

No. 690,909.

Patented Jan. 7, 1902.

R. D. MAYO.  
LIFE BOAT.

(Application filed Jan. 21, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1

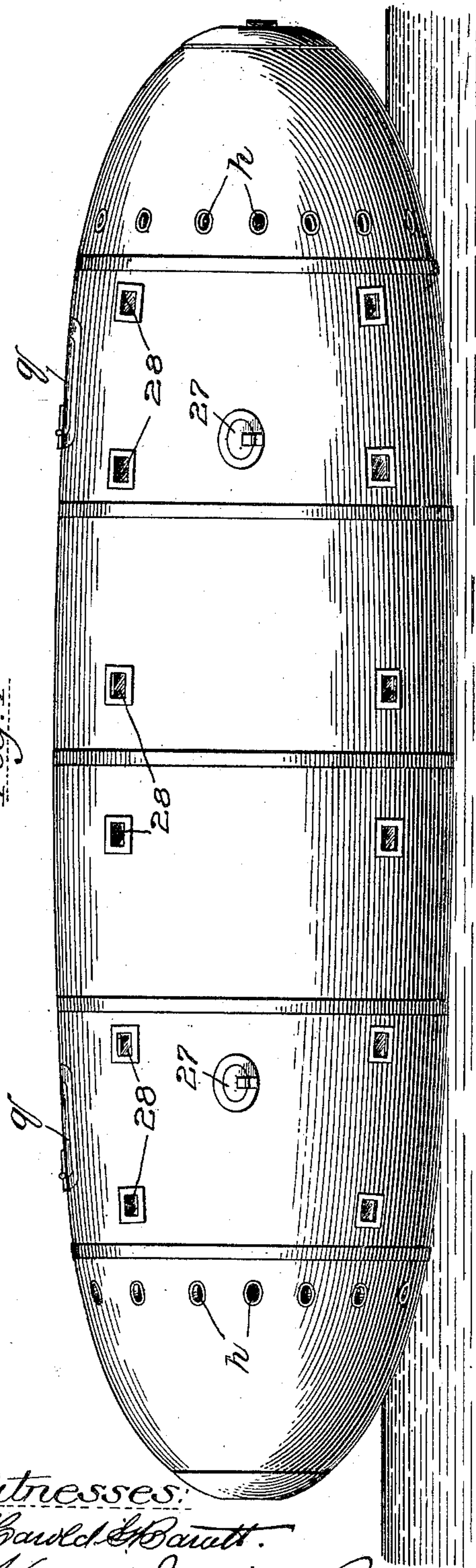
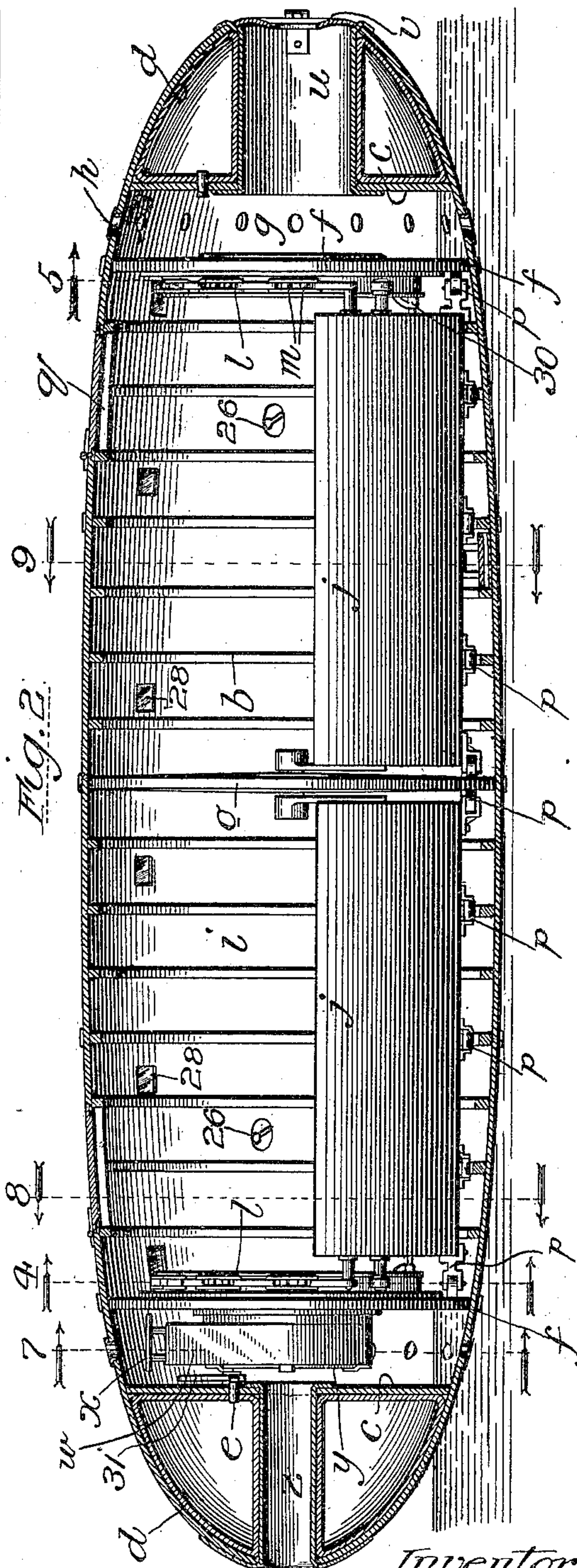


