



(11) **EP 2 141 334 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.01.2010 Bulletin 2010/01

(51) Int Cl.:
F02B 63/04 (2006.01) F02M 37/00 (2006.01)

(21) Application number: **09251720.0**

(22) Date of filing: **03.07.2009**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**

(30) Priority: **03.07.2008 JP 2008174502**

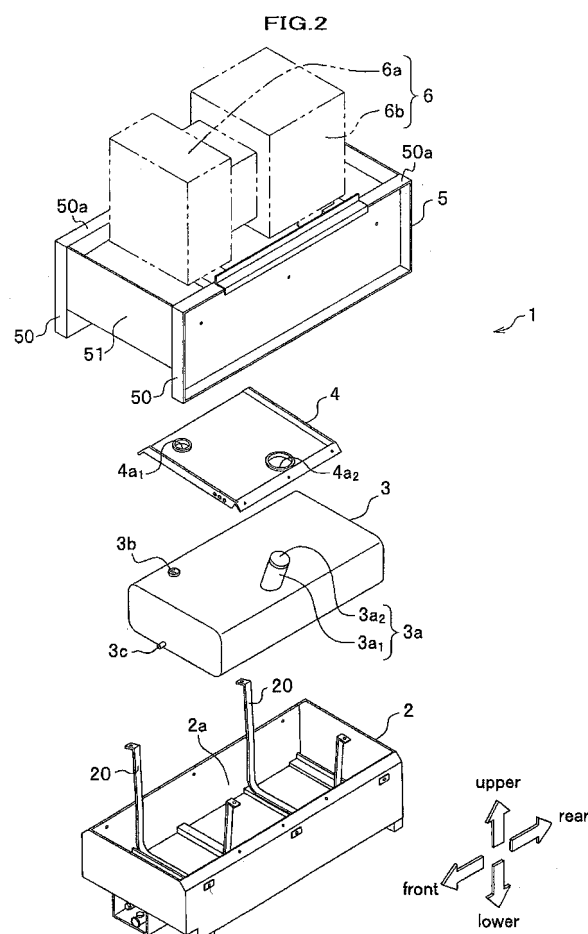
(71) Applicant: **Denyo Co. Ltd.**
Tokyo 103-8566 (JP)

(72) Inventor: **Higaki, Jyunichiro**
Kawagoe, Saitama 350-0833 (JP)

(74) Representative: **Piésold, Alexander James**
Frank B. Dehn & Co.
St Bride's House
10 Salisbury Square
London
EC4Y 8JD (GB)

(54) **Engine-driven work machine**

(57) The present invention relates to an engine and an engine-driven work machine including a work machine driven by the engine. An engine-driven work machine includes a base for supporting a work machine composing of an engine and a work machine main body driven by the engine, a receiving vessel mounted to the base to accumulate a leaking substance leaked from the work machine, a fuel tank having a form of quadrangular prism mounted to the base to accumulate the leaking substance leaked from the work machine, a height regulating member formed to have a gradient having a height difference in a bottom surface of the receiving vessel to maintain horizontally the fuel tank, and a drainage portion for discharging the leaking substance accumulated in the lowest portion of the bottom surface.



Description

Technical Field

[0001] The present invention relates to an engine and an engine-driven work machine including a work machine main body driven by the engine.

Background art

[0002] In an engine-driven work machine, this prevents from leaking the leaking substance to the outside, such that a large fuel tank is installed in a concave portion formed in, for example, a base member for transportation to form a receiving vessel for storing the leaking substance, which forms a concave portion to be water-tight. This kind of engine-driven work machines are disclosed in Patent Literatures (for example, Patent Publication Number 3300923).

[0003] However, according to a technical art disclosed in the above Patent Literature, the rainwater is flowed into a receiving vessel by penetrating the rainwater from gaps formed between a base member and a supporting member or from holes for drainage of rainwater as formed in the bottom surface of the base member of the receiving vessel.

[0004] Therefore, an object of the present invention is to provide an engine-driven work machine for accumulating effectively the leaking substance from the work machine to a drainage portion provided in the receiving vessel, for discharging effectively through the drainage portion in a short period, and for controlling appropriately an overflow of the leaking substance beyond a volume of the receiving vessel.

Disclosure of the Invention

[0005] In one aspect, the present invention includes a base member for supporting an engine and a work machine comprising of a work machine main body driven by the engine, a receiving vessel for storing the leaking substance leaking from the work machine, a box-shaped fuel tank for storing fuel supplied to the engine, an adjusting member for forming a gradient having a height difference in the bottom surface of the receiving vessel and maintaining the fuel tank horizontally, and a drainage portion for discharging the leaking substance accumulating at the lowest portion of the bottom surface.

[0006] The invention may be formed to have a gradient having a height difference at the bottom surface of the receiving vessel accumulating the leaking substance leaked from the work machine to accumulate the leaking substance in the lowest portion. The invention may be provided with the drainage portion to drain the leaking substance accumulated in the lower portion, thus to discharge effectively the leaking substance accumulating in the receiving vessel in a short period.

[0007] The box-shaped fuel tank arranged inside the

receiving vessel may be horizontally installed in the receiving vessel without being influenced by the gradient of the receiving vessel. Then, the fuel stored in the fuel tank is effectively supplied to the engine.

[0008] Preferably, the receiving vessel is formed like a quadrangular prism with the upper side of the receiving vessel open. The height adjusting member may comprise a leg mounting the receiving vessel on an installation surface (e.g. the ground or a floor) to be oblique or sloping i.e. with one side thereof lower. The drainage portion is provided at the lower side of the gradient.

[0009] Preferably, the receiving vessel in which the leaking substance falls due to the leak from the work machine is box-shaped or shaped as a quadrangular prism. The box forms a gradient having a height difference in the bottom surface. The drainage portion is formed in the lower side so as to discharge effectively the leaking substance accumulated in the receiving vessel in a short period.

[0010] A receiving plate for the leaking substance leaked from the work machine may be mounted between the work machine and the receiving vessel. The receiving plate may be provided with a height difference in the front-and-rear direction and/or in the left-and-right direction to accumulate the leaking substance in the lowest portion and to discharge the leaking substance accumulated in the lowest portion of the receiving plate. Then, a discharge port is formed to allow the leaked substance to fall inside the receiving vessel.

[0011] According to this arrangement, the leaking substance leaked from the work machine can be received by the receiving plate and accumulated in the lowest portion formed in the receiving plate. Then, the leaking substance accumulated in the lowest portion is discharged from the receiving plate through the discharge port, thus to fall inside the receiving vessel and accumulate in the receiving vessel.

[0012] The receiving plate is preferably provided under the engine to accumulate the leaking substance leaked from the engine.

[0013] Preferably, the receiving plate is arranged below the lower side of the engine, which is full of the leaking substance, to accumulate the leaking substance from the engine in the receiving plate.

[0014] According to the engine-driven work machine relating to at least the preferred embodiments of the present invention, leakage of the leaking substance in the proximity of the engine-driven work machine, can be prevented, because the leaking substance leaked from the work machine comprising the engine and the work machine main body is accumulated in the receiving plate. Then, in the case of a box-shaped receiving vessel arranged at a slant, i.e. with one side thereof lower, a gradient is formed having a height difference in the bottom surface, whereby the leaking substance accumulates in the lowest portion.

[0015] The drainage portion is preferably formed in the lower side thereof.

[0016] The above constitution can effectively accumulate the leaking substance in the lower side of the receiving vessel to discharge effectively the leaking substance in the receiving vessel through the drainage portion in a short period.

[0017] Accordingly, a total amount of the leaking substance going over a volume of the receiving vessel can be preferably controlled and prevented.

[0018] The receiving vessel is preferably provided below the work machine, and the receiving plate of the leaking substance falling owing to leakage from of the work machine is provided between the work machine and the receiving vessel. The receiving plate is arranged to have a height difference in the front-and-rear direction or in the left-and-right direction to accumulate the leaking substance in the lowest portion. The discharge port is provided for discharging the leaking substance as accumulated in the lowest portion.

[0019] According to the above constitution, the leaking substance as accumulated by the discharge port can be accumulated in the lowest portion and discharged from the discharge port. Further, the leaking substance as discharged from the discharge port can be fallen inside the receiving vessel and effectively accumulated in the receiving vessel in a short period.

[0020] The engine which drives the work machine main body may have a great deal of leaking substance. Thus, the receiving plate is provided below the engine to accumulate the leaking substance from the engine.

[0021] According to the above constitution, the leaking substance as leaked from the engine can be accumulated in the lowest portion of the receiving plate and discharged from the discharge port. Then, the leaking substance can be effectively introduced into the receiving vessel and effectively discharged through the drainage portion in a short period.

[0022] The fuel tank arranged inside the receiving vessel can be horizontally installed. Then, the leak of fuel supply owing to the gradient of the fuel tank will not arise. Then, the fuel can be effectively supplied to the engine.

[0023] As described the above, the invention can be provided with an engine-driven work machine by which that a total amount of the leaking substance going beyond the volume of the receiving vessel can be effectively controlled and prevented, such that the leaking substance as leaked from the work machine is effectively accumulated in the drainage portion providing in the receiving vessel and effectively discharged through the drainage portion in a short period.

Brief description of the Drawings

[0024]

Fig.1A is a view showing an engine-driven work machine relating to this embodiment, and Fig.1B is a view showing a state as the work machine cover removed.

Fig.2 is a view showing a constitution of the engine-driven work machine.

Fig.3A is a perspective view of the receiving vessel, and Fig.3B is a cross-sectional view taken along a line X1-X1 of Fig.3A.

Fig.4A is a cross-sectional view showing a constitutional example of a drainage cock,

Fig.4B is a cross-sectional view showing a constitutional example of a fuel cock, and

Fig.4C is a cross-sectional view showing another constitution of the fuel cock.

Fig.5 is a view showing a tank band, Fig.5A is a view showing a state before fixing a large fuel tank, Fig.5B is a view showing a state as the large fuel tank fixed.

Fig.6A is a perspective view of a work machine base, and Fig.6B is a cross-sectional view taken along a line X4-X4 of Fig.6A.

Fig.7 is a view showing a constitution of an opening and closing door.

Fig.8A is a view showing a lower engaging member, Fig.8B is a view showing an upper engaging member, Fig.8C is a view showing a side engaging member, and Fig.8D is a view showing a central engaging member.

Fig.9A is a cross-sectional view taken along a line X5-X5 of Fig.7, Fig.9B is a cross-sectional view taken along a line X6-X6 of Fig.7, and Fig.9C is a cross-sectional view taken along a line X7-X7 of Fig.7.

Fig.10A is a view showing a constitution of a discharge plate, and Fig.10B is a cross-sectional view showing the discharge plate as fixed in a receiving vessel.

Fig.11A is a view, as seen from the front side, showing a state as the receiving vessel fixed in a work machine base, and Fig.11B is a cross-sectional view taken along a line X9-X9 of Fig.11A.

Fig.12A is a schematic view showing a flow of leaking substances as received on the discharge plate, and Fig.12B is a cross-sectional view taken along a line X10-X10 of Fig.12A.

Detailed Description of the Invention

[0025] Hereinafter, a preferred embodiment for carrying out the invention will be described, by way of example only, with reference to the accompanying drawings.

[0026] Fig.1A is a figure showing an engine-driven work machine relating to the embodiment, and Fig.1B is a figure showing a state as a work machine cover opened. Fig.2 is a view showing a constitution of the engine-driven work machine.

[0027] As shown in Fig.1A, Fig.1B, and Fig.2, the engine-driven work machine relating to this embodiment is provided with a large fuel tank (as referred to hereinafter as a fuel tank) inside a receiving vessel 2 as being a box-shape member. A work machine base (as referred to hereinafter as a base) 5 supporting a work machine 6

comprising an engine 6b and a work machine main body 6a driven by the engine 6b is provided over the fuel tank 3. The work machine cover 7 for covering the work machine 6 is installed on the base 5.

[0028] Hereinafter, a side of the work machine 6 is defined as an upper direction and a side of the receiving vessel 2 is defined as a lower direction. A direction taken along a long side such as the rectangular receiving vessel 2, the fuel tank 3, and the work machine base 5, may be defined as a longitudinal direction, and a direction along a short side thereof may be defined as a lateral direction.

[0029] The work machine base 5 is provided with side walls 50 which fasten a pedestal plate 51 therebetween in a lateral direction and extend below the pedestal plate. The receiving vessel 2 is mounted in the work machine base 5 such that the side wall 50 covers the receiving vessel 2 from outside in a lateral direction. The receiving vessel 2 and the work machine base 5 will be described later.

[0030] The fuel tank 3 is mounted inside the receiving vessel 2. For example, the fuel tank 3 is mounted in the receiving vessel 2 by a pair of tank bands 20, 20 provided in a longitudinal direction of the receiving vessel 2.

[0031] Further, the receiving vessel 2 is provided with a discharge plate (as referred to hereinafter as a receiving plate) 4 over the fuel tank 3. The receiving plate 4 will be later described in detail.

[0032] As shown in Fig. 2, the fuel tank 3 relating to this embodiment is a hollow tank as being of approximately box-shaped. The fuel tank 3 is provided with a supply port 3a for supplying the fuel and a fuel gauge 3b displaying a storing volume of the fuel. A drainage pipe 3c for discharging the fuel storing in the fuel tank 3 is provided, for example, in one side taken along a lateral direction.

[0033] As not shown in Figures, the fuel tank 3 is provided with a suction pipe for sucking the stored fuel, and a return pipe for returning the fuel to the fuel tank 3.

[0034] Though a constitution of the supply port 3a is not limited, a hollow supply pipe 3a1 penetrating a surface (an upper surface) in the upper side of the fuel tank 3 projects in an upper direction of the fuel tank 3, and a lid 3a2 as detachably provided at the end thereof is constituted to close the supply pipe 3a1.

[0035] Though a constitution of the fuel gauge 3b is not limited, the fuel gauge 3b may be applied to a mechanical or electrical fuel gauge as being visual recognized through a visually recognizing window providing at an upper surface of the fuel tank 3. The fuel gauge can be applied by a well-known technical art. The detailed explanation will be omitted.

[0036] The drainage pipe 3c is formed such that a hollow pipe is formed to penetrate, for example, one side taken along a lateral direction of the fuel tank 3.

[0037] Fig.3A is a perspective view of the receiving vessel, and Fig.3B is a cross sectional view taken along a line X1-X1 of Fig.3A. As shown in Fig.3A, the receiving vessel 2 is a vessel composed of a box-shape body with

the upper side thereof open, and a leaking substance receiver 2a is formed in an inner hollow area. The upper end taken along a longitudinal direction slants in the upper direction toward the open side to form an oblique surface 2b.

