

Dec. 18, 1945.

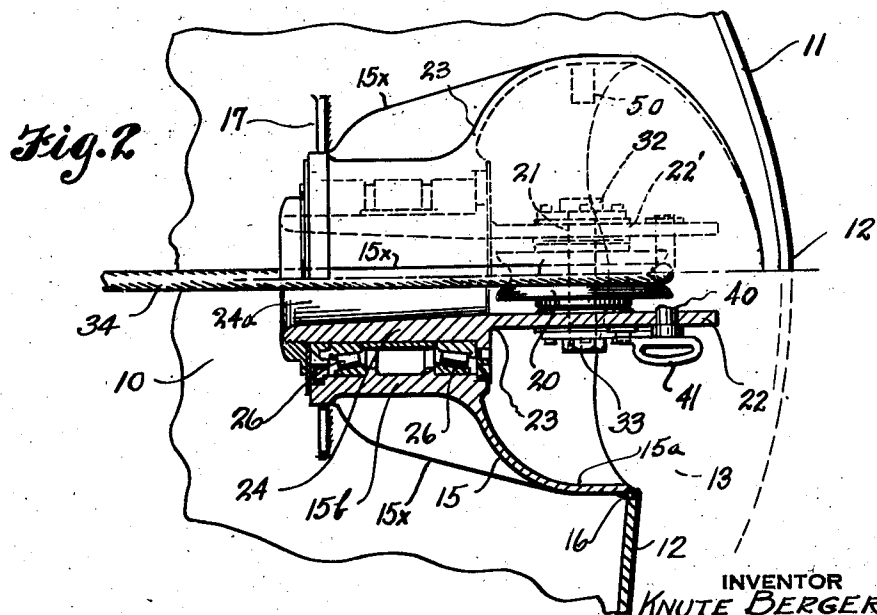
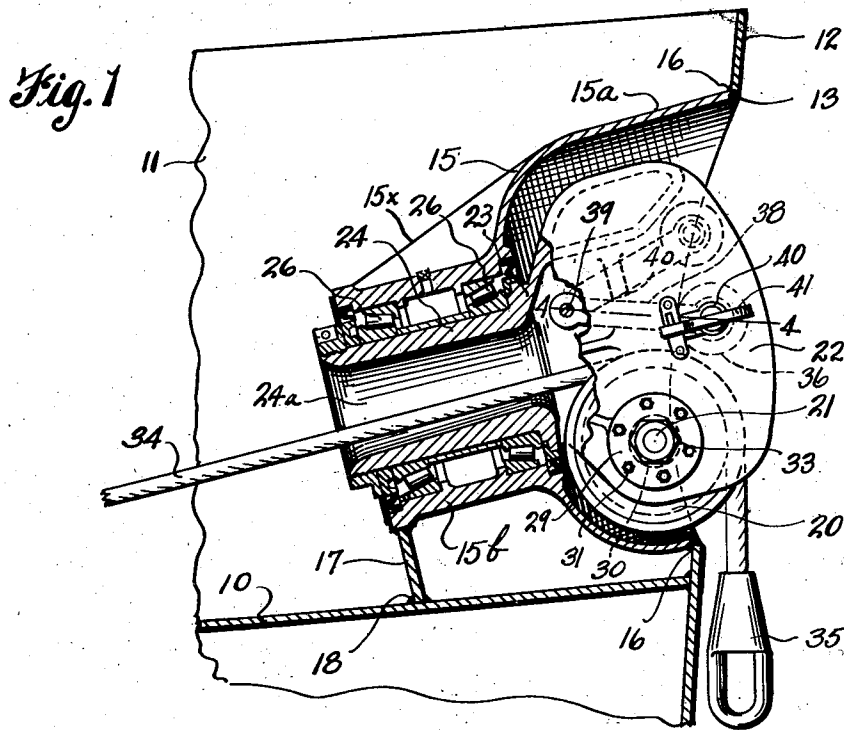
K. BERGER

2,391,290

HAWSE PIPE

Filed Jan. 18, 1943

2 Sheets-Sheet 1



INVENTOR
KNUTE BERGER

BY
Cook & Robinson
ATTORNEY

Dec. 18, 1945.

