No. 685,591. Patented Oct. 29, 1901.

F. A. FERNEZ & L. J. BREUER.

CARGO VESSEL.

(Application filed Feb. 6, 1901.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.

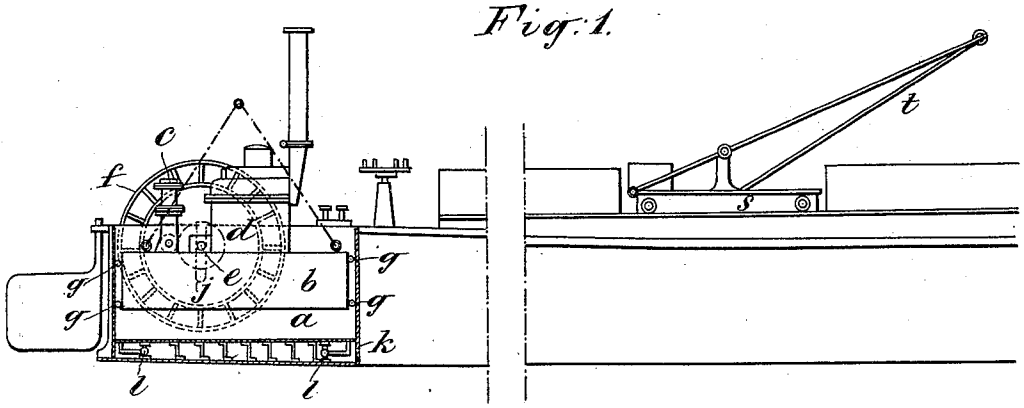


Fig. 2.

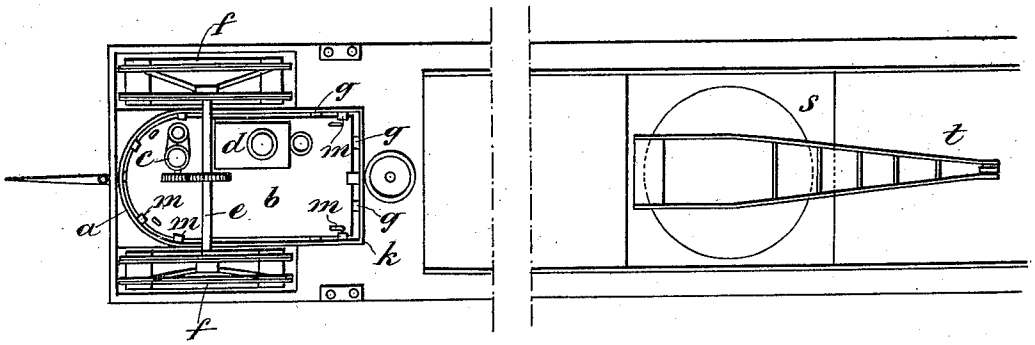


Fig. 3.

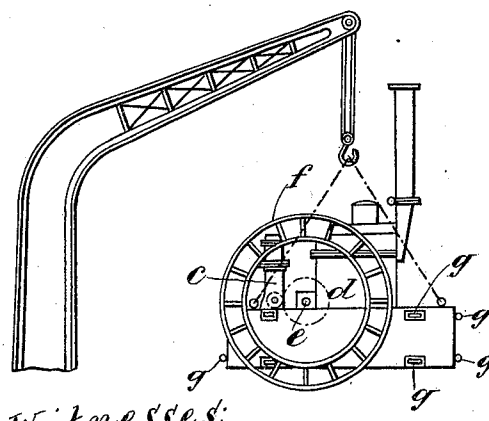
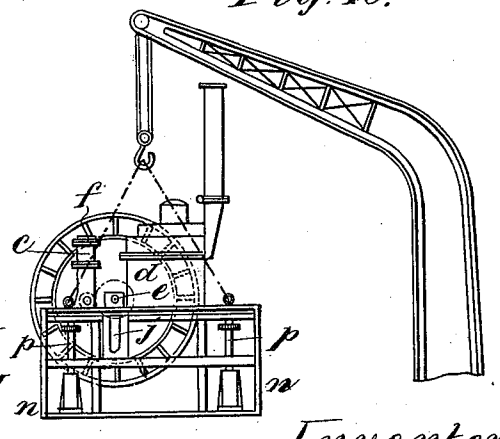


Fig. 10.



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(No Model.) 4 Sheets—Sheet 2.

Fig. 4.