[0038] Either side taken along a longitudinal direction of the receiving vessel 2 is provided with a stop-by-screw boss 26 in each side thereof. Fig.3A shows three stop-by-screw bosses.

[0039] The stop-by-screw boss 26 has a function to fasten a mounting means such as a bolt for securing the receiving vessel 2 in the work machine base 5 (as referred to Fig.2). For example, a spacer 26a is mounted to be convex in the side taken along a longitudinal direction of the receiving vessel 2, and a screw hole 26b screwed by the fastening means such as a bolt is formed.

[0040] Though a spacer 26a is mounted in the side of the receiving vessel 2 to form the stop-by-screw boss in Fig.3A, it is not limited to this constitution. For example, a convex portion projecting a part of the side taken along a longitudinal direction of the receiving vessel 2 to the outside may be formed, and the stop-by-screw boss by forming the screw hole 26b may be formed in the convex portion.

[0041] A leaking substance receiver 2a is an area for receiving and storing the leaking substance such as fuel oil, lubricating oil, and coolant, as leaked from, for example, work machine 6 (as referred to Fig.1A). It is preferable to be a watertight construction, for example, by means of continuous welding.

[0042] A method for forming the receiving vessel 2 is not limited. For example, the side taken along a longitudinal direction is formed by folding a steel plate to be U-shape, and mounted the side taken along a lateral direction is mounted to the both sides, for example, by means of continuous welding.

[0043] Accordingly, spots to be continuously welded will decrease in number, and steps for manufacturing the receiving vessel 2 will be decreased. The watertight property thereof will be preferably maintained, because the ill-welding spots can be remarkably decreased in number.

[0044] A drainage portion 2c including a fuel cock 21, a drainage cock 22, and a drainage cover 23 is formed in one of the sides taken along a lateral direction of the receiving vessel 2.

[0045] Hereinafter, a side forming the drainage portion 2c is defined as a front surface, and a side opposite to the front side is defined as a rear surface.

[0046] Fig.4A is a cross-sectional view taken along a line X2-X2 of Fig.3A, and is a cross-sectional view showing a constitutional example of the drainage cock.

[0047] The constitution of the drainage cock 22 is not particularly limited. For example, an opening-or-closing constitution of a discharge pipe 22c based on the movement of a valve body 22b provided in the cylindrical discharge pipe 22c penetrating the side of the receiving vessel 2 can be considered as shown in Fig.4A. In a case

where the valve body 22c is constituted to cooperatively actuate together with the cock lever 22a provided outside the discharge pipe 22c, the discharge pipe 22c is, for example, opened or closed by manually operating the cock lever 22a. When the discharge pipe 22c is opened, the discharge pipe 22c, which is a passage between the leaking substance receiver 2a and the outside of the receiving vessel 2, will be communicated. Then, the opening of the drainage cock 22 can discharge the leaking substance accumulated in the leaking substance receiver 2a outside the receiving vessel 2.

[0048] As shown in Fig.4A, the drainage cock 22 may be mounted such that a position thereof, which is higher than or equal to a position of the lowest portion thereof inside the discharge pipe 22c, is the same position as the bottom surface 2a1 of the leaking substance receiver 2a or is lower than an upper surface of the bottom surface 2a1. Then, this constitution prevents from storing the leaking substance in the border between the bottom surface 2a1 and the drainage cock 22 to completely discharge the leaking substance storing in the leaking substance receiver 2a.

[0049] Fig.4B is a cross-sectional view showing a constitutional example of the fuel cock, and is a cross-sectional view taken along a line X3-X3 of Fig.3A.

[0050] The fuel cock 21 has a function to discharge the fuel stored in the fuel tank 3 (as referred to Fig.1A) to the outside. The drainage portion 2c including the drainage cock 22 and the fuel cock 21 is formed.

[0051] A constitution of the fuel cock 21 is not particularly limited. For example, as shown in Fig.4B, the fuel cock 21 is provided with a fuel drainage 21b composing of a hollow pipe penetrating the side of the receiving vessel 2 to communicate between the leaking substance receiver 2a and the outside of the receiving vessel 2. A screw groove is formed in the proximity of the outside end of the fuel drainage 21b. A constitution for screwing the fuel drainage bolt 21a, which has a screw portion screwed by the screw groove of the fuel drainage 21b, and for closing the fuel drainage 21b may be applied to.

[0052] In this constitution, the fuel cock 21 can be easily opened or closed by attaching or detaching the fuel drainage bolt 21a.

[0053] A method for securing the fuel drainage 21b to the receiving vessel 2 is not particularly limited. For example, outer screws are formed in an outer circumference of the portion projecting to the outside in the fuel drainage 21b, and a flange 21f extending in the surrounding area is formed in the side of the leaking substance receiver 2a.

[0054] The fuel drainage 21b is mounted such that a nut 21g is screwed in the outer screw of the fuel drainage 21b from the outer end, and the side of the receiving vessel 2 is fastened between the flange 21f and the nut 21g. Then, the watertight structure formed between the fuel drainage 21b and the side of the receiving vessel 2 is preferable that the rubber packing 21d is intervened between the flange 21f and the side of the receiving ves-

sel 2.

[0055] A hose port 21e is formed in the side of the leaking substance receiver 2a of the fuel drainage 21b. For example, the drainage hose 21c made of elastic member such as rubber is inserted into the hose port 21e to connect to the drainage pipe 3c of the fuel tank as shown in Fig.2.

[0056] In this constitution, the fuel stored in the fuel tank 3 can be discharged through the fuel cock 21 to the outside of the receiving vessel 2.

[0057] Fig.4C is a cross-sectional view showing another constitution of the fuel cock.

[0058] As shown in Fig.4C, a hollow tubular socket 211 is mounted, for example, by welding to penetrate the side of the receiving vessel 2. A valve 212 for an opening or closing passage is provided outside the receiving vessel 2 of the socket 211. A hose joint 210 is attached in the side of the leaking substance receiver 2a of the socket 211.

[0059] A fuel valve 3c1 for opening or closing the drainage pipe 3c is attached to the drainage pipe 3c of the fuel tank (as referred to Fig.2) to connect the drainage hose 21c through a hose joint 3c2.

[0060] Then, the fuel stored in the fuel tank 3 (as referred to Fig.2) is designed for discharging to the outside by opening the drainage pipe 3c and the valve 212 by means of the fuel valve 3c1.

[0061] In a case where the fuel tank 3 (as referred to Fig.2) is detached by the fuel cock 21 of such a constitution, the fuel tank 3 can be easily detached from the receiving vessel 2 in a state as the fuel stored in the fuel tank 3 by closing the drainage pipe 3c by means of the fuel valve 3c1 even in a state as the fuel stored in the fuel tank 3.

[0062] The stealing of the fuel in the fuel tank 3 owing to an illegal opening of the valve 212 can be prevented by closing the drainage pipe 3c at the fuel valve 3c1.

[0063] As shown in Fig.4A to Fig.4C, the drainage cock 22 and the fuel cock 21 may be provided in a step portion 2d by inserting in the side of the leaking substance receiver 2a to form a step in the side of the receiving vessel 2. The ends of the drainage cock 22 and the fuel cock 21 are constituted not to project from the side of the receiving vessel 2. For example, the collision of object against the drainage cock 22 and the fuel cock 21 can be avoided and failures of the drainage cock 22 and the fuel cock 21 can be prevented.

[0064] As shown in Fig.3A, the drainage cover 23 may be provided to surround the drainage cock 22 and the fuel cock 21. The drainage cover 23, which is of left-open rectangular shape (U-shape) with the opening side thereof directed to the upper direction, is mounted to the step portion 2d to surround the drainage cock 22 and the fuel cock 21. The end thereof is constituted to project outwards from the ends of the drainage cock 22 and the fuel cock 21. Such drainage cover 23 can receive the leaking substance by the drainage cover 23 and prevent from the surrounding environmental pollution in a place for

mounting the receiving vessel 2, even in a case where the leaking substance leaks from the drainage cock 22 and the fuel cock 21.

[0065] In addition, though the drainage portion 2c is shown in an approximately central portion in the lateral direction of the receiving vessel 2 in Fig.3A, the drainage portion 2c may be constituted near the end thereof in the lateral direction of the receiving vessel 2.

[0066] As shown in Fig.3B, the leaking substance receiver 2a is provided with an mounting base 25 supporting the fuel tank 3 in the bottom surface 2a1. The mounting base 25, for example, a long member being approximately the same length as the length in the lateral direction of the receiving vessel 2, is mounted in the lateral direction. As shown in Fig.3B, a cross-sectional form of the mounting base 25 is formed by a rib 250, a plane portion 251 as folded perpendicular to the rib 250, a wall portion 252 as bent up at a right angle (90 degrees) to the plane portion 251 to be perpendicular to the bottom surface 2a1 of the rib 250.

[0067] Each of the mounting base 25 is respectively provided at a front side and a rear side. The distance between the opposing wall portions 252 is equal to the same length as the length in the longitudinal direction of the fuel tank 3, and the plane portion 251 is mounted to direct to an inner side of the receiving vessel 2. A method for mounting the mounting base 25 to the bottom surface 2a1 is not limited to the above. For example, the method for mounting may be, for example, by welding.

[0068] For example, as shown in Fig.3A and Fig.3B, it is preferable that a notch 253 is formed in the rib 250 of the mounting base 25 to smoothly flow the leaking substance in the rear side from the mounting base 25 to the front side.

[0069] The fuel tank 3 is supported on the plane portion 251 of the mounting base 25. Then, it is preferable that the fuel tank 3 makes horizontal relative to the installation surface.

[0070] As before-mentioned, the receiving vessel 2 is placed on the installation surface, which is oblique to become lower in the front side. Thus, the front side of the fuel tank is required to be higher in position than the rear side thereof so that the fuel tank 3 supported by the mounting base 25 becomes horizontal.

[0071] Accordingly, the receiving vessel 2 relating to this embodiment is formed such that a position of the bottom surface 2a1 of the plane portion 251 of the mounting base 25 in the front side thereof (a front mounting base 25a) is higher than a position of the bottom surface 2a1 of the mounting base 25 in the rear side thereof (a rear mounting base 25a). That is, a position of the rib 250a of the front mounting base 25a is formed to be higher than a position of the rib 250b of the rear mounting base 25b.

[0072] It is preferable that the plane portion 251 is formed to be horizontal relative to the installation surface.

[0073] As shown in Fig.3A and Fig.3B, it may be constituted to provide an auxiliary base 27 between the front

mounting base 25a and the rear mounting base 25b. The auxiliary base 27 may be provided with the supporting member of the fuel tank 3, for example, two auxiliary base 27 composing of the front auxiliary base 27a, as provided in the front side, and the rear auxiliary base 27b, as provided in the rear side, such that the central proximity in the longitudinal direction of the fuel tank 3 supported by the mounting base 25 prevents, for example, from bending in the side of the bottom surface 2a1 of the receiving vessel 2.

[0074] The form of the auxiliary base 27 is not particularly limited. For example, a long member being approximately the same length as the length in the lateral direction of the receiving vessel 2 is formed along a lateral direction.

[0075] The auxiliary base 27 is, for example, a left-open rectangular shape in cross-sectional form. The auxiliary base 27 is mounted to direct to the bottom surface 2a1 in the opening side to support the fuel tank 3 on the plane portion 270 formed in the upper side.

[0076] For example, it is preferable that the notch 271 is formed in the side wall, as being left-open rectangular, of the auxiliary base 27 to flow smoothly the leaking substance in the rear side of the auxiliary base 27 to the front side thereof.

[0077] As before-mentioned, the fuel tank 3 is horizontally mounted to the receiving vessel 2 on the installation surface. Thus, the plane portion 251 of the front mounting base 25a, the plane portion 251 of the rear mounting base 25b, the plane portion 270 of the front auxiliary base 27a, and the plane portion 270 of the rear auxiliary base 27b are preferably formed to lie in a same horizontal plane on the installation surface.

[0078] The mounting base 25 (the front and rear mounting bases 25a, 25b) and the auxiliary base 27 (the front and rear auxiliary bases 27a, 27b) becomes a height regulating member described in the claim.

[0079] In a case where the receiving vessel 2 is mounted as oblique relative to the installation surface, the fuel tank 3 becomes horizontal relative to the installation surface to supply the fuel stored in the fuel tank 3 to the engine 6b (as referred to Fig.2) of the work machine 6 without deviation.

[0080] As shown in Fig.3A, the leaking substance receiver 2a of the receiving vessel 2 is provided with the tank band 20 mounting the fuel tank (as referred to Fig. 1A), for example, with two tank bands in the longitudinal direction of the receiving vessel 2.

[0081] The tank band 20 is a thin plate member provided, for example, inside the leaking substance receiver 2a. As shown in Fig.3B, the tank band 20 is, for example, provided with the plane portion 251 of the front mounting base 25a and the plate portion 270 of the rear auxiliary base 27b.

[0082] Fig.5A and Fig.5B are views showing the tank band. Fig.5A is a view showing a state before the fuel tank is mounted, and Fig.5B is a view showing a state as the fuel tank mounted.

[0083] As shown in Fig.5A, the tank band 20 is mounted by screwing, welding, etc. to the plane portion 251 of the front mounting base 25a and the plane portion 270 of the rear auxiliary base 27b (as referred to Fig.3B) such that a member composed of a narrow steel plate as folded like approximately U-shape opens in the upper direction.

[0084] It is preferable that the lateral length of the tank band 20 as opened in the upper direction is equal to the lateral length of the fuel tank 3. Either end of the tank band 20 extends outside to form an engaging portion 20a.

[0085] In a case where the fuel tank 3 is mounted to the receiving vessel 2, the fuel tank 3 is inserted into a space between both ends as opened in the upper direction of the tank band 20. Each tank band 20 is folded along an outer line of the fuel tank 3 to push down the fuel tank 3 from the top.

[0086] One of bolt holes (as not shown) as formed in two engaging portions 20a, 20a provided to be upright is penetrated by a bolt B to fasten and mount by a nut N.

[0087] As shown in Fig.3A, a leg 24 supporting the receiving vessel 2 is provided below the receiving vessel 2. The leg 24 is formed along a lateral direction in the lower surface of the receiving vessel 2, for example, to be a prism-shape member in the front and rear sides.

[0088] A height difference between the leg 24 (front leg 24a) of the front side and the leg 24 (rear leg 24b) of the rear side, that is, a volume projecting from the lower surface of the receiving vessel 2 is different. Then, it is preferable that the height of the front leg 24a is lower than the height of the rear leg 24b.

[0089] That is, as shown in Fig.3B, it is preferable that a position of the front side is lower in height, when the receiving vessel 2 is placed on a horizontal installation surface.