Fig. 2



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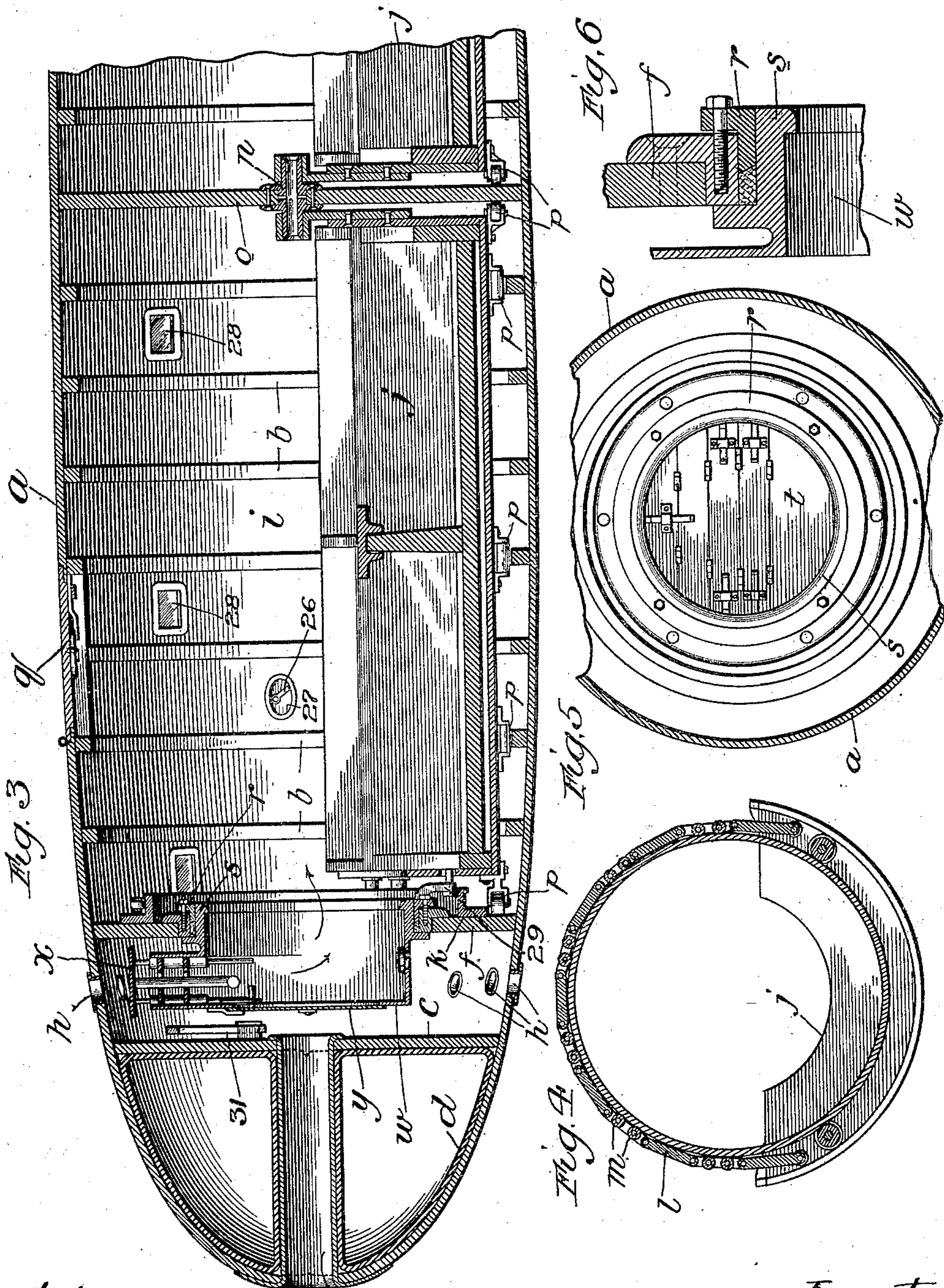
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Fig. 9

