

C. H. TAYLOR.
MECHANISM FOR PROPELLING AND STEERING VESSELS.
APPLICATION FILED SEPT. 24, 1902.

NO MODEL.

Fig. 1.

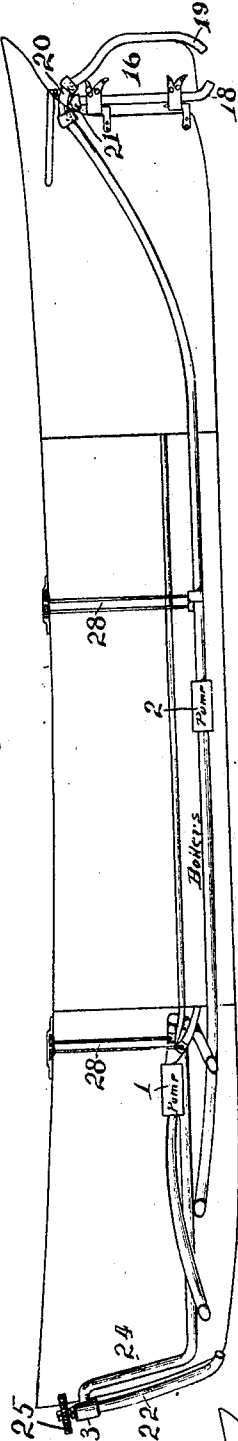


Fig. 2.

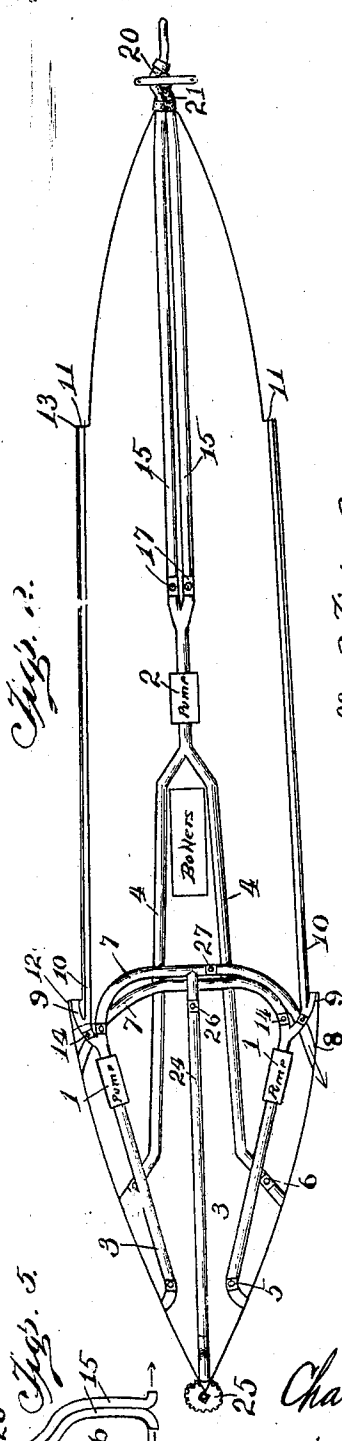


Fig. 3.

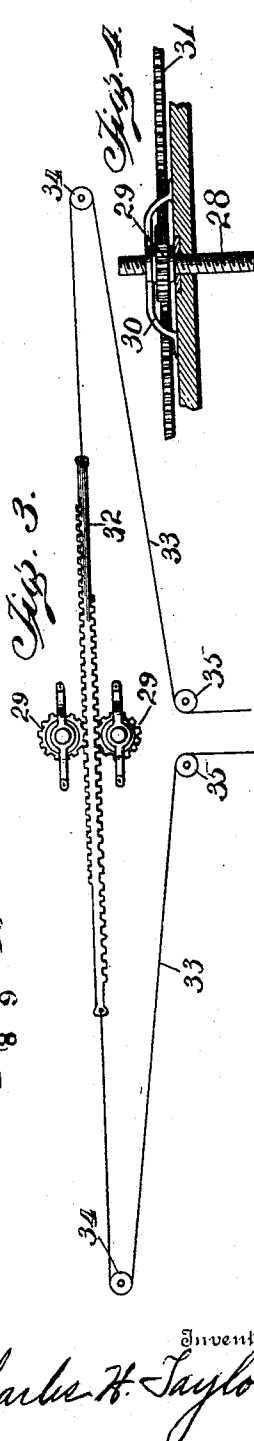
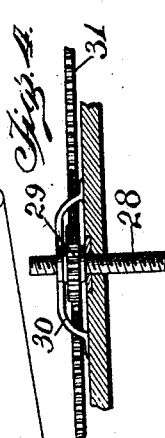


Fig. 4.