[0090] In this constitution, a gradient having a height difference in the bottom surface 2a1 is formed, and the leaking substance of the leaking substance receiver 2a flows to the lowest portion of the bottom surface 2a1, i.e. to the front side.

[0091] The drainage portion 2c (as referred to Fig.3A) is formed in the lower side to discharge the leaking substance effectively in a short period, when the drainage cock 22 (as referred to Fig.3A) is opened.

[0092] Thus, the leg 24 (front leg 24a and rear leg 24b) slants the receiving vessel 2 to form a gradient having a height difference in the bottom surface 2a1. Thus, the leg 24 becomes a height adjusting member described in the claims.

[0093] Fig.6A is a perspective view of a work machine base, and Fig.6B is a cross-sectional view taken along a line X4-X4 of Fig.6A.

[0094] As shown in Fig.6A, the work machine base 5 is mounted by welding, etc. such that the side wall 50, which is approximately the same length as the length in the longitudinal direction of the receiving vessel 2 (as referred to Fig.1A), fastens the pedestal plate 51 mounting the work machine 6 (as referred to Fig.1A) from the

both sides thereof.

[0095] The side wall 50 is constituted to enhance the rigidity as a shallow box-shape member, as formed, for example, by a steel plate, is mounted to the pedestal plate 51 in the bottom with the outside thereof being open.

[0096] The side wall 50 is provided by penetration with a stop-by-screw hole at a position corresponding to the stop-by-screw boss 26 (as referred to Fig.3A), when the receiving vessel 2 (as referred to Fig.3A) is placed between the side walls 50, 50.

[0097] The pedestal plate 51, which is a member with approximately the same width as the lateral length of the receiving vessel 2, is provided in both ends of the side wall 50. The pedestal plate 51 is provided in the front side of the receiving vessel 2 (as referred to Fig.1A). For example, the pedestal plate 51 is provided with the front pedestal plate 51a, which is provided in the front side of the receiving vessel 2 (as referred to Fig.3A), for example, to mount the work machine main body (as referred to Fig.6B) of the work machine 6, and the rear pedestal plate 51b, which is provided in the rear side of the receiving vessel 2, for example, to mount the engine 6b (as referred to Fig.6B) of the work machine 6.

[0098] As shown in Fig.6A and Fig.6B, the front pedestal plate 51a is composed of a pedestal portion 51a1 in the form of left-open rectangular shape in cross section, which is formed to be approximately parallel to the upper surface 50a of the side wall 50, an oblique portion 51a2, which slants downwards toward the front side from the lower side of the pedestal portion 51a1, and a plate-shape front wall portion, which is mounted to the end of the front side of the oblique portion 51a2.

[0099] For example, it is preferable that a discharge hole 51a4 is formed at the corner of the front wall portion 51a3 of the oblique portion 51a2 to discharge the liquid on the oblique portion 51a2.

[0100] It may be possible that the rainwater permeate, for example, from the gap (as not shown) and a supply-and-exhaust port as not shown in the work machine cover 7 (as referred to Fig.1A) would fall on the front pedestal plate 51a. The discharge hole 51a4 of the oblique portion 51a2 can be made to discharge the rainwater fallen in the oblique portion 51a2 preferably. In this constitution, it is preferably constituted not to permeate the rainwater in the oblique portion 51a2 therein. As shown in Fig.6B, it is preferable that the discharge hole 51a4 is constituted to avoid the upper of the receiving vessel 2.

[0101] The rear pedestal plate 51b is composed of a pedestal portion 51b1, as being left-open rectangular (U-shape) in cross-section, an oblique portion 51b2 slanting downwards toward the rear side of the lower portion of the pedestal portion 51b1, and a plate-shape rear wall portion 51b3 mounted to the end of the rear side of the oblique portion 51b2.

[0102] The front wall portion 51a3 and the rear wall portion 51b3 are provided to form a side surface taken along a lateral direction of the work machine base 5.

[0103] Each side wall portion 50 of the pedestal portion

51b1 is, for example, provided with an auxiliary pedestal 51b4, 51b4, respectively. The auxiliary pedestal 51b4 is mounted to the pedestal portion 51b1 such that a long member as being left-open rectangular in cross section, for example, directs its opening to the lower direction, and projects toward the front side from the pedestal portion 51b1.

[0104] For example, a discharge hole 51b5 is preferably formed in the corner of the rear wall portion 51b3 of the oblique portion 51b2 to discharge the liquid on the oblique portion 51b2.

[0105] It may be possible that the rainwater permeating from the gap (as not shown) formed in the work machine cover 7 (as referred to Fig.1A) and the supply-and-suction port (as not shown), formed in the work machine cover 7 would fall on the rear pedestal plate 51b. The discharge hole 51b5 of the oblique portion 51b2 can preferably discharge the rainwater falling on the oblique portion 51b2. In this constitution, it is preferable not to enter the rainwater into the receiving vessel 2. As shown in Fig.6B, it is preferable that the discharge hole 51b5 avoids the upper of the receiving vessel 2.

[0106] As shown in Fig.6B, the work machine main body 6a is, for example, placed on the pedestal portion 51a1 and mounted by the mounting means as not shown. The engine 6b of the work machine 6 is placed on the auxiliary pedestal 51b4, 51b4 and mounted by the mounting means as not shown.

[0107] Thus, the work machine 6 is supported by the work machine base 5.

[0108] In the above constitution, the leaking substance as leaked from the work machine 6 falls in the lower direction from the portion between two auxiliary pedestals 51b4, 51b4 and the portion between the pedestal portion 51a1 and the pedestal portion 51b1.

[0109] Though the work machine 6 includes a coolant-circulation radiator to have a plenty of the leaking substance from the engine 6b, which fuel, lubricating oil, etc. penetrate therein, the engine 6b is constituted to be supported by two auxiliary pedestals 51b4, 51b4, thus to be able to fall the leaking substance of the engine 6b from the portion between two auxiliary pedestals 51b4, 51b4 and from the portion between the pedestal portion 51a1 and the pedestal portion 51b1.

[0110] As shown in Fig.6B, the engine 6b is mainly mounted between the front pedestal plate 51a and the rear pedestal plate 51b. Then, an area between the front pedestal plate 51a and the rear pedestal plate 51b is called as an engine room 5a.

[0111] In addition, the side having the front pedestal plate 51a is called as a front room 5b, and side having the rear pedestal plate 51b is called as a rear room 5c.

[0112] In the engine-driven work machine 1 (as referred to Fig.1) relating to this embodiment, the engine 6b is arranged in the engine room 5a, and the work machine main body 6a is arranged in the front room 5b. Various auxiliary devices as not shown may be arranged in the rear room 5c.

[0113] In a case where the work machine base 5 is divided as shown in Fig.6B, a small size of fuel tank, as not shown, is preferably provided in the engine room 5a in consideration of an efficiency of fuel supply to the engine 6b.

[0114] Even if the leak of fuel arises in the small size of fuel tank as not shown, the above constitution can be designed for falling the leaking fuel from portions between two auxiliary pedestals 51b4, 51b4 and from portions between the pedestal portion 51a1 and the pedestal portion 51b1.

[0115] Back to Fig.1A, the engine-driven work machine 1 relating to this embodiment is provided with the work machine cover 7 for covering the work machine 6.

[0116] As shown in Fig.1A, a longitudinal length of the work machine cover 7 is equal to the longitudinal length of the work machine base 5, and a lateral length of the work machine cover 7 is equal to the lateral length of the work machine base 5. The end taken along a longitudinal direction in the open side of box-shape member formed, for example, by steel plate forms a fixed flange 7a by folding in the inner side as shown in Fig.1B.

[0117] The fixed flange 7a is placed on the upper surface 50a of the side wall portion 50 of the work machine base 5. For example, the upper surface 50a of the side wall portion 50 and the fixed flange 7a are secured by bolts and nuts, as not shown, to mount the work machine cover 7 on the work machine base 5.

[0118] The work machine cover 7 may be secured by welding on the work machine base 5.

[0119] One of sides taken along a longitudinal direction of the work machine cover 7 forms an opening and closing door 70.

[0120] Figure 7 is a view showing a constitution of the opening and closing door 70. As shown in Fig.7, the opening and closing door 70 includes two door members 70a, 70a opening, for example, in a longitudinal direction. The two door members 70a, 70a are constituted to fit in an opening 7b of the work machine cover 7. The two door members 70a, 70a are supported by the work machine cover 7 at a hinge member 70b having a rotational axis extending vertically to rotate around the hinge member 70b and open or close the opening portion 7b of the work machine cover 7 in a way of French doors (hinged double doors).

[0121] In addition, a suction port 7e taking the cool air inside the work machine cover 7 is formed in the door member 70a.

[0122] In the lower portion of the opening portion 7b, a lower engaging member 72d providing with a trim seal 71 abutting to the door member 70a closing the opening portion 7b is arranged along the upper surface 50a of the side wall portion 50 of the work machine base 5 (as referred to Fig.6A).

[0123] In the upper portion of the opening portion 7b, an upper engaging member 72u providing with a trim seal 71 abutting to the door member 70a closing the opening portion 7b is arranged along an upper end of the

opening portion 7b.

[0124] A central engaging member 72c providing with a trim seal 71 abutting to the door member 70a extending upwards and downwards parallel to the side engaging member 72s and closing the opening portion 7b is arranged between two side engaging members 72s, 72s.

[0125] The central engaging member 72c is provided so as to engage with the end of door member 70a, as the opening portion 7b closed, from the inner side of the work machine cover 7 at a position separating two door members 70a, 70a opening and closing by French door (hinged double door).

[0126] The lower engaging member 72d is provided with a horizontal portion 72d1 parallel to the upper surface 50a, which is a long member providing at a corresponding to the opening portion 7b of the work machine cover 7, an engaging portion 72d2, which is constituted to fold up the horizontal portion 72d1 upwards at an inner side of the work machine cover 7, and a drooping portion 72d3, which is constituted to fold down an opposite end to the the engaging portion 72d2 downwards so as to cover an end of the upper surface 50a.

[0127] Fig.8A is a view showing the lower engaging member. As shown in Fig.8A, the lower engaging member 72d is constituted to be attached the trim seal 71 to the supporting member 72d4 formed by folding the upper end of the engaging portion 72d2 in the side of the horizontal portion 72d1.

[0128] The trim seal 71 of the lower engaging member 72d is attached at two positions corresponding to the two door member 70a (as referred to Fig.7) providing with the opening and closing door 70 (as referred to Fig.7), and the supporting portion 72d4 is formed at a position attaching the trim seal 71.

[0129] A form of the trim seal 71 is not limited. For example, it is a long member providing with a tip portion 71b composed of a hollow cross-sectional form at the top of the attaching portion 71a grasping the flange-shape supporting member 72d4.

[0130] The lower engaging member 72d of such construction is provided to place the horizontal portion 72d1 on the upper surface 50a of the side wall portion 50 as shown in Fig.7.

[0131] The construction to mount the lower engaging member 72d is not limited.

[0132] Fig.9A is a cross-section view taken along a line X5-X5 of Fig.7.

[0133] As shown in Fig.9A, the work machine cover 7 forms a fixing surface 7c, 7c in the lower of the opening portion 7b (as referred to Fig.7), such that the front end and rear end are folded in the inner side of the work machine cover 7 and the ends thereof are folded in the side of the opening portion 7b. In this constitution, it is preferable that the fixing surface 7c formed in the front side and the fixing surface 7c formed in the rear side lie in the same plane.

[0134] The lower engaging member 72d is arranged such that the engaging portion 72d2 and two fixing sur-

faces 7c, 7c are overlapped each other from the outside. The engaging portion 72d is mounted by the fastening means such as bolts B in a state as the lower engaging member 72d and the fixing surface 7c are overlapped each other.

[0135] This is constituted to mount the lower engaging member 72d to the work machine cover 7.

[0136] Fig.8B is a view showing the upper engaging member. As shown in Fig.8B, the upper engaging member 72u is a long member to be plate-shape. The upper engaging member 72u is constituted to attach the trim seal 71 to the supporting portion 72ul formed by folding the end taken along a longitudinal direction.

[0137] The trim seal 71 of the upper engaging member 72u is attached at two positions corresponding to the two door member 70a providing with the opening and closing door 70 (as referred to Fig.7). The supporting portion 72ul is formed at a position to attach the trim seal 71.

[0138] The upper engaging member 72u of such a form is provided along the upper end of the opening portion 7b (as referred to Fig.7).

[0139] The constitution for fixing the upper engaging member 72u is not limited to the above.

[0140] Fig.9B is a cross-sectional view taken along a line X6-X6 of Fig.7.

[0141] As shown in Fig.9B, the work machine cover 7 forms fixing surfaces 7d, 7d at the upper of the opening portion 7b such that the front end and the rear end are folded in the inner side of the work machine cover 7, and the ends thereof are folded in the side of the opening portion 7b. It is preferable that the fixing surface 7d formed in the front side and the fixing surface 7d formed in the rear side lie in the same plane.

[0142] It is also preferable that the two fixing surfaces 7c, 7c formed in the lower side of the opening portion 7b and the two fixing surfaces 7d, 7d formed in the upper side of the opening portion 7b lie in the same plane.

[0143] The upper engaging member 72u is arranged such that the trim seal 71 becomes lower to direct to the outside and the upper engaging member 72u and two fixing surfaces 7d, 7d are overlapped from the outside of the work machine cover 7. Then, the upper engaging member 72u and the two fixing surfaces 7d, 7d are mounted by the fastening means such as bolt B.

[0144] Such a constitution can secure the upper engaging member 72u to the work machine cover 7.

[0145] Fig.8C is a view showing a side engaging member. As shown in Fig.8C, the side engaging member 72s is constituted to attach the trim seal 71 to one of ends in the longitudinal direction of the long member as being L-shape in cross-sectional area.

[0146] As shown in Fig.7, the side engaging member 72s is arranged such that the trim seal 71 is arranged to be in the central side of the opening portion 7b to direct to the outside. Then, the side engaging member 72s is secured to the fixing surface 7c and the fixing surface 7d by bolts B, etc.

[0147] Such a constitution can secure the side engag-

ing member 72s to the front side and the rear side of the opening portion 7b.

[0148] Fig.8D is a view showing a central engaging member. As shown in Fig.8D, the central engaging member 72c is constituted such that the end taken along a longitudinal direction of the plate-shape long member is folded as being left-open rectangular (U-shape) in cross section to form the two supporting portions 72c1, 72c1. Then, the central engaging member 72c is constituted to attach the two trim seals 71, 71 to the two supporting portions 72c1, 72c1.

[0149] The central engaging member 72c is formed such that the plane-shape fixing portion 72c2, as the supporting portion 72c1 not formed, extends in both sides of the longitudinal direction.

