952,462.

F. MUNSTER.

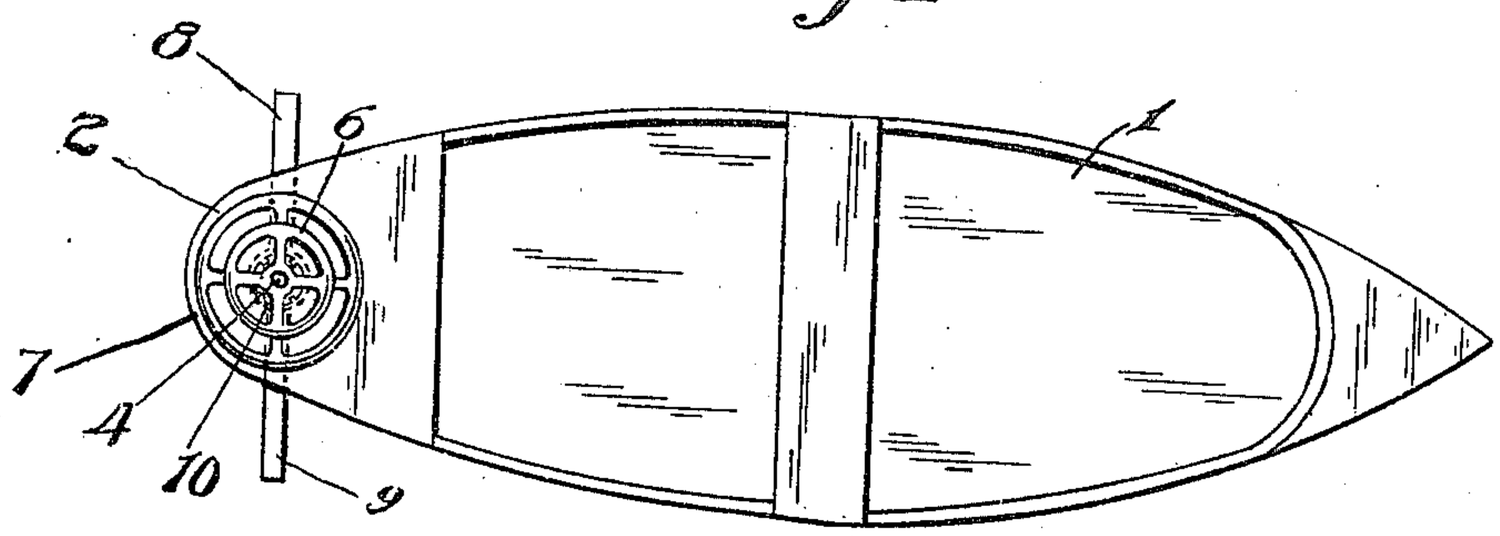
RUDDER FOR BOATS AND SHIPS.

APPLICATION FILED JUNE 29, 1909.

Patented Mar. 22, 1910.

3 SHEETS—SHEET 1.

Fig. 1



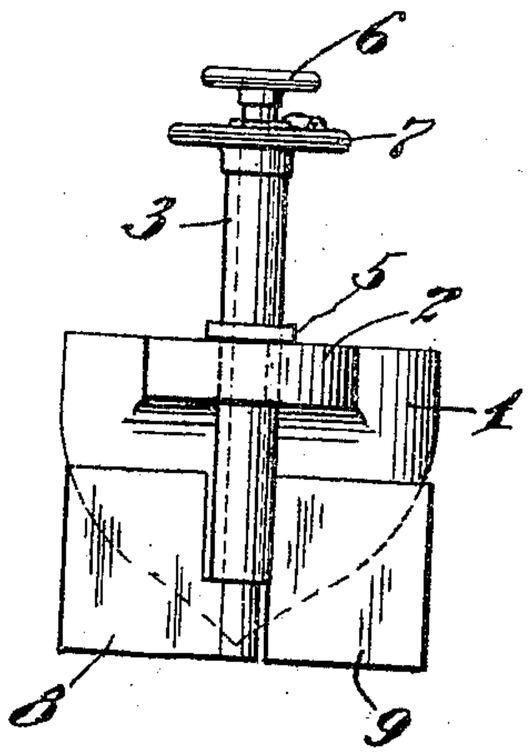


Fig. 2.

