April 9, 1929. W. D. SCHAEFER 1,708,803

PROPELLING MEANS FOR AIR OR WATER CRAFT

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Fig. 1.

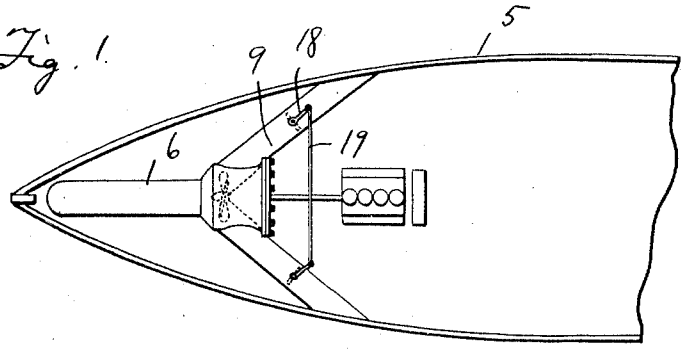


Fig. 2.

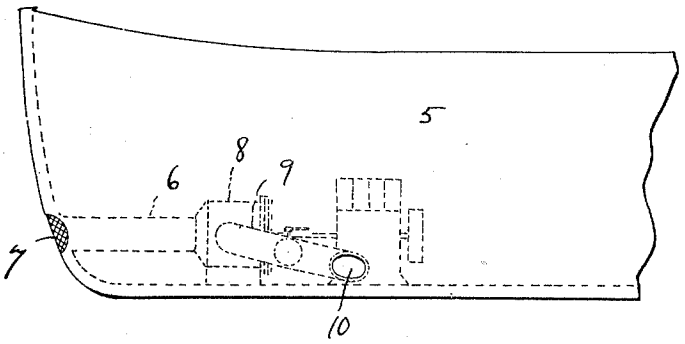
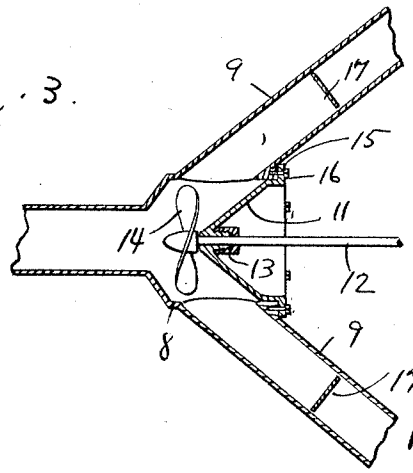


Fig. 3.



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Fig. 4.

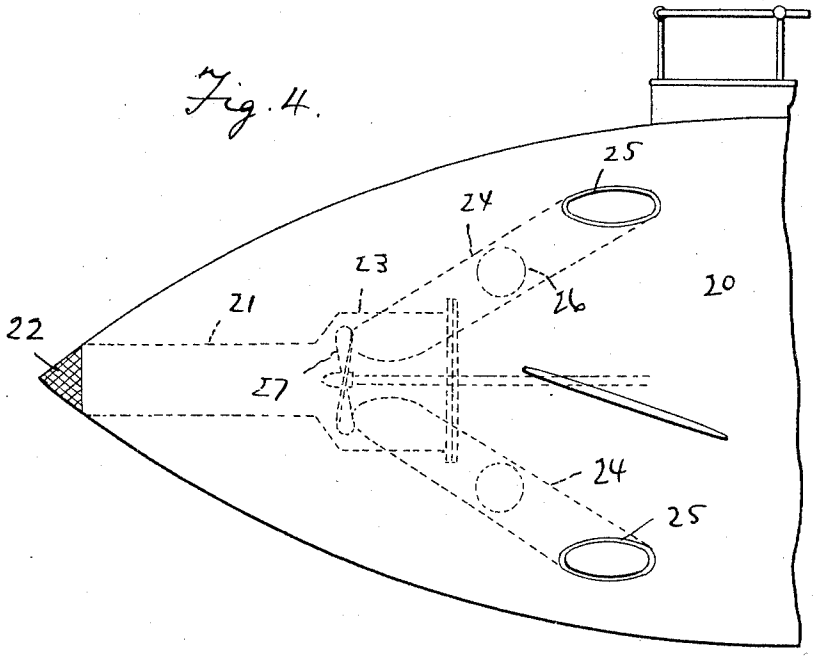
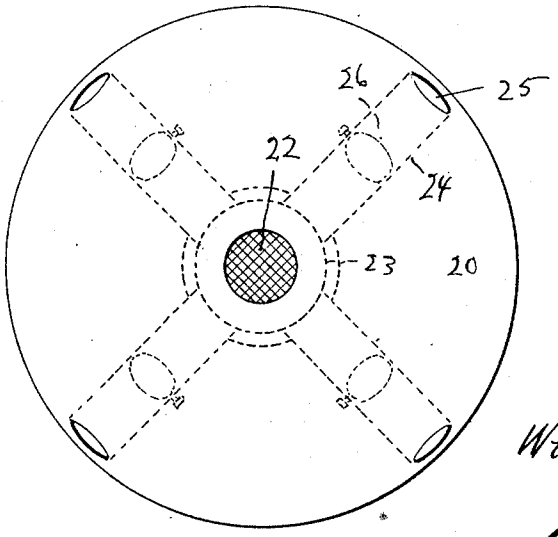