[0150] As shown in Fig.7, the central engaging member 72c is provided such that the two trim seals 71, 71 direct to the outside and the fixing portion 72c2 is overlapped, for example, at the rear side (the inner side of the work machine cover 7) together with the upper engaging member 72u and the lower engaging member 72d.

[0151] The fixing portion 72c2 is secured by securing means such as bolt B to the upper engaging member 72u and the lower engaging member 72d.

[0152] In the above constitution, the two trim seals 71, 71 are provided corresponding to the two door members 70a, 70a closing the opening portion 7b, respectively. One of the trim seals 71, 71 is constituted to abut to one of the door member 70a at the inner side of the work machine cover 7.

[0153] As the above constitution, the lower engaging member 72d, the upper engaging member 72u, the central engaging member 72c, and the two side engaging members 72s, 72s are arranged in the opening portion 7b. The door member 70a closing the opening portion 7b is abutted to the inner side of the work machine cover 7. Then, the trim seal 71 is provided to engage with the door member 70a.

[0154] Fig.9C is a cross-sectional view taken along a line X7-X7 of Fig.7 to show a state as the door member closes the opening portion.

[0155] The trim seal 71 is made of the elastic element such as rubber. As shown in Fig.9C, the trim seal 71 is engaged with the door member 70a by an abutment thereof, when the opening portion 7b (as referred to Fig. 7) is closed by the door member 70a.

[0156] As before mentioned, the trim seal 71 is formed by the elastic element. When the trim seal 71 contacts the door member 70a, the tip portion 71b becomes a state as compressed in the door member 70a by small transformation to have a good sealing property between the door member 70a and the lower engaging member 72d.

[0157] As shown in Fig.7, the trim seal 71 is arranged to be like a rectangle (a shape of the Japanese letter □) in the opening portion 7b to abut to the door member 70a at the upper, lower, front and rear sides thereof.

[0158] For example, the door member 70a is formed by a shallow box-shape member. In a case where an opening directs to the inner side of the work machine cover 7, when the door member 70a closes the opening portion 7b, the rainwater penetrating from the gap between the work machine cover 7 and the door member 70a can be prevented from penetration into the inner side of the shallow box.

[0159] Accordingly, the opening and closing door 70 (as referred to Fig.7) formed in the work machine cover 7 of the engine-driven work machine 1 (as referred to Fig.1A) relating to this embodiment can be preferably prevented from penetration of the rainwater in the inner side of the work machine cover 7, even in a case where the rainwater penetrates into the inner side of the work machine cover 7.

[0160] Fig.10A is a view showing a constitution of the receiving plate. Fig.10B is a cross-sectional view showing the receiving plate mounted to the receiving vessel to be a cross-sectional view taken along a line X8-X8 of Fig.10A.

[0161] As shown in Fig.10A, the receiving plate is made of the plate member such as steel plate. The first fixing surface 4b is formed by folding one end of the bottom portion 4a as being the same length as the length in the lateral direction of the receiving vessel 2 (as referred to Fig.10B).

[0162] The first fixing surface 4b is directed to the side as folded in the receiving plate 4.

[0163] The oblique wall 4d is formed by folding upwards one end of the side opposite to the first fixing surface 4d of the bottom surface 4a at a prescribed angle, and the second fixing surface 4c is formed by folding downwards one end of the oblique wall 4d at a prescribed angle.

[0164] An edged side connecting the first fixing surface 4b to the oblique wall 4d forms wall portions 4e, 4e by being upwards folded. It is preferable that the wall portion 4e, 4e and the oblique wall 4d are connected as being watertight, for example, by means of continuous welding.

[0165] In such a receiving plate 4, a distance between a portion to be folded between the bottom portion 4a and the first fixing surface 4b, and a portion to be folded between the oblique wall 4d and the second fixing surface 4c, is formed to be equal to the length between the two top ends taken along a longitudinal direction of the receiving vessel 2 (as referred to Fig.10B). As shown in Fig.10B, it is preferable that the oblique surface 2b of the receiving vessel 2 and the first fixing surface 4b of the receiving plate 4 are overlapped each other and the oblique surface 2b and the second fixing surface 4c are overlapped each other, in a case where the receiving plate 4 is placed on the receiving vessel 2 as mated each portion to be folded with the upper portion of the receiving vessel 2.

[0166] In a case where the oblique surface 2b of the receiving vessel 2 and the first fixing surface 4b are mutually secured by bolts B and nuts N, and the oblique

surface 2b of the receiving vessel 2 and the second fixing surface 4c of the receiving plate 4 are mutually secured by bolts B and nuts N, the receiving plate 4 is mounted to the receiving vessel 2.

[0167] In the above constitution, the bottom portion 4a of the receiving plate 4 is mounted to form an oblique surface with the side of the oblique wall 4d to be lower. That is, the receiving plate 4 is formed to have a height difference in the left and right direction.

[0168] In addition, the left and right direction means a direction perpendicular to a direction from the front side to the rear side and a direction taken along a lateral direction.

[0169] As shown in Fig.10A and Fig.10B, a visually recognizing hole 4al and a penetrating hole for supply port 4a2 are opened in the bottom portion 4a of the receiving plate 4.

[0170] As shown in Fig.10B, the receiving plate 4 is arranged over the fuel tank 3, in a case where the receiving plate 4 is mounted to the receiving vessel 2. The fuel tank 3 is provided with a supply port 3a as formed to project upwards and a fuel gauge 3b having a visually recognizing window on the upper surface. Thus, it is preferably constituted to form the penetrating hole for supply port 4a2 in the receiving plate 4 and penetrating the supply port 3a of the fuel tank 3. It is also preferably constituted to form the visually recognizing hole 4al of the receiving plate 4 and have the visual recognition of the fuel gauge 3b.

[0171] As shown in Fig.10B, it is preferably constituted to be a convex shape directed to the upward in the periphery of the visually recognizing hole 4al and the penetrating hole for supply port 4a2. This constitution can preferably prevent from flowing the liquid on the bottom portion 4a of the receiving plate 4 into the visually recognizing hole 4al and the penetrating hole for supply port 4a2.

[0172] As shown in Fig.10A, at least one discharge port 4e 1 (three discharge port 4el show in Fig.10A) is formed in the wall portion 4e of the receiving plate 4. The discharge port 4e 1 is preferably formed without a step relative to the bottom portion 4a in the proximity of the oblique wall 4d.

[0173] As shown in Fig.10B, this constitution is able to accumulate the liquid on the bottom portion 4a flowing along an oblique surface of the bottom portion 4a to the side of the oblique wall 4d into the discharge port 4e 1 of the lowest portion, and to discharge efficiently.

[0174] The discharge port 4el is preferably formed in the front side. As before-mentioned, the receiving vessel 2 slants as the front side thereof becomes lower. Thus, the bottom portion 4a slants as the front side thereof also in the receiving plate 4 formed at the receiving vessel 2. That is, when the front side is taken for a front direction, it slants in the front and rear direction, and forms to have a height difference in the front and rear direction. Thus, the discharge port 4e1 is formed in the front side to discharge efficiently the liquid on the bottom portion 4a from

the discharge port 4el.

[0175] The receiving vessel 2 (as referred to Fig.1A), as formed as the above, is mounted to the work machine base 5 to form the engine-driven work machine 1 (as referred to Fig.1A) relating to this embodiment.

[0176] Fig.11A is a view showing a constitution as the receiving vessel is mounted to the work machine base as seen from the front side, and Fig.11B is a cross-sectional view taken along a line X9-X9 of Fig.11A.

10 [0177] As shown in Fig.11A, the receiving vessel 2 relating to this embodiment is provided below the pedestal plate 51 to be inserted into a portion between both sides of the side wall portion 50, 50.

15 [0178] The work machine base 5 and the receiving plate 2 are mounted such that the fastening means such as a bolt (as not shown) penetrates in the stop-by-screw hole 50b (as referred to Fig.6A) as formed in the side wall portion 50 and screws in the screw hole 26b (as referred to Fig.3A) of the stop-by-screw boss 26.

20 [0179] As shown in Fig.11B, the rear side of the pedestal portion 51a1 of the front pedestal plate 51a is constituted to be piled with the wall portion 4e of the receiving plate 4 from the rear side. The front side of the pedestal portion 51b1 of the rear pedestal plate 51b is constituted to be piled with the wall portion 4e of the receiving plate 4 from the front side.

25 [0180] In this constitution, the receiving plate 4 is provided in the engine room 5a. For example, the leaking substance, which falls between the front pedestal plate 51a and the rear pedestal plate 51b by leaking from the engine 6b of the work machine as placed in the engine room 5a, can be securely received on the receiving plate 4. That is, the receiving plate 4 is constituted to be provided below the engine 6b to receive the leaking substance as leaked mainly from the engine 6b.

30 [0181] In a case where a small amount of fuel tank as not shown is arranged in the engine room 5a, the fuel leaking from the fuel tank can be securely received on the receiving plate 4.

35 [0182] Fig.12A is a schematic view showing a flow of the leaking substance received on the receiving plate and is a cross-sectional view taken along a line X10-X10 of Fig.12A. As shown in Fig.12A, the leaking substance received in the bottom portion 4a flows in the side of the oblique wall 4d, such that the bottom portion 4a slants as the side of the oblique wall 4d becomes lower, when the leaking substance of the work machine (as referred to Fig.11B) falls on the bottom portion 4a of the receiving plate 4.

40 [0183] As shown in Fig.12B, the bottom portion 4a of the receiving plate 4 is lower in the front side, as the receiving plate 4 is mounted to the receiving vessel 2 slanting as the front side thereof becomes lower.

45 [0184] Accordingly, the leaking substance received in the bottom portion 4a flows toward the wall portion 4e of the front side, and discharges from the discharge port 4el to fall to the outside.

[0185] That is, the leaking substance received on the

receiving plate 4 accumulates in the lowest portion of the receiving plate 4, and the discharge port 4e1 is formed to discharge the leaking substance as accumulated in the lowest portion.

[0186] As shown in Fig.11B, the fuel tank 3 is provided below the receiving plate 4. For example, in a case where the discharge port 4e1 of the receiving plate 4 is formed to avoid over the fuel tank 3, the leaking substance as discharged from the receiving plate 4 through the discharge port 4e1 can fall directly on the bottom surface 2a1 of the leaking substance receiver 2a.

[0187] On the ground that the bottom surface 2a1 of the leaking substance receiver 2a slants as the side of the drainage portion 2c becomes lower, the leaking substance as fallen on the bottom surface 2a1 flows and stays in the side of the drainage portion 2c.

[0188] On opening the drainage cock 22, the leaking substance of the leaking substance receiver 2a can be effectively discharged to the outside of the receiving vessel 2 in a short period.

[0189] As shown in Fig.11A, the receiving vessel 2 relating to this embodiment is constituted to be inserted between both the side wall portions 50, 50 to fasten the side wall portions 50, 50 by means of the fastening means such as bolts and nuts as not shown. In this constitution, it is preferable to form a gap G between the side wall portions 50, 50 and the receiving vessel 2.

[0190] The above constitution can discharge the rainwater as penetrated inside the work machine cover 7, for example, from the suction port 7e (as referred to Fig.7) formed in the opening and closing door 70 (as referred to Fig.7), without entering the receiving vessel 2.

[0191] In the above constitution, as shown in Fig.3A, the stop-by-screw boss 26 is formed in the side surface of the receiving vessel 2 to be mounted by the fastening means such as the bolt B to the work machine base 5 therethrough, as shown in Fig.9C. As shown in Fig.9C, the gap G equivalent to a thickness of a spacer 26a can be formed between the receiving vessel 2 and the side wall portion 50 of the work machine base 5.

[0192] The engine-driven work machine 1 (as shown in Fig.1A) relating to this embodiment is provided with the opening and closing door 70 in the work machine cover 7. As a result, it may be possible that the rainwater penetrates inside the work machine cover 7, for example, from the suction port 7e formed in the door member 70a.

[0193] As shown in Fig.9C, the sealing property arises between the door member 70a and the trim seal 71, as the door member 70a is engaged by the trim seal 71. The rainwater, which penetrates inside the work machine cover 7 and falls along the door member 70a, cannot fall below a position in which the trim seal 71 is in contact by applying pressure with the door member 70a.

[0194] Even if the rainwater falls inside the side wall portion 50, the gap G is formed between the receiving vessel 2 and the side wall portion 50. Thus, the rainwater can be discharged through the gap G outside the engine-driven work machine 1 without entering the leaking sub-

stance receiver 2a.

[0195] Even if the rainwater falls on the oblique surface 2b of the receiving vessel 2, the rainwater can be introduced to flow along the oblique surface into the gap G. Thus, the rainwater can be discharged outside the engine-driven work machine 1 (as referred to Fig.1A) without entering the leaking substance receiver 2a.

[0196] As above-mentioned, the engine-driven work machine 1 (as referred to Fig.1A) can discharge the rainwater to the outside without entering the leaking substance receiver 2a of the receiving vessel 2 (as referred to Fig.2). Accordingly, it has an excellent advantages that a total amount of the leaking substance accumulated in the leaking substance receiver 2a is preferably and effectively prevented from increasing the volume of the leaking substance owing to the rain, and preferably and effectively prevented from overflowing the leaking substance from the receiving vessel 2 to the outside.

[0197] As shown in Fig.9C, the lower engaging member 72d relating to this embodiment has a drooping member 72d3 as the end of the upper surface 50a of the side wall portion 50 is folded down.

[0198] The above lower engaging member 72d is constituted to be able to fall the rainwater, which falls down outside the door member 70a, along the drooping portion 72d3. Thus, it is preferably controlled to penetrate the rainwater inside the work machine cover 7 (as referred to Fig.7).

[0199] Accordingly, the leaking substance accumulated in the leaking substance receiver 2a (as referred to Fig.3A) can be preferably and effectively controlled to increase the total mount thereof and to overflow from the receiving vessel 2 (as referred to Fig.1A) to the outside owing to the rain.

[0200] Accordingly, the engine-driven work machine relating to this embodiment is preferably constituted to receive the leaking substance as leaked from the work machine on the receiving plate to effectively introduce the leaking substance thereon into the leaking substance receiver of the receiving vessel.

[0201] In this constitution, it has an excellent advantage that the leaking substance can be recovered in the receiving vessel without leaking outside the engine-driven work machine.

[0202] Furthermore, it is constituted to introduce the leaking substance accumulated in the leaking substance receiver to the side of the drainage cock and accumulate the leaking substance therein, as the leaking substance receiver slants so as to make lower the side of the drainage cock. Then, it has an excellent advantage that the leaking substance can be effectively discharged from the receiving vessel in a short period, when the drainage cock is opened.

