present disclosure describes cargo box assemblies of utility vehicles that are configured to reduce fluid build-up in the cargo box, direct fluid flow from the cargo box toward a selected location, or both. For example, the described cargo box assemblies may direct fluid away from hot components of a utility vehicle. In some examples, the cargo box assemblies may include a drain assembly configured to channel fluid from within a cargo bed, a seal configured to control fluid flow between a tailgate and the cargo bed, and a wick configured to direct fluid from the tailgate toward the drain. By controlling the flow of fluid from the cargo box, the described cargo box assemblies may improve useable life of selected components, and prevent fluids from being directed, directly or indirectly, towards hot components of the vehicle.

FIGS. **1** and **2** are conceptual diagrams illustrating an example vehicle **2**. Vehicle **2** includes a plurality of ground engaging members, such as, for example a pair of front ground engaging members **3** and a pair of rear ground engaging members **4**. As illustrated in FIGS. **1** and **2**, front

ground engaging members **3** and rear ground engaging members **4** are wheels. In other examples, any of front ground engaging members **3** or rear ground engaging members **4** may be wheels, tracks, skis, or other types of ground engaging members. Vehicle **2** also includes a frame **5** supported by ground engaging members **3** and **4**. Frame **5** may include a plurality of frame portions, such as, for example, a lower frame assembly and an upper frame assembly. An operator area **11** may be defined by frame **5**, e.g., portions of the upper and lower frame assemblies, and may further be configured to support an operator and possibly at least one passenger, as well as a variety of operator inputs. Example operator inputs include a steering input such as a steering wheel or a handlebar, a throttle control such as an accelerator pedal or a throttle input, a brake control such as a brake pedal or a brake lever, a clutch control, a transmission or gear shifting control, or other input devices configured to control an operation of vehicle **2**. Further, vehicle **2** also may include a skid plate **18** configured to protect and surround at least a portion of frame **5**. Skid plate **18** may be a single piece or a plurality of pieces.

As illustrated in FIGS. **1** and **2**, vehicle **2** includes a front suspension **8** coupled between frame **5** and front ground engaging members **3** and a rear suspension **10** coupled between frame **5** and rear ground engaging members **4**. Front suspension **8** may be a dual A-arm suspension. In other examples, front suspension **8** may be a strut-style suspension or another type of suspension. Rear suspension **10** may be a strut style suspension. In various embodiments, rear suspension **10** may be a dual A-arm suspension, a trailing arm suspension, a swingarm suspension, or another type of suspension. Although illustrated as including a dual A-arm front suspension and a strut style rear suspension, in other example, vehicle **2** may include any front or rear suspension suitable for the operation over in a particular terrain.

Vehicle **2** includes a body **12** supported by frame **5**. Body **12** includes a pair of front doors **13** and a pair of rear doors **14**. In various embodiments, front doors **13** and rear doors **14** are not required. Body **12** also includes a hood **15** positioned generally adjacent front fenders or side panels. In some examples, a windshield **16** may be positioned forwardly of operator area **11** and configured to reduce intrusion of dust, debris, and water into operator area **11**. Body **12** also may include a roof **17** supported by an upper portion of frame **5** and positioned above operator area **11**. Body **12** may include a utility or cargo box assembly **20** positioned rearward of operator area **11** and generally above at least a portion of rear suspension **10**.

Vehicle **2** also includes a powertrain **25** supported by frame **5** and, in at least one embodiment, positioned generally beneath cargo box assembly **20**. Powertrain **25** may include an internal combustion engine (not shown), a hybrid powertrain, or an electric powertrain. In various embodiments of powertrain **25**, an intake assembly (not shown) and an exhaust assembly (not shown) may be fluidly coupled to the engine. The exhaust assembly may include at least one hot component, such as exhaust conduit **26**, and an exhaust shield, such as cover **26**A. In various embodiments, cover **26**A may be positioned over at least a portion of exhaust conduit **26** and configured to provide thermal insulation between the portion of exhaust conduit **26** and vehicle **2**, or an operator of vehicle **2** or cargo box assembly **20**.