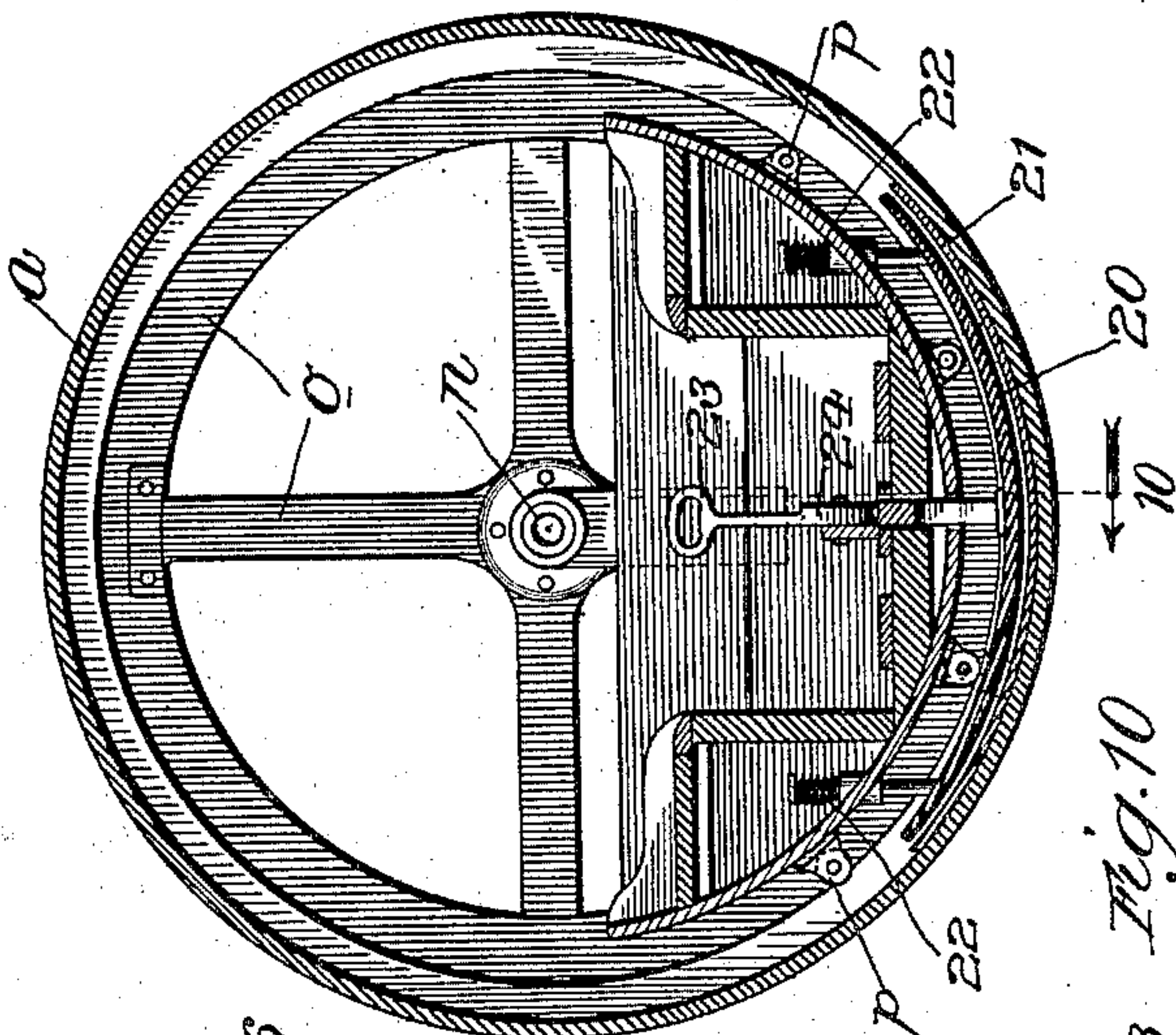


