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J. F. SCHULTHEIS.

Life-Boat.

No. 200,347. Patented Feb. 12, 1878.

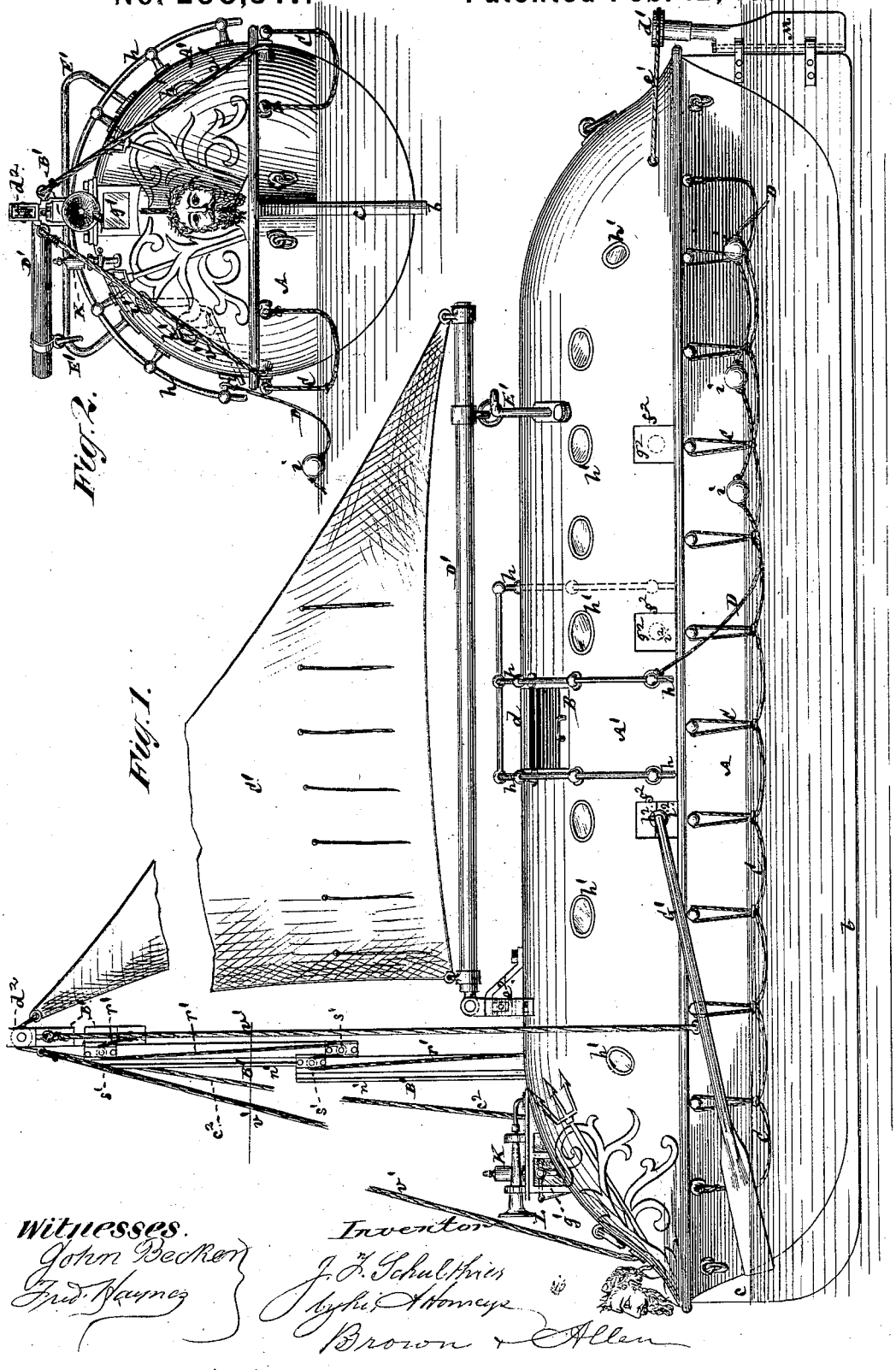

Fig. 2.

