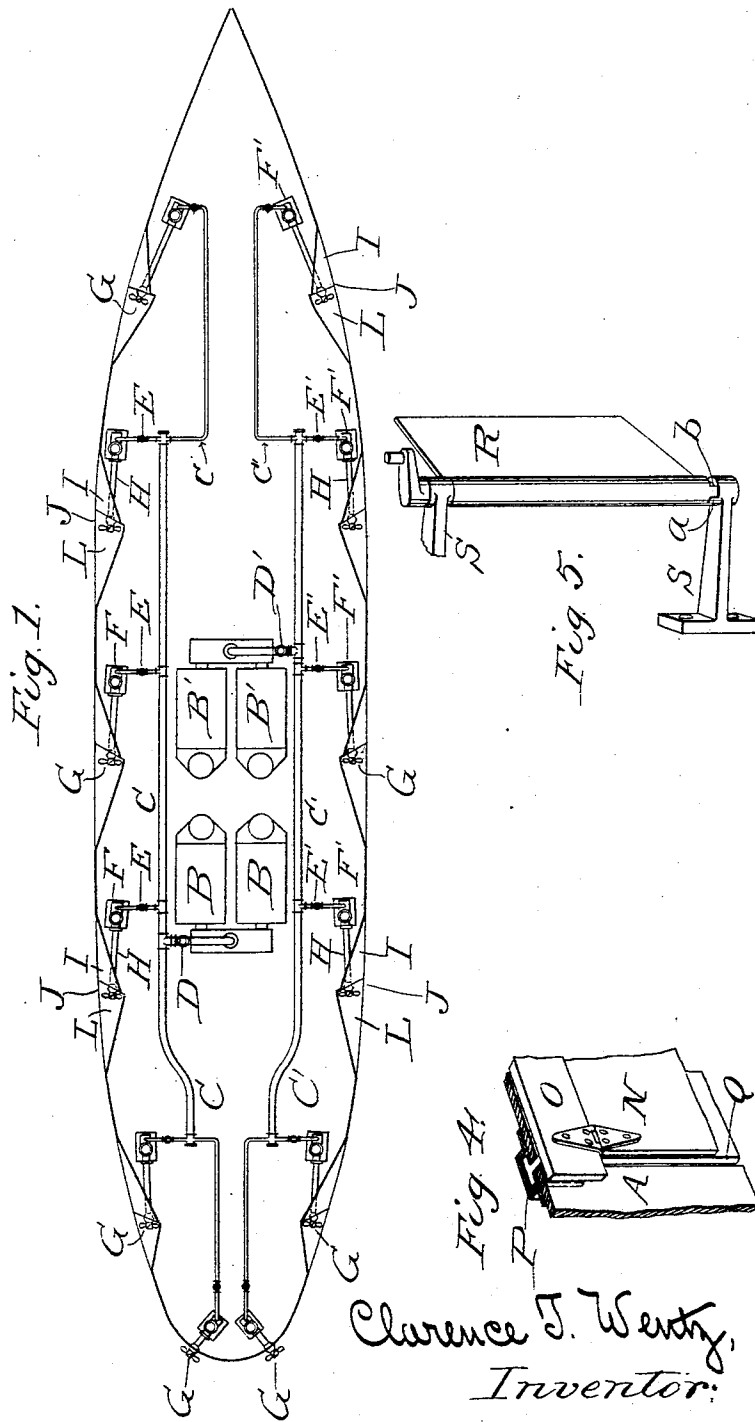


C. T. WENTZ.
VESSEL.

No. 580,023.

Patented Apr. 6, 1897.