Claims

1. An engine-driven work machine (1),

characterized by comprising

a base (5) for supporting a work machine (6) comprising an engine (6b) and a work machine main body (6a) driven by the engine (6b),

a receiving vessel (2) mounted to the base (5) to accumulate a leaking substance leaked from the work machine (6),

a fuel tank (3) having a form of a quadrangular prism mounted to the base (5) to store fuel for supply to the engine,

a height adjusting member formed to have a gradient having a height difference in a bottom surface (2a) of the receiving vessel (2) to maintain the fuel tank (3) horizontally, and

a drainage portion (2c) for discharging the leaking substance accumulated in the lowest portion of the bottom surface (2a).

2. An engine-driven work machine (1) as claimed in Claim 1,

the receiving vessel (2) comprises a box-shaped body having a shape of a quadrangular prism with the upper portion being open,

the height adjusting member comprises a leg (24) mounting the fuel tank (3) on an installation surface to be lower in height at one side thereof, and the drainage portion (2c) is provided at one side to be lower in the gradient.

3. An engine-driven work machine (1) as claimed in Claim 1 or 2, wherein

a receiving plate (4) of the leaking substance leaked from the work machine (6) is arranged between the work machine (6) and the receiving vessel (2),

the receiving plate is formed to have a height difference in the front and rear direction or in the left and right direction such that the leaking substance received thereon is accumulated in the lowest portion, a discharge port (4e) is formed to discharge the leaking substance accumulated in the lowest portion of the receiving plate and whereby the leaking substance falls inside the receiving vessel (2).

4. An engine-driven work machine (1) claimed in Claim 3, wherein

the receiving plate is arranged below the engine (6b) to receive the leaking substance leaked from the engine (6b).

5. An engine-driven work machine (1), comprising

a base (5) for supporting a work machine (6) comprising an engine (6b) and a work machine main body (6a) driven by the engine (6b),

a receiving vessel (2) mounted to the base (5) to receive a leaking substance leaked from the work machine (6) and having a sloping bottom surface for drainage,

a fuel tank (3) mounted to the base (5) to store fuel

for supply to the engine,

at least one tank support member on the sloping bottom surface arranged to support the fuel tank horizontally, and

a drainage portion (2c) for discharging the leaking substance accumulated in the lowest portion of the sloping bottom surface (2a).

6. An engine-driven work machine (1) as claimed in Claim 5, wherein

the receiving vessel (2) comprises a box-shaped body with the upper portion being open, the sloping bottom surface is supported by at least one leg for engaging the ground so as to support the sloping bottom surface at a gradient to the horizontal, and the drainage portion (2c) is provided at one side of the sloping bottom surface.