Fig. 8

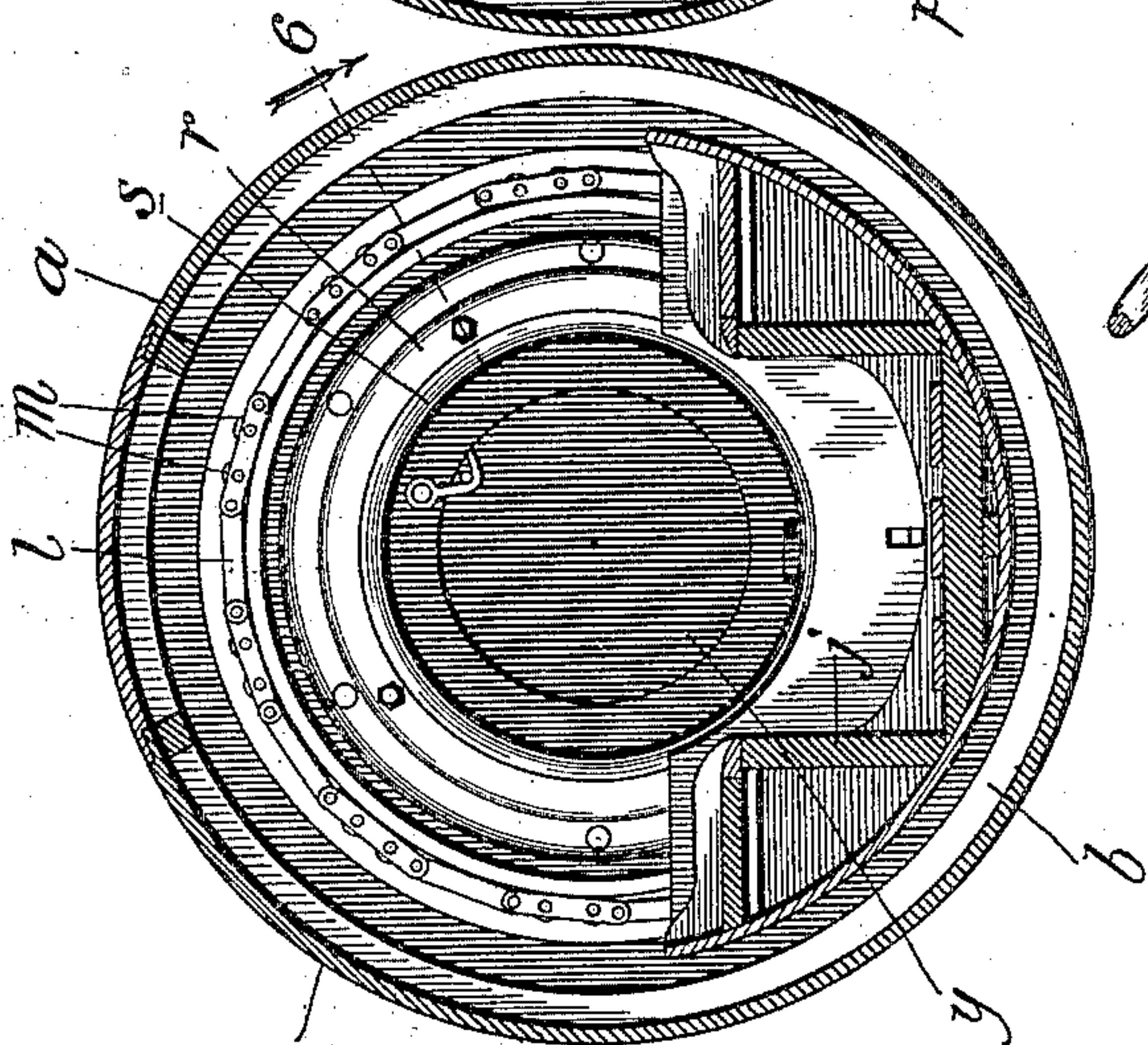
