W. W. Huse,

Steering.

No. 27,875. Patented Apl. 10, 1860.

Fig. 1.

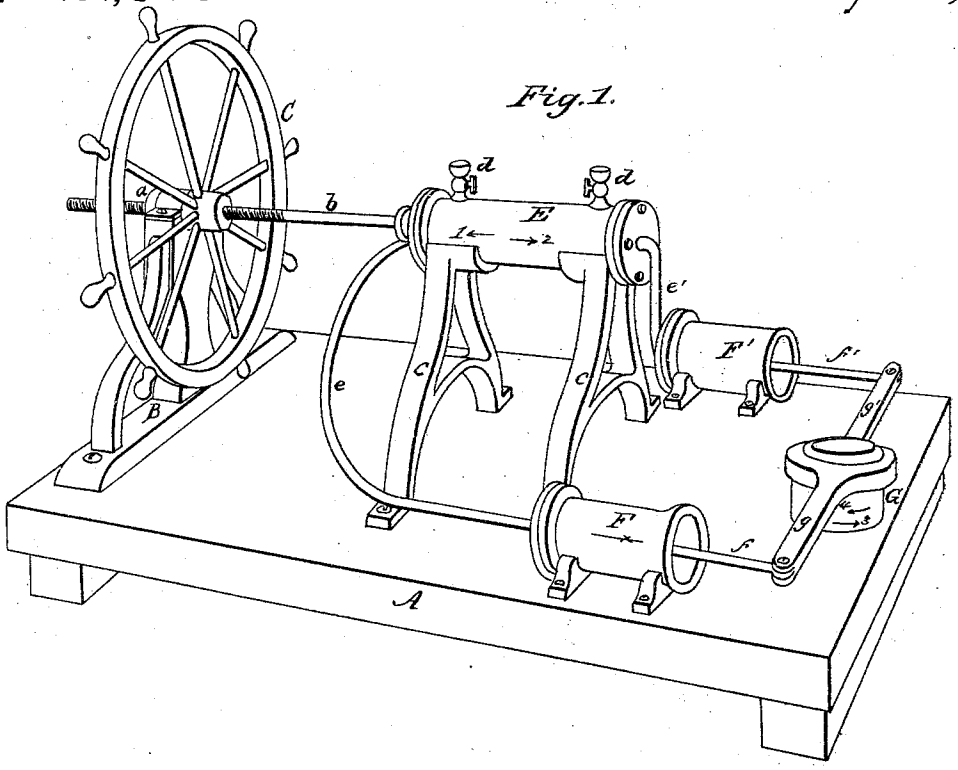
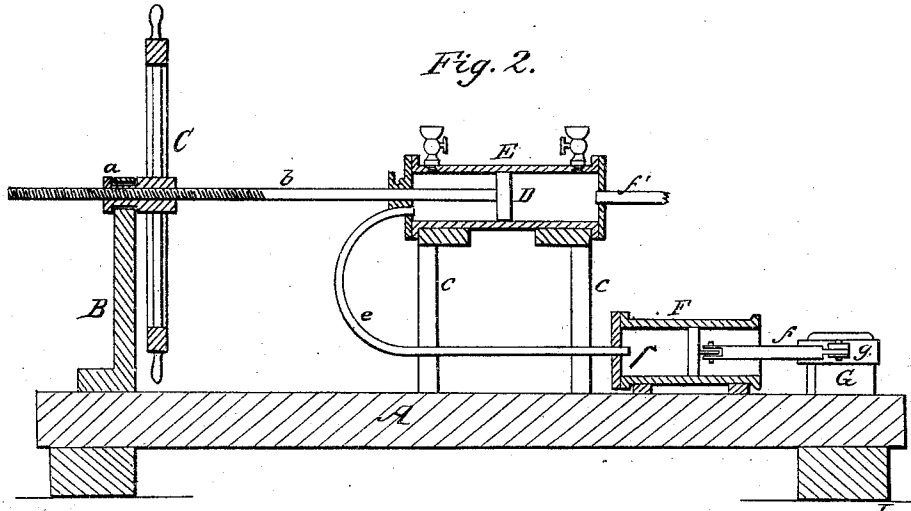


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM W. HUSE, OF BROOKLYN, NEW YORK.

IMPROVED STEERING APPARATUS.

Specification forming part of Letters Patent No. **27,875**, dated April 10, 1860.

To all whom it may concern:

Be it known that I, WILLIAM W. HUSE, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Steering Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my apparatus, and Fig. 2 a longitudinal vertical section of the same.

