(No Model.)

W. BUERGERMEISTER.

VESSEL.

No. 559,928. Patented May 12, 1896.

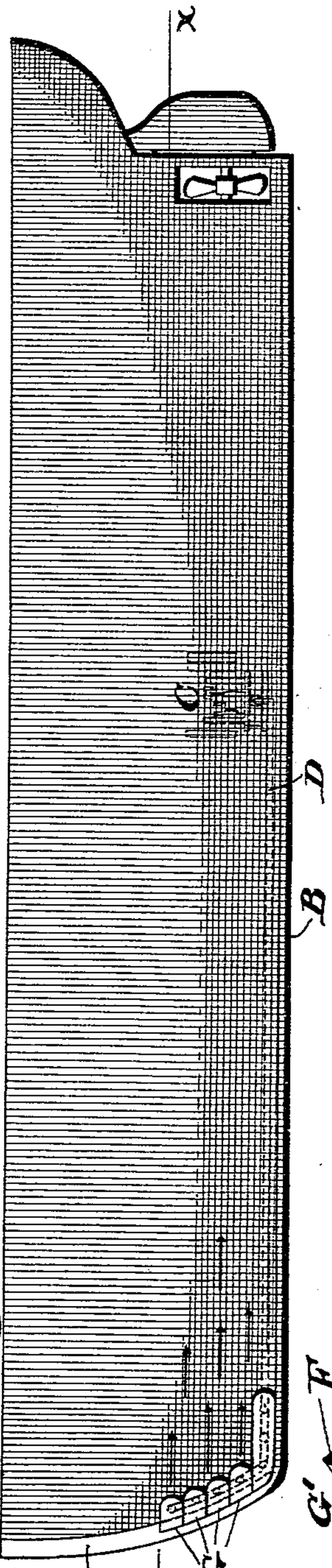

Fig. 1.

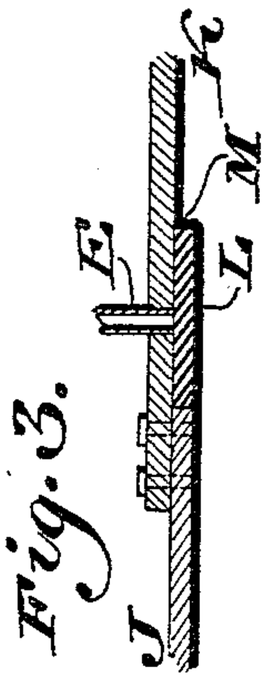

Fig. 3.

