

(No Model.)

3 Sheets—Sheet 1.

J. C. WALKER.
LIFE BOAT.

No. 561,456.

Patented June 2, 1896.

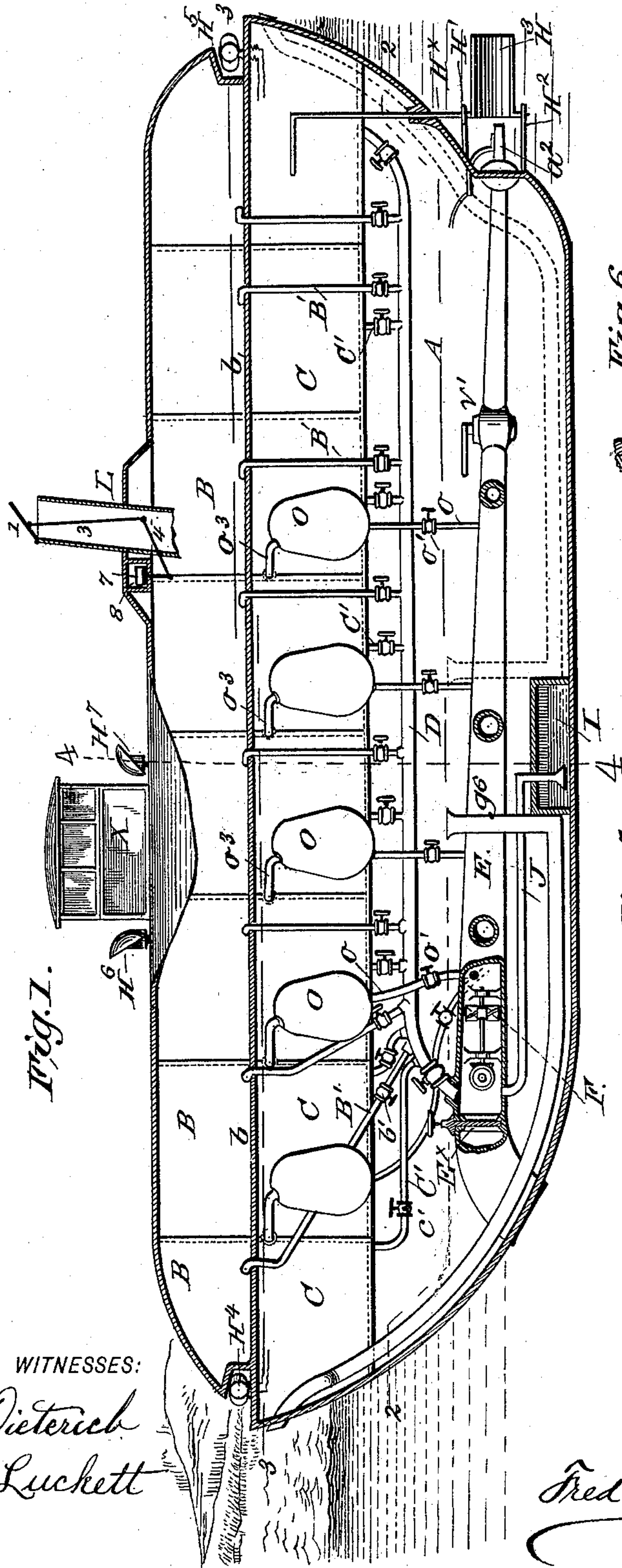


Fig. 1.

Fig. 6.

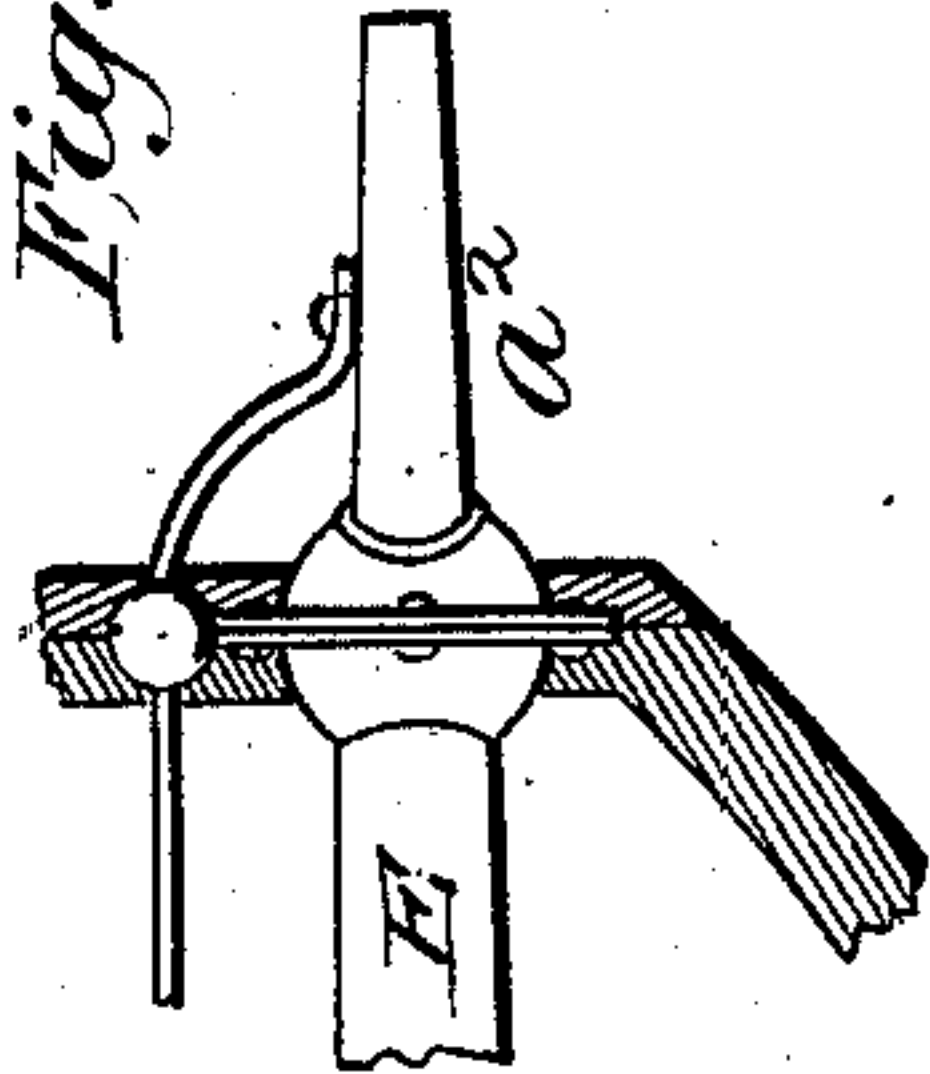
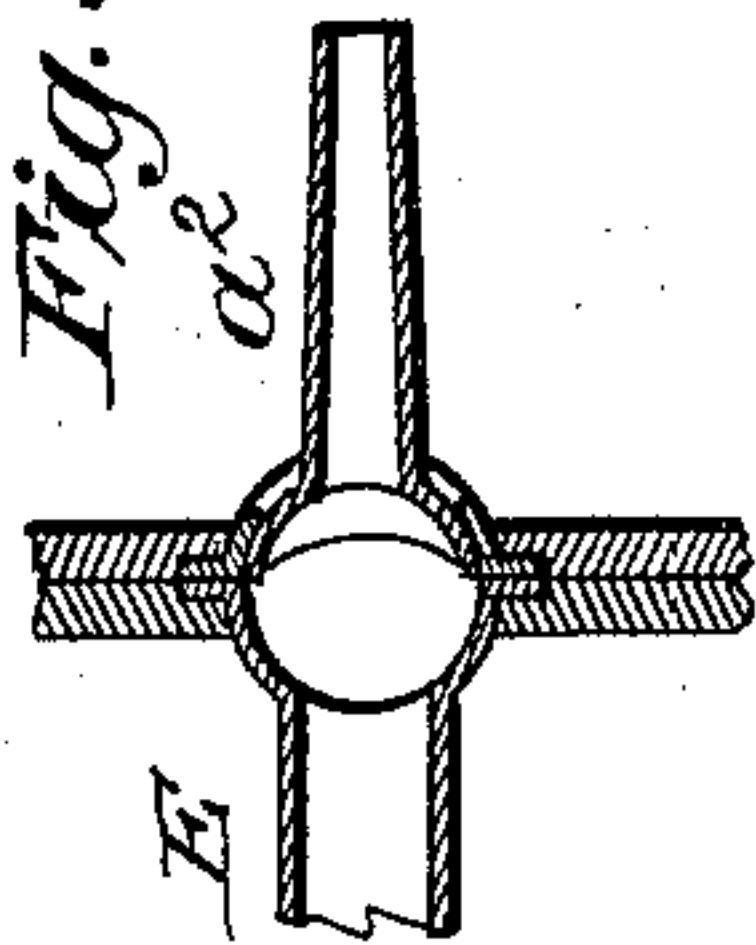


Fig. 5.



