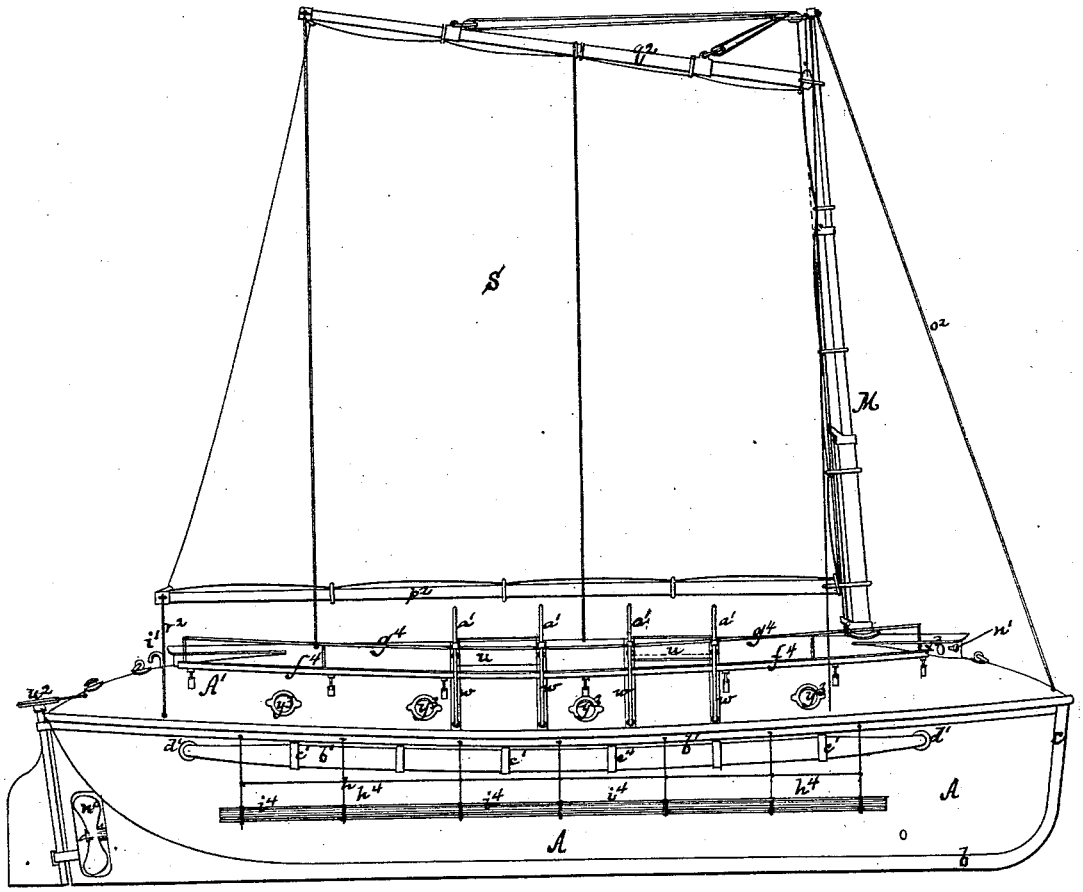
4 Sheets—Sheet 1.

G. TREMBERGER & M. J. STEIN.

Life-Boat.

No. 211,807. Patented Jan. 28, 1879.

Fig. 1.



