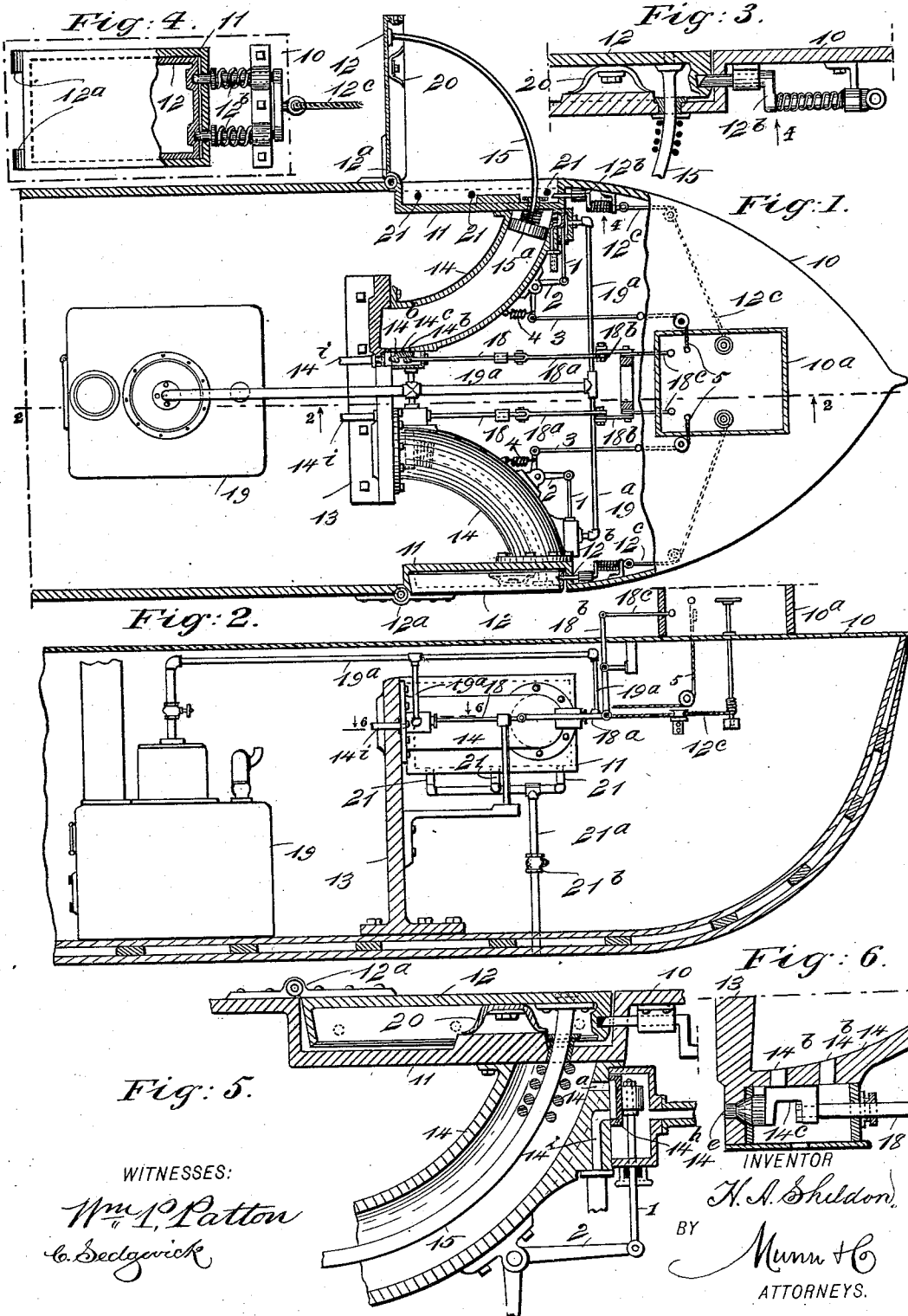


(No Model.)