Fig. 5.



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Fig. 6.

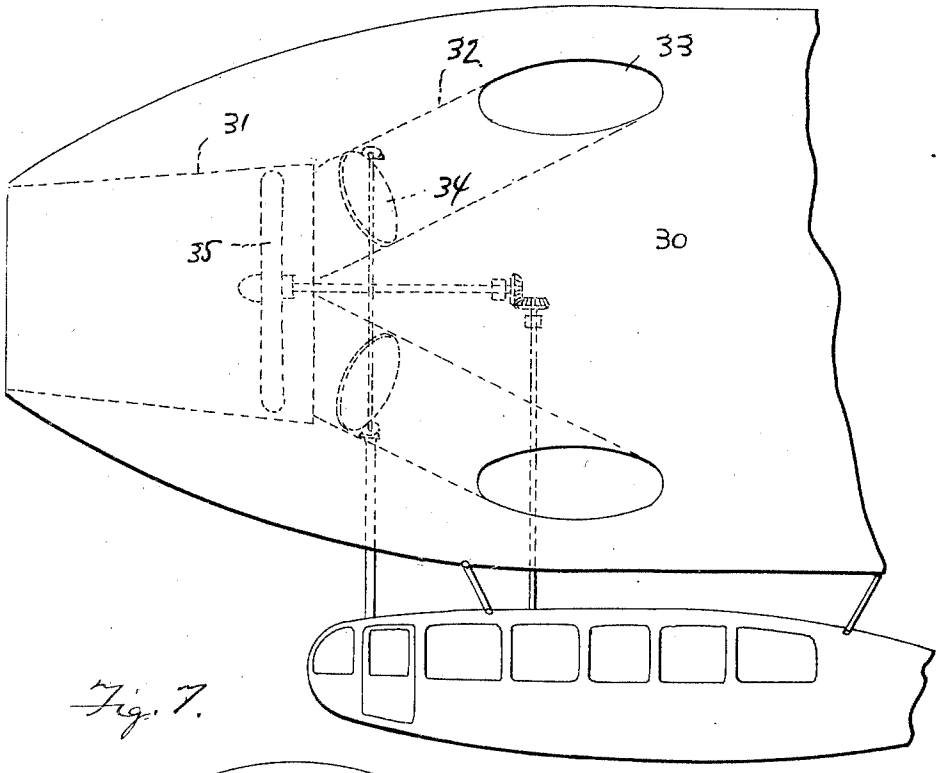
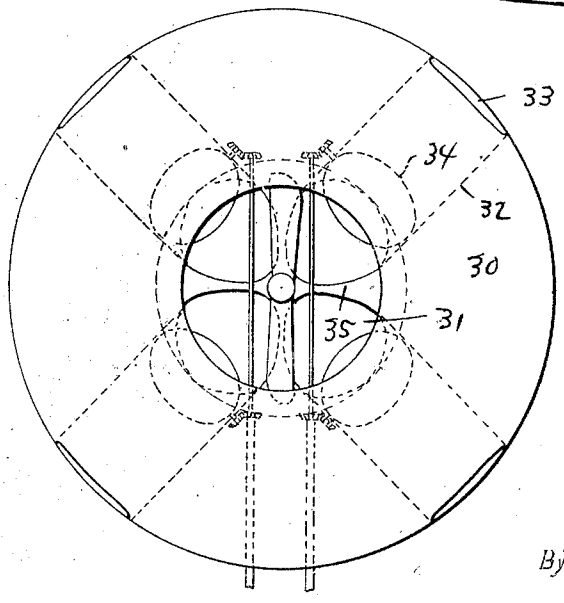