Additional details regarding vehicle **2** can be found in U.S. application Ser. No. 17/708,327, filed Mar. 30, 2022, titled OFF-ROAD VEHICLE, the entire disclosure of which is expressly incorporated by reference herein.

As illustrated in FIGS. **1** and **2**, cargo box assembly **20** includes a utility bed, or cargo bed **20**A and a tailgate or rear wall **20**B. Cargo bed **20**A is defined by a first side wall **31**, a second side wall **32**, and a cargo bed floor **33**. First side wall **31** and second side wall **32** extend generally longitudinally and may be parallel to a vehicle centerline **22**. First side wall **31** and second side wall **32** are spaced apart from one another and coupled together by cargo bed floor **33**. In the present embodiment, first side wall **31** and second side wall **32** are spaced by a cargo bed floor width **33**A (FIG. **5**). A front wall (not shown) is coupled to cargo bed floor **33**, first side wall **31**, and second side wall **32**. In the present embodiment, the interfaces between first side wall **31**, second side wall **32**, front wall, and cargo bed floor **33** are sealed. The term seal may include a joint between two or more surfaces or components that is configured to reduce or prevent selected material, such as solid debris, water, liquid fuel, or the like, from passing between the two or more surfaces or components. In the present embodiment, tailgate **20**B is configured to be coupled to cargo bed **20**A and is illustratively configured to rotate between a closed position (i.e., shown in FIGS. **1** and **2**, tailgate **20**B is positioned generally perpendicular to cargo bed floor **33**) and an open position (i.e., tailgate **20**B is generally parallel to cargo bed floor **33**).

FIG. **3** is a conceptual diagram illustrating a partially exploded view of cargo box assembly **20**. As illustrated in FIG. **3**, a seal **70** is coupled to cargo bed **20**A to seal at least a portion of the interface between cargo bed **20**A and tailgate **20**B. In one embodiment, tailgate **20**B is configured as a stationary rear wall and does not rotate between open and closed positions.

In the present embodiment, tailgate **20**B further includes a latch, or handle **34** (FIG. **2**) configured to actuate a latch assembly (not shown) to allow tailgate **20**B to rotate between the open position and the closed position. Cargo box assembly **20** also has a left taillight **35**L and a right taillight **35**R. In various embodiments, left taillight **35**L and right taillight **35**R may be on cargo bed **20**A, tailgate **20**B, or on each of cargo bed **20**A and tailgate **20**B.

In some examples, cargo box assembly **20** may be configured to rotate relative to frame **5**. For example, a box bottom **30** of cargo box assembly **20** may be rotatably coupled to frame **5** such that cargo box assembly **20** is configured to rotate about box rotation axis **21**. In the present embodiment, box rotation axis **21** is positioned vertically above at least a portion of powertrain **25**. For example, in various embodiments, box rotation axis **21** is positioned vertically above and vertically aligned with a portion of exhaust conduits **26** or cover **26**A. In various embodiments, box rotation axis **21** is positioned vertically above exhaust conduits **26** or cover **26**A on or near a plane extending vertically from a rear most portion of exhaust conduits **26** or cover **26**A.

Referring now to FIGS. **3-7**, cargo box assembly **20** includes a drain assembly **75** configured to direct fluid within, or passing through, cargo bed **20**A toward one or more selected locations. Drain assembly **75** may include a drain **50** and a wick **40**. Referring to FIG. **3**, drain **50** is coupled to a portion of cargo box bottom **30** (e.g., a lower surface of cargo bed floor **33**). In this way, drain **50** is generally positioned lower than a cargo, or uppermost surface, of cargo bed floor **33**. In the present embodiment, wick **40** is coupled to a bottom extent **23** of tailgate **20**B.