K. BERGER

2,391,290

HAWSE PIPE

Filed Jan. 18, 1943

2 Sheets-Sheet 2

Fig. 3

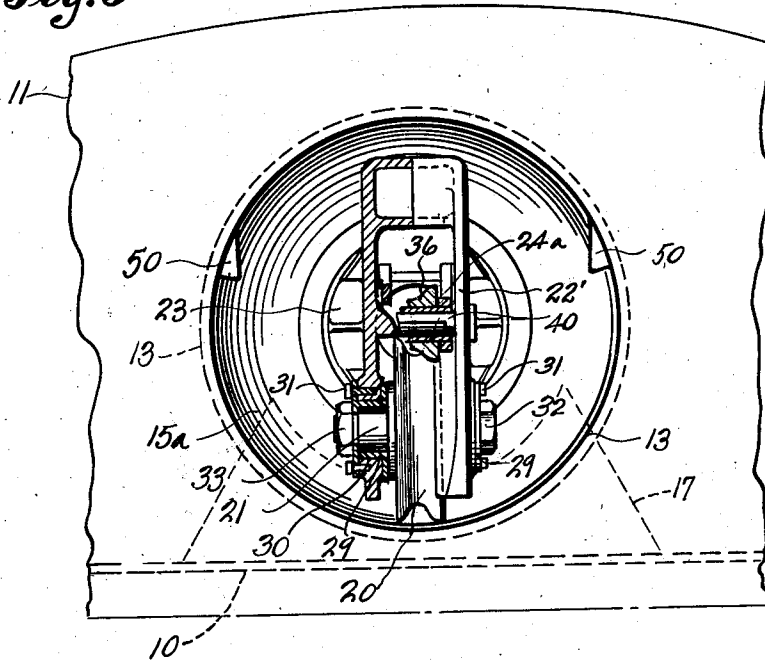


Fig. 4

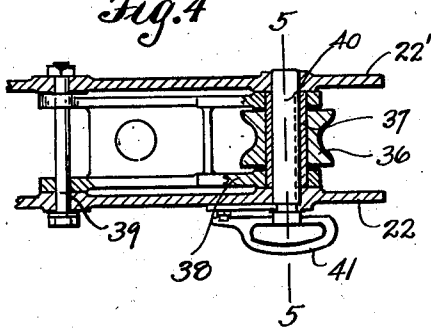


Fig. 5

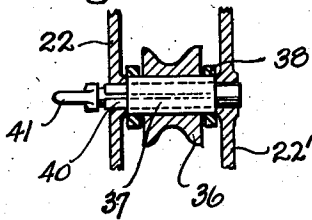
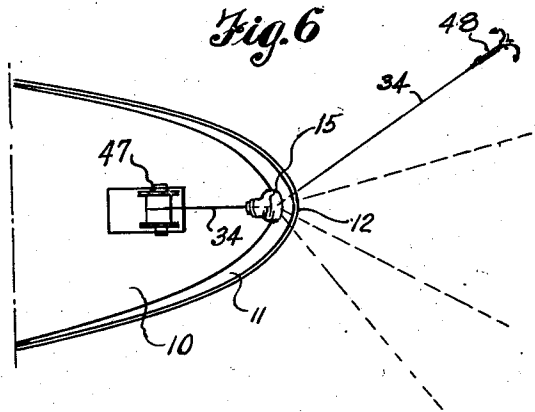


Fig. 6



INVENTOR
KNUTE BERGER
BY
Cook & Robinson
ATTORNEY

UNITED STATES PATENT OFFICE

2,391,290

HAWSEPIPE

Knute Berger, Seattle, Wash.