Attest
C. B. Burdine.
D. E. Burdine

Clarence T. Wentz,
Inventor.
By Dodge and Sons,
Attys

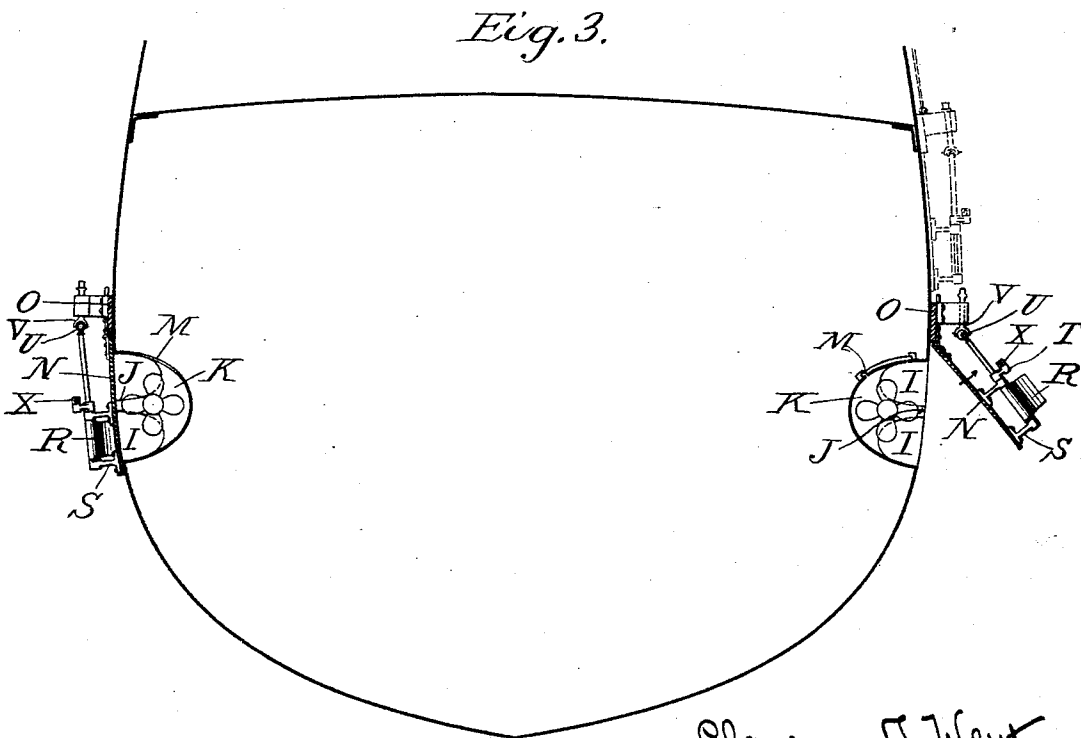
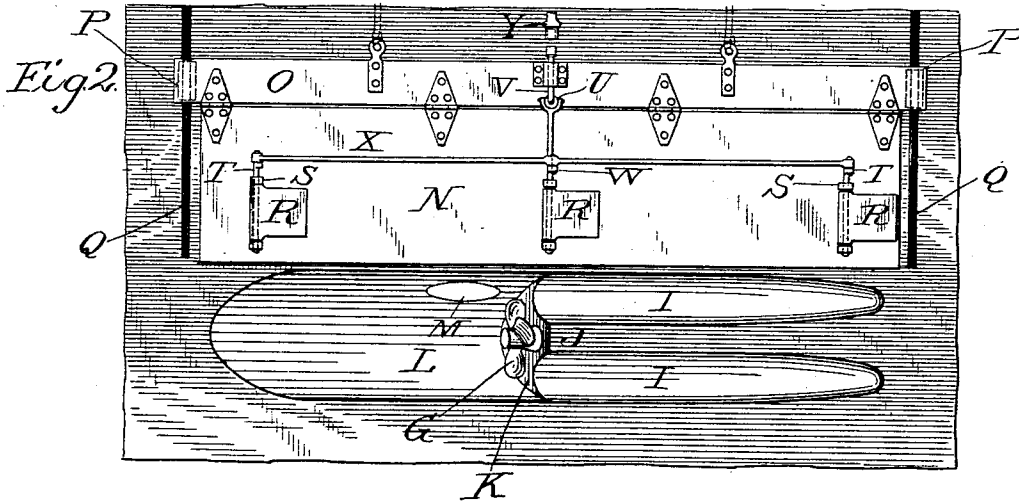
(No Model.)

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By *Dodgerdons,*

Att'y

UNITED STATES PATENT OFFICE.

CLARENCE TERRY WENTZ, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNOR
OF ONE-HALF TO SAMUEL N. WILLIAMS, OF SAME PLACE.

VESSEL.

SPECIFICATION forming part of Letters Patent No. 580,023, dated April 6, 1897.

Application filed July 23, 1896. Serial No. 600,299. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE TERRY WENTZ, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Vessels, of which the following is a specification.

My present invention pertains to improvements in ships, the construction and advantages of which will be hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a horizontal sectional view through the hull to show the relation of the propellers thereto and to also show the manner or method of connecting them with the source of power; Fig. 2, an enlarged detail view of a portion of the hull, showing the construction of the flumes contiguous to one of the propellers and also the means employed for closing the compartment formed by the flumes; Fig. 3, a vertical transverse section of the hull, the power mechanism being omitted; and Figs. 4 and 5, detail perspective views of various parts.

