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AUXILIARY SAFETY PROPELLING MEANS FOR STEAM VESSELS.

APPLICATION FILED SEPT. 19, 1916.

1,259,753.

Patented Mar. 19, 1918.

2 SHEETS—SHEET 1.

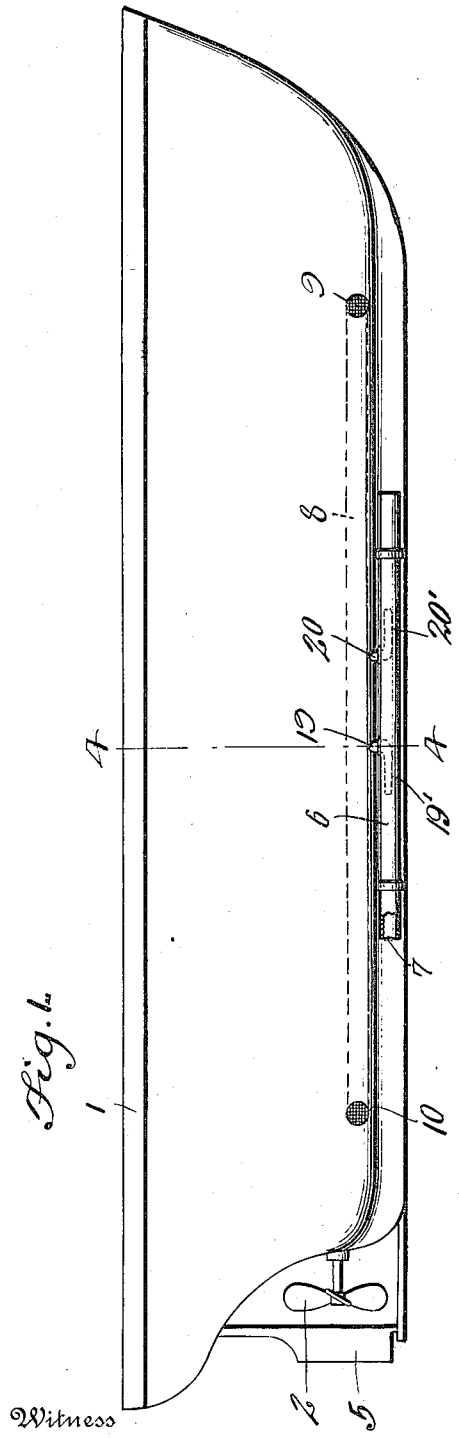


Fig. 1.

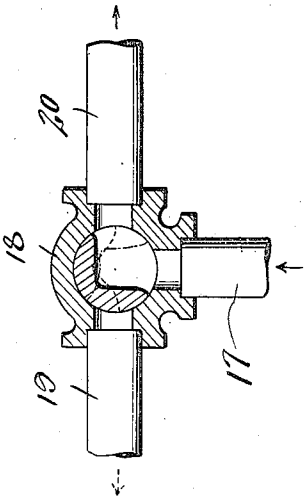


Fig. 5.

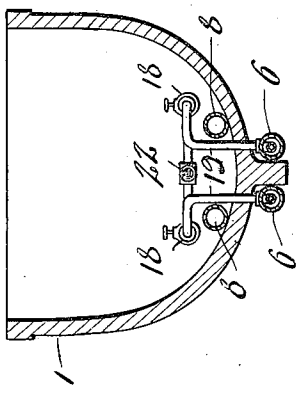


Fig. 4.

Witness

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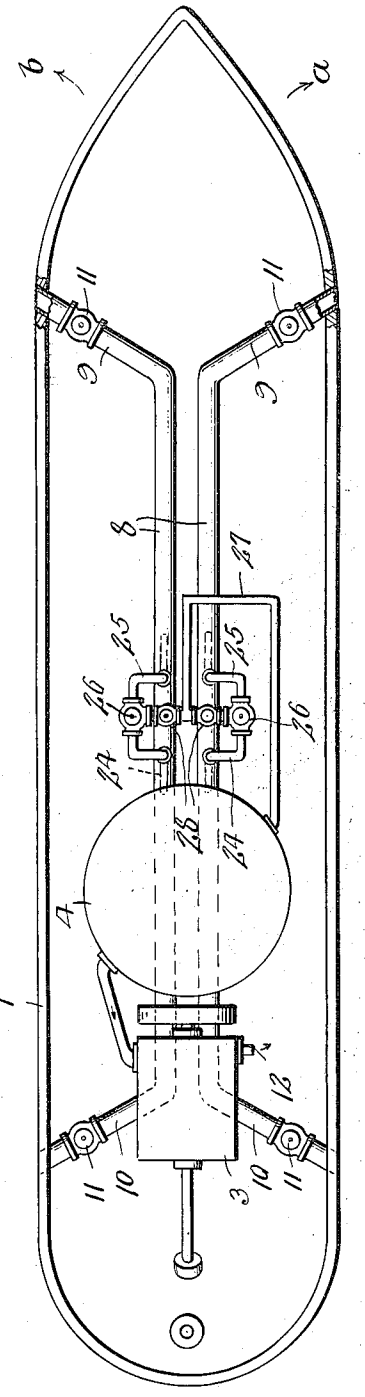