Fig. 1.

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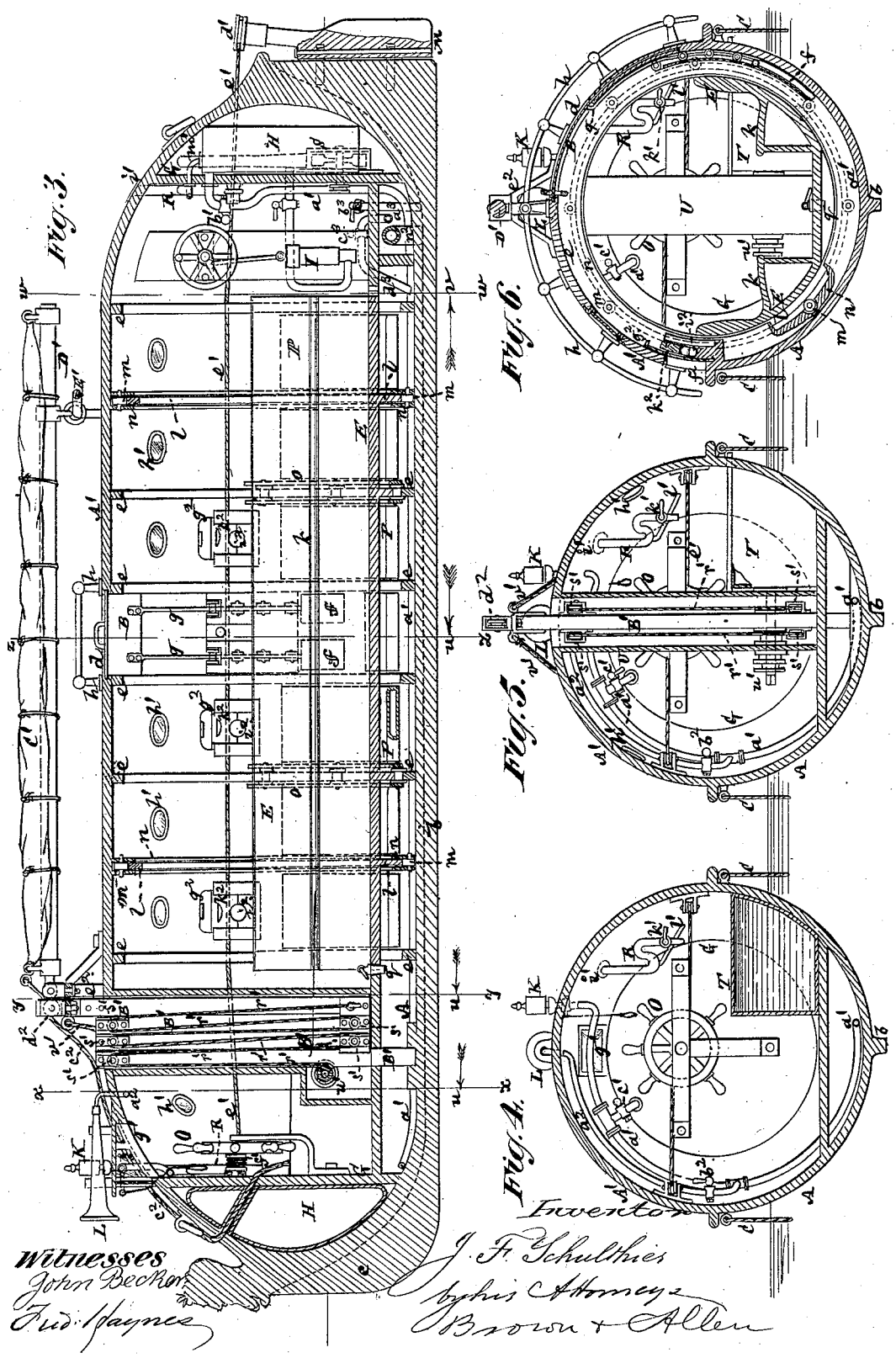

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Fig. 8.