Drain **50** may include one or more drain channels configured to direct material toward a selected location. For example, referring to FIG. **4**, drain **50** includes a first drain

51A and a second drain 51B. Illustratively, first drain 51A comprises a first trough 56A and a first flange 52A. Illustratively, first flange 52A is configured to retain fluid that flows within first trough 56A. Additionally, second drain 51B comprises a second trough 56B and a second flange 52B. Illustratively, second flange 52B is configured to retain fluid that flows within second trough 56B. Each of first drain 51A and second drain 51B are angled downwardly toward a middle or center portion 51C of drain 50. An opening 54 is positioned in center portion 51C (e.g., a drain middle portion of drain 50) intermediate first drain 51A and second drain 51B. Illustratively, opening 54 is positioned at or defines a bottom extent of drain 50. In other words, first drain 51A and second drain 51B are angled towards each other and converge or otherwise meet at center portion 51C.

In the present embodiment, each of first drain 51A and second drain 51B are angled downwardly, from a lateral outer extent, toward center portion 51C at an angle 55 relative to a substantially horizontal plane of vehicle 2. In the present embodiment, angle 55 is approximately two degrees. In various embodiments, angle 55 may be within a range from about one degree to about 30-degrees, such as about two degrees to about 15-degrees.

Still referring to FIG. 4, drain 50 comprises a drain wall 58 extending generally vertically and laterally. Drain wall 58 may define a plurality of bosses or indents 58A which may strengthen drain wall 58. Drain wall 58 partially defines first drain 51A and second drain 51B and extends continuously therebetween. In this way, first drain 51A may be generally defined by a portion of drain wall 58 and flange 52A while second drain may be generally defined by a portion of drain wall 58 and flange 52B. A flange 53 may be coupled to or integrally formed with drain wall 58. Flange 53 may include a plurality of apertures 53A configured to receive a fastener 59 (FIG. 6). In the present embodiment, drain 50 has a drain width 50A and a drain height 50B. In the present embodiment, drain width 50A is greater than a cargo bed floor width 33A. In various embodiments, drain width 50A is less than cargo bed floor width 33A. For example, drain width 50A may be less than cargo bed floor width 33A and greater than a width of at least one of exhaust conduit 26 and/or cover 26A. In various embodiments, drain width 50A is greater than about fifty-percent of cargo bed floor width 33A. In various embodiments, drain width 50A is greater than about seventy-five percent of cargo bed floor width 33A. In various embodiments, drain width 50A is greater than about twenty-five percent of cargo bed floor width 33A.

Now referring to FIG. 5, cargo bed floor 33 includes a plurality of longitudinal channels 36A and at least one horizontal channel 36B. Illustratively, horizontal channel 36B extends continuously and entirely along a rear extent of cargo bed floor 33 and is generally adjacent drain 50 and/or tailgate 20B. In the present embodiment, longitudinal channels 36A are configured to direct fluid within cargo bed 20A toward a rear of cargo bed 20A into the at least one horizontal channel 36B.

An extension or flange 37 is positioned rearwardly of the at least one horizontal channel 36B and extends generally upwardly from cargo bed floor 33. In the present embodiment, extension 37 includes a first extension portion 37A and second extension portion 37B separated by an extension opening 38. Illustratively, extension opening 38 is positioned along the vehicle centerline 22. In the present embodiment, extension 37 extends upwardly about one-half inch. In other examples, extension 37 may extend upwardly about one-quarter inch, about one inch, or another height. In various embodiments, extension 37 is a greater height than the remaining portions of cargo bed floor 33. In some examples, the height of extension 37 may be based on a total volume defined by the height of extension 37 and the area of cargo bed floor 33. For example, height of extension 37 may be selected such that the total volume is greater than one gallon, such as greater than 5 gallons or greater than ten gallons.

In some examples, seal 70 includes a first seal portion 70A and a second seal portion 70B positioned adjacent first extension portion 37A and second extension portion 37B, respectively. First seal portion 70A and second seal portion 70B are configured to separate cargo bed floor 33 from tailgate 20B and seal the space therebetween. First seal portion 70A also extends upwardly to separate tailgate 20B and first side wall 31 and second seal portion 70B extends upwardly to separate tailgate 20B and second side wall 32. First seal portion 70A and second seal portion 70B are separated by a seal opening 71. Illustratively, seal 70 is positioned adjacent extension 37. Further, in the present embodiment, seal opening 71 is aligned with opening 38. Referring to FIG. 6, each of seal 70A and seal 70B are shaped as a right-angle and configured to extend along a rearward edge of cargo bed floor 33. Further, seal 70A is configured to extend along a rearward edge of first side wall 31 and seal 70B is configured to extend along a rearward edge of second side wall 32.

