

PATENT SPECIFICATION (11)

1 490 536

(21) Application No. 49116/74 (22) Filed 13 Nov. 1974 (19)

(23) Complete Specification filed 18 Sept. 1975

(44) Complete Specification published 2 Nov. 1977

(51) INT. CL.² F16H 19/04 B63B 25/28 E05F 15/06

(52) Index at acceptance

F2Q 6B 7A3E

B7S 66

E2M 11A 11E2 12BX 15

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(12)

(54) A SHIP HAVING A MECHANISM FOR MOVING ITS CARGO PLATFORM

(71) We, NAVIRO, CARGO GEAR INTERNATIONAL AB, a Swedish Company of Gustaf Dahlgrens gatan 8, Gothenburg, Sweden, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a ship having a mechanism for moving its cargo platform.

In many ships there are hatch covers, ramps and other load carrying or working platforms which have to be moved horizontally along a deck or some similar structure. Such covers, or platforms, will hereinafter be referred to as "cargo platforms".

For operating such platforms different types of mechanisms may be used, including some kind of motor and chains or gear mechanisms for transferring the rotary movement of the motor to a linear movement at the platform.

On certain occasions it is desirable to obtain a rather exact movement and it may also be necessary to ensure that the platform, which may often carry a heavy load, does not move under its own inertia due to pitching of the ship.

The object of the present invention is to produce a ship having a mechanism for moving its cargo platform in a convenient form.

According to the present invention there is provided a ship comprising a deck and a cargo platform reciprocable in the longitudinal direction thereof, a worm, rotatable in both senses of direction, mounted on said deck adjacent to the path of movement of the cargo platform and including a tubular core around which a flat bar has been wound to form a helix, and a row of evenly spaced projections along the side of said platform adjacent to said worm, the projections being directed radially with respect to the axis of rotation of the worm and adapted for co-operation with the helix thereof so that, in use, rotation of the worm causes movement of said cargo platform

The invention will now be described with reference to and as shown in the accompanying drawings, in which:

Figure 1 is a side view of a supply ship constructed according to the present invention,

Figure 2 is a plan view of said ship,

Figure 3 is an enlarged view of a worm screw forming one part of a mechanism for moving the ship's cargo platform, and

Figure 4 is an enlarged view of the worm screw engaging a rack forming a further part of the mechanism.

The invention will be described in connection with a cargo platform of a supply ship, but as mentioned above any other type of platform or side rolling hatch cover may be equipped with a mechanism of the type to be described below.

Figures 1 and 2 show, very schematically, a supply ship of the kind used to transport equipment and stores to drill rigs and boring platforms located in the open sea.

A great deal of such equipment consists of tubes and heavy pieces of machinery which are loaded on an open deck 10. When unloading at the drill rig the ship is held against the sea, approaching the rig with its stern.

The derrick of the rig has a limited extension and it is on many occasions difficult to reach cargo located at the forward end of the deck. To facilitate the handling it has been proposed to provide a cargo platform 11 on the deck, this platform being about half the size of the deck. The platform moves on wheels or rollers along rails on the deck, or in any other suitable manner.

When the cargo located on the rearmost part of the deck has been removed, the platform is shifted aft, and the cargo carried thereon is removed.

In order to move the platform the latter is, with this invention, provided along its longitudinal sides, with evenly spaced projections or pads, to form a rack 12. These

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racks co-operate with respective winches 13, each including a worm screw.

One such winch is shown in Figure 3. The main part is the worm screw 14, which consists of a tubular core 15 around which a flat bar 16 has been wound in a helical pattern. This core is mounted on shafts 17, which are carried in bearings 18. The shafts are disengageably connected to drive motors by means of couplings 19. The projections are directed radially with respect to the axis of rotation of the worm screw 14.

There is one drive motor 20 at each side of the worm screw 14. In the present example the motor is of the hydraulic type.

There is furthermore adjacent each motor, a disc brake 21, and an axial bearing 22.

Figure 4 shows the engagement between the worm screw 14 and the rack 12. In order to reduce friction the pads 12 are formed as rollers. The design geometry of the screw is such in relation to the rack, that the platform cannot move as a result of the pitching of the ship and thereby drive the winch. Power rotation of the screws is necessary to move the platform, which is thus secured against unintentional movement.

WHAT WE CLAIM IS:—

1. A ship comprising a deck and a cargo platform reciprocable in the longitudinal direction thereof, a worm, rotatable

in both senses of direction, mounted on said deck adjacent to the path of movement of the cargo platform and including a tubular core around which a flat bar has been wound to form a helix, and a row of evenly spaced projections along the side of said platform adjacent to said worm, the projections being directed radially with respect to the axis of rotation of the worm and adapted for co-operation with the helix thereof so that, in use, rotation of the worm causes movement of said cargo platform.

2. A ship as claimed in Claim 1 wherein a worm and rack is provided along two opposite sides of the platform.

3. A ship as claimed in Claim 1 or Claim 2 in which the projections are formed as rollers.

4. A ship as claimed in any one of the preceding claims in which the design geometry of the worm is such that the platform can be moved by power rotation only of the worm, or worms.

5. A ship as claimed in Claim 1 substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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Printed for Her Majesty's Stationery Office by Burgess & Son (Abingdon), Ltd.—1977.
Published at The Patent Office, 25 Southampton Buildings, London, WC2A 1AY,
from which copies may be obtained.



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