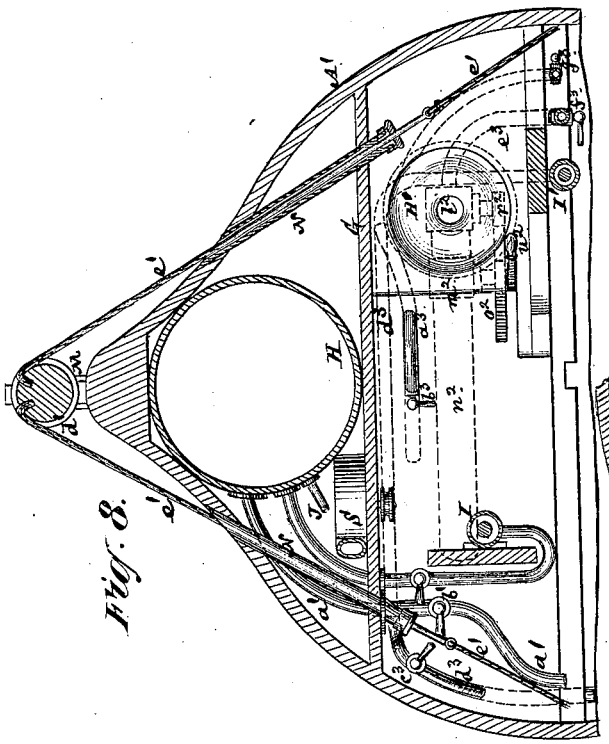


Fig. 10.

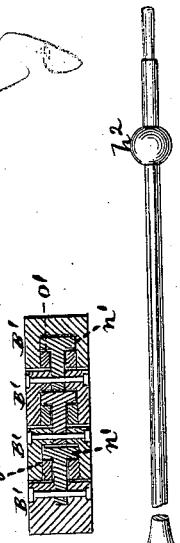


Fig. 9.

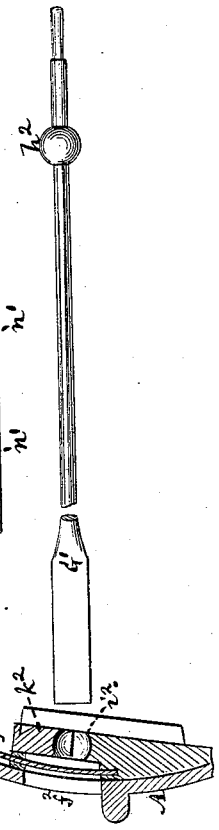
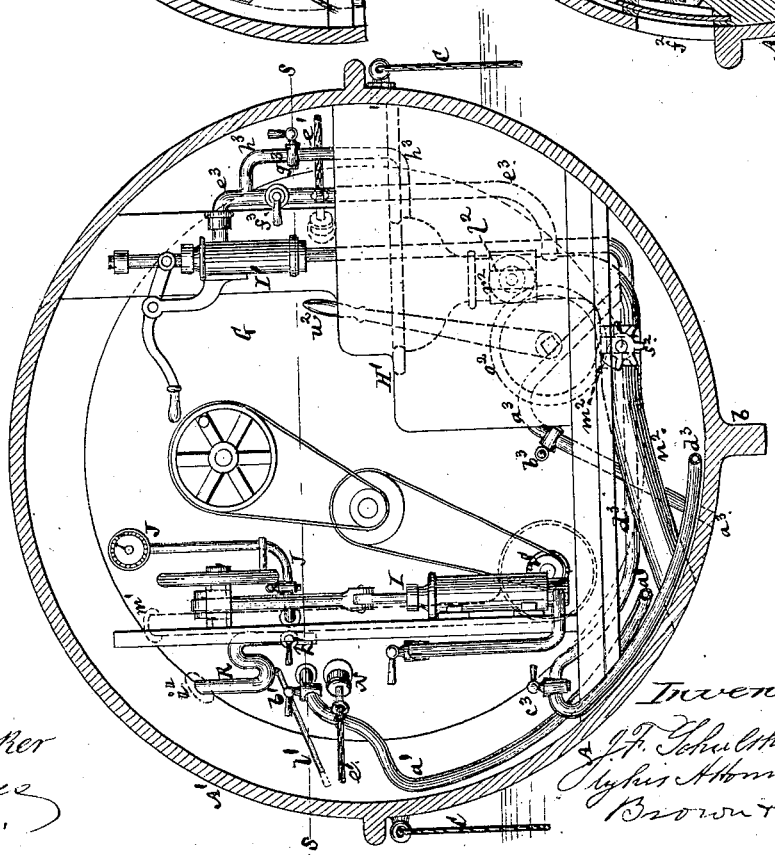


