a mud 9 is inserted into the drill pipe 5 in order to prevent the overheating of the drill bit 10, and the mud 9 serves to lubricate the drill bit 5, thereby further facilitating the drilling operation. The mud 9 is discharged out of the drill bit 10 and is returned through the casing 8 and the riser 4. When the drilling operation is completed, the drill pipe 5 is carried to a drill floor through the moonpool 3 and then is separated and delivered to a storage facility.

In the case of the conventional drill ship, as described above, the derrick has an opened structure in which steel pipes are coupled together, like a power transmission tower installed on the ground. Therefore, natural ventilation is possible without any separate mechanical ventilating apparatus.

However, if the conventional derrick having the opened structure is installed in a drill ship which sails around an arctic region, a variety of drilling equipments are exposed at below zero temperatures for a long time. Consequently, the drilling equipments may not operate normally.

SUMMARY OF THE INVENTION

Embodiments of the present invention are directed to a ventilating apparatus for a drill ship, which maintains temperatures and pressures of a moonpool and a derrick at appropriate levels, considering the influence of temperature and wave, such that the drill ship may be smoothly operating in an arctic region.

According to a first aspect of the present invention, a ventilating apparatus for an artic drill ship includes: a derrick forming an enclosed space blocked from a region exterior to the derrick; a moonpool formed under the derrick; an air supply device supplying outside air to at least one of the moonpool and the derrick; and an air exhaust device exhausting the supplied outside air out of a top of the derrick, wherein the arctic drill ship has a structure enclosed from the derrick to the moonpool, and the derrick includes a pressure regulating damper which supplies or exhausts air such that the internal pressure of the derrick is constantly maintained.

The air supply device may include a heater which heats the outside air.

The air supply device may include a shut-off damper which shuts off an air flow when an emergency situation occurs while the drill ship is sailing.

The air supply device may include a supply louver which prevents the inflow of particles other than air.

The derrick may include an openable/closable air supply port through which the outside air is supplied.

The derrick may include a pressure regulating damper which supplies or exhausts air such that the internal pressure of the derrick is constantly maintained.

The ventilating apparatus may further include a heat blower provided inside the derrick to heat air in order for effective ventilation.

The air exhaust device may include an exhaust louver which prevents the inflow of particles other than air.

A supply fan may be installed in the air supply device, and an exhaust fan may be installed in the air exhaust device. The operating speeds of the supply fan and the exhaust fan may be changed depending on temperature of the outside air.

The air supply device may supply the outside air to the moonpool or the derrick through a duct, and a wire mesh may be provided at the end of the duct which is coupled to the moonpool or the derrick.

According to a second aspect of the present invention, a ventilating apparatus for an artic drill ship, which has a derrick provided on a deck and a moonpool provided under the derrick and contacted with seawater, wherein outside air is supplied to the derrick or the moonpool and is exhausted out of the top of the derrick, whereby air is ventilated, wherein the arctic drill ship has a structure enclosed from the derrick to the moonpool.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view illustrating a conventional drill ship which performs a drilling operation on the sea.

FIG. 2 is a conceptual diagram illustrating a situation in which a ventilating apparatus for a drill ship sailing around an arctic region is operating in a hot season.

FIG. 3 is a conceptual diagram illustrating a situation in which a ventilating