7. An engine-driven work machine (1) as claimed in Claim 3 or 4, comprising the features of claim 4 or claim 3.

FIG.1B

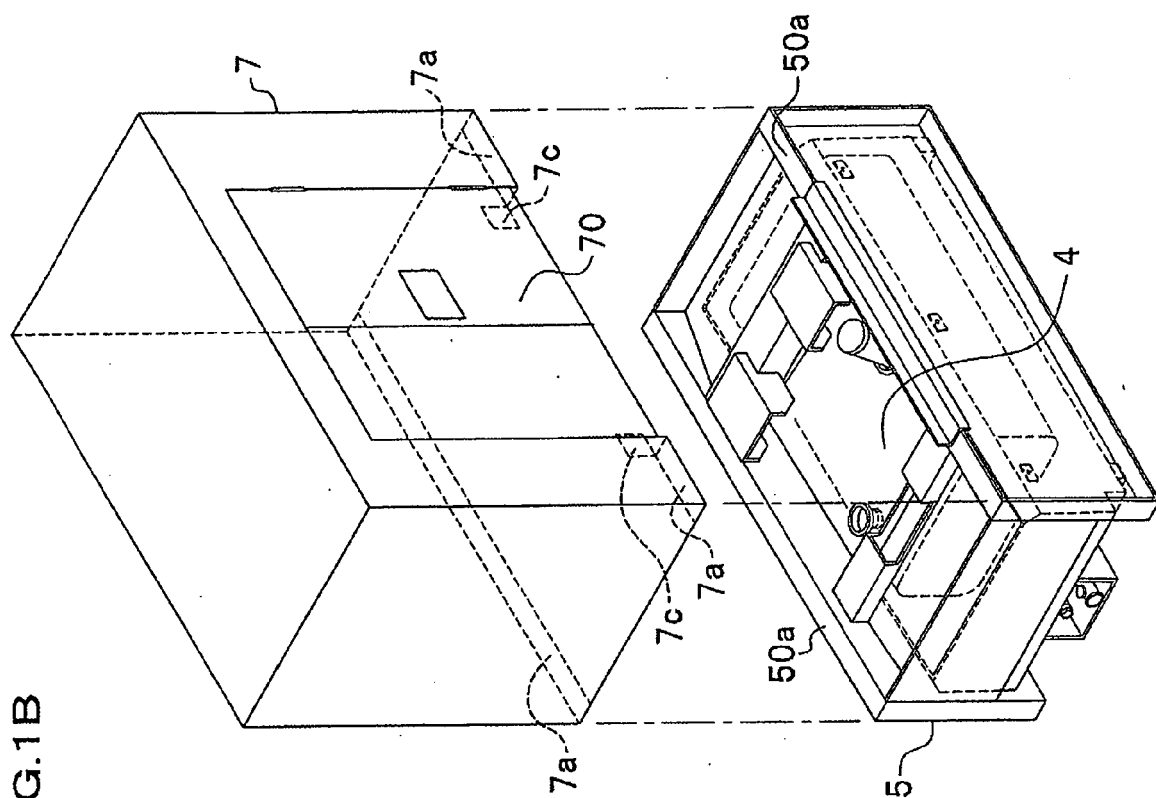


FIG.1A

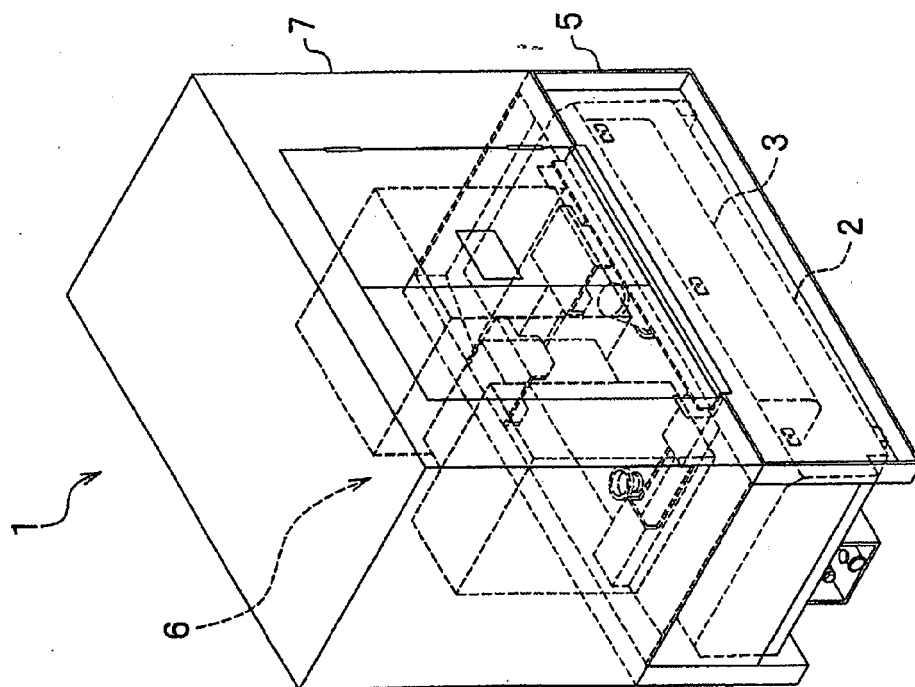


FIG.2

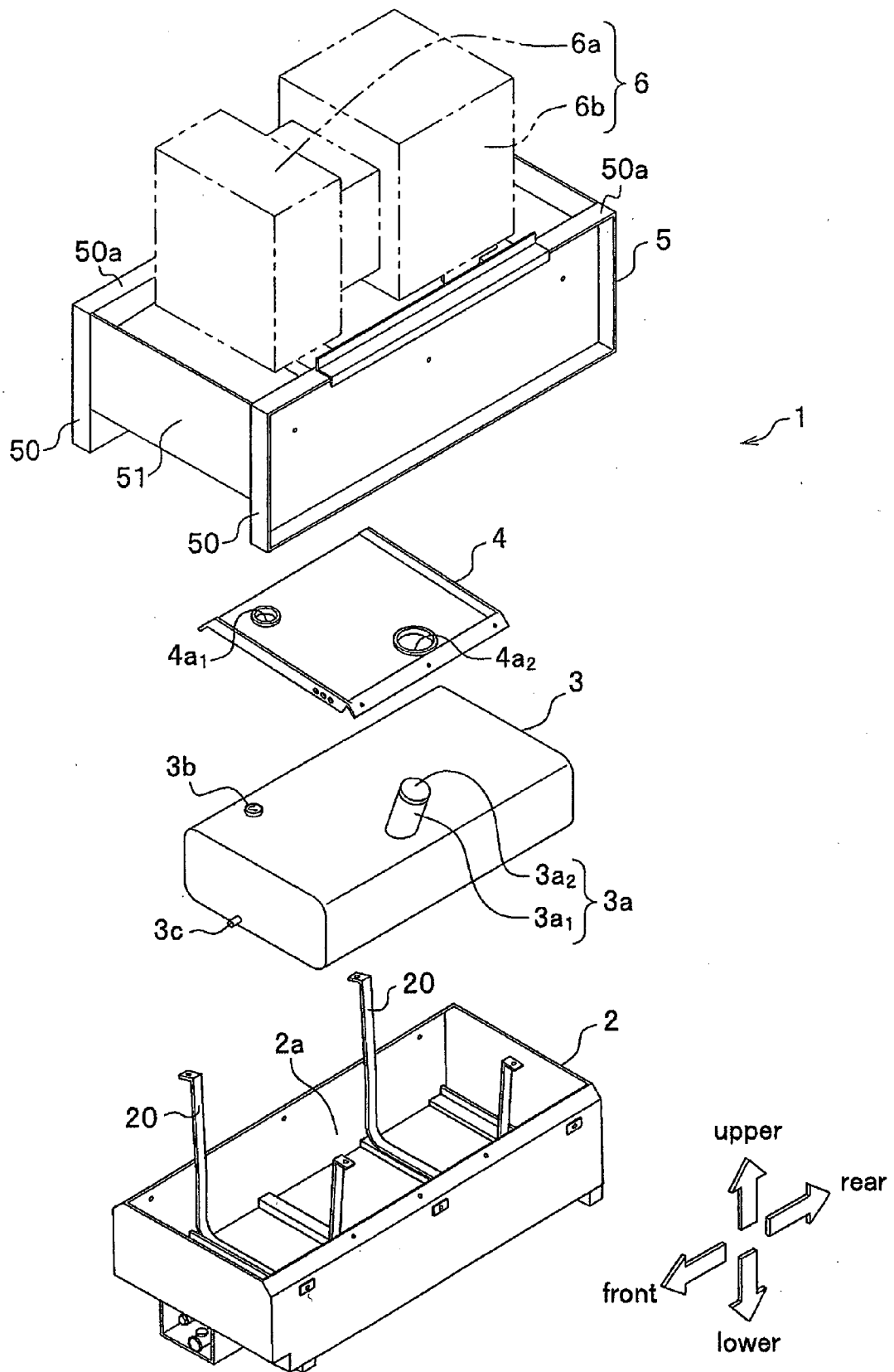


FIG.3A

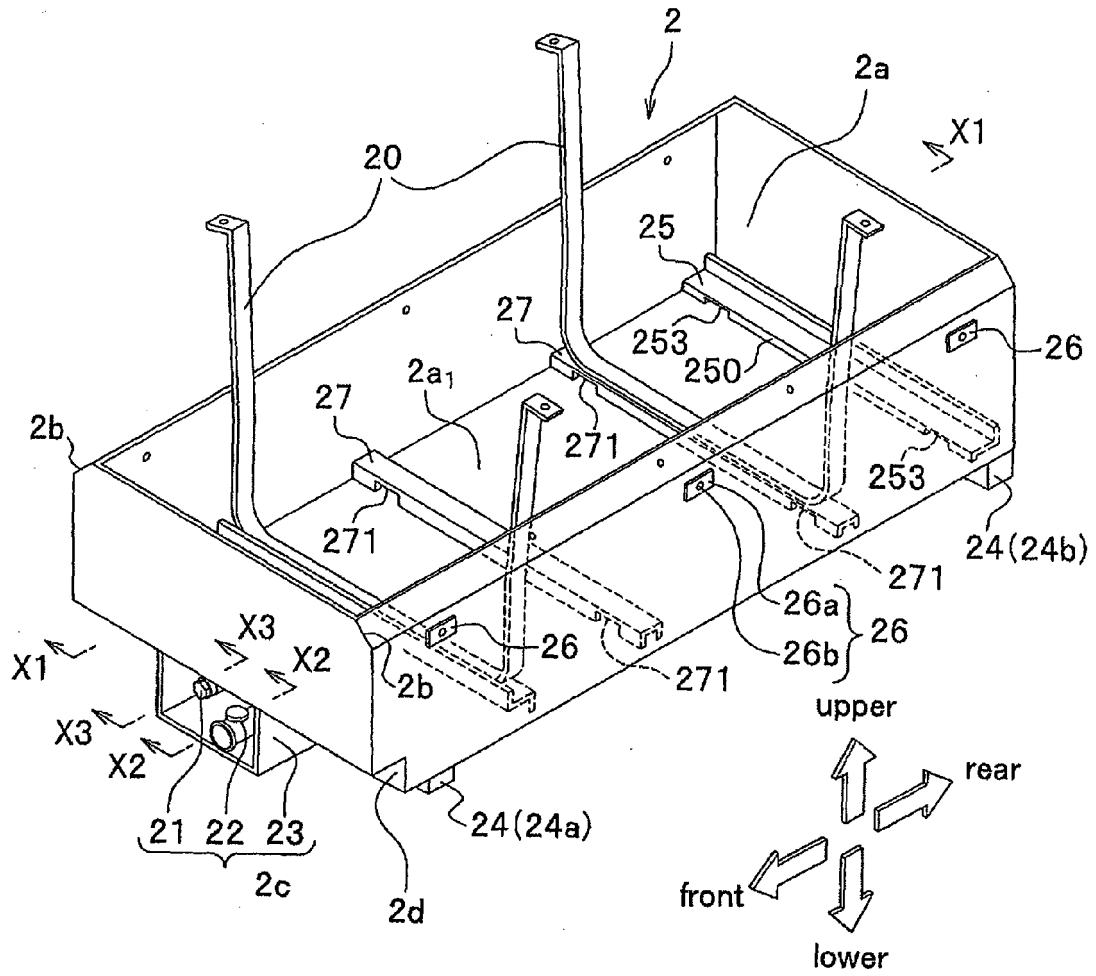


FIG.3B

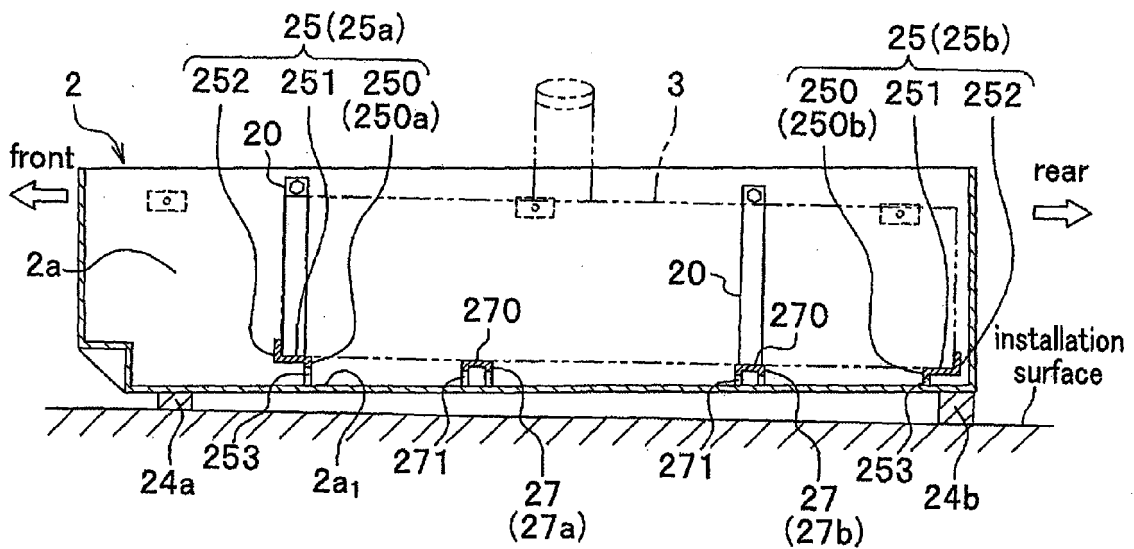