H. A. SHELDON.
STOPPING AND STEERING DEVICE FOR BOATS.

No. 536,236.

Patented Mar. 26, 1895.



UNITED STATES PATENT OFFICE.

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STOPPING AND STEERING DEVICE FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 536,236, dated March 26, 1895.

Application filed April 9, 1894. Serial No. 506,882. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. SHELDON, of Arcadia, in the county of Washington and State of Rhode Island, have invented a new and useful Improved Stopping and Steering Device for Boats, of which the following is a full, clear, and exact description.

My invention relates to improvements in boat stopping and steering devices, of a type wherein laterally projectable wings are employed for the designated purpose, and has for its object to provide novel operating mechanism, which is arranged to control the lateral movement of the wings toward or from the sides of the hull, and adapted to utilize steam as a power for the motor mechanism, which is controllable from the pilot house of the vessel, so as to afford convenient means for altering the adjustment of the wings as occasion may require.

To this end my invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views shown.

Figure 1 is a partly sectional plan view of the forward portion of a vessel's hull, the pilot house in section, and the improved stopping and steering devices in position within and on the hull. Fig. 2 is a sectional side view of the hull and pilot house of a vessel, with the improved stopping and steering mechanism in part, within the hull, the line of section being indicated at 2—2 in Fig. 1. Fig. 3 is an enlarged sectional plan view, of a portion of the side of a vessel, a wing, in part, in folded adjustment, a latching device for said wing, and other attached parts that serve to cushion the wing and transmit motion to it. Fig. 4 is an enlarged inner side view of a portion of a vessel's side wall, a hinged and folded wing, a latching device for the latter, viewed opposite the arrow 4 in Figs. 1 and 3, slightly modified in form as compared with the latching device shown in said figures. Fig. 5 is an enlarged sectional plan view of a portion of the side of a vessel's hull, a hinged and folded wing located in a chamber on said side wall, spring-cushioning devices for the wing, and a

steam-actuated motor in part, connected with the wing, and Fig. 6 is an enlarged sectional plan view of parts of the motor mechanism, on the line 6—6 in Fig. 2.

The features of improvement that are herein illustrated, may be advantageously applied to sailing vessels or steam-boats for their control, as will appear in the description.

The hull 10, shown in part in the drawings, may be of any preferred construction and built of any suitable materials, and as represented in Fig. 1 there are two recesses or rectangular chambers 11, formed in the sides of the hull at opposite points and a proper distance from the stem or bow, the depth of these chambers that are open on the outer sides being proportioned to the dimensions of the similar wings 12 that are loosely fitted in said chambers and hinged to the side of the vessel at one end of each chamber. As shown, the wings 12 each consist of a rectangular plate corresponding in dimensions with the cavity it is to occupy, and provided with a border flange that encompasses its four edges, depending therefrom of a proper breadth to suit the depth of the recess it enters, the hinges 12^a being secured at the ends of the wings that are farthest from the bow of the vessel, along the rear edges of the chambers 11, so that the wings may be swung into the latter and lie with their plain surfaces flush with the general plane of the vessel's side walls. There is a spring-pressed latching device provided for each wing 12, comprising one or more slide bolts 12^b, that are arranged to interlock with the perforated forward flanges of the wings, flexible connections 12^c being extended from said latch bolts to the pilot house 10^a and means furnished for their movement, so that the operator stationed in said house may, at a proper time, manipulate the latching device for either or both wings and release the latter, which are by said latch bolts held in folded adjustment, as represented clearly in Figs. 3, 4 and 5.

Within the hull 10, at a proper point, a bracket frame 13 made of any preferred material is secured, this frame being erected on the bottom wall of the hull near the transverse center. Any style of construction may be utilized for the formation of the frame which is available for its service, the plate-

like structure represented being one form that may be given to the same.

At a correct height the similarly curved quadrantal cylinders 14 are secured by one end of each on the frame 13, their opposite ends which project toward the sides of the vessel being respectively affixed upon the inner surfaces of the inner walls of the chambers 11.