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MECHANISM FOR PROPELLING AND STEERING VESSELS.

SPECIFICATION forming part of Letters Patent No. 733,882, dated July 14, 1903.

Application filed September 24, 1902. Serial No. 124,703. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. TAYLOR, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Mechanism for Propelling and Steering Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in propelling and steering mechanism for vessels; and it consists in tubes or passages arranged in a vessel so as to take in water near the forward end of the vessel and lead the same to points farther aft, pumps being employed for forcing the water through said tubes for propelling the vessel, some of said tubes being also led to the ends of the vessel and directed in one way or the other for steering the vessel.

It also consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a diagrammatic view of a vessel looking at the same from the side and showing the propelling and steering pipes in position. Fig. 2 is a top plan view of the same. Fig. 3 is a plan view in detail, showing the manner of operating the valves for controlling the direction of water through the piping. Fig. 4 is a detail in elevation, partially in section, of a part of the said valve-controlling mechanism. Fig. 5 is a detail view, in side elevation, of a rudder, showing the steering-tubes applied to a vessel which was not originally designed for the use of such tubes.

In this invention I employ pumps, as 1 and 2, for forcing the water which is to propel and steer a vessel. These pumps are suitably located within the hold of a vessel, and each of the pumps is provided with an intake-tube, as 3 and 4, which runs forwardly from the pump to a point near the bow of the vessel, where there are suitable openings through which the pipes may receive water, the said openings of course being arranged below the water-line. The inlet-ports at the ends of these pipes are controlled by any suitable

valves or gates 5 and 6. The propelling-pumps 1 may be situated farther forward in the vessel above the steering-pump, as shown in Fig. 2.

Extending from each of the pumps 1 is a tube 7, which is curved so as to find an opening at the side of the vessel near the forward part thereof, the outlet portion of the tube being directed forwardly, as shown by an arrow in Fig. 2 at 8. Thus water which is forced through the tube 7 will be so directed as to propel the boat rearwardly, as in backing. Another pipe also extends rearwardly from each pump 1, and this pipe is preferably divided into two branches, as 9 and 10. The branch 9 extends outwardly through the side of the vessel at a point near the bow, while the pipe 10 extends rearwardly in the vessel a considerable distance, finding an outlet at 11 near the stern of the boat. The sides of the vessel are preferably provided with offsets or shouldered portions, as at 12 and 13, where these pipes 9 and 10 find their exit, so that water which is forced outwardly through the said pipes 9 and 10 will produce a strong propelling force for driving the vessel forwardly. Each of the pipes leading rearwardly from the pumps 1 is controlled by a suitable gate-valve, as 14.

The steering-pump 2 is preferably located about centrally of the vessel, its intake-pipes 4 extending forwardly therefrom, while branch pipes 15 extend rearwardly from said pump to a point near the head of the rudder 16. Each of these branch pipes is controlled by a valve 17. When the vessel is constructed with the intention of using this style of steering mechanism, one of the pipes 15 is preferably run downwardly along the front edge of the rudder 16, and its lower end 18 is bent backward, while the other pipe 15 is run down the rear edge of the rudder 16 and its lower end 19 turned forward. The parts of the pipes 15 which are attached to the rudder are connected to the remainder of the said pipes by means of rubber or canvas tubing, as at 20 and 21, so that the pipes will not interfere with the turning of the rudder in the usual manner. These steering-pipes can, however, be used to a greater advantage in assisting in turning the vessel, since water forced out of the same will cause the vessel

to be carried rapidly to one side or the other, and a boat may be thus turned within its length. The piping can be applied to a rudder of a vessel which was not designed for this purpose by extending both of the pipes 15 down the rear edge of the rudder and turning their lower ends in opposite directions, as shown in Fig. 5. I also contemplate employing a tube at the bow of a vessel for assisting in turning the same when needed. This tube, as 22, can be arranged down the front edge of the bow-post, as shown in Fig. 1, just outside the said post, or may be arranged within the frame of the vessel, if desired. The lower end of the tube 22 is preferably curved, so that when the tube is turned in one direction or the other water which is forced through the same will tend to force the vessel in one direction or the other at the bow. The tube 20 22 is preferably swiveled in a bearing 23, which is connected, by means of a pipe 24, with one of the pipes 7, through which water may be passed to the said pipe 22. The pipe 22 is adapted to be turned by a wheel or gear, as 25, or similar means, as desired. The course of the water passing through the pipes 24 and 7 is controlled by valves 26 and 27.