As illustrated in FIG. 5, each of extension opening 38, seal opening 71, and opening 54 are at least partially longitudinally aligned, thereby generally forming a fluid channel. In various embodiments, any of extension opening 38, seal opening 71 and opening 54 are at least partially laterally aligned. Cargo box assembly 20 is configured such that at least a portion of fluid within cargo box assembly 20 is directed through one or more channels 36A and into channel 36B, and each of first extension portion 37A and second extension portion 37B are configured to prevent or minimize fluid from flowing onto, and stagnating on, seal 70. That is, extension 37 extends vertically higher from cargo bed floor 33 than seal 70, thereby reducing the flow of fluid within cargo box assembly 20 onto seal 70 relative to a configuration in which extensions do not extend vertically higher from a cargo bed floor than a seal. Fluid that stagnates on seal 70 may reduce the useful life of seal 70, or otherwise at least partially reduce a functionality of seal 70.

In various embodiments, each of channels 36A and channels 36B are angled relative to a horizontal plane of vehicle 2 to direct water towards extension opening 38. That is, as illustrated in FIGS. 5 and 8-9, channels 36A are angled downwardly towards the rear of cargo box assembly 20, towards tailgate 20B. Further, channels 36B are angled downwardly towards the center of cargo box assembly 20, towards vehicle centerline 22. Cargo bed floor 33 of cargo box assembly 20 is configured to direct fluid flow through channels 36A into channels 36B, and ultimately towards a rearmost and laterally center point of cargo bed floor 33, toward extension opening 38. In various embodiments, cargo bed floor 33 is configured to direct fluid to a rearmost point of cargo bed floor 33 that is laterally offset from vehicle centerline 22.

In the present embodiment, cargo bed floor 33 is configured to direct fluid from within cargo box assembly 20 towards extension opening 38, through seal opening 71, and into drain assembly 75. Fluid that flows through extension opening 38 and seal opening 71 will be directed toward opening 54. In the event that fluid within cargo bed 20A flows over first extension portion 37A or second extension portion 37B, and in the event seal 70 is imperfect and allows

fluid to flow between cargo bed **20**A and tailgate **20**B, fluid will flow into first trough **56**A and second trough **56**B, and out of drain **50** through opening **54**.

Referring to FIG. **6**, box bottom **30** includes a box bottom body **30**B and a box bottom cover **30**A. In the present embodiment, bottom cover **30**A is a heat shield configured to separate and at least partially thermally insulate bottom body **30**B from powertrain **25**. In the present embodiment, box bottom cover **30**A defines a bottom extent of cargo bed **20**A. Illustratively, drain **50** is coupled between box bottom body **30**B and box bottom cover **30**A. A gasket **57** is positioned vertically between bottom body **30**B and drain **50** to prevent fluid from flowing backward along box bottom body **30**B between drain **50** and box bottom body **30**B. Gasket **57** is configured to prevent fluid from flowing along box bottom body **30**B between box bottom body **30**B and flange **53**. Illustratively, gasket **57** defines a plurality of mounting holes **57**A, box bottom cover **30**A defines a plurality of apertures **30**C generally aligned with holes **57**A, and box bottom body **30**B defines a plurality of apertures **30**D generally aligned with holes **57**A and apertures **30**C. A plurality of fasteners extend through mounting holes **57**A, apertures **30**C, apertures **53**A, and apertures **30**D to couple each of drain **50**, box bottom cover **30**A and gasket **57** to box bottom body **30**B.