One object of my invention is to locate the propellers and their shafts in such relation to the hull that a maximum speed will be obtained for the power expended.

A further object is to so connect the propellers with the source of power that any one propeller may be manipulated or controlled independently of the others, or a number or series of them may be made to act in conjunction with each other and in opposition to another set or group. By thus controlling the propellers the vessel may be made to move in any desired direction and with any speed within the limits or capacity of its engines.

A still further object is to provide means whereby any one of the propellers may be thrown out of action, closed in a water-tight compartment, and repaired without the necessity of stopping the vessel.

Referring now more particularly to Fig. 1, I will describe the relation of the propellers to the hull and the power connections used for driving them.

A designates the hull, which may be of any approved pattern or type, the form here shown being merely illustrative.

Within the vessel are placed one or more generators B B', steam-generators being in this instance shown. From the generator B there extends throughout the length of the vessel on one side thereof a main C, provided with a valve D. From this main there extend valved branches or outlets E, one for each of a series of engines or motors F.

A pipe C' similar to the pipe C is connected to the generator B' and is provided with a valve D'. Valved outlets or branches E' are provided and communicate with a series of motors F', the parts being similar in all respects to the corresponding parts upon the opposite side of the vessel.

While I have shown and referred to the generators as being "steam-generators," I do not wish to restrict myself thereto, as an electric generator may be employed and suitable connections and motors utilized for driving the propellers.

The propellers (indicated by the letter G) may be of any desired form, the construction illustrated being the ordinary screw, and each propeller is connected to one of the motors through a shaft H.

The forward pair of propellers are set at such an angle to the hull that they will throw off the surge and thus greatly facilitate the passage of the vessel through the water.

The rear pair of propellers are preferably set at an angle of about ninety degrees to each other and are used more particularly for steering the vessel, though they are also employed to aid in propulsion.

The propellers intermediate the front and rear have their shafts set more nearly in line with the hull of the vessel, so that they may act as nearly as possible in line with the movement of the vessel. To provide for this, I employ the construction shown in Figs. 1, 2, and 3, reference being had more particularly to Fig. 2. Upon an examination of these figures it will be seen that all the propellers with the exception of the rear pair are within the general line of the hull.

Two parallel flumes or ways I I are formed in the side of the vessel, extending lengthwise thereof and forming an intermediate projection or rib J, the outer face of which is in a plane common to the general lines of the hull.

As will be seen upon reference to Fig. 2, the flumes are shallow and narrow at their forward ends, but are deeper and wider as they extend rearwardly. A wall K determines their length and also forms the front of a larger flume or chamber L, into which the smaller flumes I I discharge. The chamber L converges toward its rear end and gradually tapers off into the general lines of the hull. The propeller-shaft H is carried in suitable journals mounted in the rib J, the end of the shaft projecting into the chamber L through a stuffing-box placed in the wall K. It will thus be seen that the screw-propeller works within the chamber L and does not project beyond the side of the vessel. Its power or efficiency is not, however, affected, for by the use of the flumes the propeller has at all times sufficient water upon which to work.

A manhole M affords communication from the interior of the vessel to the chamber L.

N denotes a shield or cover, preferably formed of sheet-steel, designed to be placed over the flumes and the propeller whenever it is desired to have access thereto. When the cover or shield is in the position indicated on the left side of Fig. 3, the flumes I I and the chamber L are covered, after which the water may be drawn from the compartment thus formed and the propeller inspected and repaired, if necessary. This may be accomplished without stopping the vessel under the construction employed and designed by me.

The shield or cover N is hinged to a cross-bar O, said bar having on its rear face near each end a T-shaped head or projection P. These heads are designed to fit and move in guides or ways Q, formed in the side of the vessel and extending down to a point just above the flumes.

Any suitable means may be employed for raising and lowering the cross-bar and the shield or cover. In the drawings I have shown two eyebolts or plates designed to be connected with any form of hoisting means that may be convenient.

Upon the shield N, I secure a number of blades or wings R. They are pivotally mounted between two horizontal arms or brackets S, the lower one being formed with a stop *a*, designed to be engaged by a corresponding stop *b* upon the wing or blade. This is to prevent the blades or wings from swinging too far out from the cover, the extreme position being shown in Fig. 5 and on the right of Fig. 3.

