CHARLES HEMJE.

Improvement in Steering Apparatus for Vessels.

No. 123,629. Patented Feb. 13, 1872.

Fig. 1.

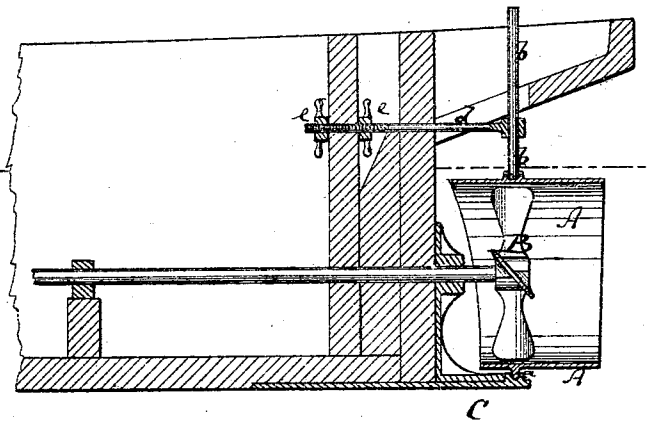


Fig. 2.

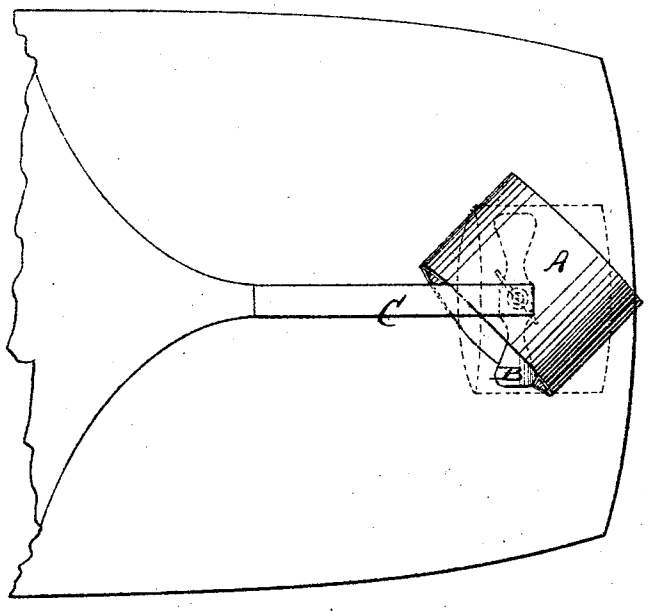
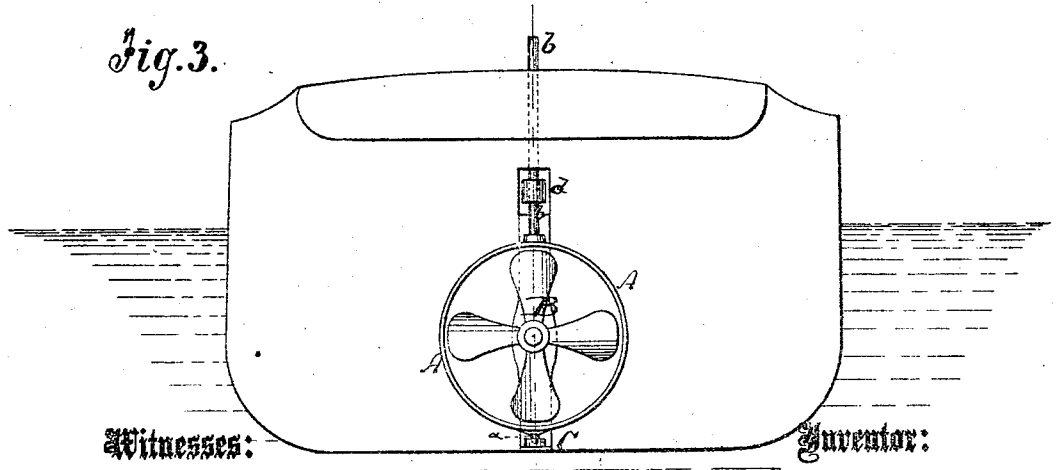


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES HEMJE, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN STEERING APPARATUS FOR VESSELS.