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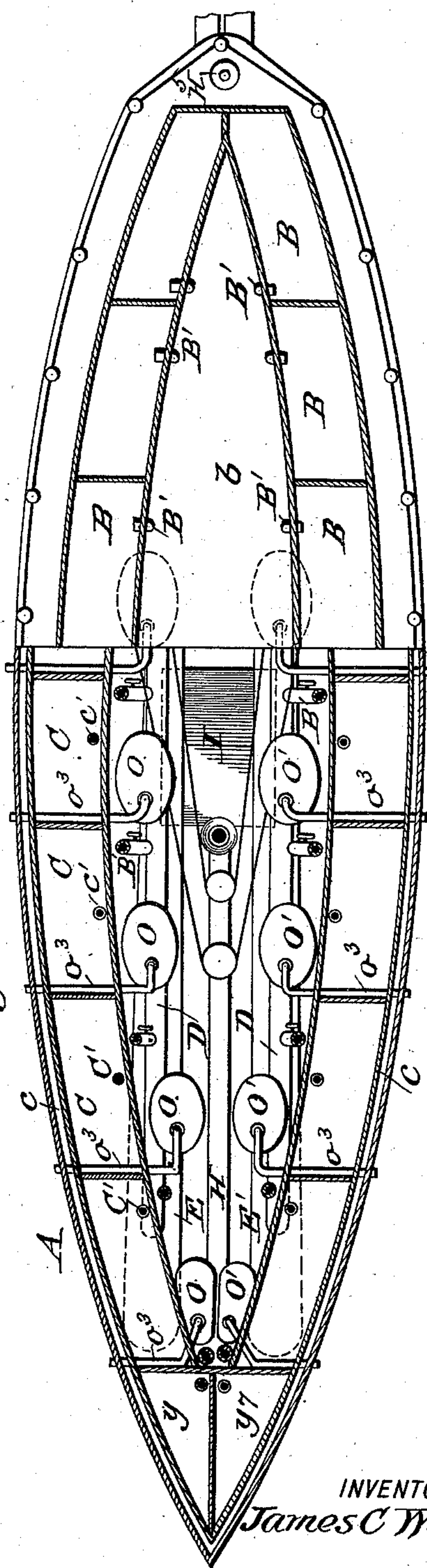
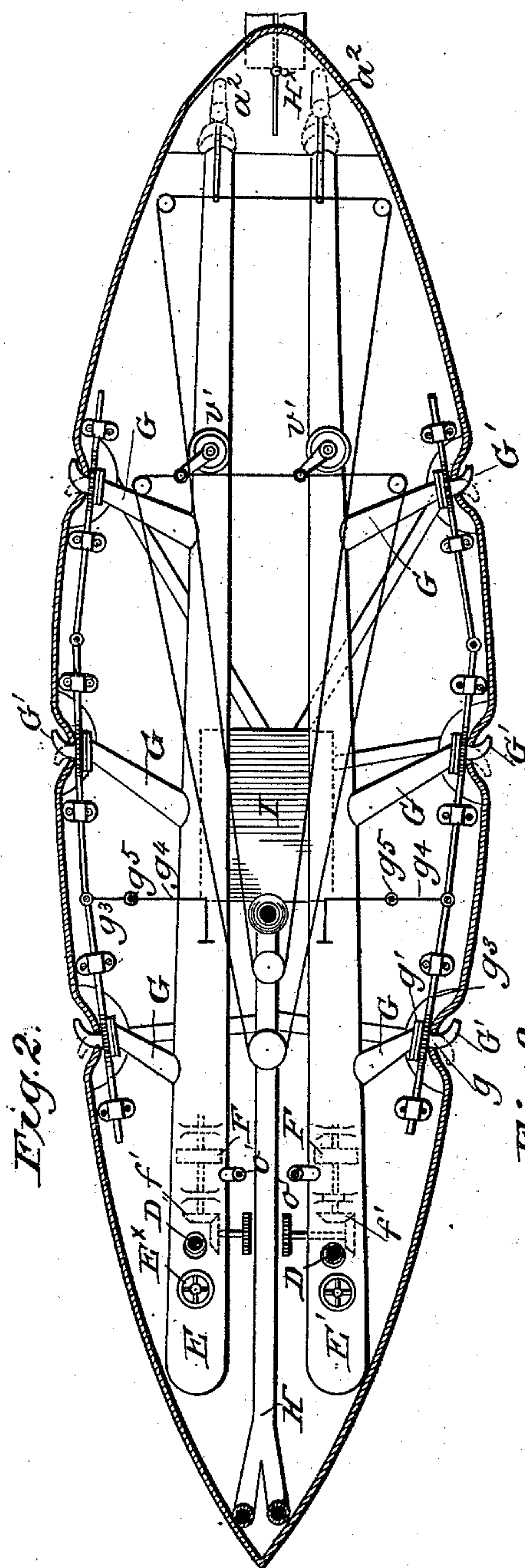
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3 Sheets—Sheet 2.

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No. 561,456.

Patented June 2, 1896.