The rods upon which the end blades are pivoted extend up through the upper brackets or arms S and terminate in cranks T. The pivot of the central blade extends up to the top of the cover or shield N, where it is connected through the agency of a universal joint U to a shaft V, journaled on the cross-bar O. A projection-arm W is also formed on the pivot of the central blade, and this arm W is connected to the cranks T by a rod or bar X.

The upper end of the shaft V is squared and may be turned by a crank Y or other suitable means.

Ordinarily the shields or covers will be maintained in an elevated position, as shown in dotted lines in Fig. 3, but should it be necessary to inspect or repair any one of the propellers the shield or cover immediately over it would be lowered and a water-tight compartment formed over the propeller, to which access could be had through the manhole M. To do this, the shield would be lowered to the position shown in full lines in the left of Fig. 3. The tendency of the shield would be to float out on the water or to assume a nearly vertical position, but to force it to its place over the flumes the blades R are inclined inwardly, as shown on the left of Fig. 3, and as the vessel proceeds forward the cover or shield will be forced down over the flumes and the propeller by the action of the external water on the shield R, forming a water-tight compartment, which will be maintained so long as the blades incline in toward the shield.

When it is desired to elevate the shield, the blades are turned outwardly and the cover will rise and assume the position indicated on the right of Fig. 3. Of course if the vessel were backing the positions of the blades would be reversed from those just set forth.

By the proper control of the rear pair of propellers or by the change of speed of the screws upon one or the other side the vessel may be turned with great facility.

Having thus described my invention, what I claim is—

1. In a vessel or ship, the combination of two flumes or ways formed in the side thereof and directly open throughout their length to the water; a rib formed by, and intermediate of said flumes; a third flume in rear of the other flumes, and also directly open to the water; and a propeller mounted within the third flume.

2. In a vessel or ship, the combination of two flumes or ways formed in the side thereof and directly open throughout their length to the water, said flumes widening toward their rear end; a third flume or chamber located in rear of the other flumes and converging toward its rear end, said chamber being also directly open to the water; and a propeller working within the forward part of the chamber.

3. In a vessel or ship the combination of two flumes formed in the side thereof and widening toward their rear end; a chamber or third flume located in rear of the other flumes and converging toward its rear end; a propeller-shaft mounted within the rib intermediate the front flumes; and a propeller mounted on the shaft and working in the rear flume.

4. In a vessel or ship, the combination of two flumes or ways open throughout their length to the water; a third flume, also di-

rectly open throughout its length located in rear of said first flumes and into which they discharge; a propeller working in the rear flume; and a movable covering or shield for
5 said flumes.

5. In a vessel, the combination of a recess or compartment formed in its side; a propeller mounted therein; a cover or shield designed to close said compartment; and
10 means carried by said cover or shield for causing it to close by the movement of the vessel.

6. In a vessel, the combination of a recess or compartment formed in its side; a propeller mounted therein; a cover or shield designed to close said compartment; and means
15 carried by said cover or shield for causing it to close and to hold it in its closed position by the movement of the vessel.

7. In combination with the hull and a compartment formed in its side; a propeller mounted in said compartment; guides or
20 ways formed in the hull contiguous to the compartment; a shield or cover guided by said ways; and means carried by said cover for causing it to close down and to be held in its closed position by the movement of the
25 vessel.

8. In a vessel, the combination of a recess or compartment formed in its side; a propeller mounted therein; a cover or shield designed to close said compartment; and adjustable means carried by said cover or
30

shield for causing it to close and open by the movement of the vessel.

9. In combination with the hull and a compartment formed in its side; a propeller mounted therein; guides formed in the hull contiguous to the compartment; a cross-bar provided with arms working in the guides; a shield or cover hinged to said cross-bar; a series of blades pivoted to the shield; and means for turning said blades at varying angles to the shield.
35 40

10. In combination with the hull and a compartment formed in its side; a propeller mounted therein; guides or ways formed in the hull contiguous to the compartment; a cross-bar provided with arms working in the ways; a shield or cover hinged to the cross-bar; a series of blades pivoted to the shield at a distance therefrom; means for turning said blades at varying angles to the shield; and a stop to limit their outward movement.
45 50

11. In combination with the hull of a vessel; a compartment formed therein; a shield or cover hinged to a vertical moving guide; and means carried by the shield for causing it to swing up or down as desired.
55

In witness whereof I hereunto set my hand
60 in the presence of two witnesses.

CLARENCE TERRY WENTZ.

Witnesses:

CHAS. H. DUROTEY,

ALFRED H. BLOOMFIELD.