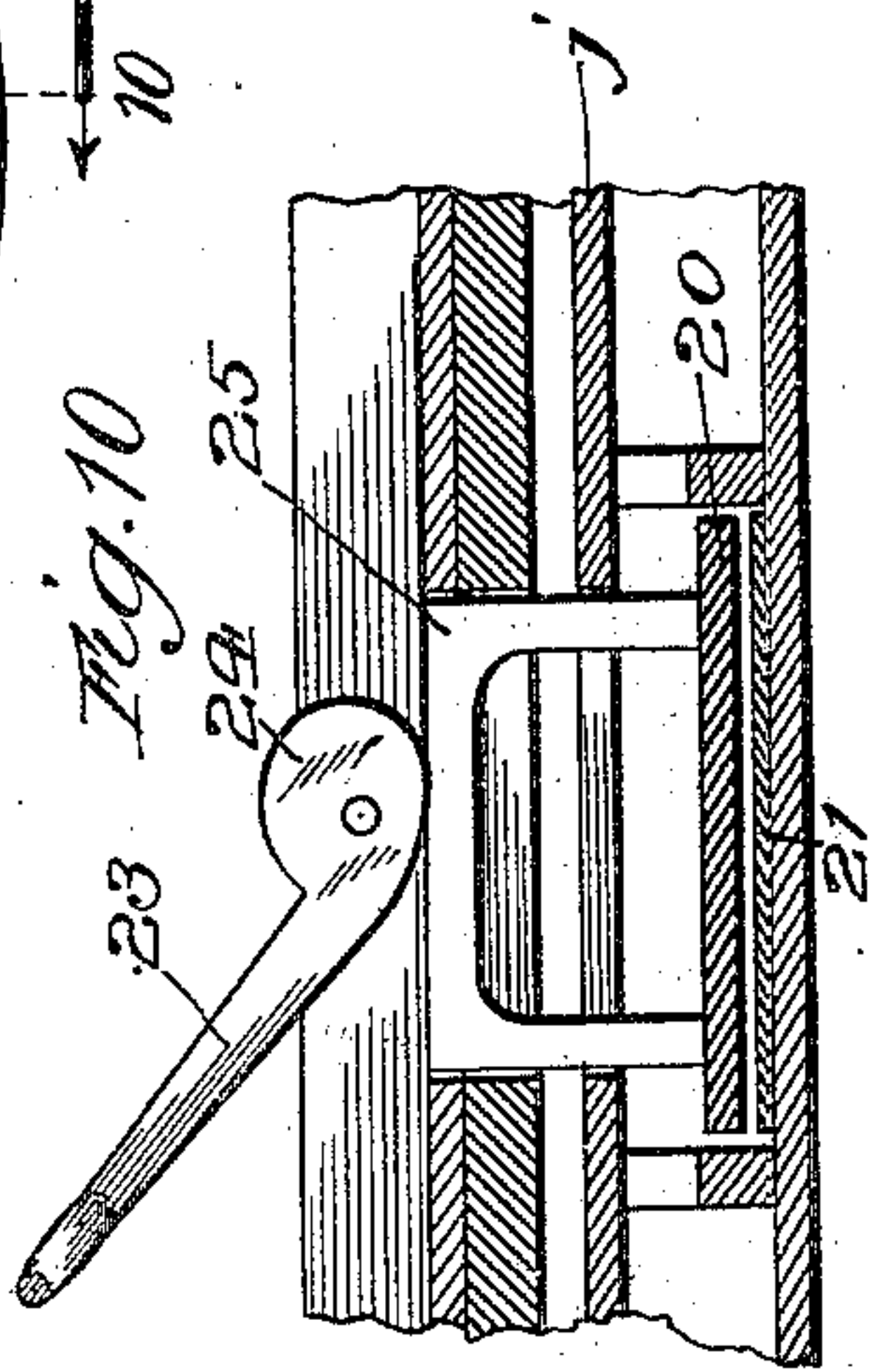