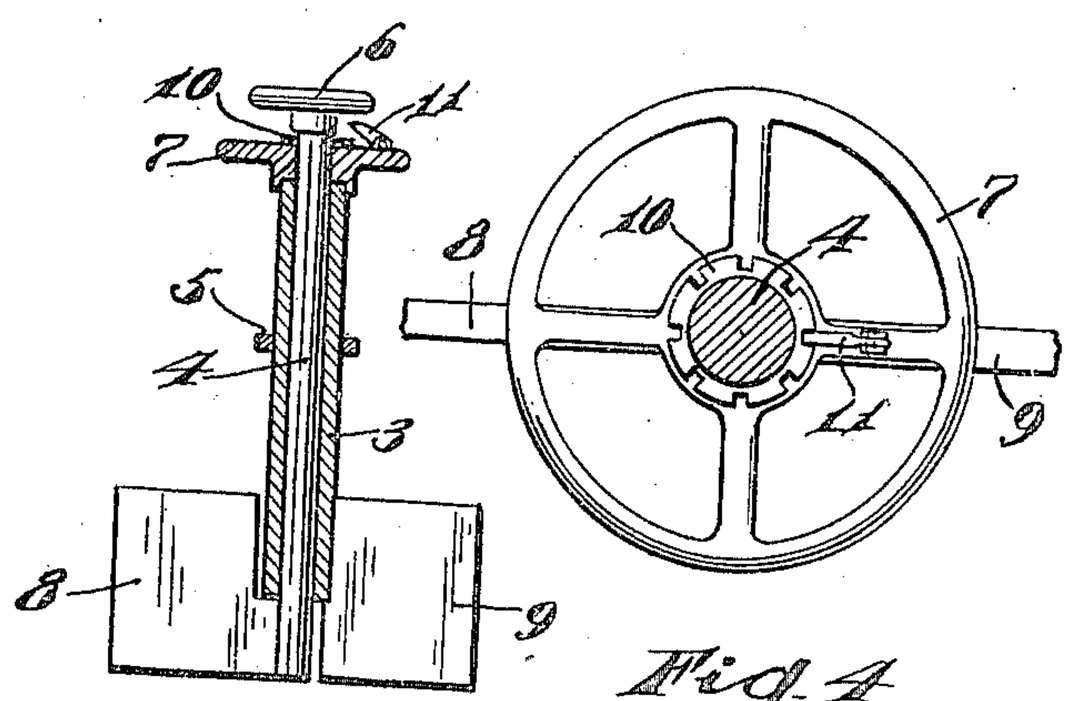


Fig. 3.

Fig. 4.

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3 SHEETS—SHEET 2.

Fig. 5.