FIG.4A

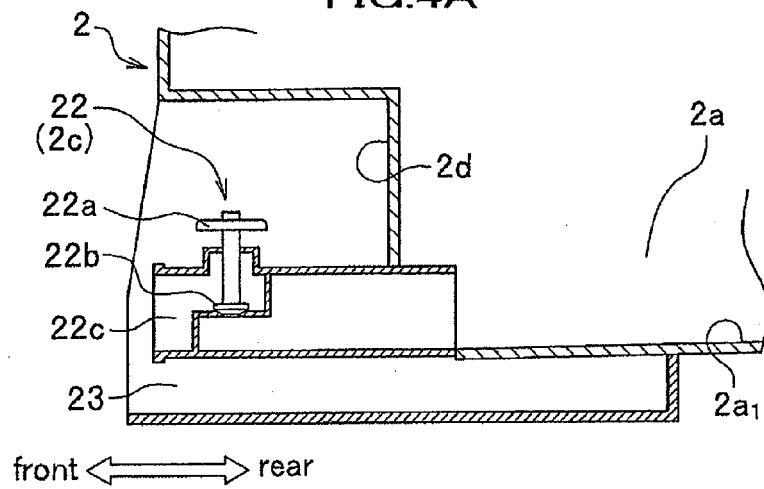


FIG.4B

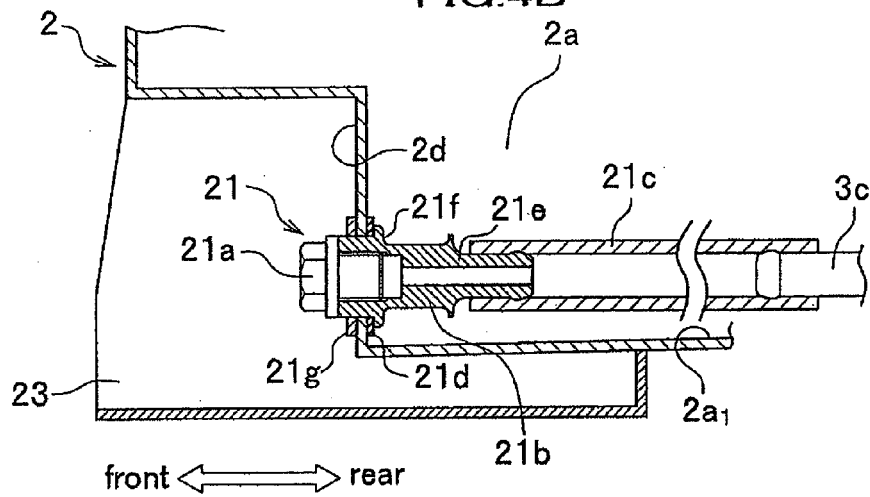


FIG.4C

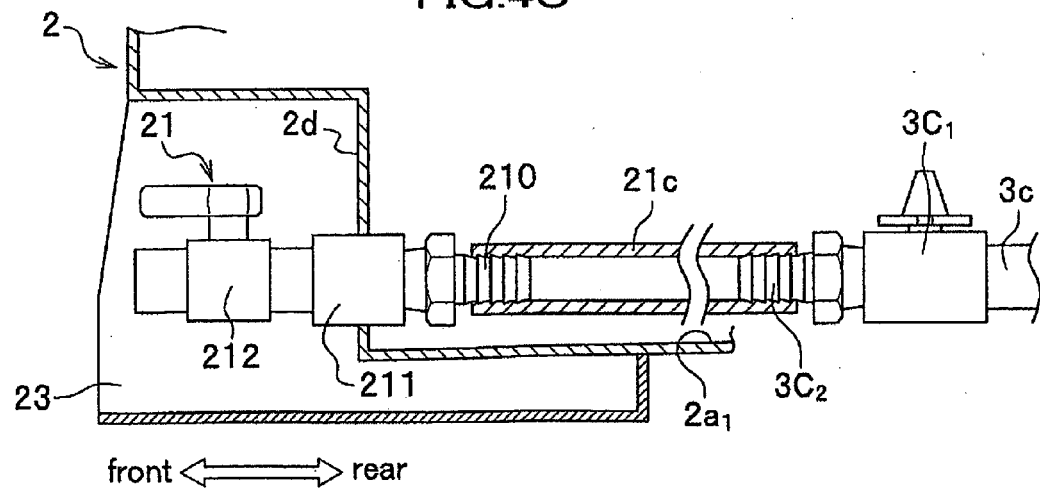


FIG.5A

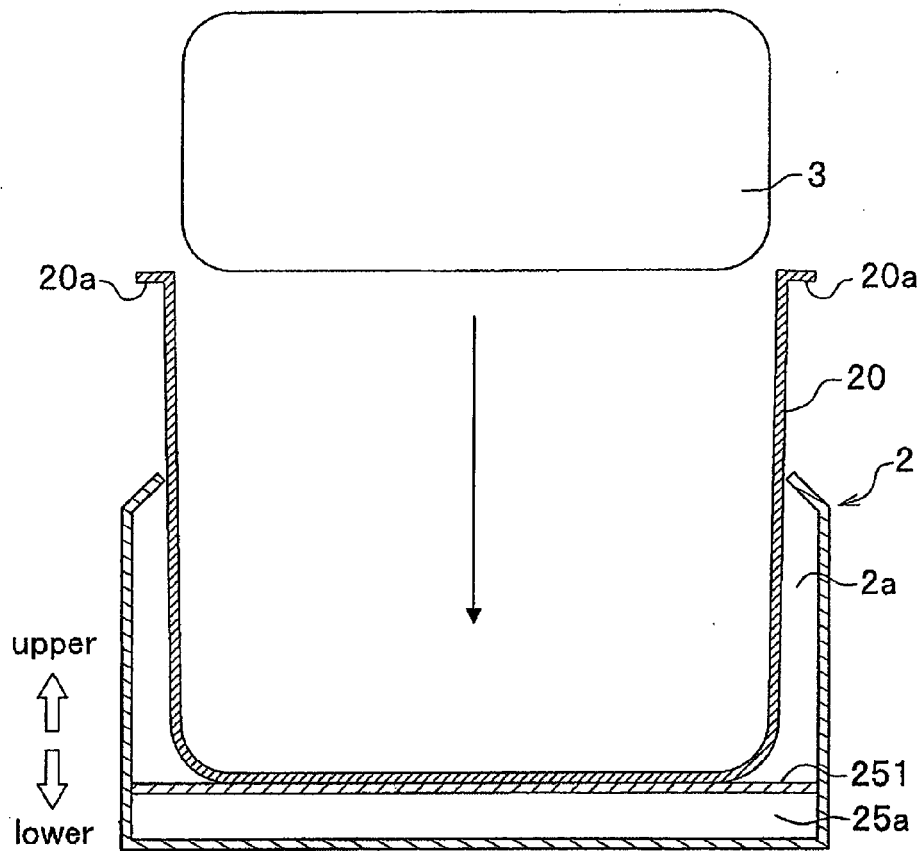
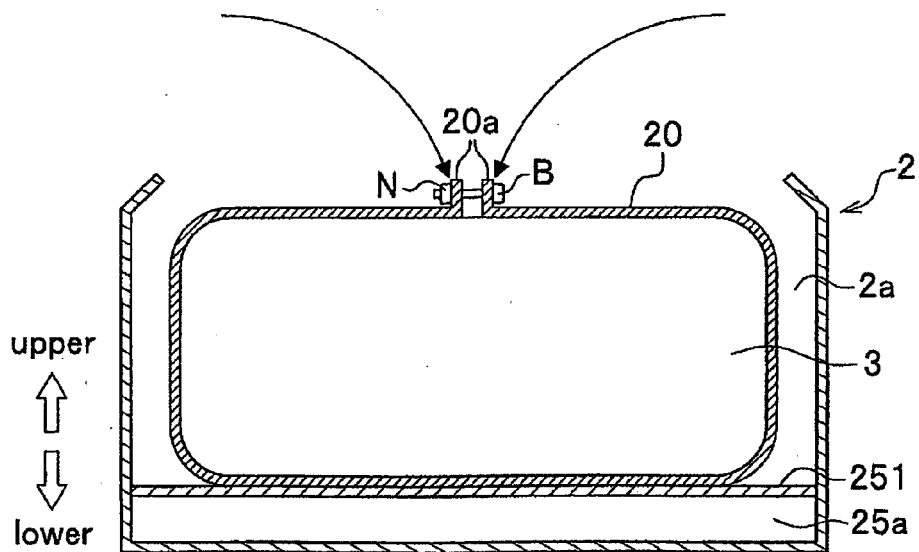
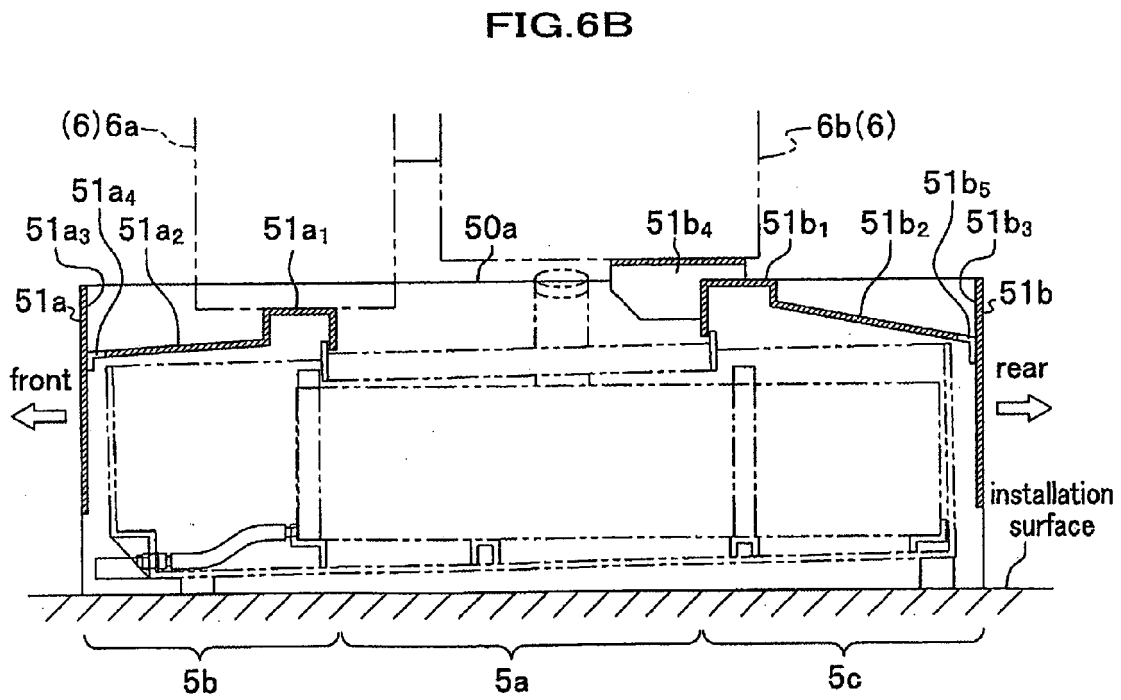
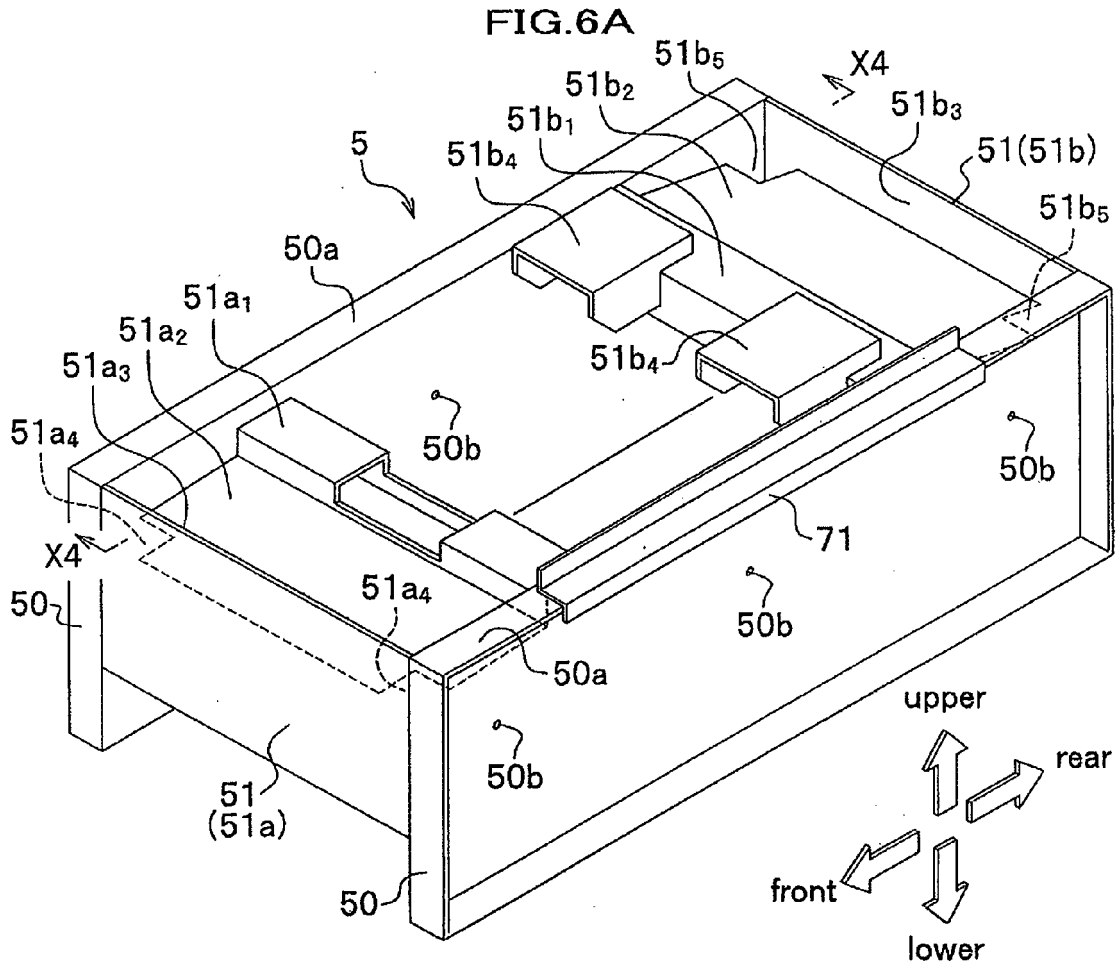