Referring now to FIG. **7**, wick **40** is coupled to the bottom extent of tailgate **20**B. Wick **40** defines a plurality of apertures **41** configured to receive a plurality of fasteners **44** to couple wick **40** to tailgate **20**B. Wick **40** also includes a first extension **42** and a second extension **43**. First extension **42** extends along a forward side of wick **40** and second extension **43** extends along a rearward side of wick **40**. As illustrated in FIG. **8**, wick **40** is positioned vertically higher than a bottom extent of drain **50**. That is, wick **40** is spaced from opening **54** of drain **50**. Further, wick **40** has a wick width **45** (FIG. **7**) that is less than or equal to drain width **50**A (FIG. **5**). Each of first extension **42** and second extension **43** are configured to wick fluid toward drain **50** whether tailgate **20**B is in a closed or up position or an open or down position.

Referring now to FIG. **8**, the operation of cargo bed floor **33** and drain assembly **75** is provided. Fluid is configured to flow within longitudinal channels **36**A and horizontal channel **36**B, according to the arrows **39**A, **39**B which show the direction of fluid flow. Seal **70** is protected from fluid stagnation by extension **37** extending upwardly from cargo bed floor **33**. Fluid is configured to flow through extension opening **38** and seal opening **71**, between cargo bed floor **33** and tailgate **20**B into drain assembly **75**. When fluid flows into drain assembly **75**, fluid is configured to flow downwardly out of drain opening **54**. In the present embodiment, drain opening **54** is positioned vertically lower than box bottom **30**.

As illustrated in FIG. **8**, fluid may flow through extension opening **38** and seal opening **71** and contact tailgate **20**B before flowing into drain **50**. Fluid that flows down tailgate **20**B contacts first extension **42** of wick **40** to direct fluid downwardly into drain **50**. Wick **40** is configured to prevent fluid from flowing rearwardly, along a bottom edge of tailgate **20**B due to the capillary effect, wherein fluid would flow further rearward and flow downwardly, outside of drain **50**. First extension **42** of wick **40** ensures that fluid that flows down tailgate **20**B falls into drain **50**.

Still referring to FIG. **8**, tailgate **20**B is shown in the closed position. As previously described, when tailgate **20**B is in the closed position, first extension **42** of wick **40** acts as the wicking member for fluid flowing down tailgate **20**B.

Referring to FIG. **9**, tailgate **20**B is shown in the open position. When fluid flows through extension opening **38** and seal opening **71** when tailgate **20**B is in the open position, fluid flows by a bottom extent of tailgate **20**B, along wick **40**. Fluid flows down wick **40** onto second extension **43**, and thereby flows into drain **50**.

As illustrated in FIG. **2**, opening **54** is positioned vertically above cover **26**A such that fluid is configured to flow onto cover **26**A. Drain **50** is configured to direct the flow of fluid onto cover **26**A. That is, drain **50** is configured to direct fluid toward a designated area that is thermally cooler than at least some of the surrounding areas. In various embodiments, drain **50** is configured with opening **54** positioned rearwardly of cover **26**A such that drain **50** directs fluid flow downward at a position rearward of any components of powertrain **25**.

Further, because wick width **45** is less than or equal to that of the width of drain width **50**A, any fluid that flows onto first extension **42** of wick **40** is configured to fall into drain **50**.

The following clauses illustrate example subject matter described herein.

Clause 1. A vehicle, comprising: a plurality of ground engaging members and a frame supported by the plurality of ground engaging members; a powertrain supported by the frame; a cargo bed supported by the frame, the cargo bed comprising a bed floor extending between a first wall and a second wall; and a drain coupled to a rearward portion of the cargo bed, the drain configured to direct fluid from the bed floor to a position rearward of the bed floor and away from at least a portion of the powertrain.

Clause 2. The vehicle of clause 1, further comprising a cover configured to conceal a portion of the powertrain, and the drain is configured to direct fluid toward the cover.

Clause 3. The vehicle of clause 1 or 2, wherein the cargo bed further comprises a tailgate coupled to the rearward portion of the cargo bed; and a wick extending laterally along at least a portion of a bottom extent of the tailgate, the wick positioned vertically higher than a bottom extent of the drain, wherein the wick is configured to direct fluid toward the drain.