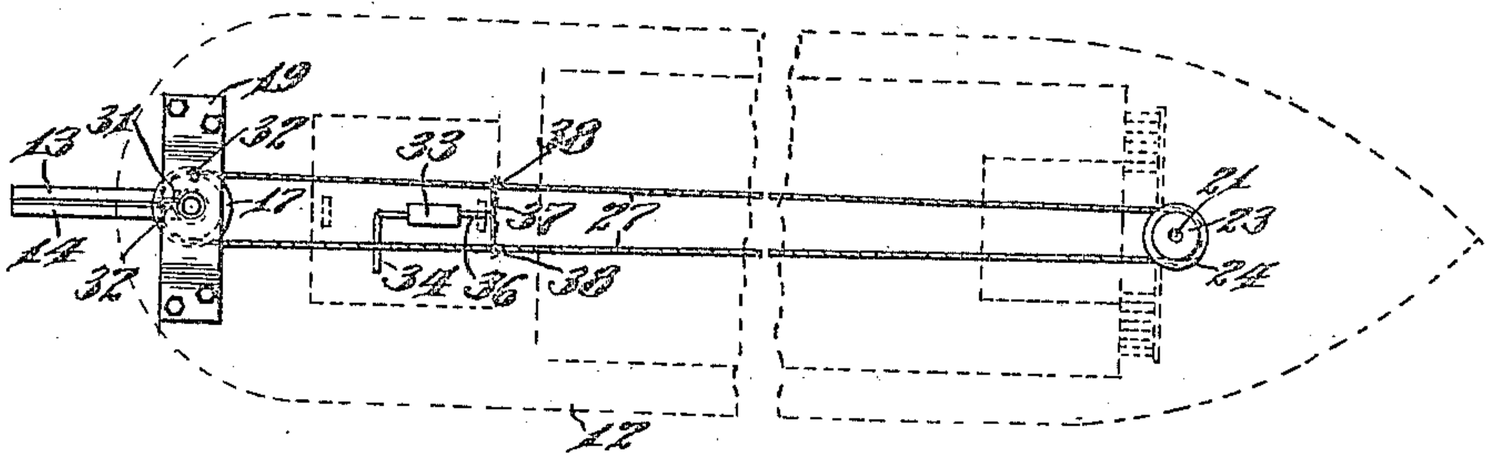


Fig. 6.