The valves employed in controlling the fluid passing through the pipes above described are preferably of the gate type. These gate-valves are formed with vertically-extending stems, as 28, which are screw-threaded at their upper ends and are engaged by the screw-threaded hubs of gear-wheels 29. The said gears 29 are held in place by brackets 30. The gear-wheels 29 are operated by racks 31, which engage the teeth of said gears, and the said racks are reciprocated by any suitable or desired means. Where two of the gate-valves are close together, as at 14 and 17, the gate-valves can be operated by a single reciprocating rack-bar, as 32, having gear-actuating teeth upon opposite sides thereof. The bar 32 is arranged to reciprocate between the gear-wheels 29 of the adjacent valve-stems. The teeth are so arranged upon the rack that one valve will be closed while the other is open, and vice versa. The ends of the rack-bar 50 may be connected with operating-ropes 33, which pass around suitable pulleys 34 and 35, and may thence be led to the pilot-house of the boat and be operated by a suitable wheel, as is common in the operation of rudders. Each valve or set of valves will thus be operated by wheels or ropes running to the pilot-house or to the bridge of the vessel or to any other suitable point thereon, where they will be within easy and convenient reach of those operating the vessel.

I have not shown or described any particular style of pump nor any particular mechanism for operating the same, since I may employ any desirable pumps or machinery for this purpose. I find that in use water can be utilized very conveniently in this manner for propelling a vessel as well as for steering it

and that the use of expensive and complicated machinery is largely avoided in such a system.

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

1. A mechanism for steering vessels comprising a suitable pump or pumps located in the vessel, pipes extending forwardly therefrom for taking water in at the bow of the vessel and supplying the same to the said pump, pipes extending rearwardly from the said pump to the rudder of the vessel, one of said rudder-pipes having its end turned in one direction while the other pipe has its end turned in the opposite direction, the said pipes causing the forcing of the vessel in one direction or the other accordingly as the vessel is employed, substantially as described.

2. A steering mechanism for vessels, comprising a water-forcing mechanism, a branch tubing extending therefrom and leading to the head of the rudder of a boat, pipes extending downwardly along the front and rear edges of the rudder and connected with the pump-pipes by flexible sections the rudder-pipes having their ends turned in opposite directions for forcing the stern of the vessel one way or the other according to which pipe is employed, substantially as described.

3. A propelling and steering mechanism for vessels comprising a system of piping and pumps for forcing water through the same, valves for controlling the flow of water through the said pipes, stems extending upwardly from the said valves and provided with screw-threads, gear-wheels engaging the said screw-threaded stems, and rack-bars for engaging the said gear-wheels for raising and lowering the said gate-valve, substantially as described.

4. A propelling and steering mechanism for vessels comprising piping arranged to drive the vessel in one direction or another, gate-valves for controlling the water passing through the piping, some of said valves being arranged in pairs, stems extending upwardly from the said valves adjacent to each other, gear-wheels engaging threads upon the upper ends of said stems, rack-bars having teeth upon opposite sides for engaging oppositely-arranged adjacent gear-wheels, and ropes or cables for reciprocating the said rack-bars, the said ropes or cables extending to any suitable point in the vessel where they will be conveniently reached, substantially as described.

5. In a mechanism of the class described, the combination with a vessel and pumps, of tubes extending from one of the said pumps to the rudder of the vessel and other tubes extending from said pump to the prow, and tubes extending from the other pumps to the prow and also to the sides of the vessel for moving the vessel either forwardly or rearwardly.

6. In a mechanism of the class described,

the combination with a vessel and pumps, of pivoted pipes at the prow and at the rudder of the vessel, and piping connecting the pumps with the said pivoted pipes at each
5 end of the vessel.

7. A mechanism for steering vessels, comprising suction-tubes, pumps connected therewith, separate pipes arranged along the edges of the rudder, each of said pipes delivering
10 water in an opposite direction to the other so that the vessel may be turned in one di-

rection or the other according to which pipe is used and according to the direction in which the rudder is set, substantially as described.

In testimony whereof I hereunto affix my
signature in presence of two witnesses. 15

CHARLES H. TAYLOR.

Witnesses:

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C. H. WILBUR.