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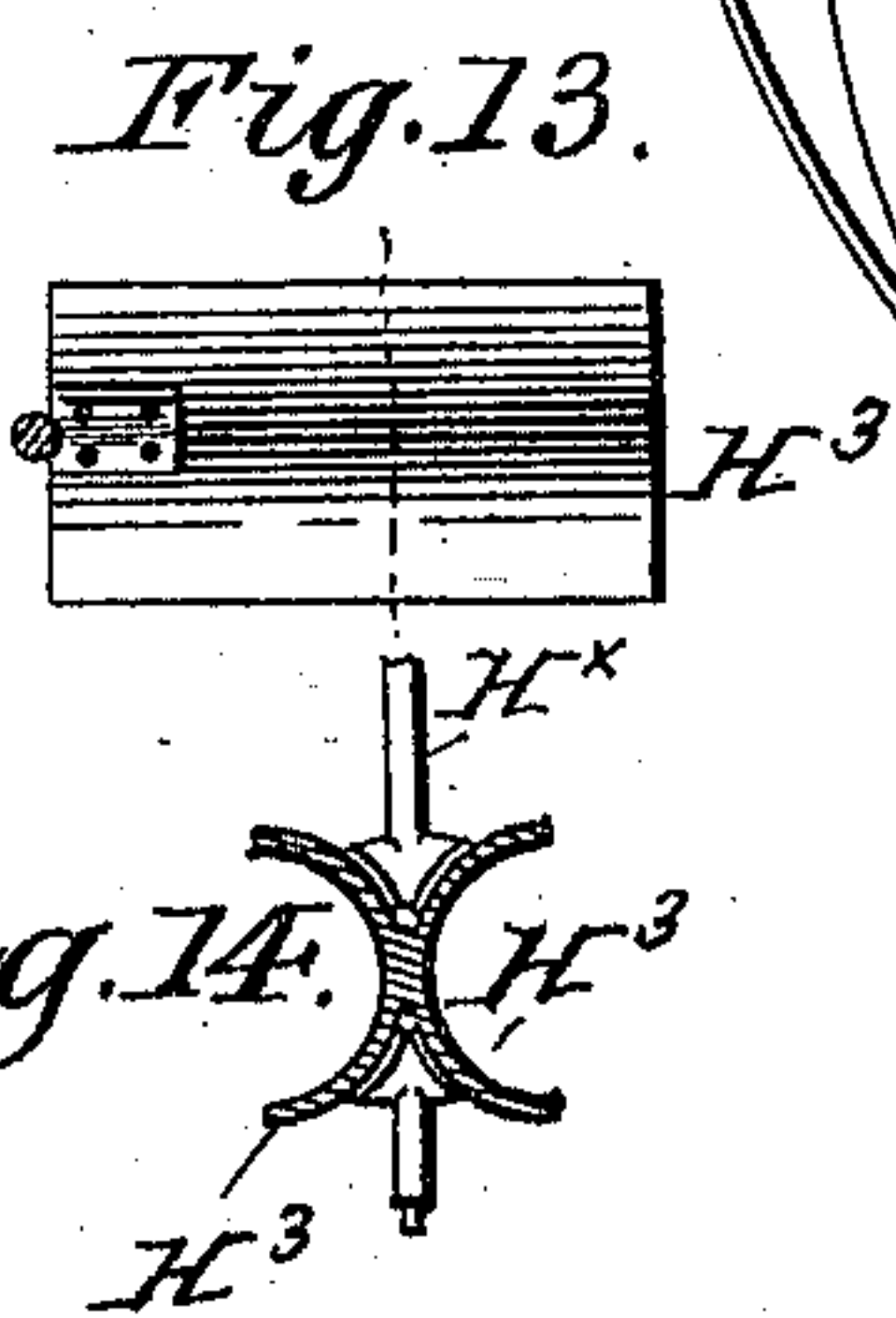
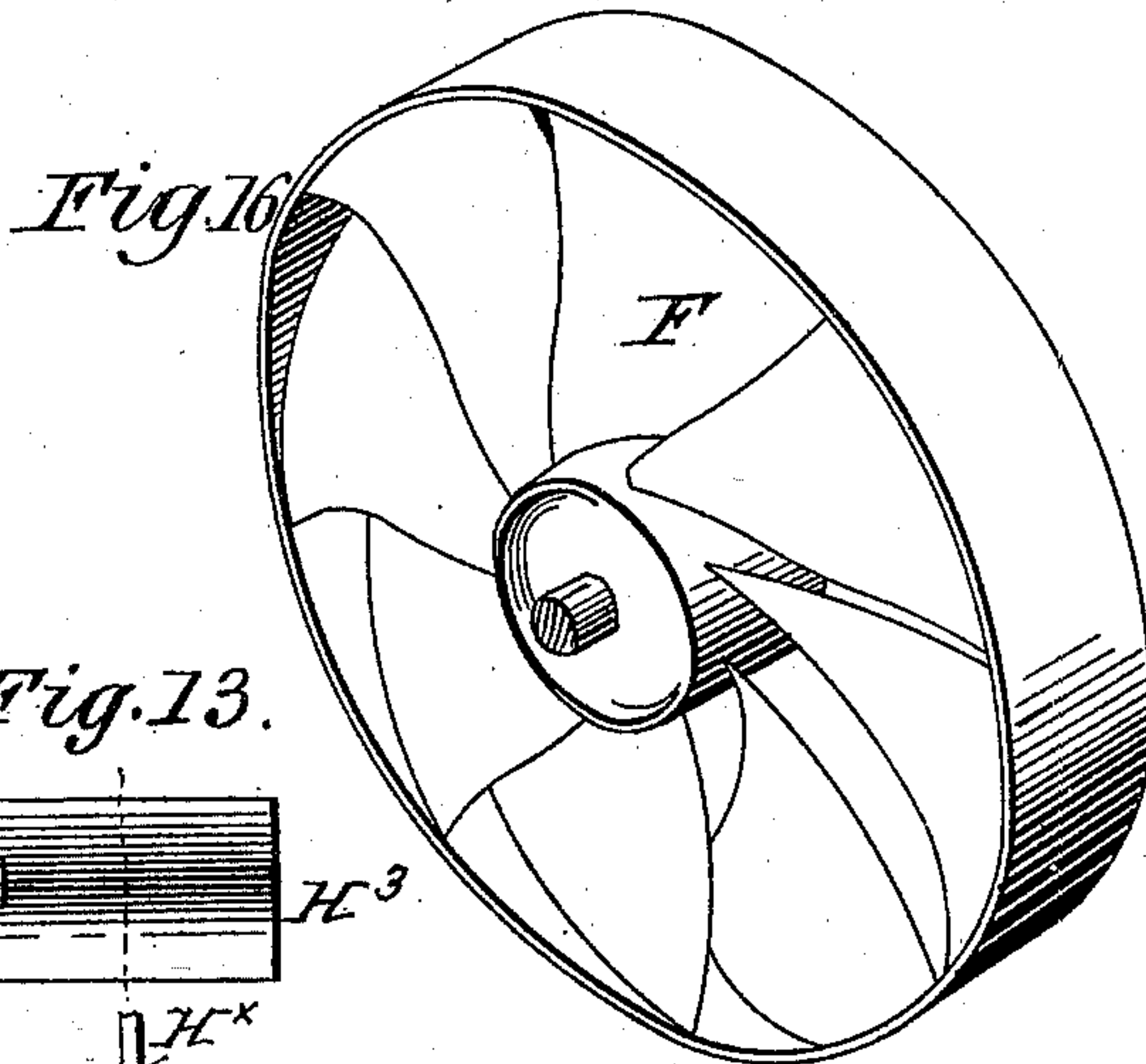