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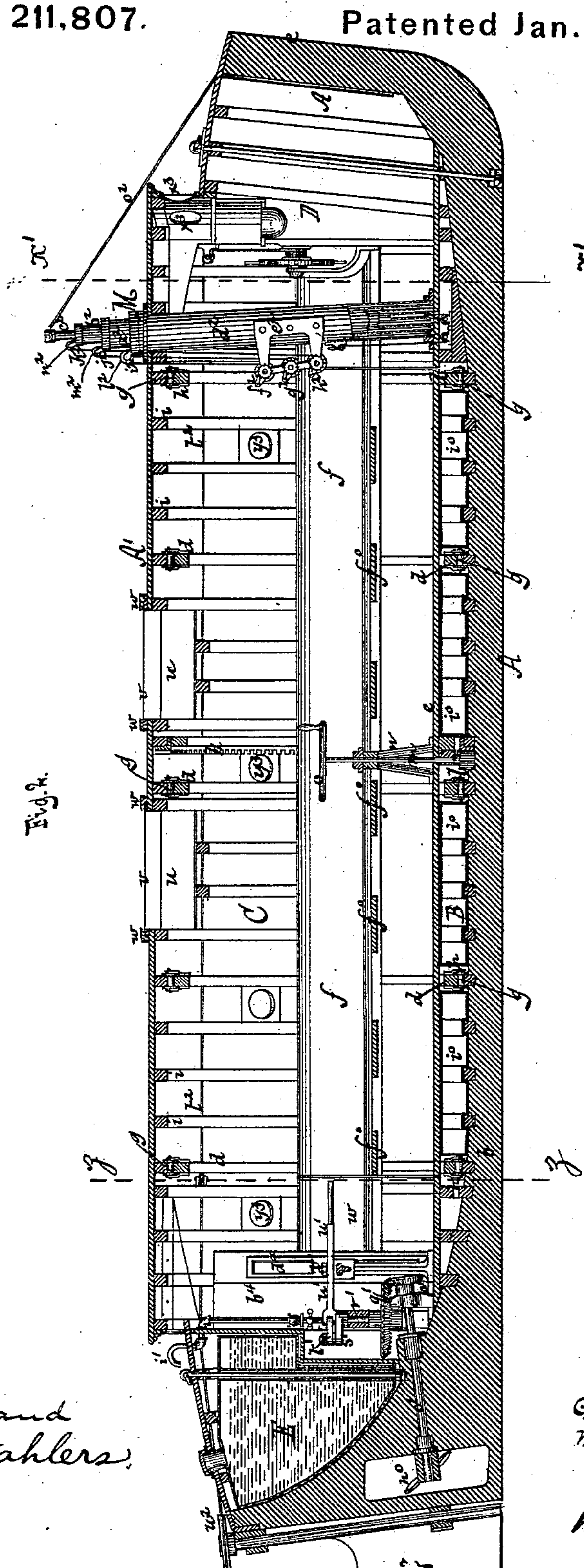

Fig. 2.

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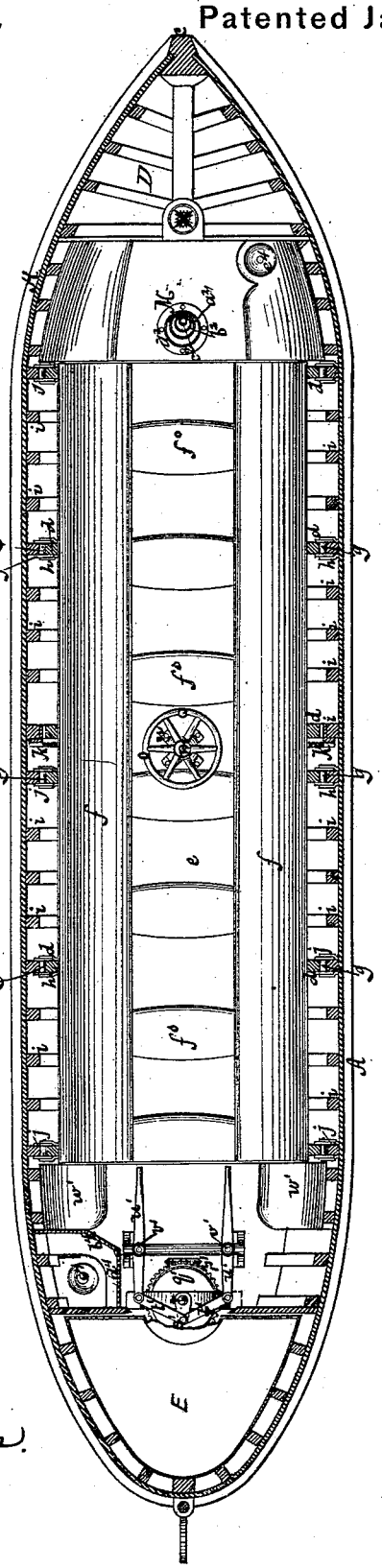
Fig. 3.