Application January 18, 1943, Serial No. 472,664

1 Claim. (Cl. 114—181)

This invention relates to improvements in ships and it has reference more particularly to details of construction therein providing for the adaptation of fairleaders of that kind disclosed in my U. S. Patent 1,805,800 for use in the guidance of anchor lift cables, mooring cables, or the like; it being the principal object of this invention to overcome and correct disadvantages and objectionable features of the usual types of exposed chocks or unprotected fairleads and guides as now used in ships for anchor operation, or mooring cables, by providing the ship, at the stem of the bow, or in a side, or at the stern, with an opening and an inset housing registering with the opening wherein a self-aligning fairleader of the type disclosed in said patent, is mounted for the guidance of a cable as employed for the raising and lowering of an anchor for the lead of a moving cable or the like.

Specifically stated, the objects of the present invention reside in the provision of an opening in the ship's stem and the affixing of a housing to the bulwark in registration with the said opening for the mounting therein of a self-aligning fairlead device of the type disclosed by the above mentioned patent, to adapt it to use as an anchor cable or mooring cable guide or fairleader, thereby to avoid objectionable features and disadvantages of the usual types of deck mounted chock or hawse pipe devices now generally used.

For purpose of expediency of description and explanation, I will refer to the anchor cable, mooring cable or any cable for other use in connection with the present invention, merely as "the cable."

Other objects of the present invention reside in the improved details of construction of the fairleader, and in the combination of elements whereby the fairleader is adapted to the most satisfactory use.

Still other objects of the invention reside in the details of construction of parts, in their functional relationship and combination, as will hereinafter be fully described.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Fig. 1 is a central, longitudinal section, taken in the vertical plane of the fairlead axis as applied to a ship's stem bulwark.

Fig. 2 is a plan of the same parts partly in horizontal section, for better illustration.

Fig. 3 is a stem view of the boat, looking aft,

showing the present device; parts being in section for better illustration.

Fig. 4 is a sectional detail, somewhat enlarged, taken in the horizontal plane of line 4—4 in Fig. 1.

Fig. 5 is a vertical section on line 5—5 in Fig. 4.

Fig. 6 is a plan view, at reduced scale, showing the bow of the ship as equipped with winding drum for the cable as passed through the fairleader and with anchor attached to the cable.

Referring more in detail to the drawings—

In Fig. 1, a ship's deck plate, leading up to the stem, is designated by reference numeral 10, the bulwark is designated at 11 and the stem at 12. Formed in the bulwark, at the stem, is a forwardly directed opening 13 and registering therewith is the forward open end of a hollow, tubular metal housing which is designated in its entirety by reference numeral 15.

The housing 15, as understood best by reference to Figs. 1 and 2, is formed at its forward end with a somewhat enlarged bell portion 15a, which continues from a cylindrical neck or mounting portion 15b. It is to be observed also in these views that the open forward end of the bell is welded about its edges, as at 16, to the edges of the opening 13 and at its rear end the neck portion 15b is supported by a transverse web plate 17 to which it is welded and which in turn is welded along its bottom edge to the deck plate 10, as indicated at 18. The walls of the housing 15 are strengthened by integral, longitudinally extending ribs as at 15x in Figs. 1 and 2.

The fairleader device comprises a cable guiding sheave wheel 20 revolvably mounted on a pivot pin 21 that extends between the opposite side walls 22 and 22' of a sheave housing which is designated in its entirety by reference character 23.

The housing 23 comprises also a tubular or cylindrical mounting neck portion 24 that is contained coaxially of the cylindrical portion 15b of housing 15, and it is supported for axial rotation therein by sets of roller bearings 26—26 applied about its ends and seated in the housing 15. The two opposite side walls 22 and 22' of the housing 23 are integral with the neck portion 24 and continue forwardly thereof, being spaced apart a distance required only for the housing of the sheave wheel between them as noted by reference to Fig. 3.