Such proportionate and equal diameters are given to the quadrantal cylinders 14 as will adapt them for efficient service as main portions of the similar steam motors furnished for the swinging movement of the wings 12, and to the latter named parts the curved piston rods 15 are secured by one end of each, said rods having a proper degree of curvature to permit them to correctly traverse the centers of the cylinders, their free ends being provided with piston heads, as indicated at 15^a, in Fig. 1, where one cylinder complete is shown in section to expose interior parts.

It is essential for the proper operation of the twin steam motors, that each cylinder 14 be provided with two independent steam induction and discharging devices, that may be separately adjusted to permit the introduction and escape of steam to and from each cylinder at both of its ends. To this end effective valve mechanism is indicated in the drawings, which may be used for the designated purpose, or these adjunctive features may be differently constructed if preference is given to other styles of valves and means to move the same. As represented, the valves comprise sliding blocks that are incased in chests which are secured on the sides of the cylinders, said valves being of ordinary form which is slightly altered at opposite ends of the cylinders, to adapt them for their locations, and render them effective for opening and closing the steam inlet and discharge ports at respective ends of said cylinders, as are shown at 14^a and 14^b in Figs. 5 and 6.

The style of valve block indicated at 14^c in Fig. 6 is located at the ends of the cylinders that are connected to the frame 13, and are each provided with conical plugs on the ends that are nearest to said frame, which plugs serve as valves to close exhaust passages 14^d that are formed in the frame which is preferably utilized as a cylinder head for each cylinder, said valves being also adapted to alternately cover the two ports 14^b, so as to admit steam from the steam chests into the cylinders, or cover the inlet ports and open the exit ports, the inlet port being shown open in Fig. 6.

The valve blocks 14^b, that are at the opposite ends of the cylinders, are of the ordinary D-pattern, and are arranged to receive a correct sliding movement on seats formed on the cylinders as are also provided for the valves 14^c. The valves 14^b and their containing chests are located at the ends of the cylinders nearest to the chambers 11, and cover the ports 14^a, said valves when properly adjusted being

adapted to open a steam inlet port of the pair in each cylinder wall, to induct steam behind the piston heads when the wings 12 are fully extended, so as to close the latter, or by a reverse movement of said valves locate them as shown in Fig. 5, which will open communication with the exhaust steam pipes 14^d.

The valve shifting mechanism provided to move the valves 14^b, comprises the valve rods 1, pivoted bell cranks 2, links 3, contractile springs 4, that serve to draw the valves so as to open the inlet ports from the steam chests into the cylinders, and the flexible connections 5, all suitably supported as shown, the parts 5 being extended through the walls of the pilot house 10^a, so as to be conveniently located for manipulation by the operator in said house.

A convenient valve moving mechanism for the valves 14^c is represented in Figs. 1 and 2, comprising the valve rods 18, to which the valves are connected by one end, their outer ends being pivoted to one end of the links 18^a, the other ends of the links which project toward the pilot house 10^a being pivoted on the lower ends of the upright vibratile levers 18^b, which are sustained by proper projections from the vessel's hull. The upper ends of the levers 18^b are loosely secured to the outer ends of the pull bars 18^c, that are horizontally disposed, and slide through perforations in the wall of the pilot house, so that a longitudinal movement of said bars will correspondingly move the valves 14^c to admit steam into the cylinders or permit contained steam to escape from the latter.

In case it is necessary, there may be a steam boiler 19, provided to supply steam for the actuation of the motor mechanism that moves the wings 12, this being essential if the vessel is solely propelled by sails, the steam generator shown being of a common type, or any other style may be used for supplying steam.