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4 Sheets—Sheet 4.

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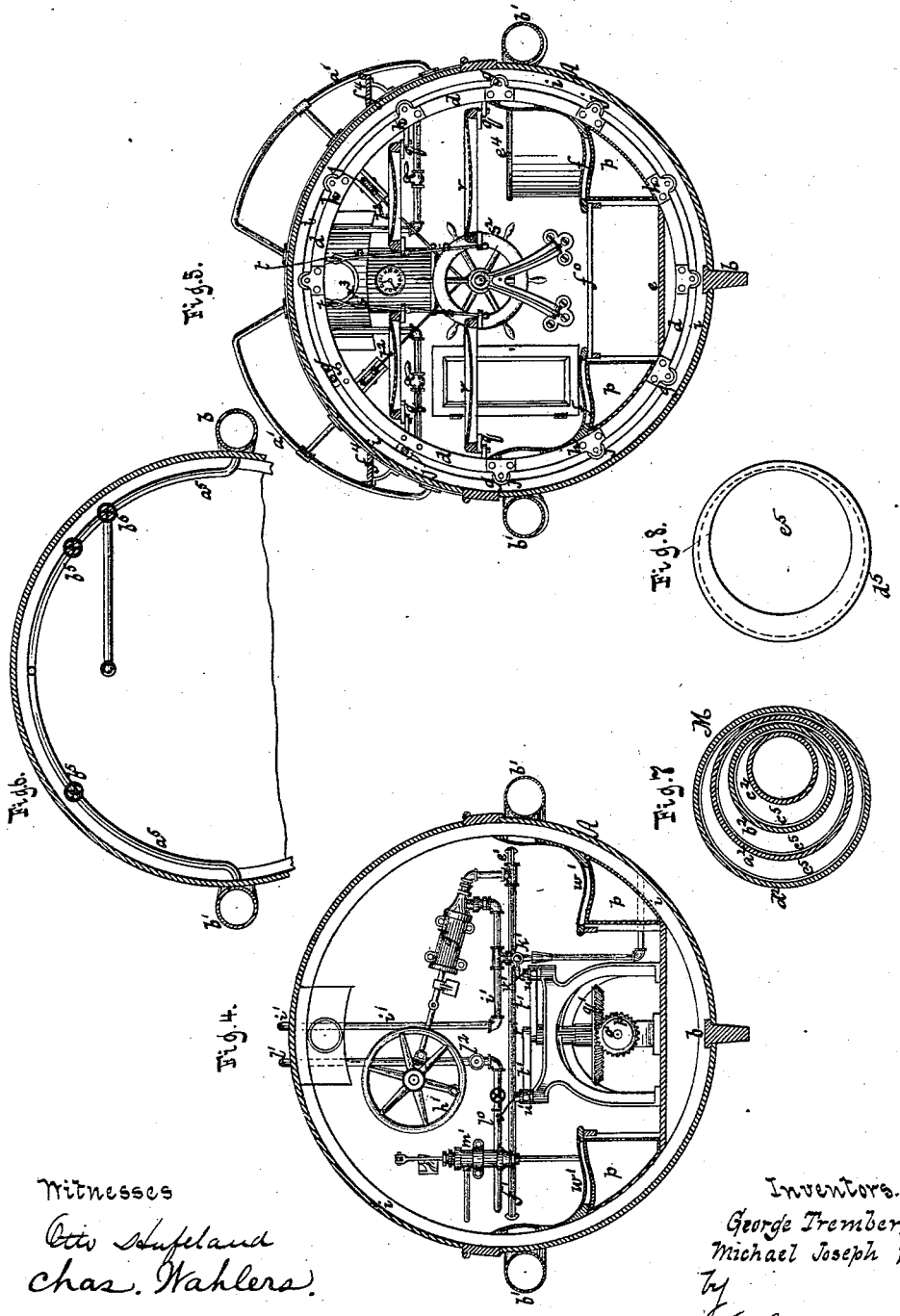

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UNITED STATES PATENT OFFICE.