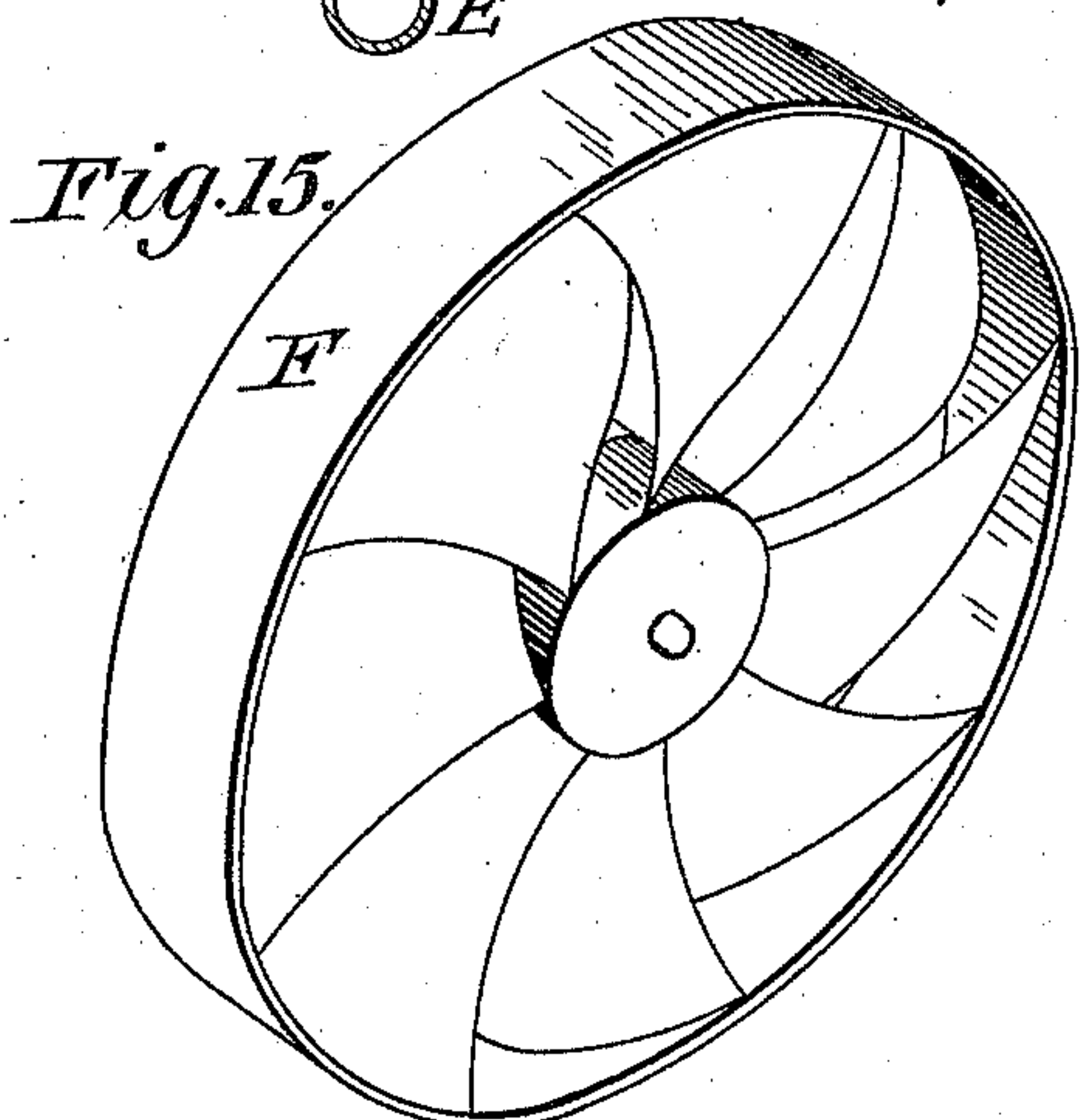
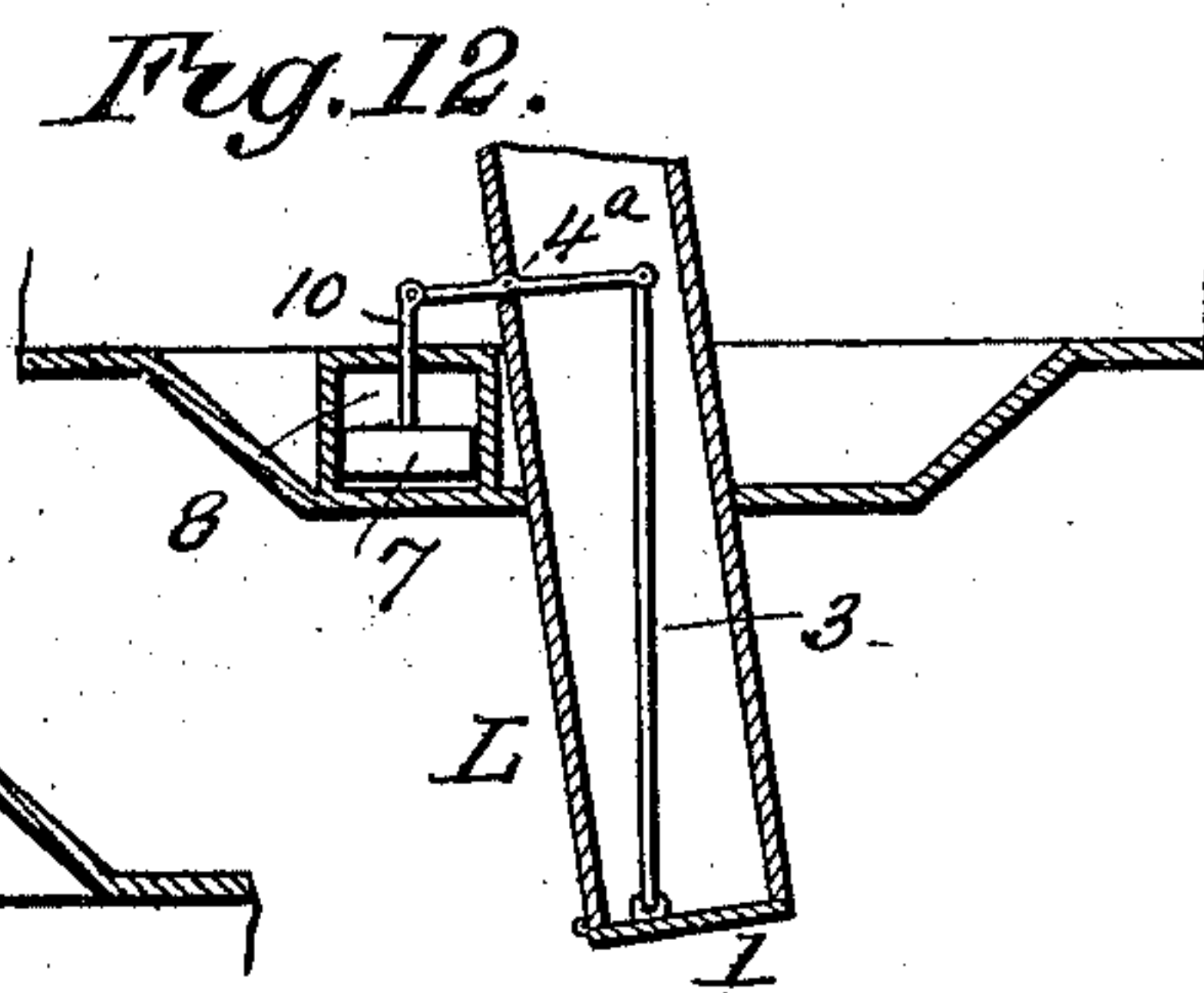
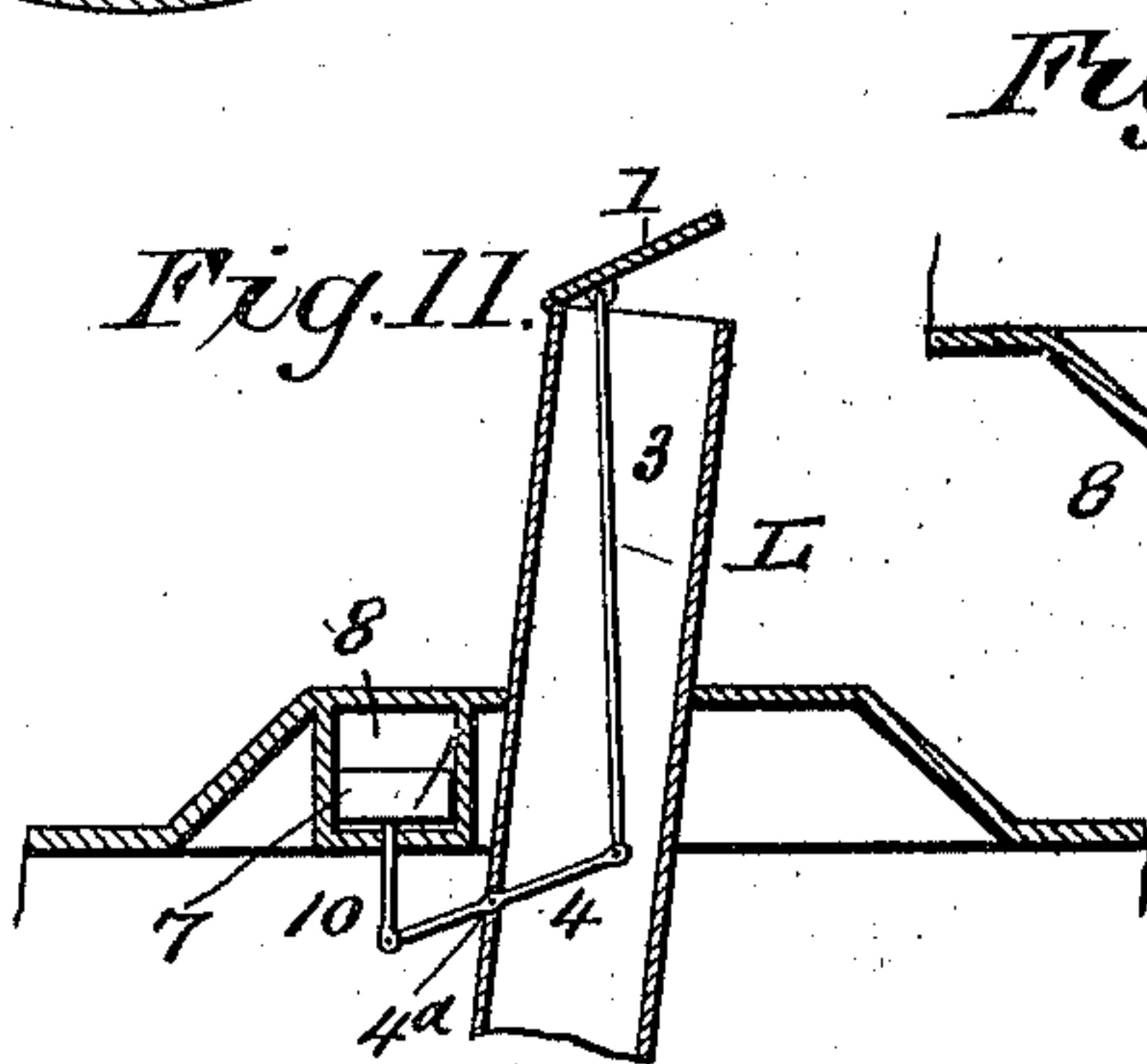