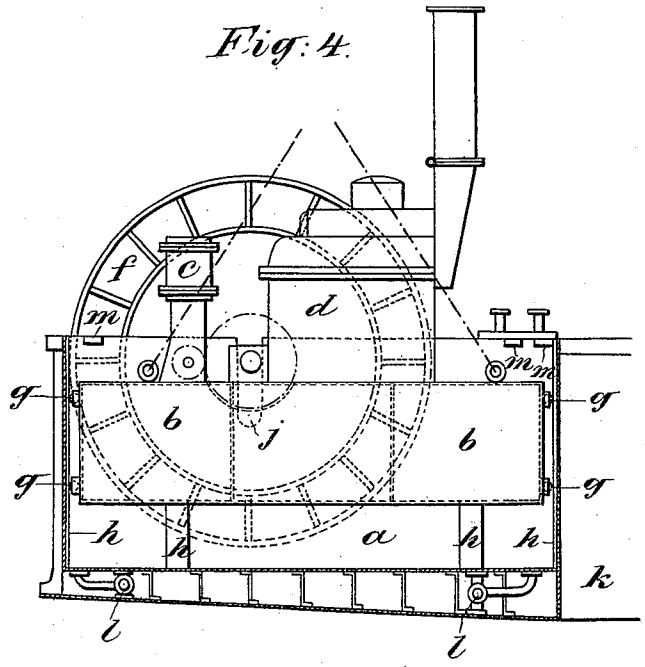
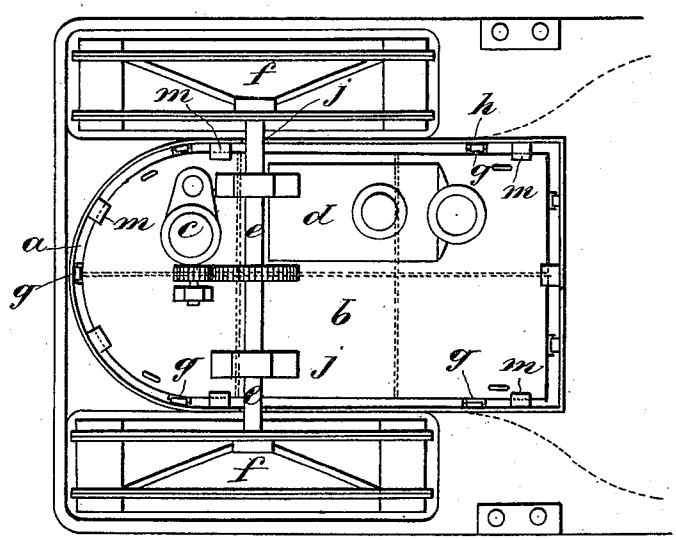


Fig. 5.



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(No Model.) 4 Sheets—Sheet 3.

Fig. 6.

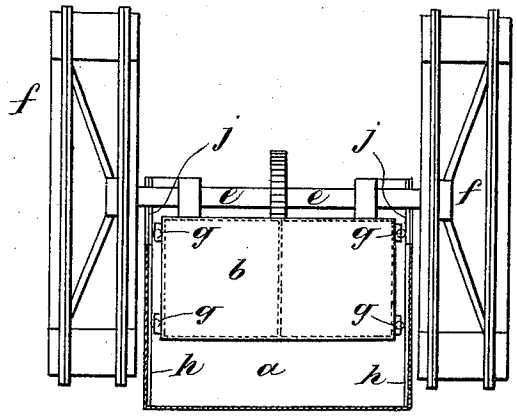

Fig. 9.

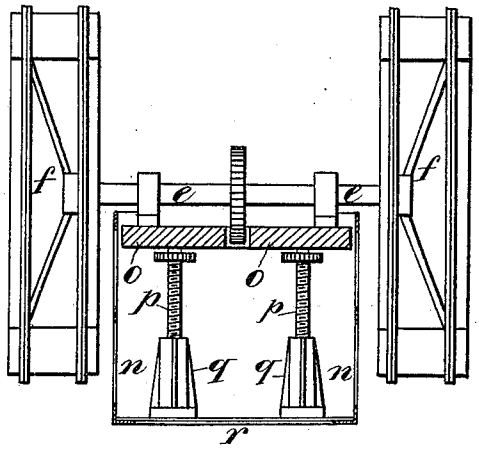

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Fig. 7.