GEORGE TREMBERGER AND MICHAEL J. STEIN, OF NEW YORK, N. Y.

IMPROVEMENT IN LIFE-BOATS.

Specification forming part of Letters Patent No. **211,807**, dated January 28, 1879; application filed June 14, 1878.

To all whom it may concern:

Be it known that we, GEORGE TREMBERGER and MICHAEL JOSEPH STEIN, both of the city, county, and State of New York, have invented a new and useful Improvement in Life-Boats, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view, the sail of the boat being set. Fig. 2 is a longitudinal vertical section. Fig. 3 is a horizontal section. Fig. 4 is a transverse vertical section in the plane *z z*, Fig. 2. Fig. 5 is a similar section in the plane *x' x'*, Fig. 2. Fig. 6 is a cross-section, showing the connection of the air-cushions with the fog-horn. Fig. 7 is a horizontal section of the mast. Fig. 8 is a top view of the mast-well.

Similar letters indicate corresponding parts.

This invention relates to a boat the middle portion of which is cylindrical in form, and which is provided with a keel and cut-water, and with spaces in front and rear for provisions and water, the cabin or passenger-room being situated in the middle, and arranged to turn on circular ribs in the cylindrical body of the boat, so that it is adapted to retain its horizontal position independent of the rolling motion of the boat. A toothed rim secured to the body of the boat, and a pinion mounted on a shaft which is secured to the revolving cabin, serve to adjust or to control the position of said cabin.

The boat is provided with a telescopic mast, which can be raised and lowered from the inside, and with a propeller, to which motion is imparted by hand-levers connected to the propeller-shaft by mechanism of a novel and peculiar construction. Various other appliances and details of construction serve to add to the comfort, convenience, and safety of the passengers, as will be hereinafter more fully described.

In the drawings, the letter A designates the lower portion or hull of our boat, which may be made of wood or metal, and which is of a covered or close construction, both top and bottom. Said hull is provided with a keel, *b*, and with a bow or cut-water, *c*, and with a top or deck, A', of circular form, the two parts A and A' constituting a boat-body, the middle portion, B, of which is of cylindrical form and adapted to support the cabin C, while in the ends of the boat are spaces, D E, for provisions and water.

The cabin C consists of a series of parallel rings, *d*, which are connected together by the floor *e*, Fig. 2, and by the seats *f*, Figs. 2 and 3. Each of these rings is provided with a series of rollers, *g*, which revolve freely in brackets *h*, secured to the sides of the rings *d*, Fig. 5, and which fit nicely between the rings and between circular ribs *i*, secured to the body of the boat, each of the rollers being provided with flanges *j*, Fig. 2, which straddle the ribs *i*, and prevent the cabin from moving in the direction of the length of the boat.

By this arrangement the cabin is free to roll in the body of the boat, and consequently the effect of the rolling motions of the boat is not felt by the passengers occupying the cabin.

On one of the circular ribs *i*, Figs. 2 and 3, is firmly secured a toothed rim, *k*, which gears into a pinion, *l*, mounted on the bottom end of a shaft, *m*, that has its bearing in a standard, *n*, secured to the bottom of the cabin, and is provided with a hand-wheel, *o*. By turning this hand-wheel the position of the cabin can be governed, and, if desired, the hand-wheel can be so arranged that it can be locked, so as to retain the cabin firmly in its position.