Fig. 7.



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UNITED STATES PATENT OFFICE.

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PROPELLING MEANS FOR AIR OR WATER CRAFT.

Application filed June 23, 1927. Serial No. 200,948.

The present invention relates to a mechanical attachment for boats, submarines, and aircraft and the prime object of the invention is to provide a device suitable for use in the bow or front portion of craft by means of which the craft may be propelled, stabilized and guided.

Another very important object of the invention lies in the provision of a mechanical propelling attachment of this nature which may be mounted in the front of the craft to minimize side and head resistance and thereby obtain a maximum amount of speed by expending a comparatively small amount of power.

Another very important object of the invention resides in the provision of a device of this nature which is exceedingly simple in its construction, easy to control and manipulate, inexpensive to manufacture, strong and durable, thoroughly efficient and reliable in operation and use, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a fragmentary top plan view showing the bow of a boat with my attachment mounted therein,

Figure 2 is a side elevation thereof,

Figure 3 is a horizontal longitudinal section through the attachment,

Figure 4 is a fragmentary side elevation showing the bow of a submarine with another embodiment of the attachment mounted therein,

Figure 5 is an end elevation thereof,

Figure 6 is a fragmentary side elevation showing the bow of an airship with an embodiment of the invention mounted therein,

Figure 7 is a front elevation thereof.

Referring to the drawing in detail and first to the embodiment of the invention shown in Figure 1 it will be seen that the numeral 5 denotes a boat for propulsion on the surface of the water. My attachment is mounted in the bow of the boat consisting of a single front tube 6 registering with a screened opening 7 in the front of the bow of the boat below the water line and terminating in a head or drum 8 which forms a propeller chamber. Openings are provided in opposite sides of the head 8 and have extending rearwardly and sidewardly therefrom tubes 9, two in number, which diverge rearwardly from each other and terminate in registry with openings 10 in the sides of the bow of the boat. These tubes 9 also incline downwardly and rearwardly as will be apparent from an inspection of Figure 2. In the rear of the head 8 there is disposed a cone-shaped member 11 the apex of which is disposed in the head 8 and opposite the front ends of the outlet tubes 9. A shaft 12 is journaled through the apex of the cone-shaped member 11 and a stuffing box 13 is mounted on said apex to surround said shaft. A propeller 14 is mounted on the front end of the shaft 12 in the propeller chamber formed by the head 8 for the purpose of sucking water through the single tube 6 and forcing said water outwardly through the rearwardly, sidewardly and downwardly extending outlet tubes 9. The cone-shaped member 11 is provided at its base with an annular flange 15 which is secured to the rear end of the head 8 by means of bolts 16 or in any other suitable manner. In each tube 9 there is swingably mounted gate valves 17 which are controlled through cranks 18 and a connecting rod 19 or in any other suitable manner.

When the propeller 14 is in operation it will suck water rearwardly through the tube 6 and divert the water rearwardly and through the sides out through the tubes 9 thus propelling the boat 5 forwardly and at the same time minimizing the side resistance of the bow and the head on resistance thereof. To steer the boat it is only necessary to properly manipulate the gate valve 17. Thus if the right hand valve is open and the left hand valve closed the boat would turn to the left and vice versa. These valves may also be manipulated to overcome side currents and the like as will be quite apparent. The cone-shaped device 11 is important in diverting the water to the sides and in minimizing friction. It is my purpose to provide this attachment wholly within the bow of the boat so that comparatively short tubes may be used.