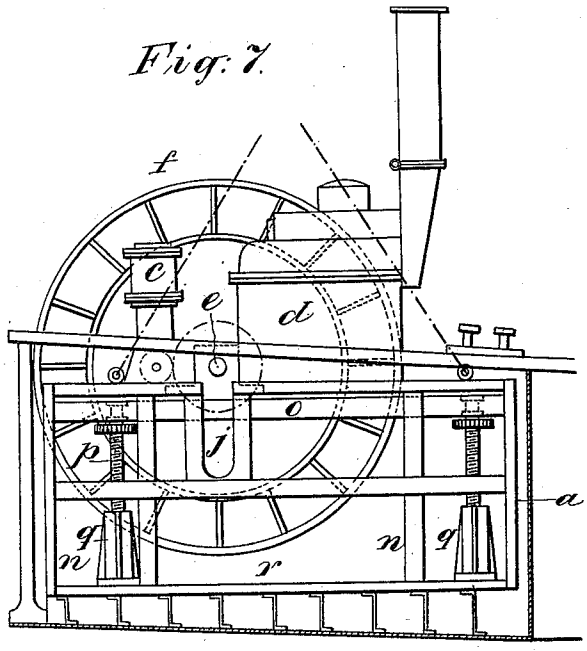
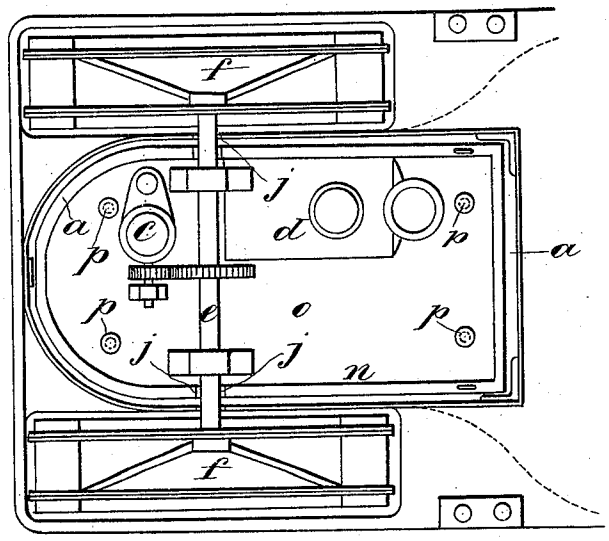


Fig. 8.



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UNITED STATES PATENT OFFICE.

FRANÇOIS ADOLPHE FERNEZ AND LEOPOLD JOSEPH BREUER, OF PARIS, FRANCE.

CARGO VESSEL.

SPECIFICATION forming part of Letters Patent No. 685,591, dated October 29, 1901.

Application filed February 6, 1901. Serial No. 46,185. (No model.)

To all whom it may concern.

Be it known that we, FRANÇOIS ADOLPHE FERNEZ and LEOPOLD JOSEPH BREUER, citizens of the French Republic, and residents of Paris, France, have jointly invented certain new and useful Improvements in Vessels or Boats, of which the following is a specification.

This invention relates to a vessel principally intended for the navigation of streams, rivers, canals, and lakes. It is provided at its stern with an independent propeller, actuated by means of a steam-engine or in any other convenient manner. The propeller may, however, be installed in any other position in the vessel as may be most advantageous in accordance with the forms and dimensions of the latter.

This vessel when the propeller is arranged in the stern is of a special form, owing to which, although it is provided with two paddle-wheels, it is not necessary to make it wider in the stern than in the remainder of its length, while at the same time the draft is such that the paddles work well in the water.

This boat also comprises a water-tight compartment having no communication with the rest of the vessel and serving for the reception of the propeller. It also comprises, when the propeller is arranged in the stern, a rolling deck provided with a crane and displaceable upon two rails fixed upon the coaming or raised work of the vessel, thereby enabling the crane to be moved from one end of the vessel to the other. The propeller, which is arranged in the water-tight compartment, consists of a float of sufficient dimensions to carry and support the whole of the motor propelling apparatus. This float is guided along the walls of the compartment. It is always equally immersed whatever the depth to which the boat is submerged may be, and it may be fixed at will, so as to render it absolutely immovable. This float may be replaced by a movable cage arranged directly upon the floor-timbers of the boat in the water-tight compartment. Within this cage is a platform carrying the motor, arranged in such a manner as to be capable of displacement. This platform is adapted to rise and fall, so as to vary its level, according as the vessel is submerged to a greater or less extent.

The invention is illustrated in the accompanying drawings, in which—

Figures 1 and 2 are a longitudinal elevation, partly in section, and a plan view, respectively, of a vessel provided with a float appliance. Fig. 3 shows the movable float raised from the water-tight compartment by means of a crane. Figs. 4, 5, and 6 illustrate upon a larger scale the stern of the vessel in side elevation, in plan, and in cross-section, respectively. Figs. 7, 8, and 9 represent the stern of a vessel provided with a movable cage and platform. Fig. 10 shows this cage raised from the water by means of a crane.