The sheave wheel 20 may be mounted on the pin 21 through the mediacy of suitable bearings, not herein illustrated. As here shown, the pin is applied at its ends to flange bushings 29 which

are fitted in openings 30 in the wall plates 22 and 22' and held in place by bolts 31 extended through the flanges and threaded into the plates. One end of the pin 21 has a wrench head 32 and a nut 33 is threaded onto the other end, thus to hold the pin in place.

In Fig. 1, it is shown that a cable 34 is extended through the passage 24a of the tubular mounting neck of the housing 23 and passes over and downwardly about the sheave 20 and at its ends is equipped with an eye 35 for the attachment of the anchor.

To keep the cable from jumping from the sheave, and also to retain its alinement eccentric of the axis of the rotatably mounted hub 24, and thus insure the automatic pivotal and self-aligning action of the fairleader as was explained in the patent mentioned, I provide a retaining guide roller 36 mounted to revolve on a tubular axle 37 carried at one end of a swing frame 38 that is mounted between the side walls of the frame 23 by a pivot bolt 39. When the roller 36 is in its desired, functional position, it is retained there by the projecting of a pin 40 through walls 22 and 23 as has been illustrated in Figs. 4 and 5. The pin 40 has a handle portion 41 whereby it may be withdrawn when it is desired to release the frame for upward swinging movement to clear the roller from the sheave 20 as is desirable for threading the cable through the fairleader.

In Fig. 6, I have shown the cable as being extended to a cable winding drum 47, and at its outer end it has an anchor 48 attached thereto.

A feature of the arrangement of parts of the fairlead device is that the pivot pin 21 which mounts the sheave wheel is perpendicular to the axis of the tubular neck and its top edge is located somewhat below this axis of the neck so that the pull on the cable or weight lifted will rotate the housing 23 so that the sheave is always automatically self-aligning, as was explained in the patent mentioned. Also, it is to be observed that in the particular installation here shown on the stem of a ship the housing 23 overhangs the lower peripheral part of the openings 13 to such extent that the cable will always be in the clear thereof.

Fig. 3 of the drawings shows the bell portion of the housing 15 to be circular, thus to permit the rotation of the housing 23 and be clear of the swing of the sheave 20 from side to side as the direction of the cable may require. However, it is desirable that this rotation be limited and therefore stops 50 are provided on the opposite

side walls of the bell to be engaged by the side edge portions of the sheave to limit the extent of swing.

With the ship thus equipped with the fairlead housing and the fair leaders applied thereto in this way, the cable may play from the stem of the ship laterally to either side and the fairlead sheave will automatically assume a proper position of linement. The fact that the mouth of the housing, where it opens to the stem of the boat, is inclined forwardly at the top, facilitates the lateral play of the cable and places the sheave sufficiently forward that the cable will at all times clear the edge of the opening, as is best understood by reference to Fig. 1.

Devices of this character facilitate and make possible the use of cables where chains have previously been used; and the great advantage of this resides in the fact that cable requires much less storage space, is much lighter in weight, and is more easily handled and accomplishes its particular uses in a better way.

Such fairleaders can be applied in the manner as here shown, to the ships hull at any place where it is desirable or practical to do so, and therefore, its use is not to be confined to the stem of the ship.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is:

In a ship, a bulwark having an outboard opening, a tubular housing open at its ends, located at the inside of the bulwark and having one open end fixed to the bulwark about the periphery of the said opening therein, a sheave housing contained coaxially within the fixed housing and having a tubular, reduced end portion serving as a mounting hub, bearing means in the inner end portion of the fixed housing containing the said mounting hub rotatably therein, a sheave wheel mounted in that end portion of the sheave housing opposite the hub portion and a cable extended through the said open ended housing and through said tubular hub and over said sheave wheel and guided by the later from the bulwark with clearance; said sheave wheel being mounted on an axis that is transverse to and below the axis of rotation of the sheave housing for self-alignment of the wheel with the direction of strain on the cable as extended therefrom, and lugs on the fixed housing to be engaged by the sheave housing to limit its extent of rotation in opposite directions from a neutral position.

KNUTE BERGER.