In Figs. 1 and 2 the steam conduit pipes 19^a that are clearly shown are extended from the boiler to connect with the valve chests of the motors, so that the operator located in the pilot house may at will project the wings 12 outwardly any desired degree, by a proper manipulation of the valve operating mechanism. If desired, steam can be admitted on each side of the piston heads, at any desired point of angular adjustment for the wings, so as to equalize pressure on said heads from each end of the cylinder in use, or on both if the pair of wings are in service, which will maintain the wing or wings partly or entirely extended, whereby the expert operator may arrest speed of progressive movement or turn the vessel in either direction desired.

In order to cushion the impact of the folding wings on the inner walls of the chambers they enter, springs are preferably provided, which may be in the form indicated in Figs. 1, 3 and 5, at 20, and other springs of a spiral form are also furnished to absorb percussion induced by the full outward projection of the

wings 12. As the inward movement of the wings 12 to fold them in the chambers 11, would confine a certain amount of water that would prevent a complete folding of the wings, provision is made for the escape of the water thus inclosed, consisting of the sets of drain pipes 21, which tap the bottom of each chamber, and are joined to a common discharge pipe 21^a, for each chamber, that projects through the hull and is supplied with a check valve 21^b of the usual form which will open to release water forced through the drain pipes, and will prevent the introduction of water from without the hull into the discharge pipes.

It is claimed for this improved stopping and steering apparatus, that it is powerful, effective in operation, easily controlled, and that it affords a valuable auxiliary device for steam or sailing vessels, that may be conjunctively used with a rudder for steering purposes, or in case the latter is disabled be adapted for the reliable directive control of a vessel having said improvement.

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

1. The combination with the hull of a vessel provided with chambers in its sides, and wings hinged to the sides of the vessel to fold in said chambers, of curved cylinders within the hull of the vessel, pistons in the cylinders, curved piston rods connected to the wings at or near their free outer ends, valves at each end of the cylinders for controlling the introduction and escape of a motor fluid to and from the cylinders and means for operating the valves from the pilot of the vessel, substantially as described.

2. The combination with the hull of a vessel recessed at opposite sides near the bow to form chambers, of wings provided with marginal flanges and hinged to the sides of the vessel to fold in the said chambers, curved cylinders within the hull of the vessel, curved piston rods connected to the wings at or near their free ends, valves at each end of the cylinders for controlling the introduction and escape of a motor fluid to and from the cylinders, and means for operating the said valves from the pilot, substantially as described.

3. The combination with the hull of a ves-

sel provided with chambers in its sides, of wings hinged to fold in said chambers, latches for locking the wings closed, curved cylinders within the hull of the vessel, pistons in the cylinders, curved piston rods connected to the said wings, valves at each end of the cylinders for admitting a motor fluid to the cylinders, and means for operating the valves from the pilot of the vessel, substantially as described.

4. The combination, with the hull of a vessel having rectangular chambers oppositely located on its sides near the bow, and flanged wings loosely fitting in said chambers and hinged at their rear ends to fold therein or be extended at a right angle therefrom, of independent steam motors having quadrantal cylinders, curved piston rods connected to said wings, heads on said piston rods, independent valve mechanism for each cylinder at each end, valve shifting devices extended to the pilot house of the vessel, and a source of steam supply for the motors, substantially as described.

5. The combination, with the hull of a vessel, chambers in the sides of the hull, and flanged vibratile wings fitting when closed in said chambers, of water discharging pipes arranged to extend from the lower walls of the chambers to a selected point of discharge, substantially as described.

6. The combination, with the hull of a vessel, chambers in the sides of the hull, and vibratile wings fitting in said chambers, of springs on the wings, adapted to cushion them when inwardly folded, a steam motor for each wing, having cylinders and pistons, and spring cushions on the pistons arranged to cushion the impact of said pistons when the wings are outwardly projected, substantially as described.

7. The combination, with the hull of a vessel, chambers in the sides of the hull, and vibratile wings fitting in said chambers when closed, of a spring latching device for each wing, and means to release said devices from a desired point on the hull, substantially as described.

HENRY A. SHELDON.

Witnesses:

SAML. S. FISHER,
GEO. H. OLNEY.