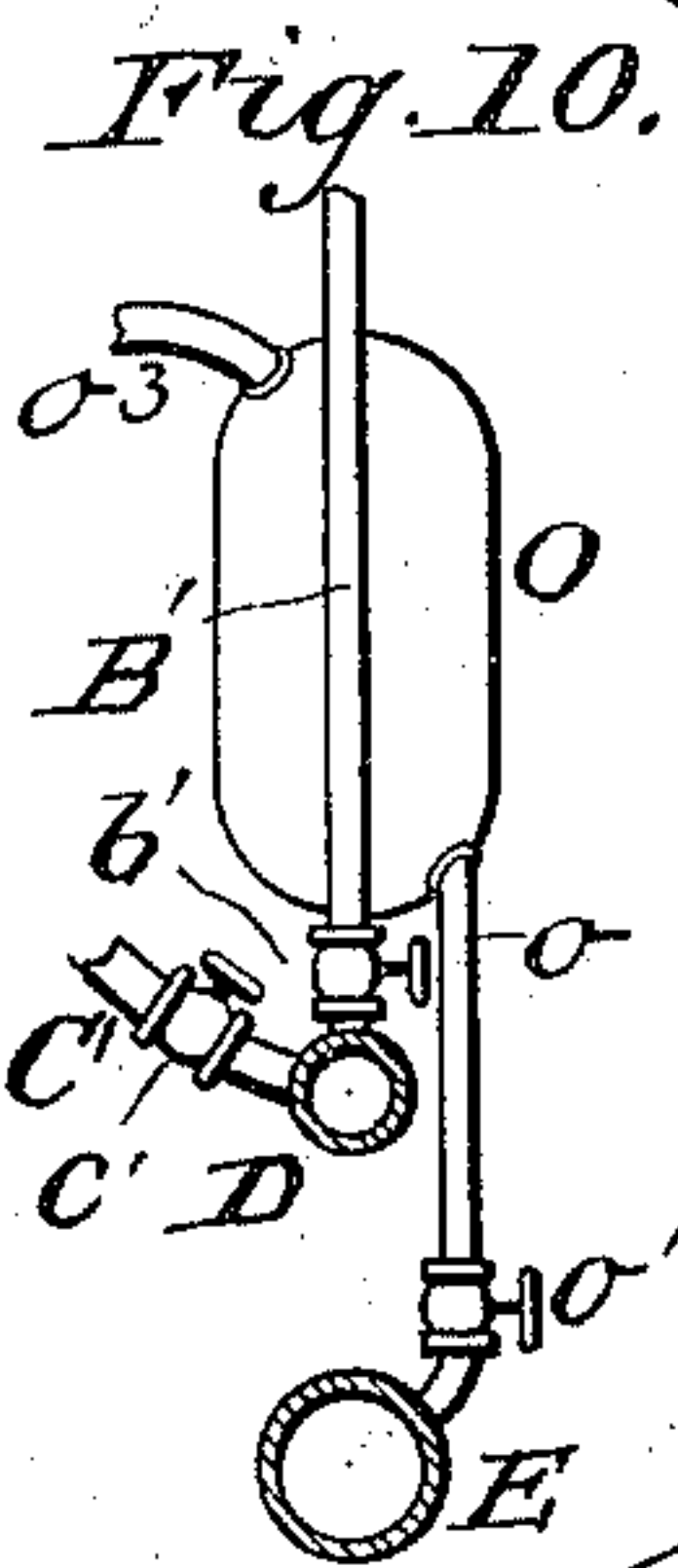
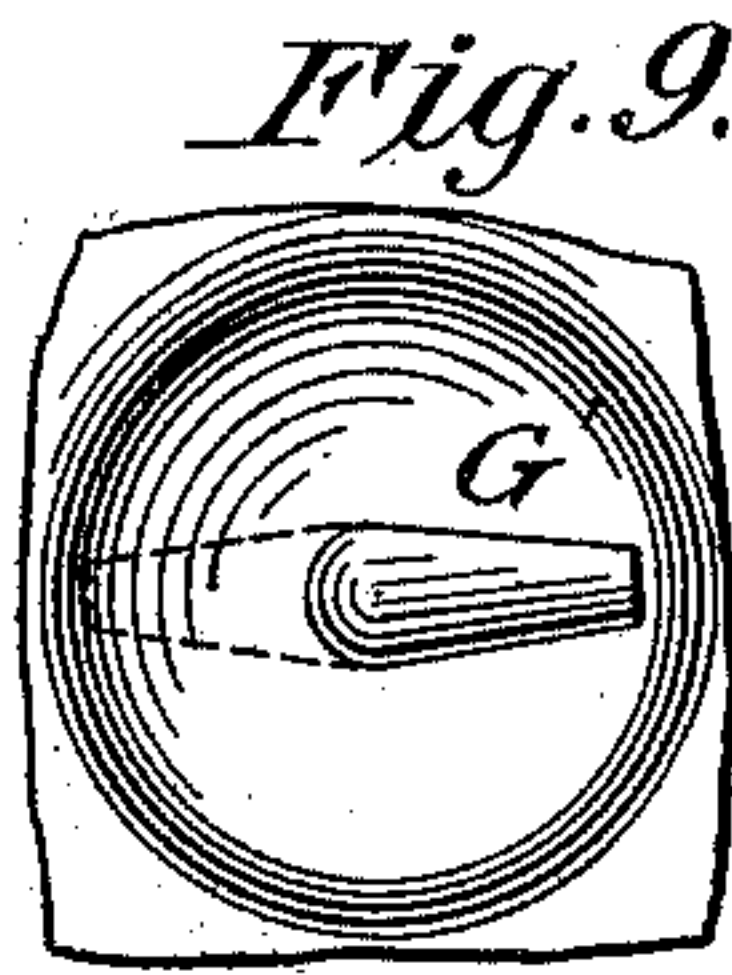
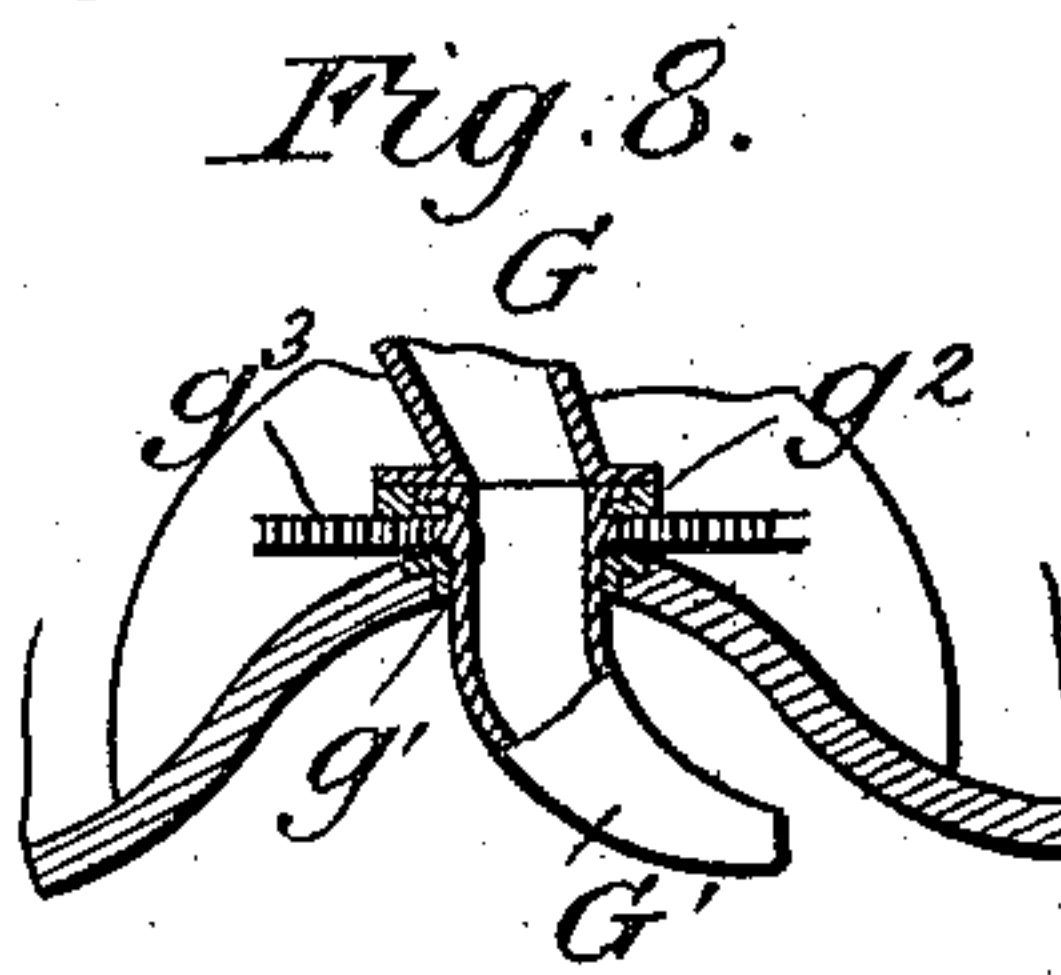
