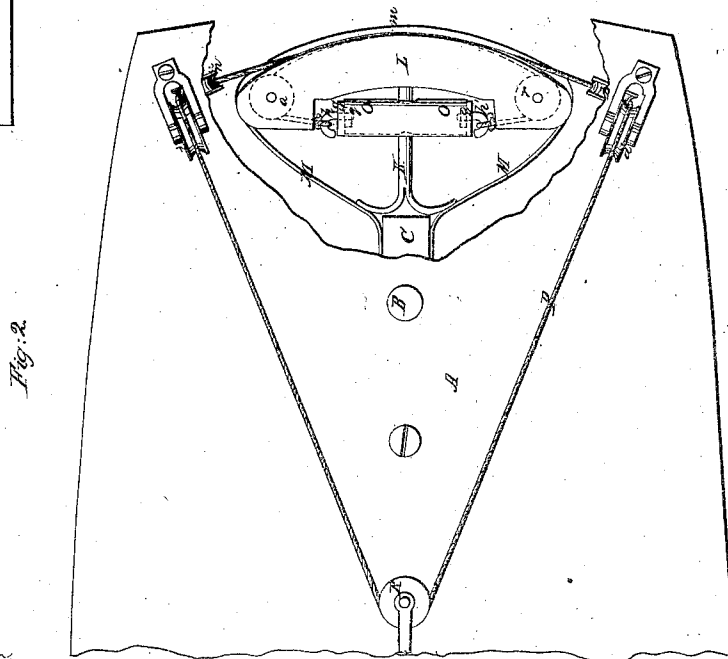
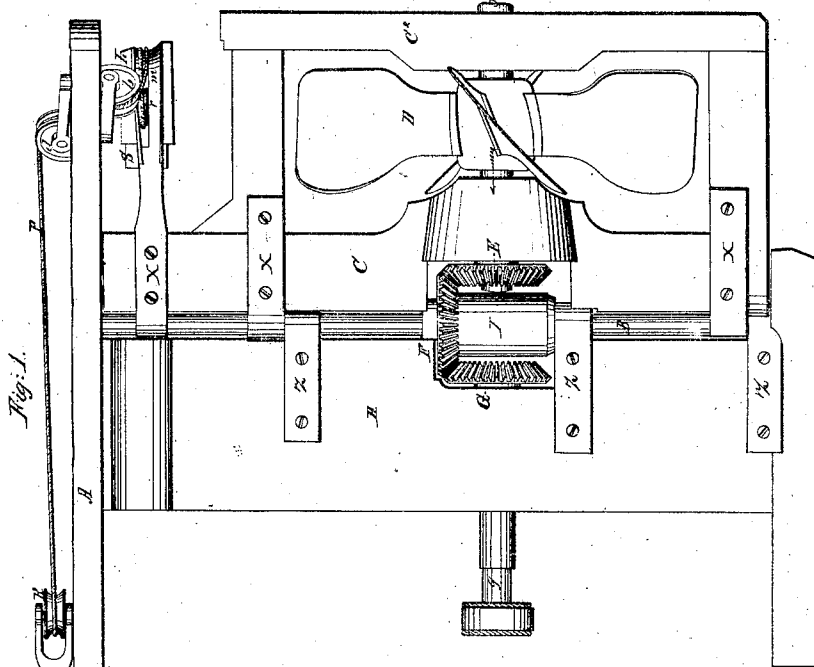


S. Huse, & S. Huse, Jr.

Steering Apparatus.

N^o 22,431.

Patented Dec. 28, 1858.



Witnesses:

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B. H. Hunsicker
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Inventor:

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UNITED STATES PATENT OFFICE.

SAMUEL HUSE AND SAMUEL HUSE, JR., OF CHICAGO, ILLINOIS.

PROPELLING AND STEERING APPARATUS.

Specification of Letters Patent No. 22,431, dated December 28, 1858.

To all whom it may concern:

Be it known that we, SAMUEL HUSE and SAMUEL HUSE, Jr., of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Combined Propeller and Steering Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, is a side elevation. Fig. 2, a plan, a portion of the deck being broken away to show the parts beneath.

It has already been proposed to hang propellers in a frame capable of swinging around the rudder post in such a manner that the propeller might be made use of to steer the ship. No adequate means have however been adopted of supporting the shaft of the propeller or of receiving and resisting its end thrust, and consequently such arrangement has failed to be of any practical value.

Our invention has for its object the accomplishment of this desirable end, that is to effect the steering of the vessel by the propeller itself, which we accomplish in a manner which will now be fully set forth and described.

In the accompanying drawings A, is the deck of the vessel; B, a vertical post which is held firmly up to the stern post H, by straps Z. To this post is suspended by similar straps X, the rudder C, which is enlarged as at C² so as to form a frame within which revolves the propeller D, and in which is boxed both ends of its shaft *f*. This shaft carries at its inner extremity a gear E, that is driven through the intermediate gear F, by a similar gear G, upon the engine shaft *g*.

When the propeller is in operation a great end thrust is exerted in the direction of the arrow Fig. 1, and for the purpose of resisting this thrust and effectually preventing the parts from being strained and thrown out of position thereby, the following device is employed. The post B, is caused to bear upon the stern post H, the whole of its length except where the latter is necessarily cut away to accommodate the

gears G and F. The portion of the shaft thus left unsupported is surrounded by a sleeve I, against which the end of the shaft *f* is allowed to bear; the whole end thrust of this shaft is thus transferred to the sleeve, and through the post B to the stern H. The sleeve being of a thickness and strength that will enable it to resist any pressure that can be put upon it by the shaft *f*, and of a length nearly equal to the opening in the stern post H, so that the thrust is received by the post B, in the immediate vicinity of its bearing on the stern post. All strain is thus taken off the gearing which is left free to revolve without restraint.

When the rudder is directly fore and aft the propeller will act only as a propeller to urge forward the vessel but whenever the rudder is inclined to either side, if the propeller be in action it will also steer the vessel to the side to which it is inclined. For the purpose thus of moving the rudder the following device is employed: Projecting rearward from the rudder is a tiller K, to which is secured a beam L, the exterior surface *m*, of which is the arc of a circle the center of which is the center of the post B. The beam L, is further stayed and sustained by the side bars M.

O, is a cylindrical india rubber spring through the center of which passes the tiller K. This spring is contained within a rectangular box or case S, to the ends of which are secured the staples *h*, *h'*, to which are attached the ends of the tiller rope or chain P. This rope or chain starting from the staple *h*, passes over the guide pulley *a*, along the edge *m*, of the curved timber L, beneath the pulley *b*, and over the pulley *d*, thence to a suitable steering wheel at R (not shown in the drawing) thence over the guide pulley *i* and beneath the pulley *n*, thence over the curve *m*, round the pulley *r*, to the staple *h'*. It is obvious from the above that the spring O is interposed between the tiller K, and either end of the box S, to which is secured the chain P, and the steering apparatus is relieved from the heavy blows and shocks to which the rudder is subjected by the waves. The staples *h* *h'*

are furnished with nuts *y*, upon their shanks by which the slack of the tiller rope is taken up.

5 The rudder may thus be operated as required by the helmsman in his ordinary position upon the deck or in any other part of the vessel or boat.

What we claim as our invention and desire to secure by Letters Patent is—

10 An improvement in propellers when hung within the rudder and operated by gears *E F G* as set forth, is receiving the end thrust

of the propeller shaft upon the sleeve *I* on the post *B*, arranged and operating in the manner substantially as described.

SAML. HUSE.

SAML. HUSE, JR.

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