According to our invention at the stern of the vessel is provided a water-tight compartment *a*, within which is arranged the float *b*, Figs. 1 to 6, supporting the engine *c*, the boiler *d*, the supply of fuel, the steam and other pipes, the feed-pumps, and finally the shaft *e* of the paddle-wheels *f*. The float *b* is merely a box with water-tight compartments, into which water may be introduced in order to insure stability. It is provided with rollers *g*, which are adapted to roll upon iron bands *h*, fixed upon the walls of the compartment *a*. The shaft *e* of the paddle-wheels *f* is adapted to rise and fall in grooves *j*, formed in the hull of the vessel. A water-tight bulkhead *k* isolates the float-compartment from the rest of the vessel. Cocks *l l*, arranged at the lower part of the vessel, enable the compartment *a*, in which the float *b* works, to be filled with or emptied of water. At the upper portion of the compartment *a* are arranged adjustable stops *m*, preventing the float *b* from rising higher than the deck of the vessel when loaded.

When the vessel is not laden, the float and the propelling mechanism constitute a burden for it; but when this vessel is loaded to a depth of more than one meter the float will suffice for itself. When the vessel is charged to one meter and eighty centimeters by the use of the stops *m*, it will support not only its own weight, but also a portion of the weight of the vessel. It is possible by means of a

suitable stop to fix the float in any position which may appear desirable. Instead of the float which has been described the movable cage and platform represented in Figs. 7 to 10 may be employed. In this modification the movable cage *n* is arranged directly upon the floor-beams of the vessel in the water-tight compartment *a*. Within this cage is arranged a platform *o*, carrying the whole of the propelling mechanism and adapted to rise or fall at will. It follows from this arrangement that if, for example, the vessel sinks lower, owing to its loading, it is only necessary to raise the platform proportionately in order that the paddle-wheels *f* may operate with their maximum efficiency. With this object the platform *o* is rigidly attached to four screws *p*, adapted to screw into screw-sockets *q*, fixed to the bottom of the movable cage *n*. These screws *p* may be all operated together by any suitable means. During the vertical displacement of the platform *o* the shaft *e* of the paddle-wheels *f* moves in the grooves *j*, formed in the sides of the cage and of the hull.

The provision of the independent cage or float permits of removing the entire apparatus *en bloc* by means of a crane and of replacing it by another provided with a more or less powerful propeller. If, for example, the vessel instead of working in a river in which there is a strong current requiring great propulsive force passes to a canal in which the propulsive force necessary is very small, or vice versa, the propelling apparatus may be changed almost instantaneously, thereby effecting great economies in fuel. It is also possible, of course, to have several motors for a single vessel or, inversely, several hulls for a single motor.

Our invention also comprises, if the motive force is arranged at the stern, the provision of a rolling deck *s*, carrying a crane *t*. This rolling deck is carried upon two rails running from end to end of the coaming or raised work of the vessel, thus permitting of speedy handling of cargo and other operations in all parts of the vessel. This crane may be operated either by means of an electric current supplied by a dynamo arranged upon the platform *o*, by power furnished directly from the engines, or in any convenient manner.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. A boat provided with a separately-supported motive mechanism adapted to be raised and lowered in the boat bodily, substantially as and for the purposes set forth.

2. A boat having in it a water-tight compartment, means for introducing water to said compartment at will, a float within said compartment, and the motive mechanism of the boat mounted on said float and adapted to rise and fall bodily therewith, substantially as and for the purposes set forth.

3. A boat having an open compartment to contain a support for the motive mechanism of the boat, said support being adapted to be raised and lowered in said compartment, the motive mechanism mounted on said platform, and means carried by the boat for hoisting out said motive mechanism at will, substantially as set forth.

4. A boat provided with a water-tight compartment open at its top, a vertically-movable support therein for the motive mechanism, the said motive mechanism, and means for elevating the said support and mechanism at will to adapt the latter to the level of the water of flotation whatever may be the draft of the boat from its cargo.

5. The combination with a boat having in it a water-tight compartment open above, and means for admitting water to said compartment, of a floating support in said compartment and adapted to be raised and lowered by the rise and fall of the water therein independently of the draft of the boat, guides to guide said support in its up-and-down movements, and the motive mechanism of the boat mounted upon and moving with said float, substantially as set forth.

6. The combination with a boat having in it near its stern a water-tight compartment *a*, of a float *b* in said compartment and adapted to contain water ballast, guides for said float, means for introducing water to said compartment, a shaft *e* mounted in bearings on said float and extending out at the sides of the compartment, paddle-wheels on said shaft exterior to said compartment, and motive power for driving said shaft mounted on said float.

In witness whereof we have hereunto signed our names, this 25th day of January, 1901, in the presence of two subscribing witnesses.

FRANÇOIS ADOLPHE FERNEZ.
LEOPOLD JOSEPH BREUER.

Witnesses:
EDWARD P. MACLEAN,
AUGUSTE MATHIEU.