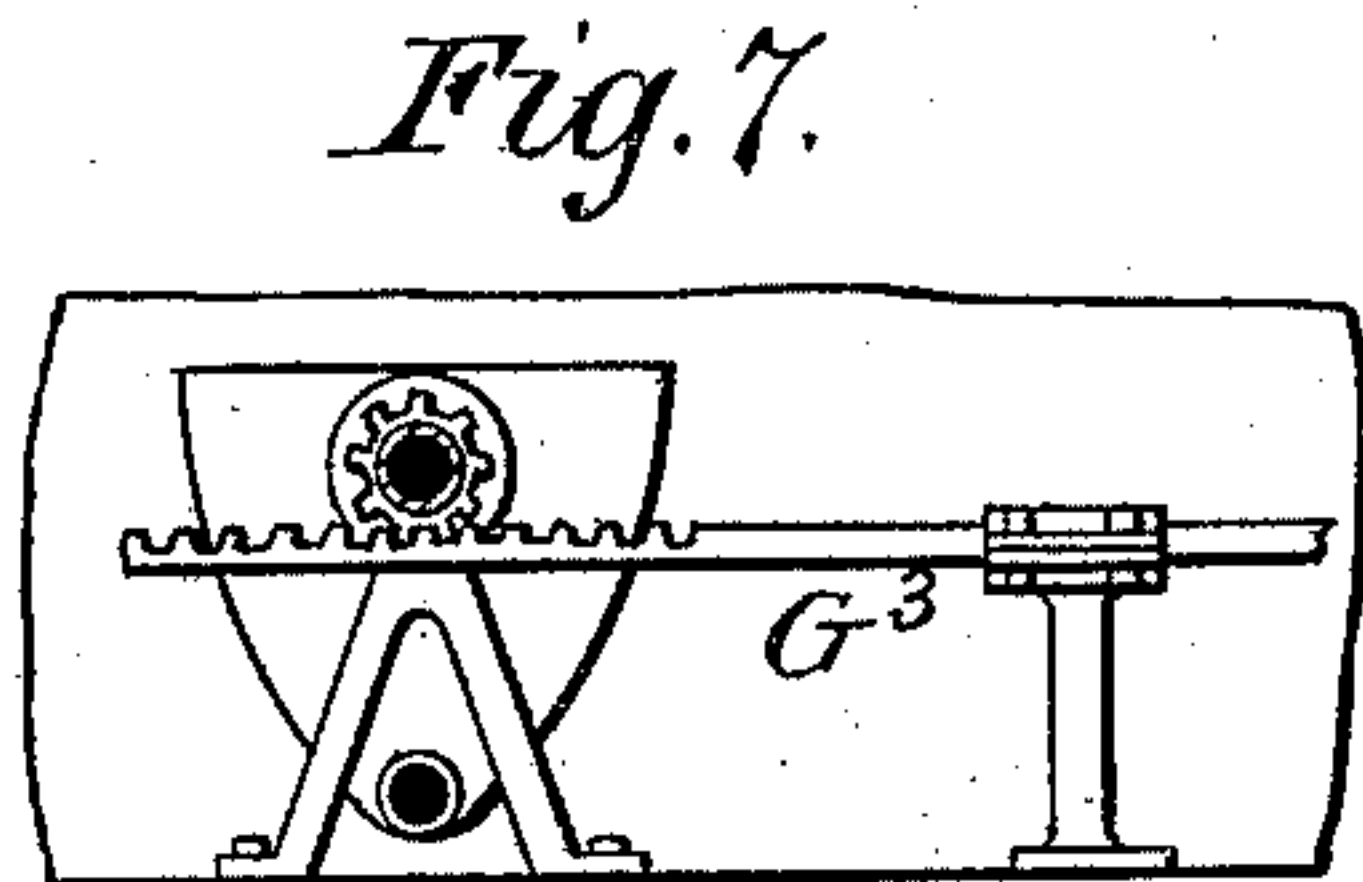
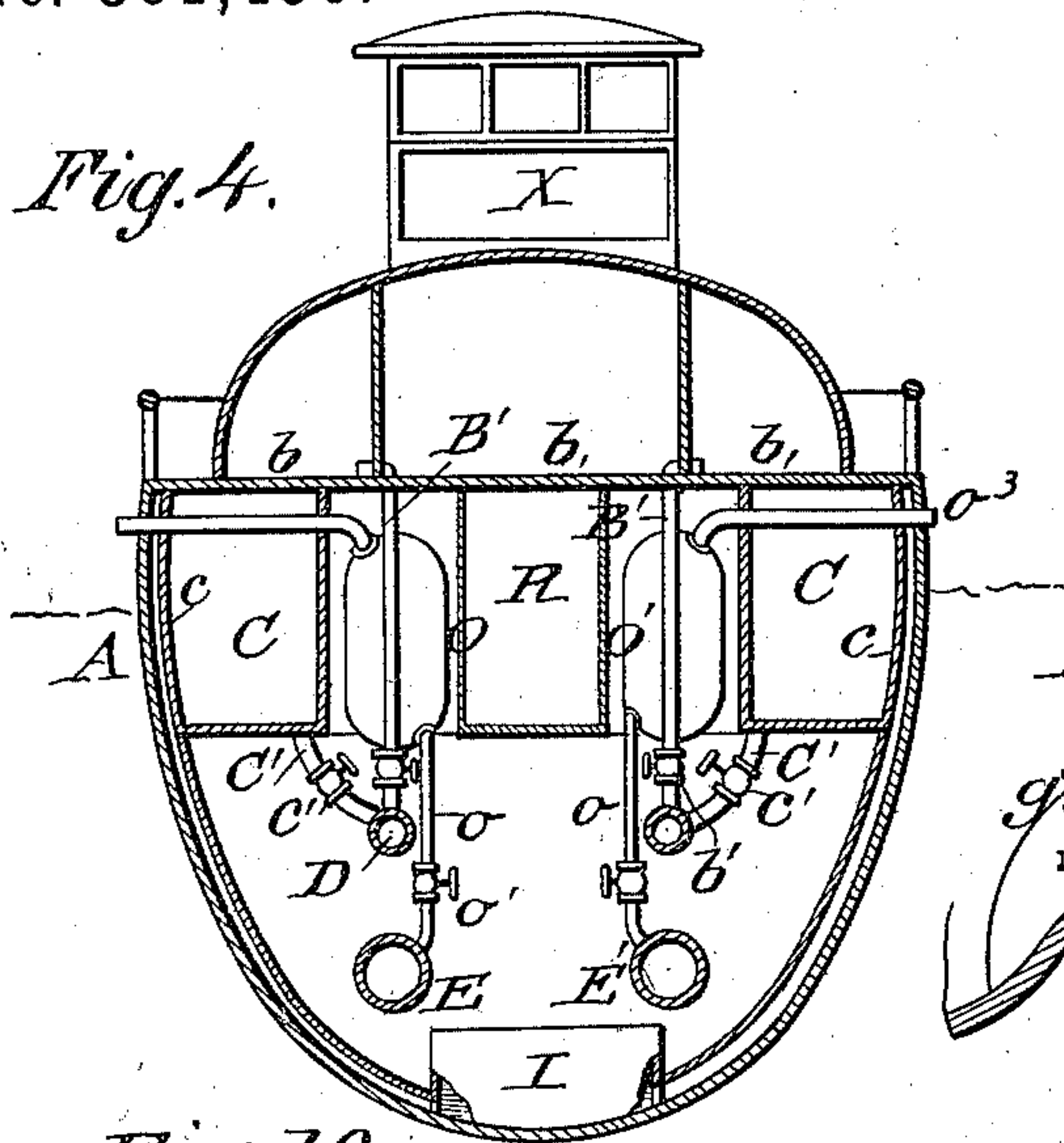
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3 Sheets—Sheet 3.