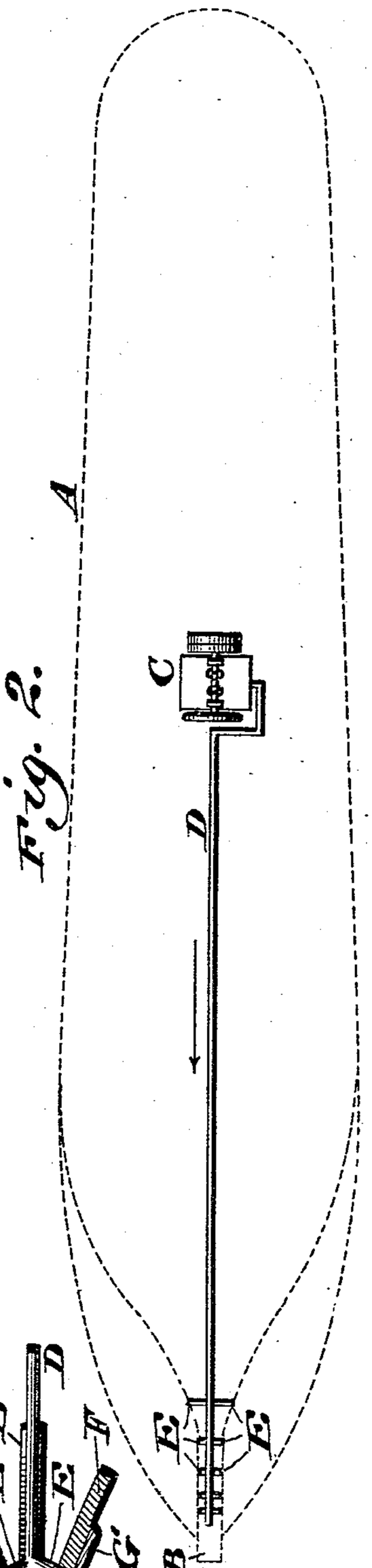

Fig. 2.

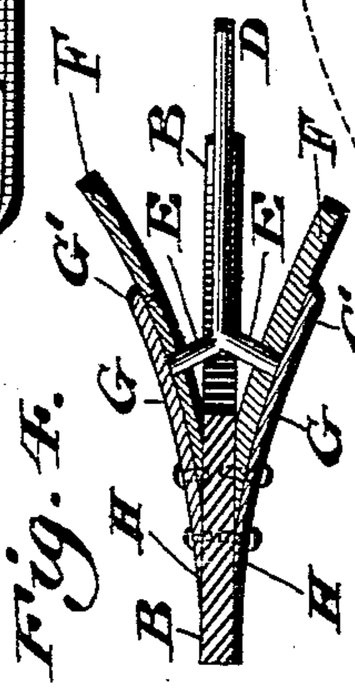

Fig. 4.

WITNESSES:

P. F. Hagles.

L. Douville

INVENTOR

Wilhelm Buergermeister.

BY John A. Wiedersheim.

ATTORNEY.

UNITED STATES PATENT OFFICE.

WILHELM BUERGERMEISTER, OF PHILADELPHIA, PENNSYLVANIA.

VESSEL.

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To all whom it may concern:

Be it known that I, WILHELM BUERGERMEISTER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Vessels, which improvement is fully set forth in the following specification and accompanying drawings.

It is a well-known fact that by the application of a suitable lubricant—such as crude petroleum or other oils, &c.—to the submerged portions of a vessel the latter will be enabled to progress at a greater velocity through the water, since the friction of the sides of the vessel therewith is reduced to a minimum, and if other fluids are used besides oil—such as an alkali, copper oxid, &c.—the vessel will be prevented from foul bottom, and in case steam is used freezing in of the vessel will be prevented.

I have found by experiment that a drop of lubricant or other fluid forced out from the side of the vessel transversely to the line of movement of the same is under ordinary circumstances swept away by the water during the passage of the vessel through the same; but if the lubricant is caused to be projected against an elastic scale or plate, and thereby pressed against the outside of the vessel in the manner hereinafter set forth, on the instant it oozes from under said plate or scale the current of the passing waters will, so to speak, smear the lubricant or fluid along substantially every submerged portion of the vessel; and to this end my invention consists in attaching to the keel, bow, or other portion of a vessel a suitable number of elastic or pliable plates, which may be secured in such manner as to offer no impediment to the progress of the vessel, and to provide a pipe which directs the lubricant under suitable pressure between said plates and the sides of the vessel proper, a suitable oil being employed when it is desired to lubricate the sides of the vessel, as crude petroleum, &c., and when it is desired to destroy animal or vegetable life a proper solution of alkali or of copper oxid may be employed, or the crude petroleum may also be used.

It further consists of novel details of construction, all as will be hereinafter fully set forth.

Figure 1 represents a side elevation of a vessel having attached thereto an appliance embodying my invention. Fig. 2 represents a plan view of the principal operative parts of my invention, the outline of the vessel being shown in dotted lines. Fig. 3 represents a detail view, to be hereinafter referred to, showing the manner of applying the plates to any part of the sides of the ship. Fig. 4 represents a partial section on line *x x*, Fig. 1, where the plates are secured at the bow as far forward as possible.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a vessel, which may be of any suitable construction, of wood, metal, &c.

