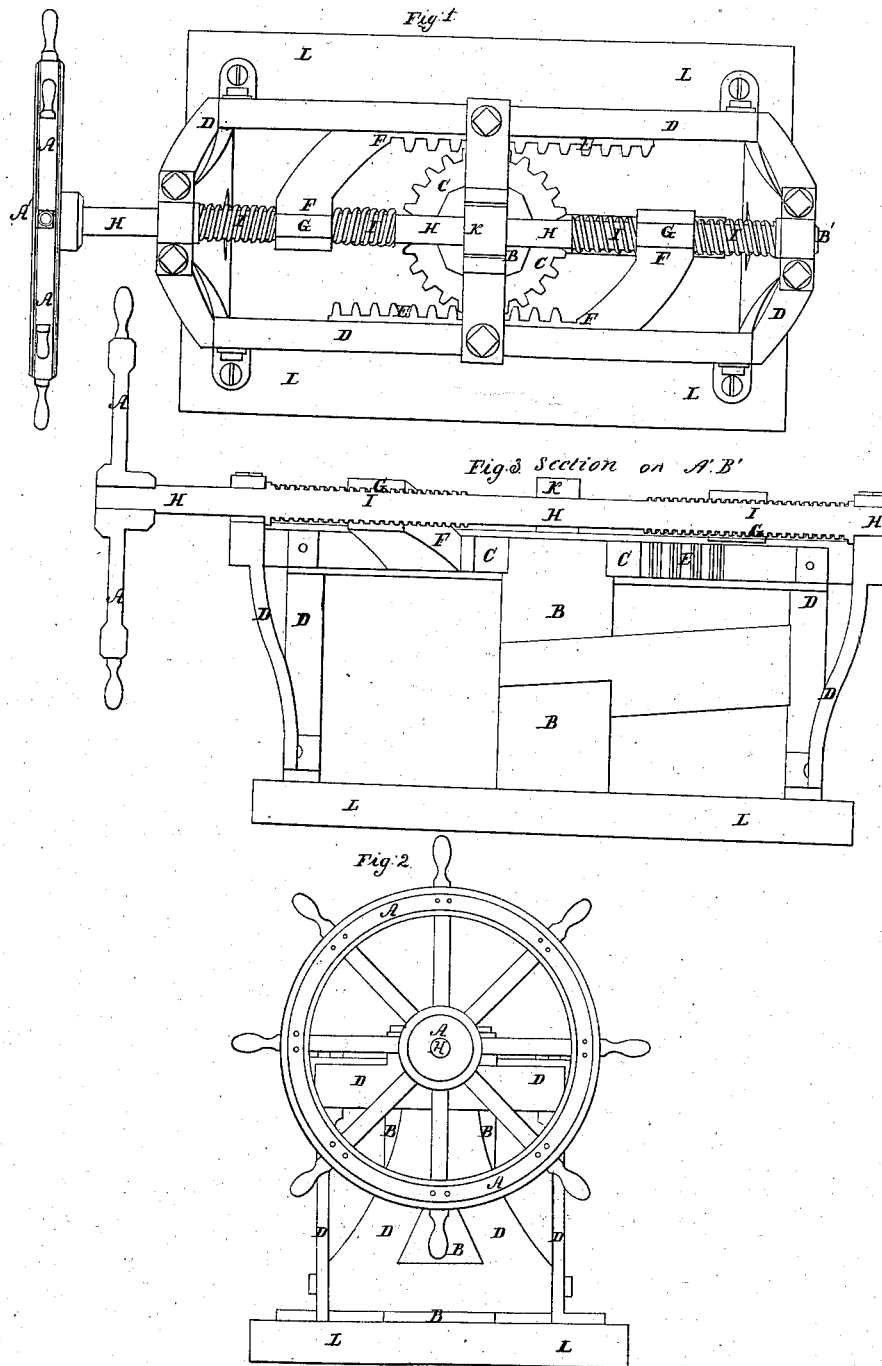


*G. W. & E. B. Robinson,*  
*Steering.*

*N<sup>o</sup> 2797.*

*Patented Sept. 30, 1842.*



# UNITED STATES PATENT OFFICE.

GEO. W. ROBINSON AND E. B. ROBINSON, OF BOSTON, MASSACHUSETTS.