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN F. SCHULTHEIS, OF NEW YORK, N. Y.

IMPROVEMENT IN LIFE-BOATS.

Specification forming part of Letters Patent No. **200,347**, dated February 12, 1878; application filed August 28, 1877.

To all whom it may concern:

Be it known that I, JOHN F. SCHULTHEIS, of the city and State of New York, have invented certain new and useful Improvements in Life-Boats, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

The object of this invention is to construct a life-boat which shall combine increased strength with increased security against swamping, and greater comforts and conveniences for the occupants, together with enlarged facilities for navigating the boat and for signaling in case of distress.

The invention relates to boats of a covered or close cylinder-like construction; and consists in a novel construction of the outer body of the boat, the hull or lower portion of which is made with a keel and cut-water or bow, while the upper part of said body is of circular form.

The invention also consists in certain novel constructions and combinations of means for affording ingress to the boat, the same being composed of openings in one or both sides of the upper part of the body of the boat, closed by sliding doors to exclude water in a rough sea; an inner passenger receptacle or vessel carried by circular roller-frames or devices, which are supported by the body, to give steadiness during the rolling of the boat, and thereby to diminish the tendency to sea-sickness; means for compressing and storing air within the boat, and signals operated by liberating said air; a tiller or steering-wheel within the closed boat, and connections passing through stuffing boxes for operating the rudder; one or more air-traps for supplying fresh air to the interior of the boat, and for passing off water entering said trap or traps; a pump, fan, or blower for discharging foul air from the interior of the boat; a sectionally-constructed mast, capable of being raised by ropes and pulleys from the interior of the boat, together with a boom and sail, both adjustable, or so that said sail may be furled from said interior; ports and shutters in the sides of the boat, constructed to form close sockets or rowlocks for oars, having ball-joints or bearings, whereby the oars may be worked from the interior of the closed boat without passing water thereto; likewise a novel construction and combination of devices for facilitating the use of a water-closet in the boat, and of rinsing the same either by water from the outside or by bilge-water from the interior of the boat; and various other appliances or combinations of devices and details of construction which will add to the comfort, convenience, and safety of the passengers, and facilitate the navigation of the boat, substantially as hereinafter described.

Figure 1 represents a side view of a life-boat constructed in accordance with my invention, with its sail set, and as being propelled by oars. Fig. 2 is a front view of said boat with its mast lowered. Fig. 3 is a vertical longitudinal section of the same; and Figs. 4, 5, and 6 transverse section thereof on the lines *x x*, *y y*, and *z z*, respectively, all looking in direction of the arrows *u*. Fig. 7 is a transverse section upon a larger scale on the line *w w*, looking in direction of the arrow *v*. Fig. 8 is a horizontal section upon the line *s s* of the rear portion of the boat. Fig. 9 is a vertical section of a portion of the body of the boat, in illustration of means for propelling the latter by oars, showing also one of the oars detached. Fig. 10 is a horizontal section of an extensible mast used in the boat. Figs. 8, 9, and 10 are upon the same enlarged scale as Fig. 7 of the drawing.