B designates the keel of the same, and C designates an oil-pump or fluid-forcing device of any suitable construction, which may be actuated in any convenient manner.

D designates a discharge-pipe leading therefrom, in the present instance toward the bow of the boat, said pipe having attached thereto and projecting therefrom the nipples or branches E, which pass through the sides F of the vessel, but, as indicated in Fig. 4, never extend beyond the face thereof.

G designates pliable or elastic plates, which may be of any number or shape and may be arranged above each other, as in Fig. 1, and are in the present instance attached to the bow or forward portion of the boat at their forward ends, while their free ends G′ are held in contact with the sides F by means of the elasticity of said plates and the pressure of the water, said plates being feathered or tapered at H, so as to present as little resistance to the progress of the vessel as possible.

In the modification seen in Fig. 3, E designates the branch pipe as before, and J and K designate overlapping plates composing the sides of the vessel, assuming that in this latter instance the vessel is constructed of metal.

L designates a plate, which may be an extension of the plate J or suitably attached thereto or to the vessel, the free end of said plate being adapted to extend over and beyond the extremity of the pipe E, through which latter the fluid is to be forced, said fluid escaping from the space between the plates K and L at about the point M.

The operation is as follows: If the pump C is caused to operate, it will be evident that the lubricant or other fluid will be forced through the pipe D in the direction of the arrow, out of the branch E, and between the plates G and the sides F, and said plates being sufficiently elastic to normally have their free ends G′ tightly in contact with the sides F of the boat, it will be apparent that the oil or other fluid must ooze out and be smeared, as it were, by the action of the water during the progress of the vessel upon every portion of the latter which is submerged, and I desire to call especial attention to the fact that by causing the oil to be applied in the manner hereinabove described and shown, rather than forcing it directly into the water in a line transversely to movement of the boat, the oil or other fluid is positively caused to adhere or to be smeared over substantially every portion of the vessel, as stated, whereby the friction between the water and the vessel is reduced to a minimum. The action in Fig. 3 is substantially the same, the plate L being normally tightly in contact with the plate K, but being sufficiently elastic at its free ends M to permit the lubricant or other fluid under sufficient pressure to escape, as described.

It will of course be apparent that the plates G or L may be located at other points along the sides of the boat also as may be deemed expedient without departing from the spirit of my invention, especial emphasis being laid upon the manner of causing the lubricant or other fluid to be discharged against the sides of the vessel.

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

1. In a navigable vessel, an elastic plate or plates secured at suitable points on the outer portion of the hull of said vessel, in combination with a pipe or pipes which are adapted to impact a liquid against said plates, and to diffuse said liquid at the joints between said plates and hull, substantially as described.

2. In combination with a vessel, a pump, a discharge-pipe for said pump extending to a port in the hull of said vessel, an elastic plate secured to said hull, forward of said port, and adapted to cover the latter, whereby the pressure of the liquid against said plate will cause its diffusion at the joints between said plates and hull, substantially as described.

3. A vessel, an elastic plate having one portion attached thereto, and the other end in contact therewith, in combination with a fluid-discharge pipe which passes through a side of said vessel and is covered by said plates, substantially as described.

4. In combination with a vessel, a series of elastic plates attached to the sides thereof, one end of each of said plates being in contact with said sides but not permanently fastened thereto, in combination with fluid-supply pipes passing through the sides of the vessel, and covered by said plates, substantially as described.

5. A vessel, a pipe having an end extending to the hull of said vessel, and an elastic plate connected at its forward end to said hull and normally covering the outer end of said pipe, so that the discharge from said pipe impacts against said plate and escapes between the rear end of the latter and said hull, substantially as described.

WILHELM BUERGERMEISTER.

Witnesses:
JOHN A. WIEDERSHEIM,
WM. C. WIEDERSHEIM.