to a ship while allowing uniform supply of air towards a surface of a ship bottom in various navigation conditions such as hull rolling.

[0013a] According to a first aspect of the present invention, there is provided an air lubrication system adapted to generate air bubbles on a ship bottom, comprising: multiple air-jet orifices formed on a hull outer plate of a ship; a chamber housing extending from an inner surface of the hull outer plate and enclosing the air-jet orifices; a connection line from which air discharged through the air-jet orifices is supplied; a main line extending in a different direction from an extending direction of the connection line to supply air to the chamber housing after receiving the air supplied from the connection line; and a branch-off line connecting the main line to the chamber housing, the branch-off line being connected to a side surface of the chamber housing.

[0013b] According to a second aspect of the present invention, there is provided an air lubrication system for ships adapted to generate air bubbles on a ship bottom, the air lubrication system comprising: multiple air-jet modules arranged on the ship bottom in a lateral direction of a ship and ejecting air toward the ship bottom; and a pipe part supplying air to the air-jet modules, wherein each of the multiple air-jet modules comprises multiple chamber housings each disposed to enclose air-jet orifices formed on a hull outer plate of the ship; and wherein the pipe part comprises: a connection line from which air discharged through the air-jet orifices is supplied; a main line extending in a different direction from an extending direction of the connection line to supply air to the chamber housings after receiving the air supplied from the connection line; and branch-off lines connecting the main line to the chamber housings, the branch-off line being connected to side surfaces of the chamber housings.

[0014] In embodiments of the present invention, an air lubrication system for ships adapted to generate air bubbles on a ship bottom includes: an air-jet module ejecting air toward the ship bottom; and a pipe part supplying air to the air-jet module, wherein the air-jet module is arranged in plural on the ship bottom in a lateral direction of a ship and each of the multiple air-jet modules includes multiple chamber housings having air-jet orifices disposed on a bottom surface thereof to eject air toward the ship bottom through the air-jet orifices and a longitudinal reinforcing member

disposed between the multiple chamber housings, and the pipe part is connected to each of the multiple chamber housings to allow uniform discharge of air upon rolling of the ship.

[0015] The air-jet orifices may be formed in plural on a hull outer plate of the ship; the multiple chamber housings may extend from an inner surface of the hull outer plate to enclose the air-jet orifices; and the pipe part may include a connection line from which air discharged through the air-jet orifices is supplied, a main line extending in a different direction from an extending direction of the connection line to supply air to the chamber housings after receiving the air supplied from the connection line, and branch-off lines connecting the main line to the chamber housings, the branch-off lines being connected to side surfaces of the chamber housings.

[0016] The main line may extend in an installation direction of the chamber housings to supply air to the multiple chamber housings and multiple branch-off lines may be connected to the main line.

[0017] A lower end of the main line may be placed below upper ends of the chamber housings.

[0018] The branch-off lines and the connection line may extend to have sections parallel to each other.

[0019] The main line may extend to have a section perpendicular to the extending direction of the connection line and an extending direction of the branch-off lines.

[0020] The branch-off lines may extend from the side surfaces of the chamber housings to be connected to the main line and may include a curved section.

[0021] The branch-off lines may be connected to a lower portion of the main line.

[0022] In embodiments of the present invention, an air lubrication system for ships includes: a cover plate provided to a hull outer plate of a ship; multiple air-jet orifices formed on the cover plate; a chamber housing extending from an inner surface of the hull outer plate to surround the cover plate; and a pipe connection part formed at one side of the chamber housing to supply air into the chamber housing, wherein the cover plate is detachably coupled to a cover insertion groove formed on the hull outer plate.

[0023] The cover plate may be formed with a through-hole through which a fastening member is inserted into the cover plate to fasten the cover plate to the hull outer plate, the fastening member being inserted into the cover plate through the through-hole from an outer surface of the hull outer plate toward the inner surface thereof, and the chamber housing may be provided therein with a cover coupling portion into which the fastening member is inserted and secured.

[0024] The cover coupling portion may include a distance maintaining portion into which the fastening member is primarily inserted and an inner flange into which the fastening member is secondarily inserted after passing through the distance maintaining portion, and the inner flange may extend from an inner wall of the chamber housing toward a center of the chamber housing.

[0025] When the cover plate is coupled to the hull outer plate, an edge portion of the cover plate and an inner peripheral surface of the hull outer plate may contact each other in some regions thereof and may be inclined at a predetermined inclination toward the center of the chamber housing.

[0026] When the cover plate is coupled to the hull outer plate, an edge portion of the cover plate and an inner peripheral surface of the hull outer plate may contact each other in some regions thereof, and the inner peripheral surface of the hull outer plate may include an inclined guide guiding the edge portion to be fastened to the hull outer plate and an edge seat curvedly extending from the inclined guide such that the edge portion is placed on the edge seat.

[0027] The cover coupling portion may include a cover support on which at least a portion of an upper surface of the cover plate is placed when the cover plate is coupled to the hull outer plate; an inclined flange extending from an end portion of the cover support to an inner wall of the chamber housing; and a coupling hole through which the fastening member is inserted into a region defined by the cover support and the inclined flange.

[0028] The inclined flange may be inclined at a predetermined inclination in a direction away from the center of the chamber housing.

[0029] In embodiments of the present invention, there is provided an air-jet module provided to a ship adopting an air lubrication system, the air-jet module including: a chamber housing defined by a bottom constituting a hull bottom surface of the ship, and a sidewall and a ceiling constituted by partition walls for partitioning an interior of the ship, the air-jet module being provided with air-jet orifices formed on the bottom such that the air lubrication system ejects air toward the hull bottom surface; and a pipe part adapted to supply air to the chamber housings.

[0030] The pipe part may include a connection line connected to the partition wall, a main line connected to the connection line and extending in a direction in which the multiple chamber housings are arranged, and branch-off lines extending from the main line and connected to the chamber housings, respectively.

[0031] The chamber housing may include a lower chamber extending from the hull bottom surface to be gradually narrowed in an upward direction; an ejection amount regulator disposed on the lower chamber and controlling an ejection amount of air to be ejected toward the hull bottom surface; an upper chamber disposed on the ejection amount regulator and receiving air supplied from the pipe part; and a protruding portion protruding from the upper chamber and connected to the pipe part.

[0032] The chamber housing may be secured to the bottom by welding at a location where the lower chamber adjoins the bottom.

[0033] According to embodiments of the present invention, the air lubrication system can avoid interference with other pipes and structures in a pipe duct and can improve efficiency in utilization of an interior space of the ship while allowing sufficient