The body of the boat, which may be of wood or metal, and is of a covered or close construction both top and bottom, is composed of a hull or lower portion, A, which may be of the usual boat-build, having a keel, *b*, and bow or cut-water *c*, and of a top or upper portion, A′, of circular form, the two parts constituting a boat-body which, at or near midships, is of an approximately cylindrical form. This construction of the body not only serves to exclude water from entering the boat to swamp it, but, in case of the boat capsizing, it will right itself.

Access is had to the interior of the boat and egress therefrom through one or more openings, *d*, preferably two or more, on opposite sides, in the top or upper portion A′ of the body. These openings are closed by sliding

doors B, which are fitted to work in curvilinear ways corresponding with the transverse figure of the boat, said ways being formed within circular ribs *e*, which serve to stiffen the interior of the body.

Rollers may be applied to ease the run of these doors, and counterbalance-weights *f* be attached to them by sliding rods *g* for the same purpose. When said doors are closed they prevent water from entering the boat, even though the sea should make a clean breach over it.

Hand-rails *h* are arranged on either side of the openings *d*, to assist passengers in entering and leaving the boat.

On the exterior of either side of the hull A is rigged a life-rope, C, suspended at points from above along the hull, and arranged to form a series of pendent loops, which are connected below. These life-ropes serve to sustain persons in the water hanging onto the boat, and to assist them in boarding the same.

One or more drag-ropes, D, may also be attached to the body of the boat for the same purpose as the life-ropes C. These ropes D, which may be of any desired length, are only attached at their one end to the body of the boat, and are studded or provided throughout their length with floats *i*, arranged at suitable distances apart, and serving to sustain in the water, by the buoyancy they give to the ropes D, a large number of persons who may have become immersed and are desirous of reaching the boat.

Within the body of the boat, extending throughout the greater part of the length thereof, and designed, when at rest, to occupy a position within the hull or lower part A of the body, is a vessel or receptacle, E, which forms the passenger and goods compartments, or carrying portion of the boat. This receptacle is constructed and fitted so that, although supported by the body of the boat, and more or less filling the hull thereof, it is independent of said body, and so that the latter, in rolling by the motion of the sea, will work round or about it and relieve it of much of said motion, thus reducing the tendency to sea-sickness and adding to the comfort of the occupants. To this end, said vessel or receptacle E, which may be constructed with seats *k* on opposite sides of it, is left loose or free, and has secured to its exterior circular tracks or frames *l*, arranged to work in contact with rollers *m* in a fixed outer circular frame, *n*, fast to the interior of the body of the boat.

Intermediate loose roller-frames *o* may also be interposed between the circular exterior of receptacle E and certain of the fixed circular ribs *e*, to assist in the support of the receptacle E by the body of the boat, and free movement of said body around or about said receptacle. Although the passenger-receiving vessel or receptacle E is thus fitted loose within the body of the boat, it may, if desired, be secured to the hull by inserting a locking-bolt, *q*, at either or both ends of said receptacle, within a divided aperture formed partly in said receptacle and partly a fixed portion of the body.

The body of the boat is fitted, near either end of it, with bulk-heads G, which are constructed to form or contain compressed-air reservoirs H. These reservoirs H are connected by a pipe, a^1, running along and within the bottom of the body of the boat, and curving upward at either end, and controlled by a cock, b^1, to pass compressed air, as required, from the rear reservoir H to the front reservoir H. Air is compressed in the rear of said reservoirs by means of a hand-pump, I, and a pressure-gage, J, serves to indicate the pressure within said reservoir. Such air is drawn off as required, on opening the rear cock b^1 and a front cock, c^1, to supply the front reservoir H, from which air may be taken to sound a signaling-whistle, K, or to sound a fog-horn, L; or the air to sound the whistle K may be taken direct from the pipe a^1, also the fog-horn L be supplied direct by a branch-pipe, a^2, on opening a cock, b^2, and the front reservoir H, which may be a fixed air-chamber, not be drawn upon for supplying air to the signaling apparatus. Thus the means for compressing the air to work the signals are arranged in rear of the boat, out of the way of the steering apparatus, which is in front.