In practice, two such toothed rims will be applied, and the pinions which engage with these two rims will be mounted on a shaft situated beneath the bottom of the cabin, so as to prevent an unequal strain, and facilitate the operation of adjusting the cabin when the same is well filled.

The seats *f* extend throughout the entire length of the cabin C, and the spaces beneath them form closed chambers *p*, so that in case of an emergency the seats have sufficient buoyancy to support several persons floating in the water. The seats *f* are connected by transverse seats f^0, so as to provide additional sitting room in the cabin.

Above the backs of the seats *f* are situated brackets *q*, which are firmly secured to the parallel rings *d*, (see Fig. 5,) and which serve to support the inner edges of the hammocks *r*. These hammocks consist of canvas bottoms

secured to suitable frames of wood or metal, and their outer edges are supported by rods s, suspended from staples t, which are secured in the rings d. When the rods s are unhooked from the staples t, the hammocks can be taken down or rolled up and strapped to the backs of the seats f. Between the rings i and outer surfaces of the cabin are formed air-chambers i^0, which materially increase the buoyancy of the boat.

Access is had to the interior of the boat and egress therefrom through one or more openings, u, preferably two or more, on opposite sides, in the top or upper portion, A′, of the body. These openings are closed by sliding doors v, Figs. 1 and 2, which are fitted to work in curvilinear ways corresponding with the shape of the boat, said ways being formed within ribs w, which serve to stiffen the upper portion, A′. The ways of the sliding doors are packed with india-rubber, so as to insure tight joints when the doors are closed. Hand-rails a^1 are arranged on either side of the openings u, to assist passengers in entering and leaving the boat. The doors are fastened from the inside by hooks or other suitable fastenings.

On the exterior of either side of the hull A is situated an air-cushion, b^1, Fig. 1, which is made of india-rubber or other suitable material, and which is retained in position by rings c^1. The tapering ends of these air-cushions are held in position by thimbles d^1, Fig. 1, and they connect, by means of pipes e^1 f^1, with an air-pump, g^1. (See Fig. 4.) These air-cushions serve to increase the buoyancy of the boat, and particularly its steadiness, and they also prevent the boat from being crushed if it comes in contact with a vessel or other object.

Motion is imparted to the air-pump by means of a hand-wheel, h^1, and it draws in its air through the suction-pipe i^1, the outer end of which is seen in Fig. 1. This suction-pipe is provided with a blow-off cock, k^1, for the purpose of letting off any water which may find its way into the same.

A pipe, l^1, having a mouth-piece, l^2, serves to carry off the foul air from the interior of the boat, and a pipe, l^0, which is connected to the lower end of this pipe, and provided with a suitable stop-cock, serves to carry off water therefrom. An ordinary hand-pump, m^1, serves to eject the bilge-water. At their forward ends the air-cushions b^1 are connected to the fog-horn n^1, which is situated in the bow of the boat. (See Fig. 1.) We make this connection by means of pipes a^5, (see Fig. 6,) having stop-cocks b^5, which permit of conducting the air from the air-cushions to the fog-horn, or of letting out such air into the boat, so as to increase the ventilation.

Our boat is supplied with a propeller, n^0, and with a telescopic mast, M. The propeller n^0 is mounted on a shaft, o^1, (see Figs. 2, 3, and 4,) which is geared together by bevel-wheels p^1 q^1, with a vertical shaft, r^1, on the upper end of which is secured a crank, s^1, which connects, by means of links t^1, with hand-levers u^1. These hand-levers turn on pivots v^1, and they are operated from benches w', secured in the stern portion of the boat. The motion of these hand-levers has some resemblance to that of ordinary oars, and by their means a rapid revolving motion can be imparted to the propeller-shaft.