Clause 4. The vehicle of any of clauses 1 through 3, wherein the drain is configured to extend a lateral width of the bed floor and at least a portion of the drain is sloped downwardly from a lateral outward extent toward a drain center portion.

Clause 5. The vehicle of clause 1, further comprising a tailgate coupled to a rearward portion of the cargo bed, and the cargo bed further comprising a seal positioned between the tailgate and the bed floor, the seal having a seal opening fluidly coupled to the drain.

Clause 6. The vehicle of clause 5, wherein the cargo bed further comprises a flange positioned adjacent the seal, the flange extending generally upwardly from the bed floor and having a flange opening at least partially laterally aligned with the seal opening.

Clause 7. A cargo box assembly for a utility vehicle, the cargo box assembly comprising: a bed floor comprising a bed floor, a first wall sealingly coupled to a first edge of the bed floor, and a second wall sealing coupled to a second edge of the bed floor, wherein the first edge is opposing and substantially parallel to the second edge; a tailgate extending from a third edge of the bed floor, between the first wall and the second wall; a seal positioned intermediate at least a portion of the tailgate and the bed floor, the seal defining a seal opening configured to allow fluid to pass between the bed floor and the tailgate; and a drain coupled to the cargo

bed, the drain defining a drain opening positioned vertically below the seal opening and configured to direct the fluid away from a selected portion of the utility vehicle.

Clause 8. The cargo box assembly of clause 7, wherein the tailgate is configured to rotate relative to the bed floor, the cargo box assembly further comprising a wick coupled to a bottom extent of the tailgate.

Clause 9. The cargo box assembly of any of clauses 7 or 8, wherein the drain opening is positioned rearward of the bed floor.

Clause 10. The cargo box assembly of any of clauses 7 through 9, wherein the cargo box assembly has a bottom extent, and the drain opening is positioned lower than the bottom extent.

Clause 11. The cargo box assembly of any of clauses 7 through 10, wherein the drain is angled downwardly from a lateral outer extent toward the drain opening.

Clause 12. The cargo box assembly of any of clauses 7 through 11, further comprising an extension extending upwardly from the bed floor, the extension positioned adjacent the seal, and the extension defining an extension opening at least partially aligned with the seal opening.

Clause 13. A drain assembly for a cargo box assembly having a cargo bed with a cargo bed width and a tailgate coupled to a rearward portion of the cargo bed, the drain assembly comprising: a drain coupled to a rearward portion of the cargo bed, wherein the drain defines a drain opening directed generally downwardly, the drain having a drain width; a seal positioned intermediate the cargo bed and the tailgate, wherein the seal defines a seal opening fluidly coupled to the drain; and a wick coupled to a bottom of the tailgate, the wick configured to direct fluid from the tailgate toward the drain.

Clause 14. The drain assembly of clause 13, wherein the drain width is at least one-half the cargo bed width.

Clause 15. The drain assembly of any of clauses 13 or 14, wherein the seal opening is positioned vertically above the drain opening.

Clause 16. The drain assembly of any of clauses 13 through 15, wherein the wick comprises a wick width, and the wick width is less than or equal to the drain width.

Clause 17. The drain assembly of any of clauses 13 through 16, further comprising a flange positioned adjacent the seal, wherein the flange extends upwardly from the cargo bed.

Clause 18. The drain assembly of clause 17, wherein the flange comprises a flange opening, and wherein the flange opening is at least partially laterally aligned with the seal opening.

Clause 19. The drain assembly of any of clauses 13 through 18, wherein the drain is angled downwardly from a laterally outer portion to a laterally inner portion.

Clause 20. The drain assembly of any of clauses 13 through 19, wherein the drain comprises an integral flange configured to couple to a box bottom of the cargo bed.

While this invention has been described as having an exemplary design, the present invention may be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains.

What is claimed is:

1. A vehicle, comprising:

a plurality of ground engaging members and a frame supported by the plurality of ground engaging members;

a powertrain supported by the frame;

a cargo bed supported by the frame, the cargo bed comprising a bed floor extending between a first wall and a second wall; and

a drain coupled to a rearward portion of the cargo bed, the drain configured to direct fluid from the bed floor to a position rearward of the bed floor and away from at least a portion of the powertrain,

wherein at least a portion of the drain is sloped downwardly from a lateral outward extent toward a drain center portion.

