W. H. CHURCHILL & W. C. CHAMPLAIN.

CAPSTAN AND PROPELLER-ATTACHMENT FOR VESSELS.

No. 192,738 Patented July 3, 1877.

Fig 1.

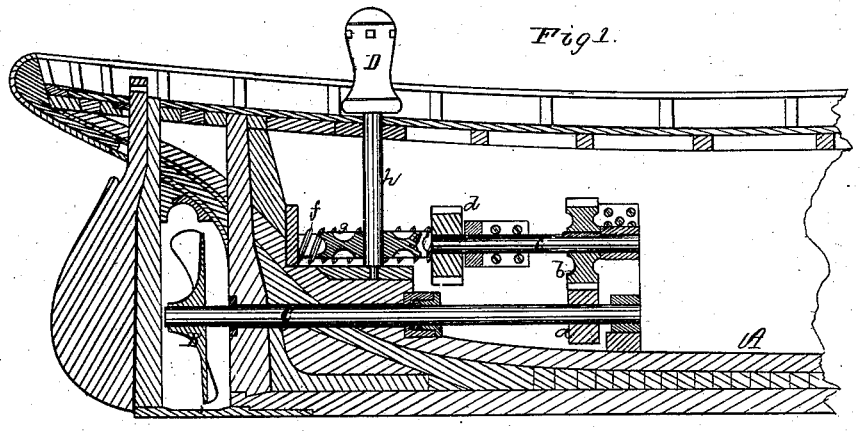
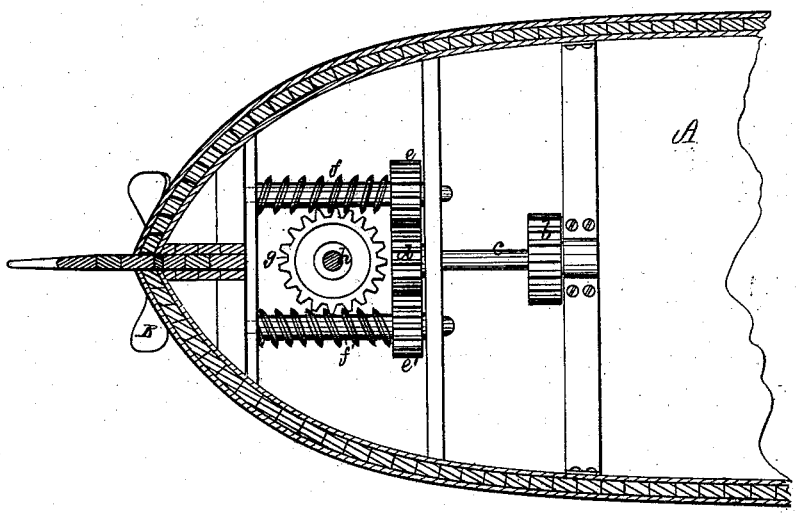


Fig 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM H. CHURCHILL, OF NEW LONDON, CONNECTICUT, AND WILLIAM C. CHAMPLAIN, OF HARRISBURG, PENNSYLVANIA.

IMPROVEMENT IN CAPSTAN AND PROPELLER ATTACHMENTS FOR VESSELS.

Specification forming part of Letters Patent No. **192,738**, dated July 3, 1877; application filed May 28, 1877.

To all whom it may concern:

Be it known that we, WILLIAM H. CHURCHILL, of the city and county of New London, of the State of Connecticut, and WILLIAM C. CHAMPLAIN, of Harrisburg, of the county of Dauphin, of the State of Pennsylvania, have invented a new and useful Capstan and Propeller Attachment for Navigable Vessels; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a longitudinal section, and Fig. 2 a horizontal section, of the after part of a vessel, having our invention applied to its capstan and screw-propeller.

The said invention is designed for small steamers, usually termed "tug-boats," it being for the purpose of enabling such a boat to employ its propeller, capstan, and steam-engine to great advantage in drawing a stranded vessel off shore.

As a whole, it consists in the combination of a propeller and the shaft thereof with a capstan and a mechanism, substantially as hereinafter described, applied thereto and to the propeller-shaft, whereby, by means of the latter and the motor or engine for revolving it, such capstan and propeller may be simultaneously operated, or one may be operated independently of the other, as explained.

In the drawings, A denotes the hull of the boat, provided with a screw-propeller, B, whose shaft is shown at C. This shaft, connected with and to be driven or revolved by the steam-engine of the boat, in the usual manner, has fixed on it a spur-gear, *a*, which engages with another such gear, *b*, fixed on a horizontal shaft, *c*, arranged over the propeller-shaft. The shaft *c* is also provided with another gear, *d*, arranged between, and engaging with, two gears, *e e'*, fixed on the shafts of two screws, *f f'*, one of such screws being a right-threaded, and the other a left-threaded, screw. Between the two screws, and engaging with both, is a worm-gear, *g*, that is fixed on an upright shaft, *h*, of a capstan, D, such capstan being above deck, while the machinery for operating it is disposed below or in the hold.

We usually apply the gear *b* to the shaft *c* by what is termed a "spline" or "feather" connection, in order to enable it to be slid endwise on the shaft and thrown into or out of engagement with the gear *a*.

From the above it will be seen that while the propeller may be in revolution for the purpose of moving the boat ahead, the capstan may be revolved by means of the attaching mechanism, as described.

If, therefore, the boat be supposed to be connected with a stranded vessel by one or more suitable ropes, and a cable be properly applied to the capstan, and also to an anchor cast into the water in advance of the boat, the powers of the propeller and the capstan may be simultaneously employed to great advantage in drawing the vessel off shore.

We claim as our invention as follows, viz:

The combination of the propeller and its shaft, and the capstan and its shaft, with mechanism to effect, by means of the propeller-shaft while it may be in revolution to turn the propeller, rotary motion of the capstan, such mechanism, as described for such purpose, being the gears *a b d e e*, shaft *c*, right and left screws *f f'*, and worm-gear *g*, arranged and applied as set forth.

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Witnesses:
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