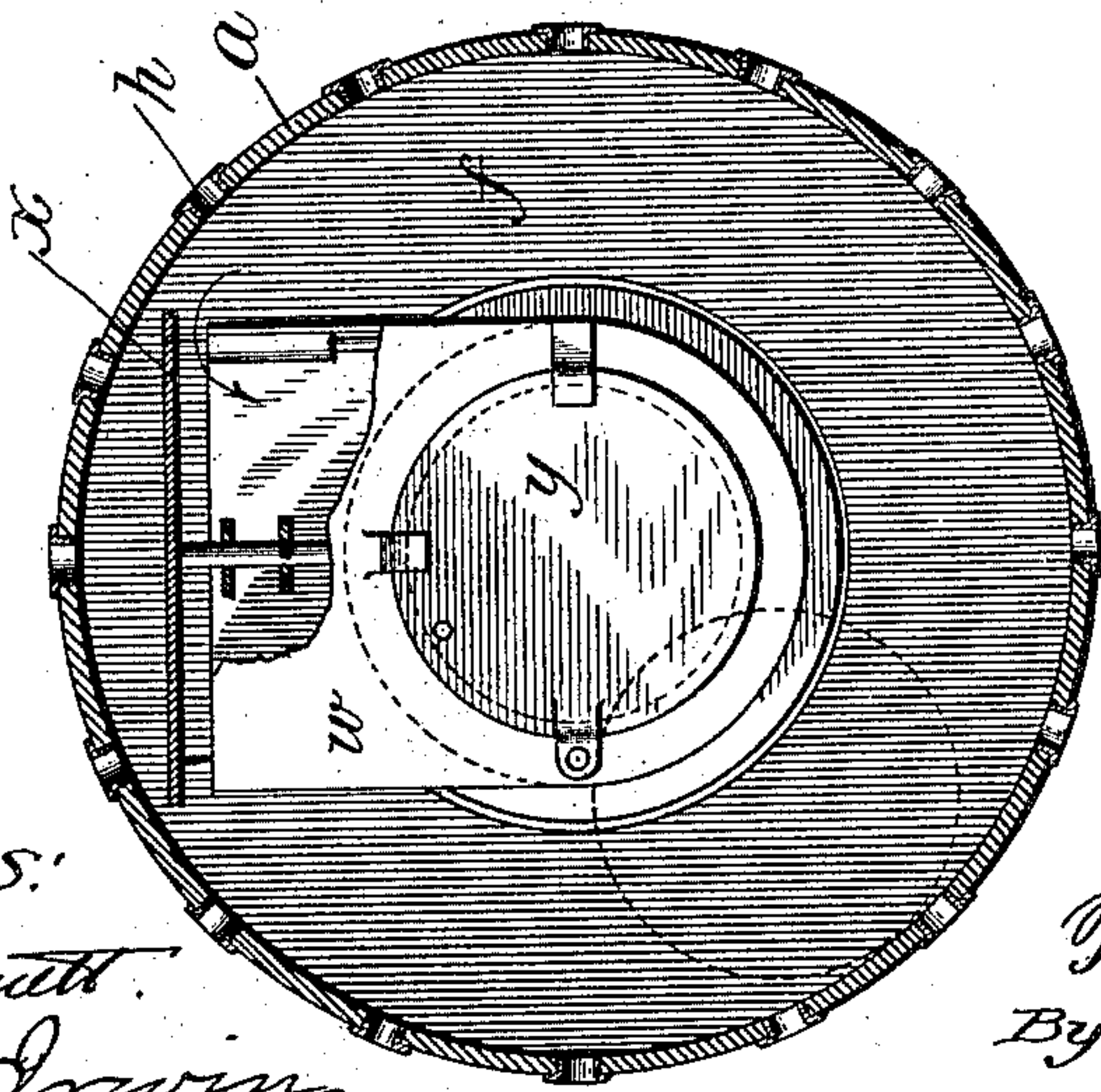