Specification forming part of Letters Patent No. 123,629, dated February 13, 1872.

Specification describing an Improved Apparatus for Propelling and Steering Vessels, invented by CHARLES HEMJE, of Hoboken, in the county of Hudson and State of New Jersey.

Figure 1 represents the invention as seen from the side. Fig. 2 represents the invention as seen from below. Fig. 3 represents the invention as seen from the rear.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described and then clearly pointed out in claim.

A in the drawing represents an inclosure or cylinder, somewhat larger than the propeller-wheel B and open at both ends. It is made of sheet metal or other suitable material. It is arranged so as to embrace the propeller, and thereby obviate the swell created by the propeller-wheel when in motion. The water entering the inclosure or cylinder and passing the propeller-wheel will be forced back through the inclosure or cylinder, and will not wash the banks of the canal, creek, or river. The cylinder A is pivoted by vertical pins *a* and *b*, which enable it to be also used as a rudder. The forward edge of the inclosure or cylinder should be cut according to the shape of the boat aft, so as to give the easiest possible access of the water to the propeller-wheel. The after edge of it can be shortened more or less toward the bottom, according to the steering power required. The steering is accomplished by the column of water passing the propeller-wheel, which is forced back through the inclosure or cylinder, when the boat is in motion, which column of water can be directed at such angles with the center line of the boat as to give the most perfect steering power—much more powerful than any ordinary rudder, and more easily handled than the same. To make the inclosure or cylinder movable, it is at the under side provided with a projecting gudgeon, *a*, which stands and moves on a step on a shoe, C, extending aft from the keel or bottom of the boat. Vertically above the gudgeon is fastened, to the upper side of the inclosure or cylinder, a shaft or pin, *b*, extending upward through the stern or fan-tail of the boat. The inclosure or cylinder has to be placed so that the shaft *b* of the same stands vertically over the center of the propeller-wheel, (measured fore and aft,) or at least as near as practicable to that position, as, in case of a great variation therefrom, the inclosure or cylinder could not be moved enough, but would come in contact with the blades of the propeller-wheel. The steering-gear can be attached in the same manner as on any ordinary rudder. By means of an eye-bolt, *d*, (through the eye of which the above-named shaft *b* passes at nearly right angles,) which goes through a post inside the boat, and on the end of which a thread is cut, the inclosure or cylinder can easily be so adjusted, by merely screwing up or unscrewing the respective nuts *e e*, as to be level with the surface of the water in case the boat should draw more water aft than forward.

Through the use of the inclosure or cylinder the speed is increased, and if the same is properly made and adjusted, it is expected the increase in speed will come up to or exceed five per cent. By means of the inclosure or cylinder the slip of the propeller-wheel is decreased, because it works in a solid body of water, with no chance for the latter to escape to the surface; whereas, with an unprotected propeller-wheel considerable power is lost when the blades of the same pass near the surface of the water.

All dangerous or injurious results to the banks of a canal, creek, or river which would arise from an unprotected propeller-wheel are completely overcome, as the water entering the front opening of the inclosure or cylinder and passing the propeller-wheel goes out of the same in a solid mass, taking only one direction, which is that of the center line of the inclosure or cylinder. In places where there are bends or turns in the canal, creek, or river no injury can be done to the banks, as, for the purpose of effecting these turns, the inclosure or cylinder has to be moved so as to always leave the current in the middle of the canal

The principal points and advantages of my invention are, therefore, obviation of the swell, steering by the current or column of water, which is forced out of the inclosure or cylinder by the propeller-wheel; an adjustment of the inclosure or cylinder level with the surface

of the water under any draft of the boat, if necessary; decrease of the slip of the propeller-wheel, and consequently an increase in speed, through the use of the inclosure or cylinder.

Instead of being strictly cylindrical, the inclosure may be oval or prismatic in cross-section.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The adjusting-rod or bolt *d* applied to the upper pin *b* of the pivoted inclosure A, as specified.

Witnesses: CHARLES HEMJE.
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