ships such that they can make a voyage using their own power. Since drill ships have to frequently move in order for development of small marginal fields, they are constructed to make a voyage using their own power, without assistance of tugboats.

Meanwhile, a moonpool is formed at the center of a rig ship, a fixed type platform or a drill ship, such that a riser or a drill pipe is vertically movable through the moonpool. In addition, a derrick in which a variety of drilling equipments are integrated is installed on a deck.

SUMMARY OF THE INVENTION

An ~~aspect~~embodiment of the present invention is directed to a damper structure for an enclosed derrick, which can effectively compensate or offset a negative pressure or a positive pressure generated within an enclosed derrick and a moonpool due to influence of waves on the moonpool.

Meanwhile, in order for drilling of natural resources in extremely cold regions such as arctic regions, arctic rig ships, fixed type arctic platforms, and arctic ships such as arctic drill ships have been built. Such arctic ships may be constructed to have an enclosed area in almost all zones in order to prevent freezing in extremely low temperature environments and ensure the smooth operation of equipments and crews' safety.

In particular, a derrick and a moonpool of an arctic ship are enclosed in order to protect internal equipments and workers. The enclosed derrick and the enclosed moonpool may be installed to communicate with each other.

Meanwhile, due to influence of waves transferred through an opening of the moonpool, a negative pressure or a positive pressure may be generated in the inner space of the moonpool and the inner space of the derrick communicating with the moonpool. Therefore, there is a need for protecting equipments, workers, and working conditions inside the derrick and the moonpool from the negative pressure or the positive pressure.

According to an ~~embodiment~~aspect of the present invention, a damper structure for an

enclosed derrick includes: one or more communication ducts installed in a side of the enclosed derrick; and one or more open/close dampers coupled to the communication ducts to open or close the communication ducts, whereby air is selectively supplied to or exhausted from the enclosed derrick.

One end of the communication duct may communicate with an outer space of the enclosed derrick, and a first mesh may be installed at the end of the communication duct.

The other end of the communication duct may communicate with an inner space of the inner space of the enclosed derrick, a second mesh may be installed at the other end of the communication duct, and the open/close damper may be installed between the other end of the communication duct and the second mesh.

The damper structure may further include a control unit controlling the opening/closing operation of the open/close damper.

The communication duct may include: a curved duct having one end which is inclined downward and communicates with an outer space of the enclosed derrick and at which a first mesh is installed; and a penetration duct installed in a sidewall of the enclosed derrick, the penetration duct having one end which is coupled to the other end of the curved duct, and the other end at which a second mesh is installed, whereby the penetration duct communicates with an inner space of the enclosed derrick.

According to another ~~embodiment~~aspect of the present invention, a damper structure includes: an enclosed derrick disposed on a drill floor of a ship; a moonpool communicably coupled to a lower portion of the enclosed derrick; and a damper unit installed in at least one side of the enclosed derrick to selectively supply air to the inside of the enclosed derrick or exhaust air to the outside of the enclosed derrick.

The damper unit may include: one or more communication ducts installed in a side of the enclosed derrick to communicate an outer space of the enclosed derrick with an inner space of the enclosed derrick; and one or more open/close ~~valves~~dampers coupled to the communication ducts to open or close the communication ducts, whereby a mesh is installed at one end of the communication ducts.

A fingerboard may be disposed in an upper inside of the enclosed derrick, and the

damper unit may be disposed under the fingerboard.

According to another ~~embodiment~~aspect of the present invention, a damper structure for an enclosed derrick communicating with a moonpool includes: a damper unit selectively supplying air to the inside of the enclosed derrick or exhausting air to the outside of the enclosed derrick through a mesh in order to compensate or offset a positive pressure or a negative pressure which is generated in the moonpool by influence of waves.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic view illustrating an enclosed derrick structure and a damper unit installed therein according to an embodiment of the present invention.

FIG. 2 is an enlarged view illustrating the connection of a moonpool and a duct.

<Reference Numerals>

10: enclosed derrick	15: moonpool
17, 19: first and second enclosed tunnels	30: damper unit
31: first mesh	32: curved duct
33: communication duct	34: second mesh
35: open/close damper	37: control unit

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

Exemplary embodiments of the present invention will be described below in detail with reference to the accompanying drawings.

FIGS. 1 and 2 illustrate an enclosed derrick structure and a damper unit installed therein according to an embodiment of the present invention.

As illustrated in FIGS. 1 and 2, the enclosed derrick structure according to the embodiment of the present invention includes an enclosed derrick 10 installed in a ship, and an enclosed moonpool 15 coupled to a lower portion of the enclosed derrick 10.

The enclosed derrick 10 has a first inner space 10a, and the enclosed moonpool 15 has a second inner space 15a. The first inner space 10a and the second inner space 15a

WHAT IS CLAIMED IS:

1. A damper structure for an enclosed derrick, comprising:

one or more communication ducts installed in a side of the enclosed derrick; and

one or more open/close dampers coupled to the communication ducts to open or close the communication ducts,

wherein one end of the communication duct communicates with an outer space of the enclosed derrick, a first mesh is installed at the end of the communication duct, and air is selectively supplied to or exhausted from the enclosed derrick.

2. The damper structure according to claim 1, wherein the other end of the communication duct communicates with an inner space of the enclosed derrick, a second mesh is installed at the other end of the communication duct, and the open/close damper is installed between the other end of the communication duct and the second mesh.

3. The damper structure according to claim 1, further comprising a control unit controlling the opening/closing operation of the open/close damper.

4. The damper structure according to claim 1, wherein the communication duct comprises:

a curved duct having one end which is inclined downward and communicates with an outer space of the enclosed derrick and at which a first mesh is installed; and

a penetration duct installed in a sidewall of the enclosed derrick, the penetration duct having one end which is coupled to the other end of the curved duct, and the other end at which a second mesh is installed, whereby the penetration duct communicates with an inner space of the enclosed derrick.

5. A damper structure comprising:

an enclosed derrick disposed on a drill floor of a ship;

a moonpool communicably coupled to a lower portion of the enclosed derrick; and

a damper unit installed in at least one side of the enclosed derrick to selectively supply air to the inside of the enclosed derrick or exhaust air to the outside of the enclosed derrick,

wherein the damper unit comprises: one or more communication ducts installed in a side of the enclosed derrick to communicate an outer space of the enclosed derrick with an inner space of the enclosed derrick; and one or more open/close dampers coupled to the communication ducts to open or close the communication ducts, whereby a mesh is installed at one end of the communication ducts.

6. The damper structure according to claim 5, wherein a fingerboard is disposed in an upper inside of the enclosed derrick, and the damper unit is disposed under the fingerboard.

7. A damper structure for an enclosed derrick communicating with a moonpool, comprising:

a damper unit selectively supplying air to the inside of the enclosed derrick or exhausting air to the outside of the enclosed derrick through a mesh in order to compensate or offset a positive pressure or a negative pressure which is generated in the moonpool by influence of waves.