The mast M consists of three (more or less) sections, a^2 b^2 c^2, which fit one into the other, the lowest section, a^2, being fitted into a well, d^2, which extends down through the deck, and is firmly secured on the bottom of the forward section of the boat. To the side of this tubular well are secured two brackets, e^2, which form the bearings for three windlasses, f^2 g^2 h^2, and from these windlasses extend ropes i^2 j^2 k^2, over pulleys l^2 m^2 n^2, to the bottom parts of the several sections of the mast, the pulley l^2 being secured to the top of the well d^2, the pulley m^2 to the top of the section a^2, and the pulley n^2 to the top of the section b^2 of the mast. (See Figs. 1 and 2.)

By manipulating the windlasses f^2 g^2 h^2, the sections of the mast can be raised to the position shown in Fig. 1.

When the mast is raised, it is steadied by suitable stays o^2. To the lower section, a^2, of the mast is attached a boom, p^2, and to the upper section a gaff, q^2, which can be set by suitable halyards extending down to the interior of the boat. Between the gaff and the boom is secured the sail S. The boom is set from the interior of the boat by suitable sheets r^2.

Each of the mast-sections a^2 b^2 c^2 is provided with a crescent-shaped flange, c^5, at its lower end, (see Fig. 7,) and to the upper end of each of said sections is secured a cap, d^5, (see Fig. 8,) which is provided with an eccentric opening, e^5, so that when the mast-sections are put together they are held in eccentric positions relatively to each other, and thus a space is formed between them for the passage of the ropes by which the sections are operated.

The steering-wheel s^2 is situated in the forward section of the boat, and it connects, by ropes or chains t^2, with a pulley, u^2, mounted on the stem of the rudder v^2, which turns in hinges attached to the stern part of the boat. Suitable bull's-eyes x^3, in the forward part of the boat, allow the helmsman to look out conveniently in every direction, and other bull's-eyes, y^3, secured in the sides of the boat, give access of light to the cabin. Near the stern of the boat is placed the reservoir E, which contains fresh water. In front of this reservoir, and separated therefrom by a partition, b^4, is situated a private apartment, c^4, to which access can be had through a door, d^4, Fig. 3. In the forward section of the boat is situated a wash-basin, e^4. On both sides of the top part, A′ of the boat are secured planks f^4, which are provided with hand-rails g^4, to permit persons to walk thereon with safety.

From the sides of the boat are suspended

nettings h^4, in which are secured cork cushions i^4, so that persons floating in the water can get a firm hold, and are enabled to make their way up on the sides of the boat, and to gain admittance to its interior when the doors v are opened.

We are aware that boats or vessels have been fitted with cabins adapted to adjust themselves according to the motions of the vessel; also that masts have been constructed of sections which are connected by grooves and tongues, so that they can be extended or contracted, and we do not, therefore, make broad claims to these features.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a boat, of two parts, A A′, the middle portion, B, thereof being cylindrical and provided with circular ribs i and a cabin, C, composed of rings d, connected together by the floor e and seats f, and rollers g, mounted on brackets h, which are secured to the rings d, the rollers g being made to fit between the rings d and the ribs i, and being provided with side flanges, j, which straddle the ribs i, substantially as and for the purpose herein shown and described.

2. The combination, with the rings d of the cabin C, and with the circular ribs i, of a toothed rim, k, which is firmly secured to one of the ribs i, and a shaft, m, carrying a pinion, l, and a hand-wheel, o, and mounted in a standard secured to the floor e of the cabin, substantially as and for the purpose set forth.

3. The combination, with the cylindrical body B and the revolving cabin C, of air-chambers i^9, formed between the circular ribs i of the body A and the rings d of the cabin, substantially as and for the purpose described.

4. The combination, with the boat A A′, of horizontally-arranged pivoted hand-levers u^1, links t^1, vertical shaft r^1, bevel-wheels p^1 q^1, and propeller n^1, all constructed and arranged substantially as shown and described.

5. The combination, with the mast-sections a^2 b^2 c^2, of crescent-shaped flanges, and of caps provided with eccentric openings for retaining the mast-sections in eccentric positions toward each other, and to give room for the ropes which serve to operate the mast-sections, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 10th day of June, 1878.

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MICHAEL J. STEIN. [L. S.]

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