Similar letters of reference in both views indicate corresponding parts.

This invention consists in the employment of one or more columns of water or other non-compressible liquid for the purpose of transmitting the motion of the steering-wheel to the rudder; and it consists, also, in arranging the wheel on a screw-shaft connecting with a piston that moves in an air or water tight cylinder, the ends of which connect by suitable tubes with two barrels furnished with plungers that connect with arms of the tiller extending at opposite sides from the rudder-head in such a manner that when said cylinder is filled with water or some other non-compressible liquid the motion of the wheel in one direction or in the other is transmitted to the rudder, no matter how far the distance between the wheel and the rudder may be.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation with reference to the drawings.

A represents a portion of the deck of a vessel, to which a standard B is rigidly attached, which forms the bearing for the hub of a steering-wheel C. This hub is provided with a neck *a*, fitting into a journal-box on the top of the standard, leaving the wheel free to rotate in any direction without allowing to the same a motion in a longitudinal direction. The center of the hub is bored out and furnished with a screw-thread that fits on a screw-rod *b*, and this screw-rod connects with a piston D, which is fitted water tight into a cylinder E. This cylinder is supported by two standards *c*, or in any other convenient manner, and it is furnished with two supply-cocks *d*, one at either end, through which it can be filled with water or other liquid. The two ends of the cylinder E communicate by means of pipes *e e'*, one with a barrel F and the other with a barrel F', said barrels being closed on those ends where they connect with the pipes *e e'* and open at the opposite ends, as clearly shown in the drawings. Each of the barrels is furnished with a plunger, and these plungers connect by means of rods *f f'* with the two arms *g g'* of the tiller, which extend in opposite directions from the rudder-head G.

The operation is as follows: The wheel C is turned until the piston D of the cylinder E comes to the center of said cylinder, and the apparatus is now filled with water or some other non-compressible liquid. The pressure of the liquid being equal on both the plungers in the barrels F F', will bring the tiller in a transverse position at right angles to a line drawn in a longitudinal direction through the center of the vessel, throwing the rudder into a central position. If the wheel is now turned so as to move the piston D in the direction of arrow 1 the liquid contained in the front part of the cylinder will be forced through the pipe *e* into the barrel F, causing the plunger in said barrel to move in the direction of the arrow marked on the same, and the rudder will be turned in the direction of arrow 3. By turning the wheel in the opposite direction the piston D is caused to move in the direction of arrow 2, and the rudder is turned in the direction of arrow 4. It is obvious that the distance between the rudder and the wheel can thus be increased at pleasure without meeting with the disadvantages attending the usual connection between the wheel and rudder. The ropes and chains generally used for this purpose create much friction; more so, because the connection cannot be made in a straight line, and the contraction and expansion of the ropes through the agency of the changes in the atmosphere cause much trouble. When the weather is wet or the atmosphere is very damp, the ropes shrink and they have to be slackened, and in dry weather they stretch and the wheel does not operate correctly without tightening the same. Furthermore, any sea that may strike the rudder is felt by the helmsman, and in stormy weather it takes much power and constant attention to hold the vessel steady. With my arrangement, on the other hand, the power may be trans-

mitted from the wheel to the rudder, no matter how large the distance between the two, with equal facility, and the rudder will be held perfectly steady in any position whatever and in the roughest sea, enabling one man to steer a vessel of the largest size with perfect ease.

By the aid of my apparatus a rudder placed in the bow of a vessel can be kept as steady as one placed in the stern, and by connecting two rudders, one in the bow and one in the stern, with the same wheel I am enabled to turn a vessel on its own axis.

This apparatus is particularly applicable to steam-vessels, where the pilot-house must necessarily be on or near to the bow, and the large distance of the wheel from the rudder, especially in large vessels, renders the usual connection still more objectionable than on smaller vessels, and the simplicity of my apparatus, together with its convenient, sure, and instantaneous action, recommends the same to every ship-owner.

Instead of using water or similar fluids, air might be employed; but in practice some liquid which resists pressure will be preferable.

What I claim as new, and desire to secure by Letters Patent, is—

1. The employment of one or more columns of water or other liquid for the purpose of transmitting the motion of the steering-wheel to the rudder, substantially in the manner described.

2. The arrangement of the cylinder E and barrels F F′, in combination with the tiller *g g′* and wheel C, constructed and operating substantially in the manner and for the purpose specified.

WILLIAM W. HUSE.

Witnesses:

WM. THOMPSON,

B. GIROUX.