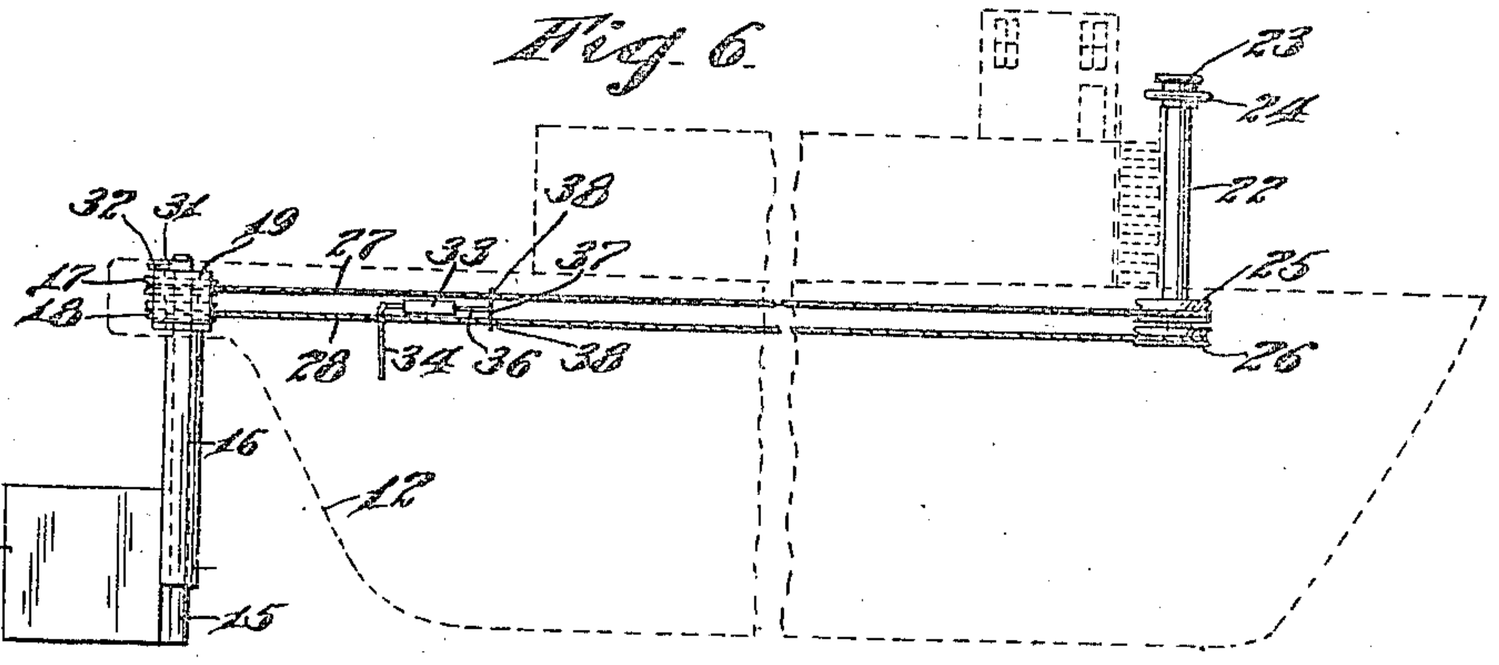
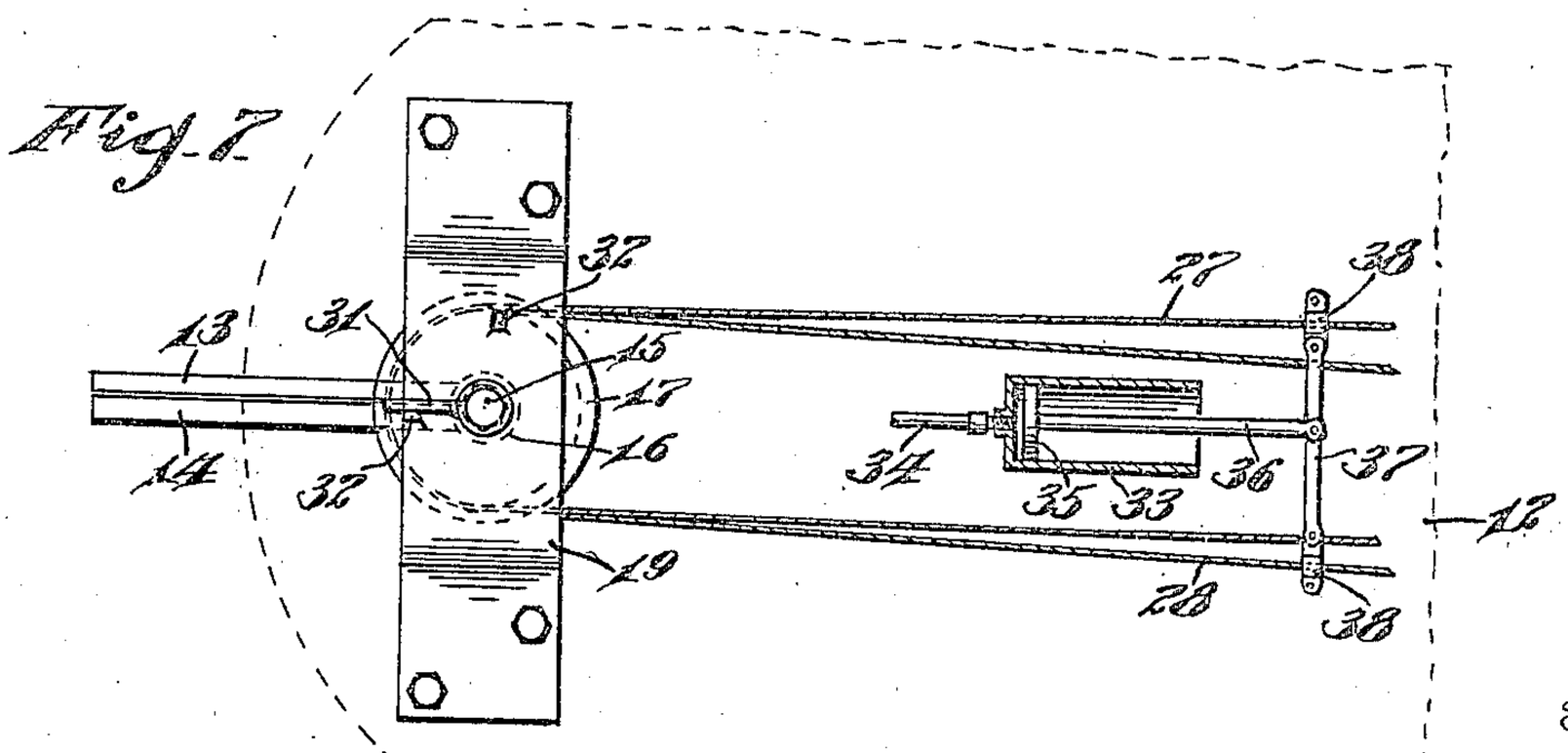


Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 8

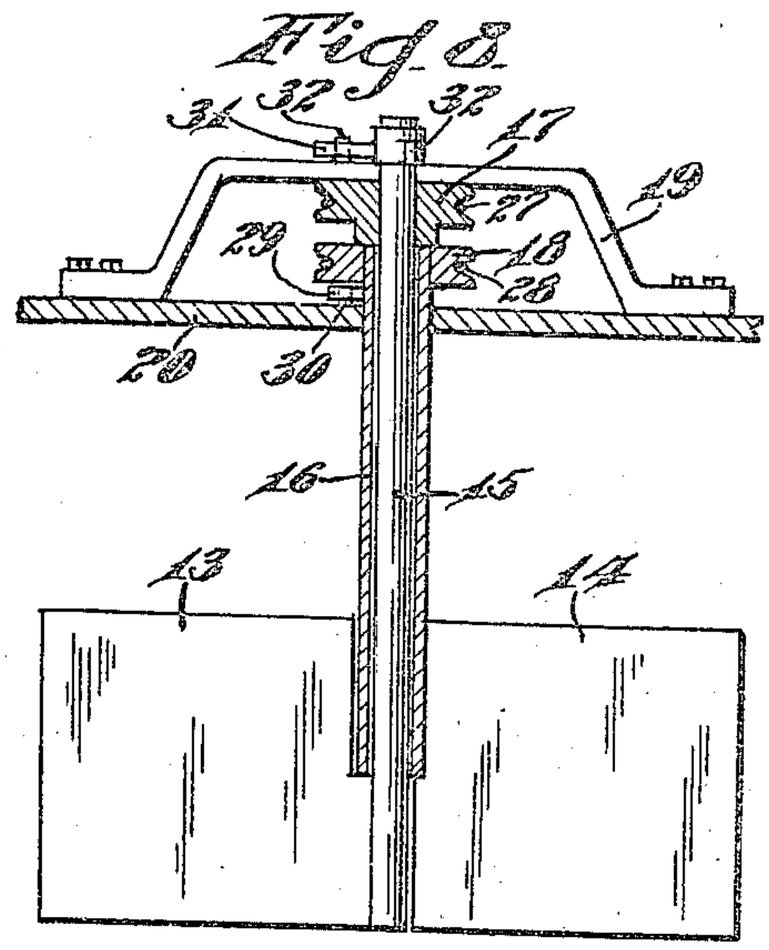


Fig. 9

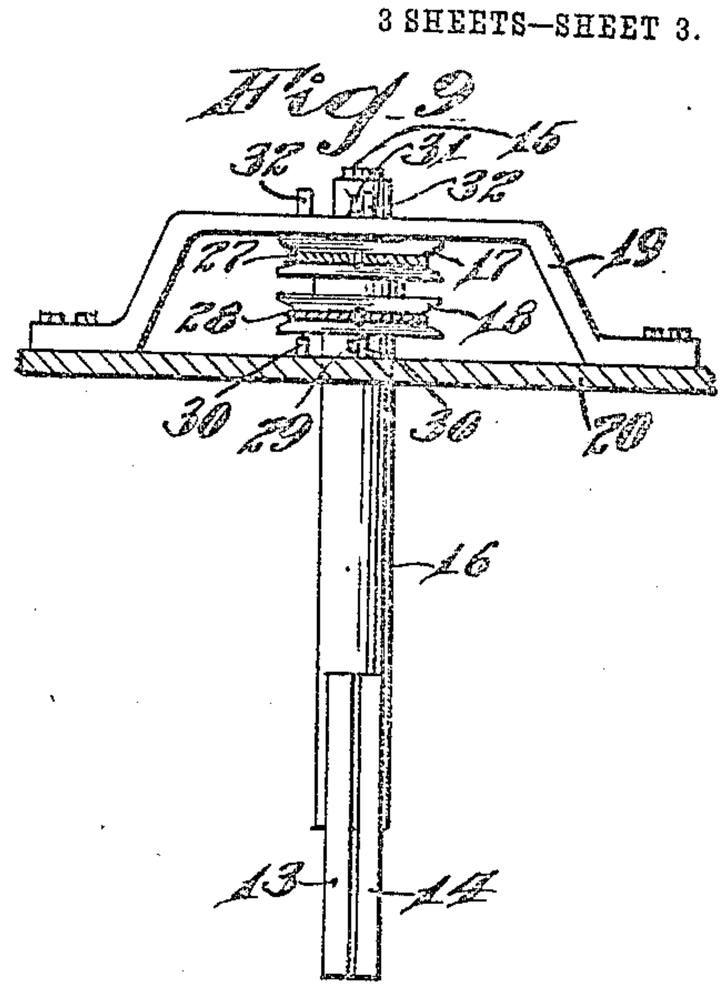
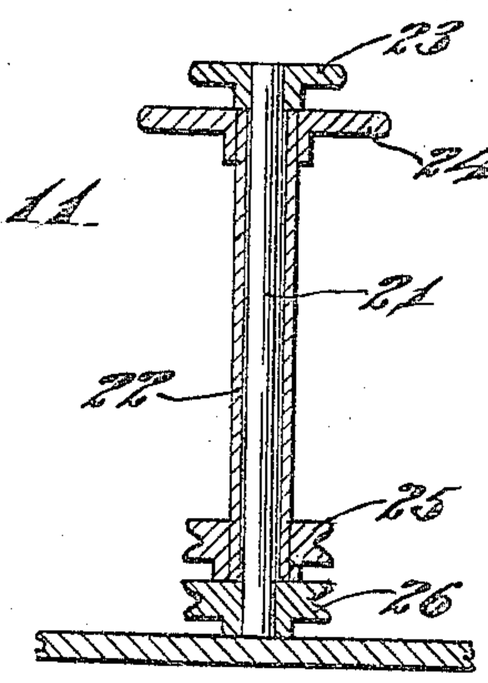