Said steering apparatus is constructed and arranged as follows: M is the rudder in the stern of the boat. Mounted on the upper end of the rudder is a pulley, d^1, to which (see Figs. 1, 3, and 8) steering ropes or chains e^1 are fastened at their one end, said ropes passing round opposite sides of said wheel. These ropes are attached to rods, which pass through tubular guides and stuffing-boxes N in front of air-reservoir H, and from thence are continued to the windlass f^1 of the steering-wheel O, in the front part of the interior of the boat, a glazed opening, g^1, Fig. 4, in front of the boat, allowing for the look-out of the man at the wheel. The guides and stuffing-boxes N prevent leakage where the steering-ropes pass out through the stern to connect with the rudder.

The interior of the hull may be fitted with independent air-chambers P, to contribute to the safety of the boat in case of the hull springing a leak or otherwise being ruptured. The upper closed portion of the body of the boat is provided with any number of bull's-eyes h^1, to give light to the interior of the boat.

Fresh air is supplied to the interior of the boat through one or more air-traps, R, which receive the air through openings i^1 covered by wire gauze, and arranged in the upper portion A′ of the body. These traps, which may be provided with a cock, k^1, for opening and closing them as required, have outlet-branches l^1 for carrying off any water that may wash into the traps, said branches connecting with the lower elbow of the traps, and passing out through the body of the boat, to run off the water washing into them.

To further keep the atmosphere pure in the

boat, foul air collecting therein is discharged by means of a pump, fan, or blower, S, which may be driven by hand through speeding-up mechanism, as shown in Fig. 7, and which operates to exhaust the air from the interior of the boat and to force it through a gauze-covered pipe or outlet, m^1 in the upper portion A′ of the body of the boat.

A water-tank, T, is or may be arranged in the forward portion of the boat, or in any other suitable part thereof, to supply the occupants of the boat with fresh water.

The propulsion of the boat may be effected either by sails or oars, or by both. When a sail is used, a sectionally-constructed mast is employed, arranged to be capable of extension from out of or contraction within a water-tight compartment, U, in the forward portion of the boat. (See Figs. 3, 5, and 6.) This mast is constructed of two or more sections or independent pieces, B′, Figs. 3, 5, and 10, provided with vertical metallic flanged tongues n^1 and sockets o^1, to provide for their retention in position when shut down or closed, one in front of the other, as shown in Figs. 3, 5, and 10, and also to provide for their sliding extension, one above the other, by means of ropes r^1, upper and lower pulleys s^1, and a raising and lowering windlass, w^1, to which the ropes r^1 are attached at their one end and to a cleat on the outer mast-section at their other end, the front or innermost mast-section being stationary. As the mast-sections are extended or raised, a shoulder on the lower end of each sliding mast-section strikes an upper shoulder or projection on the section against or in front of which it slides, to hold the several sections at their proper elevation, and to insure the regular elevation of the several sections till the whole mast is raised, as shown in Fig. 1. Guy-ropes v' may be attached at their upper ends to the outermost mast-extension, and pass through guides or stuffing-boxes in the body of the boat, at their lower ends, to steady or support the mast when raised.

C′ is the sail carried by a boom, D′, and raised or lowered by a rope, c^2, passing through a guide or stuffing-box in the forward portion of the boat, and around a pulley, d^2, on the outermost mast-extension B′, as shown in Fig. 1. The boom D′ is disconnected from the mast, being attached at its inner end by a universal joint, or in a freely-moving manner with an upright, e^2, mounted on the upper portion A′ of the body in proximity to the mast. The outer end of said boom is connected, by a ring, with a cross-rail, E′, bent downward at its opposite ends to connect with the top A′ of the boat, and along or to opposite sides of which the free or outer end of the boom is at liberty to be adjusted.