## STEERING APPARATUS FOR VESSELS.

Specification of Letters Patent No. 2,797, dated September 30, 1842.

*To all whom it may concern:*

Be it known that we, GEORGE W. ROBINSON and EZRA B. ROBINSON, both of Boston, in the county of Suffolk and Commonwealth of Massachusetts, machinists, have invented a new and useful Machine for the Steering of Vessels, Called "An Improved Steering Apparatus," of which the following is a full and exact description.

The design and purpose of our said invention is to turn the rudders of vessels by a new and more advantageous application of mechanical powers and without the use of a tiller or tiller-ropes.

The machine herein described is adapted to a vessel of four hundred or five hundred tons. For a larger or smaller vessel, the proportions may be varied accordingly.

For the purpose of using our said invention, the rudder head should rise above the deck nearly as high as the axis of a vertical steering wheel of a convenient diameter and position, which will probably be from twelve to eighteen inches higher than the rudder head is usually made. On the top of this rudder head, which may be made polygonal for the purpose, is fixed a strong metallic horizontal cog-wheel about twenty inches in diameter. Playing into the teeth of this wheel on each side of it is a horizontal metal rack moving fore and aft in parallel guides. These racks are to be of such a length and with such a number of teeth as to turn the cog-wheel as far each way as the rudder ever needs to turn. This will require the whole length of the racks to be about two feet and seven inches, and the toothed part eighteen inches. The guides are in the sides of an oblong frame long enough to permit the play of the racks and a little higher than the top of the rudder head. The forward end of one of the racks and the after end of the other is prolonged solid and without teeth and bent upward and turned inward to the middle of the frame, so as to rise so far above the line of the top of the rudder head that the bottom of the shaft hereafter described shall be two inches above the rudder head, so as to allow the rudder the necessary play up and down. These prolongations of the racks end in hollow nuts about five inches long with special threads cut in contrary directions, that is, with right hand threads in one nut, and left hand threads in the other. These two

nuts are in a line with each other, which line passes over the center of the rudder head. Through these nuts and just over the center of the rudder head and having bearings on the two ends of the frame, is a horizontal iron shaft about six feet long and two and three quarter inches in diameter; the forward end of which is fixed to the center of the steering wheel as its axis. Where this shaft passes through the nuts, it is formed into two spiral screws, each about twenty inches long having two or three threads of such obliquely as to gain about two and a half inches at each turn of the wheel, to enable the rudder to give sufficiently to the face of the seas. One of these screws is a right hand screw and the other is a left hand screw corresponding to the nuts above described. On the after end of the shaft and outside of the frame is placed a vertical steering wheel of the usual size and form. As the steering wheel is turned the spiral screws on the shaft move one rack forward and the other back, turning the cog-wheel and the rudder to the right or left as required. Instead of having the frames supported at the after end as shown in the drawings, it may be bolted into the stern frame of the vessel and properly braced, by which it may be made to occupy less room on the deck. It may be well in the apparatus for large vessels to have a strap of metal pass over the shaft, where it crosses the rudder head, fastened at the ends to the side pieces of the frame to give greater security to the shaft. This machine may be applied to steer steam boats by prolonging and enlarging the shaft so as to meet the wheel at the forward end of the steamer.

We will now describe our said invention by reference to the drawings annexed.

A, in the several figures, is the steering wheel.

B is the rudder head.

C is the cogged wheel on the top of the rudder head.

D D D D is the frame.

E E are the racks.

F F are the prolongations of the racks ending in G G, the hollow screws or nuts.

H H is the shaft with the right and left hand spiral screws I I; K is the strap over the shaft where it crosses the rudder head.

L represents a part of the deck to which the frame is bolted.

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

The machine or combination consisting of the cog-wheel on the rudder head, the  
5 sliding racks with the hollow nuts and screws, the shaft with the right and left hand screws and the steering wheel; the whole combined as before described and for the purpose aforesaid.

10 In testimony whereof, we, the said

GEORGE W. ROBINSON and EZRA B. ROBINSON, hereto subscribe our names in the presence of the witnesses whose names are hereto subscribed on the thirteenth day of August, A. D. 1842.

GEO. W. ROBINSON.

E. B. ROBINSON.

Signed in our presence:

GEO. W. PHILLIPS,

H. M. ABORN.