Fig. 2.

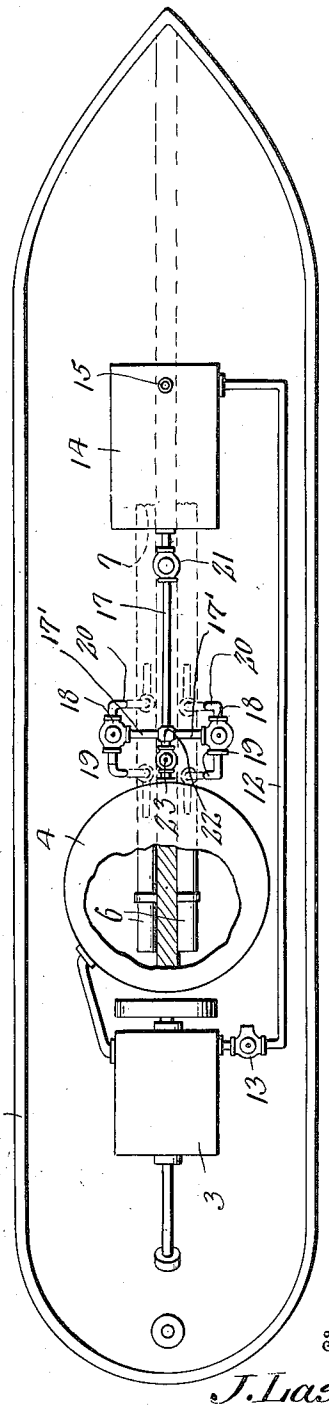


Fig. 3.

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AUXILIARY SAFETY PROPELLING MEANS FOR STEAM VESSELS.

1,259,753. Specification of Letters Patent. Patented Mar. 19, 1918.

Application filed September 19, 1916. Serial No. 120,995.

To all whom it may concern:

Be it known that I, JOHN LASSELL, a citizen of the United States, residing at Pocatello, in the county of Bannock and State of Idaho, have invented new and useful Improvements in Auxiliary Safety Propelling Means for Steam Vessels, of which the following is a specification.

This invention relates to improvements in boat propulsion, and the primary object of the invention is to provide any ordinary steam propelled craft with auxiliary propelling means, which is not only designed to assist the main propelling means in increasing the speed of the vessel, but is also in the nature of a safety appliance whereby the vessel can be effectively propelled and steered independently of the main propelling and steering means, as for instance, when accidents or breakage occurs to the said main propelling and steering means.

It is a further object of the invention to provide an auxiliary propelling means for steam vessels which is especially adapted to prevent disasters at sea when the steering or propelling means are disabled, which shall comprise suitable pipes or ducts arranged longitudinally of the boat and submerged beneath the hull thereof and within which are arranged oppositely directed nozzle members adapted to receive and eject steam either from the boiler of the vessel or the exhaust from the boiler, whereby to force the water rapidly in a decided direction through the said ducts or pipes and thus propel the vessel in any desired direction.

With the above and other objects in view the improvement resides in the construction, combination and arrangement of parts set forth in the following specification and falling within the scope of the appended claims.

In the drawings:

Figure 1 is a side elevation of a vessel provided with the improvement,

Fig. 2 is a top plan view, parts being broken away and parts being shown in section, illustrating the arrangement of the auxiliary steering apparatus,

Fig. 3 is a similar plan view parts being broken away and parts being shown in section illustrating the arrangement of the auxiliary propelling apparatus,

Fig. 4 is a transverse sectional view approximately on the line 4—4 of Fig. 1, and

Fig. 5 is a detail sectional view through one of the steam jet pipes or nozzles for the steering or propelling means and illustrating the arrangement of the valves therefor.