Fig. 10

Fig. 11



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UNITED STATES PATENT OFFICE.

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RUDDER FOR BOATS AND SHIPS.

952,462. Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed June 29, 1909. Serial No. 504,967.

To all whom it may concern:

Be it known that I, FREDERICK MUNSTER, a citizen of the United States, residing at Millville, in the county of Cumberland and State of New Jersey, have invented certain new and useful Improvements in Rudders for Boats and Ships, of which the following is a specification.

My invention relates to improvements in rudders for boats and ships, the object of the invention being to provide two rudders, which may be operated for steering the boat, and which may be manipulated so as to position the rudders in alinement, and at right angles to the line of movement of the boat, so as to act as a brake and retard the movement of the boat.

A further object is to provide improved means for independently operating the rudders, and improved means for locking them together to compel their simultaneous operation.

With these and other objects in view, the invention consists in certain novel features of construction, and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1, is a plan view illustrating my improvements applied to a small boat. Fig. 2, is a view in end elevation. Fig. 3, is a view in longitudinal section. Fig. 4, is an enlarged sectional plan view showing the means for locking the two rudders together. Fig. 5, is a diagrammatic plan view illustrating a modification showing my improvements as applied to a large ship. Fig. 6, is a diagrammatic view in side elevation of Fig. 5. Fig. 7, is a diagrammatic exaggerated plan view of a portion of the device showing Figs. 5 and 6. Figs. 8, 9, 10 and 11, are enlarged views of details of the construction shown in Figs. 5, 6 and 7.

Referring to the structure disclosed in Figs. 1, 2, 3 and 4, showing my improvements as applied to a small boat, 1 represents the boat having an overhang portion 2 at its stern, in which a tubular shaft 3 is mounted to turn, and a solid shaft 4 is mounted to turn in the tubular shaft 3, and extends above and below the tubular shaft as shown most clearly in Fig. 3. The tubular shaft 3 is provided with a collar 5 bearing on the overhang portion 2 to limit the downward movement of the shafts, and hand wheels 6 and 7 are secured upon the shafts 4 and 3 respectively, the hand wheel 6 being preferably smaller than hand wheel 7. Rudders 8 and 9 are secured to the lower ends of shafts 4 and 3 respectively, and a notched wheel 10 is secured to shaft 4, and rests upon the upper face of hand wheel 7, and a pivoted dog 11 on hand wheel 7 is adapted to engage in any of the notches of the wheel 10, and lock the shafts 3 and 4 together.

In the normal operation of the device when used for steering purposes, the shafts 3 and 4 are turned until their rudders 8 and 9 lie flat together, when the dog 11 will be moved into one of the notches in wheel 10, so that the manipulation of either of the wheels 6 and 7, will serve to swing both rudders, and they will act as an ordinary rudder to steer the boat.