Attention is now directed to the embodiment of the invention shown in Figures 4 and 5. The numeral 20 denotes the bow of a submarine. A single tube 21 projects rearwardly from the front edge of the submarine which is formed with a screened opening 22. This tube 21 terminates in a head 23 having four

tubes 24 projecting rearwardly and sidewardly therefrom and therefore diverging from one another and terminating in registry with openings 25 and having adjustably mounted therein gate valves 26. A propeller 27 is mounted in the head 23 and operates in any suitable manner. This embodiment of the device has all of the advantages and utility described in connection with the first embodiment and because of the larger number of outlet tubes may be used not only to steer the submarine laterally but may be used to steer the same up and down, as will be quite apparent.

Attention is now directed to the embodiment of the invention shown in Figures 6 and 7. The numeral 30 denotes the bow of lighter than air lift member of an airship. A tube 31 projects rearwardly from the nose of the bow and has a plurality of tubes 32 extending rearwardly and sidewardly from the rear end thereof and therefore diverging from one another and terminating in registry with openings 33. Each of the tubes 32 is provided with an adjustable valve 34 controllable in any suitable manner. In the rear end of the tube 31 there is provided an air propeller 35 operable in any suitable manner. It will be seen that this embodiment has all of the advantages of the two first described embodiments allowing the air craft to be propelled, stabilized, and steered horizontally and vertically.

From the above detailed description it will be seen that I have devised a very simple yet thoroughly efficient and reliable structure for propelling air and water craft which permits control of the craft in the steering thereof. The discharge tubes also aid in maintaining a straight course as in the case of side currents by closing the tube or tubes to the side from which the adverse current comes. Though only two tubes for discharging water are necessary for surface boats, four or more tubes are required for submarines to attain maximum efficiency and in air ships. For water craft the grating or screens as mentioned at 7 and 22 are necessary to prevent floating objects, seaweed, and the like, from entering the propeller tubes and interfering with its action. In the first two embodiments it will be seen that the cone may be very easily removed for the purpose of cleaning out the tubes when necessary, should any seaweed or other object clog the tubes in any way. In the air craft the tubes are unobstructed because they will be made comparatively large and therefore very accessible and are not subjected to the same dangers as in water craft.

It is thought that the construction, operation, utility, and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof. The present embodiments of the invention have been disclosed in detail merely by way of examples since in actual practice they will attain the features of advantage enumerated as desirable in the statement of the invention and the above description. It will be apparent that changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:

1. In combination with the bow of a craft, a tube extending rearwardly from an opening in the nose thereof and terminating in tubes diverging from each other and extending rearwardly and sidewardly to terminate in registry with openings in the side of said bow, a propeller unit in the rear end of the first tube, a detachable cone in the rear end of said tube having a stuffing box bearing, a shaft in the stuffing box bearing on which said propeller is mounted.

2. In combination, with the bow of a craft, a tube extending rearwardly from an opening in the nose of the bow and terminating rearwardly in a head, a detachable cone in the rear of the head having its apex disposed forwardly in the head, a stuffing box mounted in said apex, a shaft journaled in the stuffing box, a propeller on the shaft within the head, a plurality of tubes extending sidewardly and rearwardly from the first tube and diverging from each other and terminating in registry with openings in the side of the bow.

3. In combination with the bow of a craft, a tube extending rearwardly from an opening in the nose of the bow and terminating rearwardly in a head, a detachable cone in the rear of the head having its apex disposed forwardly in the head, a stuffing box mounted in said apex, a shaft journaled in the stuffing box, a propeller on the shaft within the head, a plurality of tubes extending sidewardly and rearwardly from the first tube and diverging from each other and terminating in registry with openings in the side of the bow, a valve in each of the last mentioned tubes.

4. In a propelling means for air or water craft, an elongated tube merging at one end into an enlarged casing, a cone detachably mounted in the end of the casing remote from the tube to point toward said tube, and branches extending from the sides of the casing in parallelism with the sides of the cone, a shaft journaled through the apex of the cone, a propeller on the inner end of the shaft within the casing, and a stuffing box disposed about the shaft at the apex of the cone.

In testimony whereof I affix my signature.

WILLIAM D. SCHAEFER.