The vessel 1 may be of any desired size or proportion and is propelled by the usual propeller 2 which has its shaft actuated by the engine 3 that receives its power from the boiler 4. Likewise the vessel 1 is provided with the usual rudder 5 which is actuated for steering the vessel by the ordinary means.

My improved auxiliary propelling and steering safety appliance for vessels may, with only small alterations, be readily attached to vessels already in use while, of course, the same may be readily embodied in vessels during the course of construction of the said vessels.

In carrying out my improvement, I arrange along the sides of the vessel longitudinally extending pipe members 6. If desired these pipes may be arranged within the interior of the vessel, the ends of the same opening to the bow and stern of the said vessel, while again if desired, the pipe members 6 may be secured to the sides of the vessel by adjustable straps or other retaining devices. These pipes 6 are in the nature of ducts through which the water, within which the vessel is partly submerged, passes and if desired the opposite and open ends of the pipe members may be provided with a covering of reticulated material 7 to prevent the passage of foreign matter through the said pipes or ducts.

Above the pipes 6, but in the submerged portion of the hull of the vessel and to the opposite sides of the center or keel thereof, are longitudinally extending pipes 8—8. These pipes 8—8 have their ends arranged angularly, so that one end of each of said pipes communicates with the bow of the vessel, as indicated by the numerals 9, and the opposite ends of the said pipes terminate to the opposite sides of the stern of the vessel, as indicated by the numerals 10. The angular ends 9 and 10 of the pipes 8—8 may be provided with a reticulated covering to prevent the entrance of foreign substances into the pipes and also the said ends of the pipes 8 as well as the ends of the pipes 6 may if desired be provided with gate valves, as indicated by the numerals 11. The angular ends 9 and 10 of the pipe members 8 cause

the water to take a tortuous course therethrough and the reason for this arrangement will presently be described.

To the exhaust of the engine 3 I connect a pipe 12 having a two-way valve 13, one of the ports of the valve communicating with the pipe 12 and the other communicating with the atmosphere, and the pipe 12 communicates with the tank or reservoir 14 provided with the usual safety valve 15. The numeral 17 designates a pipe leading from the reservoir or storage tank 14, and coupled to the said pipe are laterally extending branch pipes 17′ respectively. Each of the branch pipes 17′ is connected with a two-way valve 18 and to the oppositely disposed openings in the valve casing are secured branch pipes 19 and 20 respectively connected with nozzle members 19′ and 20′ respectively, the said nozzles being arranged in the respective pipes 6 and extending longitudinally, but in opposite directions in the said pipes 6. The pipe 17 is provided with a valve 21 whereby the passage through the said pipe from the storage tank 14 may be regulated and consequently the outflow of steam through the respective nozzles 19′ and 20′ may be likewise regulated. By this arrangement it will be noted that when the steam is let through the nozzles 19′ the water within the pipes 3 will be ejected forcibly through the stern end thereof so as to materially assist the vessel in being propelled in a forward direction, while, when the steam is let through the nozzles 20′ the water will be ejected forcibly through the bow end of the vessel, assisting the propeller 2 in propelling the vessel in a rearward or astern direction. It will be noted that the exhaust steam which would otherwise be wasted can be successfully employed in aiding in the propulsion of the vessel.

Should, however, the propeller 2 be damaged or the shafts leading thereto be injured so that the same does not efficiently perform its function, I provide a pipe 22 which is connected with the boiler to receive the live steam therefrom and which is arranged in a line with the pipe 17, and through the medium of the coupler member connecting the pipe 17 with the branch pipes 17′ also communicates with the valves 18, and by this arrangement it will be noted that live steam can be forced through the nozzles 20 and 21 in accordance with the direction in which the valves 18 are turned. The pipe 22 is regulated by a valve 23, and this valve is closed when the steam flows from the tank 14 through the pipes 17 and 17′ to the nozzles 19′ or 20′, and when steam is let through the pipe 22 from the boiler to the said nozzles, the valve 21 of the pipe 17 is closed. The valves 18 may be operated in any desired or preferred manner, as for instance, the stem of the valve may be operated by the usual cock or the said stem may be provided with a toothed wheel which is engaged by a rack bar that may be mounted in bearings and which may be actuated from any desired portion of the vessel.