FIG.5B





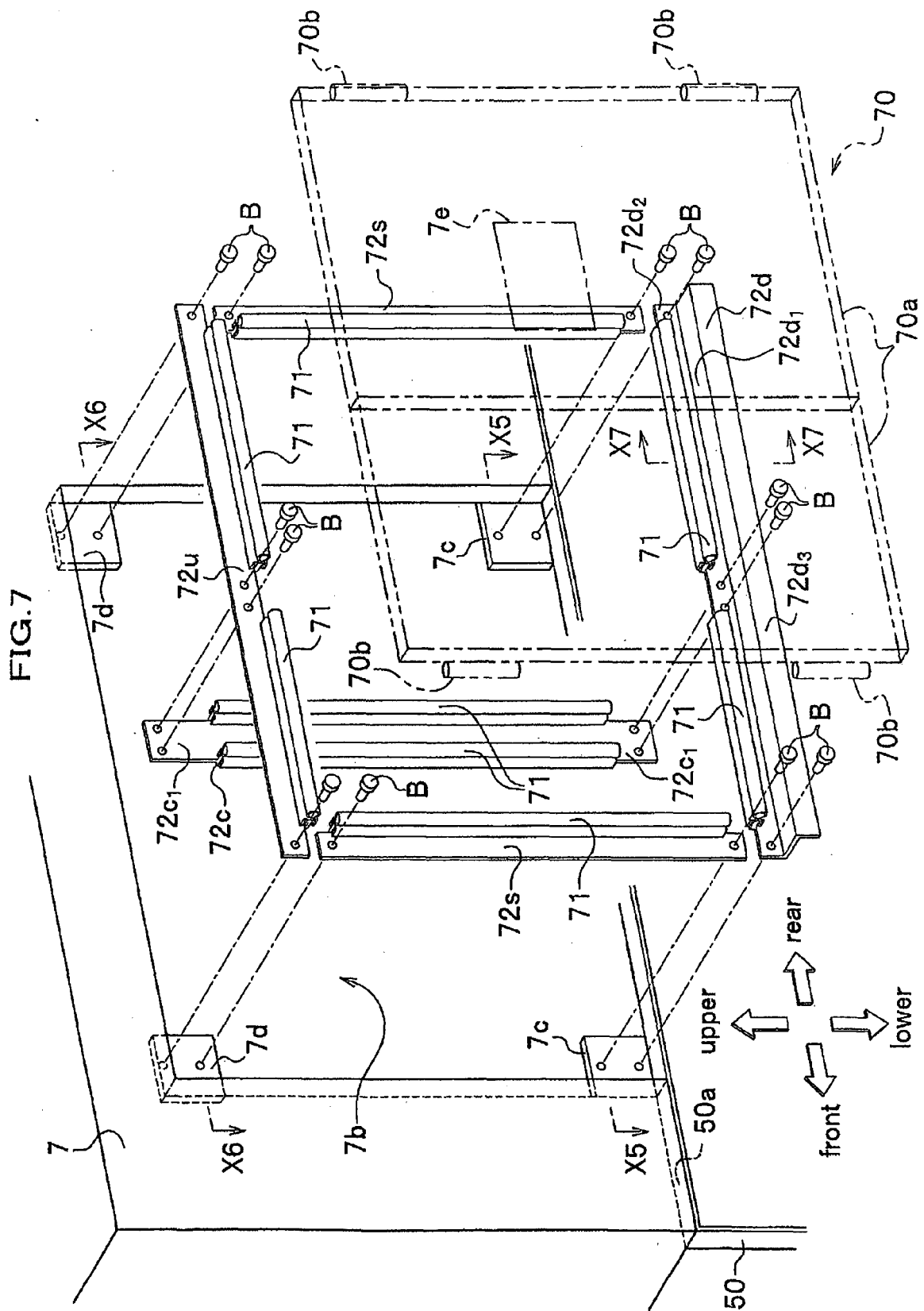


FIG.8A

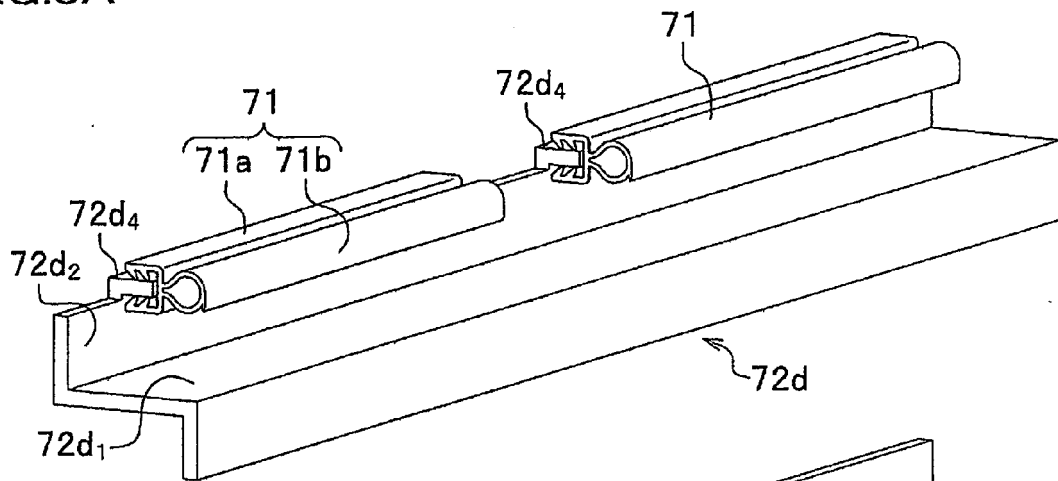


FIG.8B

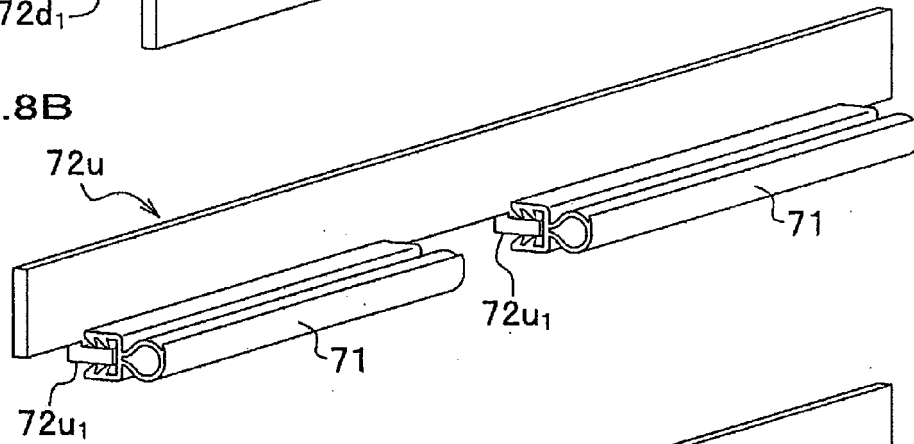


FIG.8C

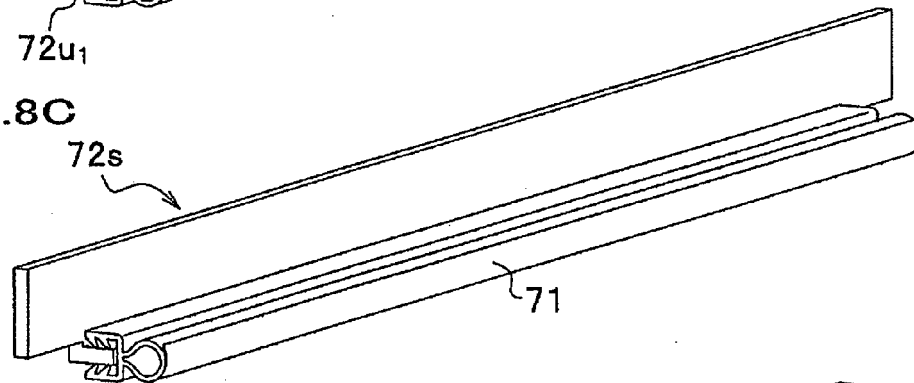


FIG.8D

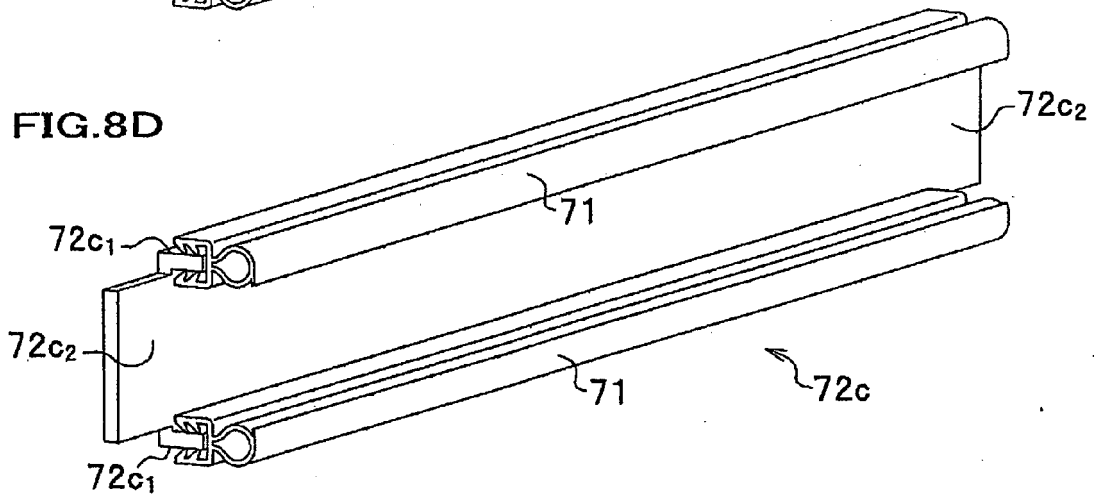


FIG.9A

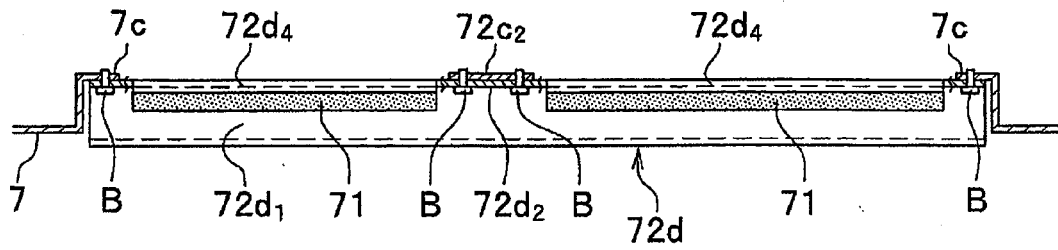


FIG.9B

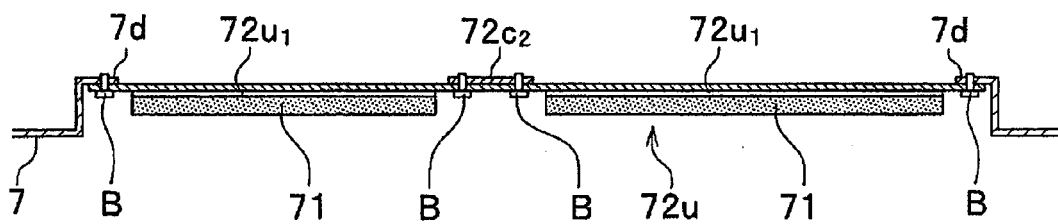


FIG.9C

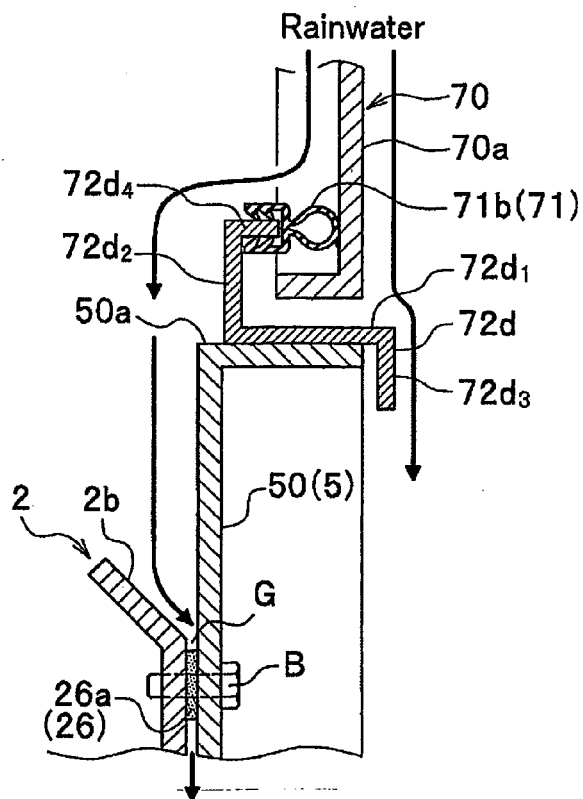


FIG. 10A

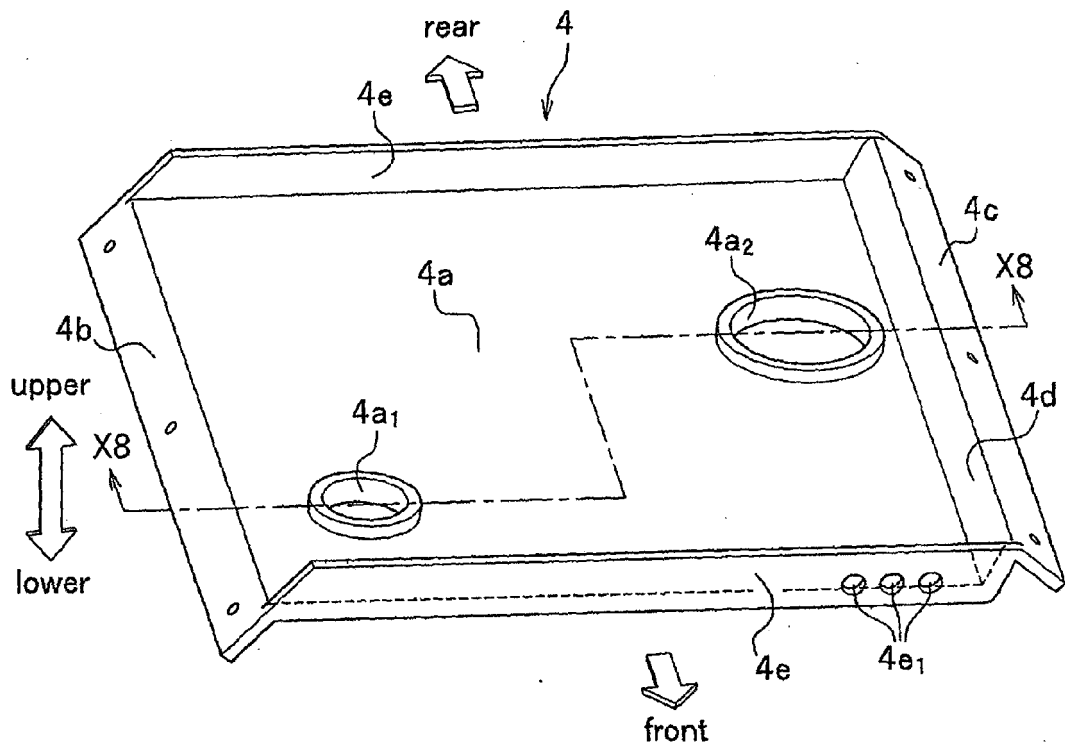
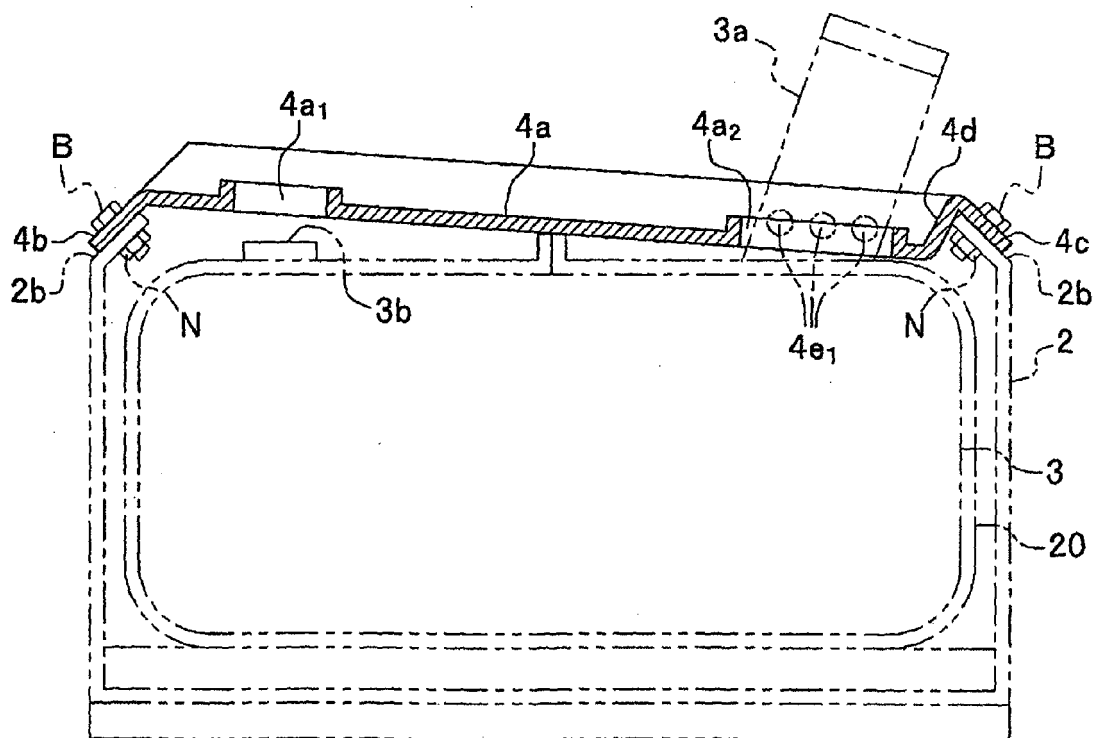


FIG. 10B



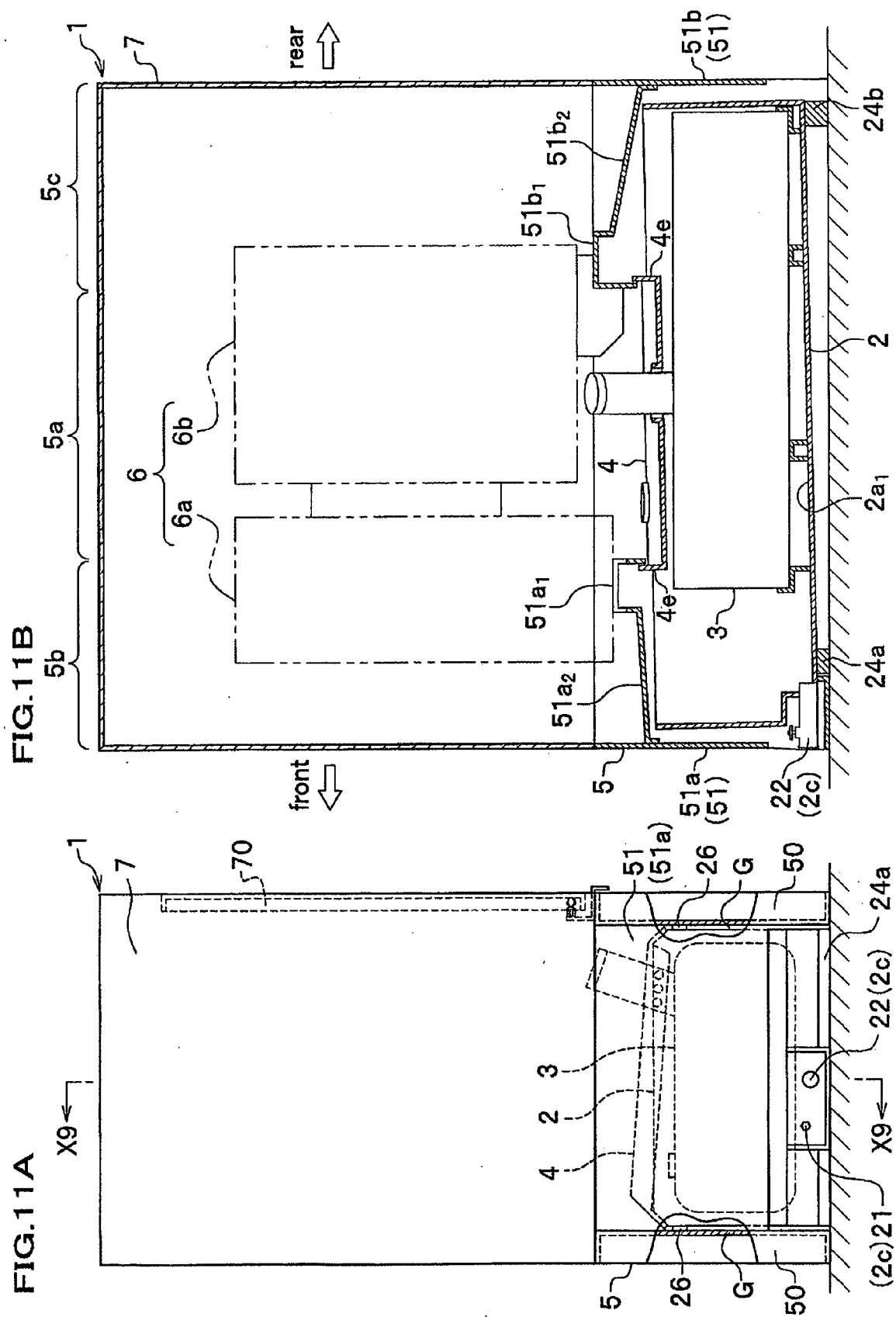


FIG.12A

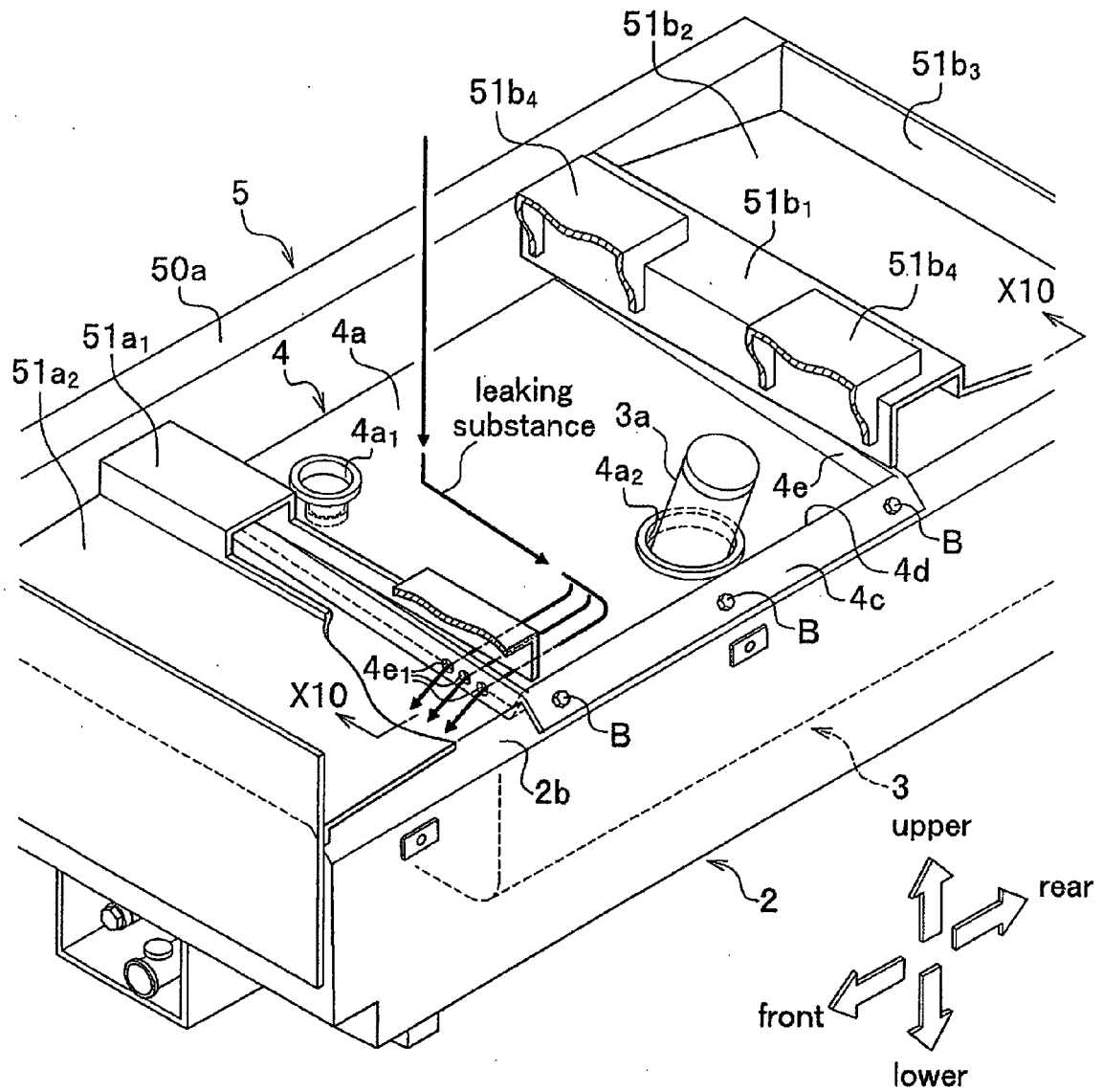
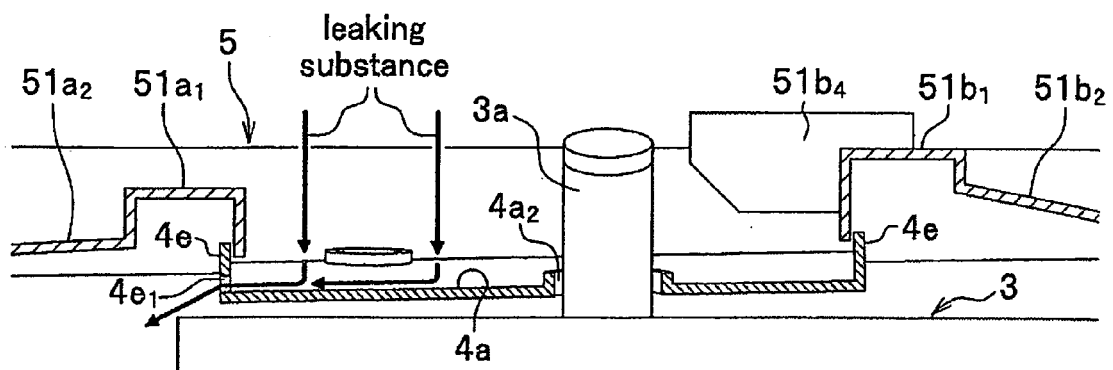


FIG. 12B



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 3300923 A [0002]