To propel the boat by oars, (see Figs. 1, 6, and 9,) the closed body of the boat has side apertures f^2 in it, which are closed by sliding shutters g^2 when it is not required to project the oars G′ through said openings. These oars are each provided or fitted near their handle ends with a spherical protuberance or ball, h^2, which, when the oars are to be used, rest in rowlocks, each of which is constructed to form a spherical socket, i^2, formed, in part, by a sliding inner shutter, k^2, arranged opposite either outer shutter g^2, and formed with a semi-spherical socket made to match a fixed semi-spherical socket beneath, for the ball h^2 of the oar to rest in. Thus, by opening the shutters g^2 and closing the shutters k^2, the oars are made to work in water-tight ball-and-socket joints or rowlocks.

H′ is a water-closet, which may be arranged in the front portion of the boat. This water-closet (see more particularly Fig. 7) is fitted with duplicate valves l^2 m^2 in the soil-pipe n^2, arranged one above the other, and connected by gearing o^2 r^2 s^2 operated by a lever, u^2, so that when one of said valves is open the other is closed, thus effectually excluding sea-water from rushing up the soil-pipe as said valves are alternately opened to pass the deposit. I′ is a pump designed to be worked by hand from the interior of the boat, for washing out the soil-pipe, or for clearing it of deposit, and for rinsing out the bowl of the closet. This pump has duplicate suction connections. Thus, (see Fig. 7,) it either connects by a pipe, a^3, on opening a cock, b^3, with the sea direct, or on closing the cock b^3 and opening a cock, c^3, in a pipe, d^3, it draws and utilizes the bilge-water of the boat to discharge the soil and rinse the bowl of the closet. The water drawn in by said pump is discharged to expel the soil deposited between the valves l^2 m^2 by means of a pipe, e^3, controlled by a cock, f^3, after which said cock may be closed, and a cock, g^3, in a branch pipe, h^3, be opened to rinse out the bowl of the closet.

I claim—

1. The air-pump I, in combination with the body of the boat, the bulk-heads G at the ends of said boat, the air-reservoirs H, and one or more pneumatic signals, K L, substantially as specified.

2. The combination, with the body of the boat having a close top, A′, of one or more air-traps, R, provided with outlets l^1 for water collecting therein, substantially as specified.

3. The sectionally-constructed mast composed of tongued and grooved sliding sections B′, arranged one in front of the other, in combination with the hoisting-ropes r^1, the upper and lower pulleys s^1, and the windlass w^1, substantially as specified.

4. The boom D′, in combination with the upright e^2, by which it is jointed at its inner end to the top A′ of the boat, the guide-rail E′ for the outer end of the boom, and the extensible mast, essentially as described.

5. The combination of the outer shutters g^2 with the inner shutters k^2 and the spherically-constructed rowlocks i^2 formed in part by said inner shutters, essentially as described.

6. The combination, with the boat, of the water-closet H′, provided with upper and lower valves l^2 m^2 in its soil-pipe n^2, and mech-

anism for opening and closing said valves in reverse relation with each other, essentially as described.

7. The combination, with the water-closet, of the pump I′, the suction sea-pipe a^3, the bilge-water suction-pipe d^3, the cocks b^3 c^3, the delivery-pipe e^3, and the soil-pipe n^2, essentially as described.

8. The combination of the steering-wheel O, ropes e^1, provided with rods in line therewith and playing longitudinally through the stuffing-boxes N, and the pulley d^1 on the rudder-staff, substantially as described.

9. The spherically-formed rowlock i^2, composed in part of a sliding shutter, k^2, in combination with the oar having a spherical enlargement to fit said rowlock, substantially as described.

10. The combination, with the pump I′ in a boat, of the rinsing-pipe h^3, provided with a cock, z^3, and entering the bowl of the water-closet H′, and the pipe e^3, provided with the cock f^3, and connected to said pipe n^2 below the bowl of said water-closet, substantially as and for the purpose set forth.

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