2. The vehicle of claim **1**, further comprising a cover configured to conceal a portion of the powertrain, wherein the drain is configured to direct fluid toward the cover.

3. The vehicle of claim **1**, wherein the cargo bed further comprises a tailgate coupled to the rearward portion of the cargo bed; and

a wick extending laterally along at least a portion of a bottom extent of the tailgate, the wick positioned vertically higher than a bottom extent of the drain, wherein the wick is configured to direct fluid toward the drain.

4. The vehicle of claim **1**, wherein the drain is configured to extend a lateral width of the bed floor.

5. The vehicle of claim **1**, further comprising a tailgate coupled to the rearward portion of the cargo bed, and the cargo bed further comprising a seal positioned between the tailgate and the bed floor, the seal having a seal opening fluidly coupled to the drain.

6. The vehicle of claim **5**, wherein the cargo bed further comprises a flange positioned adjacent the seal, the flange extending generally upwardly from the bed floor and having a flange opening at least partially laterally aligned with the seal opening.

7. A cargo box assembly for a utility vehicle, the cargo box assembly comprising:

a cargo bed comprising a bed floor, a first wall sealingly coupled to a first edge of the bed floor, and a second wall sealingly coupled to a second edge of the bed floor, wherein the first edge is opposing and substantially parallel to the second edge;

a tailgate extending from a third edge of the bed floor, between the first wall and the second wall;

a seal positioned intermediate at least a portion of the tailgate and the bed floor, the seal defining a seal opening configured to allow fluid to pass between the bed floor and the tailgate; and

a drain coupled to the cargo bed, the drain defining a drain opening positioned vertically below the seal opening and configured to direct the fluid away from a selected portion of the utility vehicle.

8. The cargo box assembly of claim **7**, wherein the tailgate is configured to rotate relative to the bed floor, the cargo box assembly further comprising a wick coupled to a bottom extent of the tailgate.

9. The cargo box assembly of claim **7**, wherein the drain opening is positioned rearward of the bed floor.

10. The cargo box assembly of claim **7**, wherein the cargo box assembly has a bottom extent, and the drain opening is positioned lower than the bottom extent.

11. The cargo box assembly of claim 7, wherein the drain is angled downwardly from a lateral outer extent toward the drain opening.

12. The cargo box assembly of claim 7, further comprising an extension extending upwardly from the bed floor, the extension positioned adjacent the seal, and the extension defining an extension opening at least partially aligned with the seal opening.

13. A drain assembly for a cargo box assembly having a cargo bed with a cargo bed width and a tailgate coupled to a rearward portion of the cargo bed, the drain assembly comprising:

a drain coupled to a rearward portion of the cargo bed, wherein the drain defines a drain opening directed generally downwardly, the drain having a drain width;

a seal positioned intermediate the cargo bed and the tailgate, wherein the seal defines a seal opening fluidly coupled to the drain; and

a wick coupled to a bottom of the tailgate, the wick configured to direct fluid from the tailgate toward the drain.

14. The drain assembly of claim 13, wherein the drain width is at least one-half the cargo bed width.

15. The drain assembly of claim 13, wherein the seal opening is positioned vertically above the drain opening.

16. The drain assembly of claim 13, wherein the wick comprises a wick width, and the wick width is less than or equal to the drain width.

17. The drain assembly of claim 13, further comprising a flange positioned adjacent the seal, wherein the flange extends upwardly from the cargo bed.

18. The drain assembly of claim 17, wherein the flange comprises a flange opening, and wherein the flange opening is at least partially laterally aligned with the seal opening.

19. The drain assembly of claim 13, wherein the drain is angled downwardly from a laterally outer portion to a laterally inner portion.

20. The drain assembly of claim 13, wherein the drain comprises an integral flange configured to couple the drain to a box bottom of the cargo bed.

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