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LIFE BOAT.

No. 561,456.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES C. WALKER, OF WACO, TEXAS.

LIFE-BOAT.

SPECIFICATION forming part of Letters Patent No. 561,456, dated June 2, 1896.

Application filed May 3, 1895. Serial No. 548,019. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. WALKER, of Waco, in the county of McLennan and State of Texas, have invented certain new and useful Improvements in Life-Boats, of which the following is a specification.

My present invention relates more particularly to improvements on the hydraulic propelling means shown and described in my Patent No. 512,591, dated January 9, 1894, and it primarily has for its object to adapt the jet propulsion system to the life-saving service.

My invention also has for its object to provide, in connection with the jet propulsion means, a peculiar arrangement of the several parts of the vessel whereby the same will be rendered more safe for use and whereby when one section or compartment is crushed in the others will not be affected thereby and whereby the influx of water into the stove or crushed in compartment can be utilized as a propelling means.

Furthermore, the invention has for its object to provide, in connection with the propulsion means, a system of bulkheads or air-tight compartments, each arranged independent and each connected by valved pipes with the main tubes or pipes and supplemented by air-tight compartments on the top or roof part of the boat so arranged that in case the vessel should be upset it would immediately right itself.

Another object of my present invention is to provide, in connection with the hydraulic propelling means, a series of oil-holding tanks or compartments, each independently connected by valved pipes with the hydraulic main pipes, and also provided with valved discharge-nozzles projected to the outside of the vessel, the whole being so arranged that in case of a very rough sea or where a vessel is wrecked a boat constructed and propelled in accordance with my invention can take a circuit to the windward or seaward around the wrecked vessel and "pour oil on the troubled waters," forced out from the life-saving vessel by hydraulic force.

With other objects in view, which hereinafter will be particularly referred to, my invention consists in such novel features of construction and peculiar combination of parts as will be first described in detail, and

then specifically pointed out in the appended claims, reference being had to the accompanying three sheets of drawings, in which—

Figure 1 is a diagrammatic longitudinal section of a vessel constructed in accordance with my invention. Fig. 2 is a similar horizontal section taken on the line 2 2 of Fig. 1. Fig. 3 is a similar view taken on the line 3 3 of Fig. 1. Fig. 4 is a transverse section of the vessel, taken on the line 4 4 of Fig. 1. Figs. 5 and 6 are enlarged detail views of the steering mechanism at the stern of the vessel. Figs. 7, 8, and 9 are detail views of the jet-nozzle devices at the sides of the vessel with their attached parts. Fig. 10 is a detail view illustrating one of the oil-chambers with its discharge-nozzle and its valved connecting-pipe attached to the main hydraulic pipe. Fig. 11 is a view illustrating the automatic closing devices for the stacks hereinafter referred to. Fig. 12 is a view showing the operation of the stack-closer when said stack becomes inverted. Figs. 13 and 14 are detail views of the novel form of rudder. Figs. 15 and 16 are detail views illustrating the preferred form of pump or propeller wheels used in the main hydraulic pipes hereinafter referred to.

Referring to the accompanying drawings, A indicates the vessel, which in the practical construction is covered in the whale-back form, so as to provide for conveniently forming in the upper part of such vessel a number of water-tight compartments B B, which extend down to the beam or outer edge of the hull, where they connect with water-tight compartments C C in the sides of the hull, but are separated therefrom by a water-tight partition b.

The compartments C extend from about the beam to just below the water-line, as shown. By referring to Fig. 4 it will be seen these compartments C do not have their outer sides formed by the hull, but have independent sides c c, spaced apart a slight distance from the hull.

It should be stated that a set of compartments B and C are arranged at each side of the boat and all the compartments in each set are connected by tubes B' and C', having valves b' and c', respectively, with the tubes D D, one at each side of the boat, which ex-

tend longitudinally thereof, as shown most clearly in Figs. 1 and 2, from the rear compartments B and C toward the prow of the boat, and which enter the main tubes E E' in front of the pumps therein. These main tubes E E' in their general arrangement and construction are substantially like that shown in my other patent above referred to, and such tubes are in the nature of two tapering horizontal pipes running through the bottom of the boat and opening at the fore and aft ends into the water. These pipes have propeller-wheels F F of a suitable construction, preferably, however, of the form shown in Figs. 15 and 16. By reference to Figs. 1 and 2 it will be seen such wheels have their shafts provided with gears f' , connected in practice with suitable motive power to drive the water through the tubes E E' toward the stern at a high rate of speed.

By referring now more particularly to Fig. 2 it will be observed the pipes E E' have laterals G G, which extend through the sides of the boat and terminate in nozzles G', through which a series of jets of water are made to issue to propel the boat, such nozzle being curved, as shown at g g , and provided with swiveled cuff portions g' g' , with which engage the packing-rings g^2 g^2 , and such cuffs have teeth which are adapted to mesh in teeth formed on the horizontal slide-bars g^3 g^3 , which are held in guides and arranged substantially in the manner shown in Figs. 7 and 8.

The bars g^3 are connected with levers g^4 , supported by fulcrums g^5 and arranged to be conveniently manipulated by the pilot or engineer, who can thereby move the bars g^3 backward or forward to set the nozzles G' as desired to drive the boat in either direction.

H indicates the air and drain tube, which lies close to the keel, and extends from the open air in front of the bow to the well or reservoir I, such tube H being forked, as shown in Fig. 2.

The object of the tube H is to admit and keep constantly a strong draft of fresh air into the lowest part of the hold.

By referring again to Fig. 1 it will be seen the tubes D enter the pipes E E' at a point in advance of the propellers, and just in advance of such point of entrance the said pipes E E' have valves E^x E^x.

So far as described it will be readily seen that as the pipes E E' have valves or cut-offs E^x E^x and valves v' near the rear end and as the tubes D D connect with the said pipes E E and have in turn independent valved connections with all of the compartments B and C should any one or more of the compartments B and C be stove in by collision of the vessel or otherwise it would not materially affect the passage of such vessel or cause it to sink, as the water which passes into the stove-in compartment or compartments can in such case be utilized as a motive power by opening up a communication between the tube D

at the stove-in side and the stove-in compartment. By closing off the entrance of the water through the front end of the pipes E E' it follows that the water as it rushes through the side of the vessel will pass into the tube D and pipe E and be forced backward by the propellers, the same as in the case when the water is allowed to feed in from the front end of the pipes E E'.

In case the side of the vessel should be stove in at any point without injuring any of the compartments B and C the water would rush down at the side of the hull into the well or reservoir I, which well, it will be noticed, connects with the main tubes E E' by the pipes J J, which discharge into the said pipes E E' at a point in advance of the pump or propeller wheels. By connecting the well with the main propeller-tubes, as shown, it is manifest that by closing off the valves at the front of the propellers the water which would run in through the side of the boat would, as it passes down into the reservoir, be drawn up into the main pipes E and E' and utilized as the motive or propulsion power.

The water-tight compartments in the rooftop covering are intended, in case the vessel should be upset, to right the vessel, and to this end the entrance of persons into the hull of the vessel would be through the hatchways in the roof. A strong iron railing around the edge of the roof protects persons from falling overboard.

I indicates the smoke-stack or ventilator, which has a cover or cap plate which is arranged to close automatically in case the vessel should upset. To this end I provide the ventilator or stack with a self-closing device, the construction of which is most clearly shown in Figs. 11 and 12, by reference to which it will be seen the same consists of a hinged cover-plate 1, which fits closely over the rim of the stack, to which is pivotally connected a rod 3, the lower end of which is pivotally connected to a rock-lever 4, fulcrumed at 4^a and having its end connected to a plunger-rod 10, which extends into a sub-chamber 8, adjacent the stack and connects with a weight 7. When the vessel is in an upright or normal position, it will be readily seen, by referring to the said Fig. 11, the weight causes the plunger-rod 10 to rock the lever 4 in such a manner that the rod 3 will push up and hold open the cover-plate 1. When, however, the vessel upsets, it follows that the weight 7 will descend in the chamber 8 and in consequence draw down the plunger-rod 10 and thereby pull, through the rod 10 and lever 4 and rod 3, the cover-plate down tightly over the stack or ventilator-top, and close off entrance of water therein.