The gate valves for the ends 9 and 10 of the pipes 8 may be normally closed, as water is let into these pipes only when it is desired to steer the vessel, as for instance, when the steering apparatus for the rudder 5 or the rudder itself may become disabled.

The pipes 8 have centrally arranged therein oppositely directed nozzles 24 and 25, the nozzles 24 being directed toward the stern of the vessel, while the nozzles 25 are directed toward the bow of the vessel. The pairs of nozzles 24 and 25 for each of the pipes 8 have offset ends passing through the said pipes and connected with a two-way valve 26, each of said valves having secured thereto a pipe member 27 that leads to the boiler whereby the live steam may be directed through the said pipes 27 and each of the said pipes 27 is controlled by a valve 28. Each two-way valve 26 may be actuated in any desired or preferred manner and when one of the same is turned to bring its ports to aline between one of the pipes 27 and one of the nozzles 24 the steam will cause the water within the pipe 8 to be forced rapidly toward and into contact with the offset member 9 of the said pipe, thus causing the vessel to be turned in the direction of the arrow *a*. To materially assist in directing the vessel the steam may be let through the second valve 26 to within the nozzle 25 in the other pipe member 8, which forcing the water rapidly against the oulet end 10 at the bow of said vessel and upon the opposite side to that through which the water is being ejected by the nozzle 24, will result in the quick turning of the vessel in the direction of the arrow *a*. To turn the vessel in an opposite direction, steam is cut off from the nozzles 24 and 25 just referred to and turned through the remaining nozzles 25 and 24 when the vessel will be turned in the direction of the arrow *b*. It will be apparent that should steam be forced through all of the nozzles 24 and 25 simultaneously the vessel could be brought to a quick halt.

While I have stated that the steam for the steering means is received from the boiler, it is to be understood that the exhaust steam may be also utilized for this purpose, and also while I have described the exhaust steam as being normally retained within a tank or reservoir, it is to be understood that the said exhaust steam may be piped directly to the valves 18 and 26.

From the above description, taken in connection with the accompanying drawings,

the simplicity of the device, as well as the advantages thereof will, it is thought, be perfectly apparent to those skilled in the art to which such invention appertains without further detailed description.

Having thus described the invention, what I claim is:

1. An auxiliary propelling and steering means for steam vessels including in combination with the hull of a vessel, steering pipe members arranged longitudinally of the sides of the vessel and having angular branches communicating adjacent to the bow and stern of the vessel, propelling pipes arranged longitudinally at the opposite sides of the keel of the vessel below the steering pipes, oppositely disposed steam nozzles in all of the pipes, means for ejecting steam from the boiler of the boat through any of said nozzles, and all of the pipes being submerged below the water line of the vessel.

2. An auxiliary propelling and steering means for steam vessels including in combination with the hull of a vessel, steering pipe members having angular ends passing through openings at the bow and stern of the vessel below the water line of the said vessel, propelling pipe members arranged longitudinally at the opposite sides of the keel of the vessel and below the propelling device, a pair of oppositely disposed nozzles in each of the steering pipes and in the propelling pipes and arranged approximately centrally of the said pipes, a steam boiler for the vessel, steam pipes from the boiler communicating with the respective nozzles, and valves for said pipes, whereby to direct the steam from the boiler to the said nozzles.

3. In an auxiliary propelling means for steam vessels, the combination with the hull of a vessel having a boiler therein and an engine hitched to the boiler, a valved storage tank, a valved pipe connection between the exhaust of the engine and the said storage tank, steering pipe members arranged longitudinally of the bow of the vessel below the water line and having angular ends passing through the said bow and stern of the vessel, valves upon the said angular ends, oppositely disposed nozzles in the said pipes, valve regulated members between the boiler and the said nozzles for admitting steam from the boiler to the said nozzles, and said valves arranged to direct the steam to either of the oppositely disposed nozzles in each of the pipes, propelling pipes upon the opposite sides of the vessel below the steering pipes, a pair of oppositely disposed nozzles in each of said propelling pipes, valve means between the storage tank and between the boiler for admitting steam to the nozzles last named, and valved means for said nozzles last named whereby to direct the flow of steam through either of the said pairs of nozzles in the respective pipes or to prevent the flow of steam through the said nozzles.

In testimony whereof I affix my signature.

JOHN LASSELL.