CLAIMS

[Claim 1] A floating body for a bunker, comprising:

a floating body;

a bunker tank that is provided in the floating body and configured to accommodate liquefied gas;

a liquefied gas supply line of which one end is disposed in the bunker tank, which extends outside the bunker tank, and of which the other end is configured to connect to a fuel tank of another ship;

a bunkering pump that is provided in the bunker tank and configured to pump the liquefied gas in the bunker tank from the one end of the liquefied gas supply line to the other end of the liquefied gas supply line;

a gas return line of which one end is configured to connect to a gas pumping line of the fuel tank outside the bunker tank, of which the other end extends into the bunker tank, and is configured to send evaporated gas in the fuel tank, which is pumped from the gas pumping line, into a gas phase in the bunker tank; and

a bottom receiving line of which one end is configured to connect to the gas pumping line outside the bunker tank, which extends into the bunker tank, and of which the other end reaches a bottom portion of the bunker tank,

wherein the bottom receiving line is configured to send the evaporated gas in the fuel tank, which is pumped from the gas pumping line, to the bottom portion of the bunker tank.

[Claim 2] The floating body for a bunker according to Claim 1, wherein

the bottom receiving line receives the evaporated gas in the fuel tank from a gas phase of the fuel tank into the bottom portion of the bunker tank in a state where a

pressure of the gas phase in the fuel tank is higher than a pressure of the gas phase in the bunker tank.

[Claim 3] The floating body for a bunker according to Claim 1 or 2, wherein

the liquefied gas supply line has a first pipe of which one end is disposed at the bottom portion of the bunker tank,

the bottom receiving line includes a connection pipe configured to connect the gas return line to the first pipe, and a switching valve that configured to intermittently supply the evaporated gas from the gas return line to the first pipe, and

the first pipe also serves as a part of the bottom receiving line.

[Claim 4] The floating body for a bunker according to Claim 1 or 2, wherein

the bottom receiving line has a second pipe that branches off from the gas return line and extends to the bottom portion of the bunker tank.

[Claim 5] The floating body for a bunker according to Claim 1 or 2, further comprising:

a liquefied gas discharge portion configured to suck the liquefied gas from the bottom portion of the bunker tank and to discharge the liquefied gas to the gas phase in the bunker tank.

[Claim 6] The floating body for a bunker according to Claim 5, further comprising:

a control valve configured to adjust a supply of the evaporated gas sent into the gas phase in the bunker tank through the gas return line; and

a controller configured to control the control valve such that a pressure of the gas phase in the bunker tank is maintained to be equal to or less than an allowable pressure of the bunker tank.

[Claim 7]

A floating body for a bunker, comprising:

a floating body;

a bunker tank that is provided in the floating body and configured to accommodate liquefied gas;

a liquefied gas supply line of which one end is disposed in the bunker tank, which extends outside the bunker tank, and of which the other end is configured to connect to a fuel tank of another ship;

a bunkering pump that is provided in the bunker tank and configured to pump the liquefied gas in the bunker tank from the one end of the liquefied gas supply line to the other end of the liquefied gas supply line;

a gas return line of which one end is configured to connect to a gas pumping line of the fuel tank outside the bunker tank, of which the other end extends into the bunker tank, and is configured to send evaporated gas in the fuel tank, which is pumped from the gas pumping line, into a gas phase in the bunker tank; and

a bottom receiving line of which one end is configured to connect to the gas pumping line outside the bunker tank, which extends into the bunker tank, and of which the other end reaches a bottom portion of the bunker tank,

wherein the bottom receiving line is configured to send the evaporated gas in the fuel tank, which is pumped from the gas pumping line, to the bottom portion of the bunker tank, wherein

the liquefied gas supply line has a first pipe of which one end is disposed at the bottom portion of the bunker tank,

the bottom receiving line includes a connection pipe configured to connect the gas return line to the first pipe, and a switching valve that configured to intermittently supply the evaporated gas from the gas return line to the first pipe, and

wherein the first pipe also serves as a part of the bottom receiving line.

[Claim 8] A method for supplying liquefied gas from a floating body for a bunker including a floating body and a bunker tank that is provided in the floating body and configured to accommodate the liquefied gas, to another ship that uses the liquefied gas as fuel and has a fuel tank configured to accommodate the liquefied gas, the method comprising:

a step of connecting the bunker tank to the fuel tank with a liquefied gas supply line configured to supply the liquefied gas in the bunker tank from an inside of the bunker tank to an inside of the fuel tank and a gas return line configured to supply evaporated gas in the fuel tank from the inside of the fuel tank to the inside of the bunker tank;

a step of decreasing a pressure of the evaporated gas in the fuel tank to a predetermined upper limit pressure or less by sending the evaporated gas in the fuel tank from the inside of the fuel tank to a gas phase of the bunker tank through the gas return line; and

a step of sending the evaporated gas in the fuel tank from the inside of the fuel tank to the inside of the bunker tank through the gas return line while the liquefied gas in the bunker tank is supplied from the inside of the bunker tank to the inside of the fuel tank through the liquefied gas supply line, wherein

in the step of decreasing the pressure of the evaporated gas in the fuel tank to the predetermined upper limit pressure or less,

the pressure in the fuel tank is decreased to be equal to or less than an allowable pressure of the bunker tank by receiving the evaporated gas in the fuel tank from a gas phase of the fuel tank to a bottom portion in the bunker tank.

[Claim 9] The method for supplying liquefied gas according to Claim 8, wherein

the liquefied gas is sucked from a bottom portion in the bunker tank and discharged into a gas phase in the bunker tank, so that the pressure of the evaporated gas in the fuel tank is decreased to the predetermined upper limit pressure or less.

[Claim 10] The method for supplying liquefied gas according to Claim 9, wherein

in the step of decreasing the pressure of the evaporated gas in the fuel tank to the predetermined upper limit pressure or less,

a supply of the evaporated gas, which is sent to the gas phase in the bunker tank through the gas return line, is adjusted such that a pressure of the gas phase in the bunker tank is maintained to be equal to or less than an allowable pressure of the bunker tank.