Although not positively required or deemed necessary, yet to render the course of the vessel the more positive and readily attained I provide a peculiar form of steering or rudder devices, the construction of which is clearly shown in Figs. 5, 6, 13, and 14, and which

consist of two convex blades united at the longitudinal center line of their length, which rudder-blades are fixedly connected to a rudder-post H^x . H^1 H^2 are stays formed with apertures to receive and form bearings for the aforesaid rudder-post.

The blades H^3 are made convex, and in practice are placed just aft of the stern discharge-nozzles a^2 and in the center space between, so that the water from the nozzles a^2 will spurt with the longitudinal center line of the blades when the rudder is in line with the keel; but when turned to the right or left the current from the near nozzle will strike the longitudinal center line of the blades, and as such blades are convex greater force will be concentrated thereon, and in consequence the vessel will turn. The blades are fixed together on the center line of the concave surfaces back to back, as shown in Fig. 14.

H^4 , H^5 , H^6 , and H^7 are search-lights, the two H^4 and H^5 being fixed permanently to cast their rays of light fore and aft in line of the keel to assist the pilot in steering in darkness or rough seas, it being obvious that by introducing different colors in the light-rays to distinguish the bow from the stern the course of the vessel can be readily determined by adjacent vessels in darkness or at night.

Four additional search-lights, one at each corner of the pilot-box, are also provided, as indicated by H^6 and H^7 , which are arranged to cast their rays of light generally at right angles to the keel, they being capable, however, of being turned by the pilot or captain to different points. These lights H^6 and H^7 are in practice made to cast signal-colors, so that, if the vessel becomes disabled, signals in darkness and rough seas may be cast ashore or to a distant vessel. Manifestly with these search-lights it is practicable to form an alphabet by which full messages can be sent ashore.

The pilot-box X , which is placed on top near amidship, has its upper portion incased in strong glass, and while I have not shown the same in detail all the mechanisms for the movement of the several nozzles and valves therefor and for the rudder terminate in the pilot-house, as also in the engineer's room in the hull, so that if the pilot-box is stove in or washed or blown away the vessel could still be operated from the engine-room.

The front ends of the main pipes $E E'$ have (in the present construction) their ends in advance of the front cut-off valves turned down to take in water from the bottom of the boat, so that during the pitching of the boat at no time will the entrances of the said pipes be above water.

$O O'$ indicate two sets of oil-holding tanks, (one set at each side of the vessel,) which are provided each with a pipe o , having a valve o' , which connects with the main pipes $E E'$, such tanks also having outlet-pipes o^3 , which project through the sides of the hull at a point above the water-line. Any desired number of these tanks as may be conveniently placed at

suitable points aboard the ship can be used. In all cases, however, they are each independently connected with the main or hydraulic pipes $E E'$ and have discharge-pipes, as stated. The object of such tanks, discharge-pipes, and hydraulic connecting means is to spray oil on the troubled sea by hydraulic pressure.

It will be readily observed that by opening the valves in the pipes connecting the tanks with the main pipes $E E'$ the water in such pipes $E E'$ will rush with a great pressure into the tanks and by such pressure force the oil through the outlet-tubes of the said tanks with such force as to carry the oil from the immediate sides of the vessel to a considerable distance seaward, and thereby cover the surface of the water with a thin layer of oil, so that when a vessel is wrecked a boat constructed in accordance with my invention may take a circuit to the windward or seaward around the wrecked vessel and "pour oil on the troubled waters."

The tubes which extend from the well to the prow will keep the vessel supplied with fresh air when the hatches are closed. These tubes, however, need not enter the well, but may extend up into the hull, as shown at g^6 . Similarly-arranged air-tubes may be also arranged in the stern of the vessel, as indicated by dotted lines in Fig. 1, which tubes, as well as the forward tubes, in practice have a fan or suction wheel connected therewith to draw in air from the outside, such wheel being run by gearing from the power-dynamo or otherwise located in the engine-room.

R indicates a cabin for rescued passengers, which is disposed along the longitudinal center of the vessel, with the floor laid as clear above the main pipes $E E'$ as the machinery connected therewith will allow. Closets and store-rooms can be fitted in the end spaces, (indicated by y and y^7 .)

The remaining parts illustrated in the drawings and not here described being constructed, arranged, and operated in the manner shown in my patent above referred to, a detailed description is not deemed necessary.

From the foregoing description, taken in connection with the drawings, it is thought the advantages of a vessel constructed in accordance with my invention will be readily apparent.

It will be observed that a vessel constructed as described can be readily controlled in such a manner as to reduce the danger of collision therewith to a minimum. Furthermore, its structure is such that should either side be stove in only the particular compartment crushed would suffer, and as all the compartments are connected with the main pipes $E E'$ it will be impossible for the vessel to fill up, as the water as it pours in the side of the boat is utilized to propel the boat and forced out through the nozzles at the rear or sides thereof.

If deemed expedient, extra tubes connecting with the tubes $E E$ and extra pumping

apparatus may be provided, so that if the machinery connected with the pump-wheels hereinbefore referred to should become deranged or prove insufficient for great emergencies the extra set may be used.

The pump-wheels in the preferred construction have their hub or boss portion in diameter and length proportionate to the size and number of revolutions of the wheel required, the diameter of the rim being such that it will revolve close to the inner perimeter of the tube, but not in contact therewith, such rims being slightly wider than the hub is long. The vanes of the wheels concave upward, the concavity extending through their width about the center of the vanes, and such vanes are fixed at both edges of the hub and rim and are of sufficient width to reach the rear end of the hub, and increasing in width to the outer edge, so as to reach the lower or rear edge of the rim, they widening around the hub as an auger-blade. This operates so that all the water that comes within touch of the fore edges of the vanes will be forced through the tubes and nozzles, so that notwithstanding the back pressure of the water after passing the vanes none of it can regurgitate or escape back through and about the center of the wheel.

In the practical arrangement of parts the number of the vanes are regulated according to the size of the wheel, though never less than four.

So far as I know, water-wheels constructed on the above plan have heretofore not been used for propelling or other purposes. The main object in constructing it in the manner stated is to prevent regurgitation about the center under great back pressure.

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

1. An improved vessel, having a series of independently-disposed water-tight compartments, and longitudinal pipes communicating with the sea, having hydraulic propulsion means for forcing the water to the outside of the vessel connected with such compartments, as specified.

2. In a vessel of the kind described, the combination with the main tubes E, E', of a series of water-tight compartments, having each a valved outlet-pipe and a single tube connecting all of the said valved pipes with

the main tubes E, E', all arranged substantially as shown and described.

3. In vessels of the kind described, the main tubes extending longitudinally of the vessel and open at the front and having discharging laterals and nozzles, propeller-wheels held therein to force the water out through the nozzles, and a cut-off valve in front of the propeller-wheel, a series of water-tight compartments and a series of valved discharge-pipes connected with such compartments arranged to discharge into the main tube at a point between the propeller-wheel and the cut-off valve, all substantially as shown and described.

4. In a vessel as described, the combination of the well and the main tubes having propeller-wheels and cut-offs in advance of the wheels, pipes connecting the well with the main tubes, at a point between the propeller-wheels and the cut-offs, substantially as shown and described.

5. In a vessel, as described, the combination with the main tubes E, E' and means for forcing water therethrough to propel the vessel, of oil-holding tanks having discharge-nozzles projected through the sides of the vessel at a point above the water-line, and having valved pipes connected with the main tubes whereby water from said tubes can be utilized to force oil from the tanks, substantially as shown and for the purposes specified.

6. In a vessel of the kind described, the combination with the main tubes and adjustable discharge-nozzles a^2 a^2 at the rear ends of tubes, and a rudder arranged midway the discharge-nozzles, said rudder consisting of two concavo-convex plates arranged with the convex faces together, thereby exposing the concave faces to receive the jet from the discharge-nozzle, substantially as shown and described.

7. In a vessel of the class described, the combination with the longitudinal tubes, of the propelling-wheels arranged therein, a water-well, and a suction-pipe leading from the well to the tubes in advance of the propelling-wheels, substantially as shown and described.

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Witnesses:

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