When it is desired to utilize the rudders to retard the speed of the boat, dog 11 is thrown off wheel 10, and wheels 6 and 7 are separately operated to throw the rudders 8 and 9 into alinement, and at right angles to the direction of movement of the boat, and when the dog 11 is swung into locked engagement with the wheel 10, these rudders will be firmly held in this position, and will retard the speed of the boat.

In providing large ships with my improvements, I preferably construct the same as shown in Figs. 5, 6, 7, 8, 9, 10 and 11, in which the ship 12 is illustrated in dotted lines, and the rudders 13 and 14 are secured upon a solid shaft 15 and tubular shaft 16 respectively, and pulleys 17 and 18 are secured upon the solid shaft 15 and tubular shaft 16 respectively, and a bracket 19 provides a support for the upper end of the shaft, said bracket being secured upon a cross beam or deck plate 20. At the bridge or pilot house wherever the steering is to be done, a solid shaft 21 is provided, and partly inclosed in a tubular shaft 22, steering wheels 23 and 24 being secured upon the upper end of solid shaft 21 and tubular shaft 22 respectively. Tubular shaft 22 has a pulley 25 secured thereon, and solid shaft 21 has a pulley 26 secured thereon. An endless cable or other flexible connecting device 27 is passed around and secured to pulleys 25 and 17, so that when tubular shaft 22 is turned by steering wheel 24, the rudder 13 will be moved. A second endless cable or

flexible connecting device 28 is passed around and secured to pulleys 26 and 18, so that when solid shaft 21 and steering wheel 23 are turned, the rudder 14 will be moved.

To limit the turning movement of the rudders 13 and 14, a lug 29 is provided on tubular shaft 16 and engages stops 30 on plate 20, so as to allow the rudder 14 but a quarter turn. In other words, moving from a position in line with the path of movement of the boat to a position at right angles to such line of movement, a similar lug 31 is secured to the upper end of solid shaft 15, and engages stops 32 on bracket 19 to limit the turning movement of rudder 13.

In ordinary operation, one rudder is always stationary, and in line with the path of movement of the shaft, while the other rudder is turning to steer the ship, and as one rudder is turned to guide the ship to one side or the other, the rudder which had formerly been out of line, will swing back to such position. To swing both rudders to a position at right angles to the path of movement of the ship, so as to retard the forward movement of the ship, a cylinder 33 is provided, connected by a steam pipe 34 with the engine room, and the passage of steam through said pipe to be controlled by the engineer upon signal from the pilot house. This cylinder 33 contains a piston 35 connected by a rod 36, said rod 36 pivotally connected to a cross rod 37, and the latter connected by clamps 38 with the cables 27 and 28 respectively, so that when the piston 35 is forced forward by the steam, both of these cables will be moved, so as to draw the rudders to a position at right angles to the movement of the ship, and hold them in such position against the action of the water, thus acting as a brake to quickly stop the vessel. Owing to the pivotal connection between rods 36 and 37, the cables are permitted free independent movement in ordinary steering and are only simultaneously moved when it is desired to quickly stop the vessel.

Various other changes might be made in the general form and arrangements of parts described without departing from my invention, and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In combination with a boat, a tubular shaft, and a solid shaft within the tubular shaft and projecting above and below the tubular shaft, of a rudder secured to the lower end of the tubular shaft, a second rudder secured to the lower end of the solid shaft, means permitting independent movement of said shafts, said means also permitting simultaneous movement of the shafts to position the rudders at right angles to the line of movement of the boat, and means independent of the first mentioned means for holding the rudders in this position at right angles to the movement of the ship.

2. In combination with a boat, two vertical shafts at the stern of the boat, and a rudder on each shaft, two steering shafts, steering wheels on said shafts, pulleys on all of said shafts, endless cables connecting the pulley on one steering shaft with the pulley on one rudder shaft, and another endless cable connecting the pulley on the other steering shaft with the pulley on the other rudder shaft, means for limiting the turning movement of said steering shaft, a cylinder, a piston in said cylinder, a cross rod pivotally connected to said piston rod and secured at its ends to said cables respectively, and means for conveying expansive fluid to said cylinder to simultaneously move said cables, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRED. MUNSTER.

Witnesses:
JOHN J. WHITAKER,
ROBERT C. RAMSEY, JR.