Fig. 7



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# UNITED STATES PATENT OFFICE.

ROBERT D. MAYO, OF FRANKFORT, MICHIGAN.

## LIFE-BOAT.

SPECIFICATION forming part of Letters Patent No. 690,909, dated January 7, 1902.

Application filed January 21, 1901. Serial No. 44,114. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT D. MAYO, a citizen of the United States, residing at Frankfort, in the county of Benzie and State of Michigan, have invented certain new and useful Improvements in Life-Boats, of which the following is a specification.

My invention relates to that class of life-boats which is provided with a pendulous or oscillating carriage, a carriage for the holding of passengers that remains in a substantially horizontal position without any regard to the lateral displacement of the inclosing supporting-shell, and is intended to be an improvement upon the life-boat shown, described, and claimed in Patent No. 565,769, granted to me the 11th day of August, A. D. 1896.

The principal object of the invention is to provide a life-boat with an oscillating carriage or platform for the reception of passengers, with simple, economical, and efficient means for maintaining it in its horizontal position without regard to the lateral displacement or position of the supporting containing-shell.

A further object of the invention is to provide the supporting containing-shell with axial openings through which passengers may have ingress and egress to and from the oscillating carriage and which are arranged to be hermetically sealed to keep water out of the living-compartments.

Further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists principally in the combination of a supporting containing-shell, an oscillating carriage arranged therein, a track secured to the containing-shell, and means for suspending the oscillating platform on this track, substantially as hereinafter set forth.

The invention consists, further, in the combination of a supporting containing-shell, an oscillating platform arranged therein, bulkheads arranged at each end of the oscillating platform to separate and hermetically seal it from the exterior, a supporting-track on each of the bulkheads, and roller-chain mechanism for supporting the oscillating platform

on such tracks, substantially as hereinafter set forth.

The invention consists, finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is an elevation of a life-boat as it appears when constructed in accordance with my improvements; Fig. 2, a sectional elevation taken through the longitudinal center of Fig. 1, showing the interior arrangement of a life-boat constructed in accordance with these improvements; Fig. 3, a longitudinal sectional elevation of one end of the boat as shown in Fig. 2; Fig. 4, an enlarged cross-sectional detail taken on line 4 of Fig. 2 looking in the direction of the arrow; Fig. 5, a broken cross-sectional elevation taken on line 5 of Fig. 2; Fig. 6, an enlarged sectional detail taken on lines 6 of Fig. 8; Fig. 7, a cross-sectional view taken on line 7 of Fig. 2; Fig. 8, a cross-sectional view taken on line 8 of Fig. 2; Fig. 9, a cross-sectional view taken on line 9 of Fig. 2, and Fig. 10 a large sectional detail taken on line 10 of Fig. 9 looking in the direction of the arrow.

In the art to which this invention relates it is well known that for a long time it has been desired in the life-saving service to provide a life-boat which could be used in all kinds of water, which would be very efficient in every kind of sea, would protect occupants from the disagreeable tossing of the ordinary life-boat, and which, finally, would during inclement weather protect occupants from cold, wind, and water, and thus save passengers not only from fire and shipwreck, but also from the inclemency of the weather. The principal object of my invention, therefore, is to provide a simple, economical, and efficient life-boat possessing all the advantages above noted, as will more fully appear in the following description and from an examination of the drawings.

To provide protection for the occupants of a life-boat constructed in accordance with my improvements, I make a shell portion *a* of a desired size, shape, and strength, but which I prefer to make in the shape of an elongated ellipse, approaching somewhat in shape to a cigar and which is cylindrical in contour. The



material from which it is made may be either wood, wood sheathed with steel or iron, or an aluminium shell stayed and braced by means of circular ribs *b*, arranged at suitable intervals throughout the length of the boat, as appears very clearly in the sectional elevation of Fig. 2. The boat may be of any desired length, though I prefer to make it about thirty feet long and from nine to six feet in diameter, so as to hold in the neighborhood of about fifty passengers.

To make the inclosing containing-shell as buoyant as possible, I provide each end thereof with transverse bulkheads *c* and in the annular space between such bulkheads and the ends of the shell insert metallic tanks *d*, made in quarter-sections hermetically sealed to contain atmospheric air and exclude water, thus making the shell as buoyant as possible. It is extremely desirable that these tanks should be made in quarter-sections, so that one or more could be pierced or broken without destroying the efficiency of all the tanks, and thus maintain the greatest possible buoyancy. Each of these tanks is provided with an opening in which a cork *e* is inserted for the purpose of withdrawing the water and changing the air whenever desirable or necessary.

To provide for the safety of passengers and keep them in as protected a manner as possible, a second set of bulkheads *f* is provided, one arranged transversely at or near each end of the shell and a short distance from the air-compartment bulkheads *c*, as shown particularly in Figs. 2 and 3, which bulkheads provide an intervening space or chamber *g* between them for the introduction through the perforations *h* of air and the egress of water. The living-compartment *i* is arranged, therefore, between the bulkheads *f*, and in this the occupants are protected from the inclemency of the weather and water.

To protect the occupants or passengers of the boat as much as possible from the disagreeable lateral motion of the shell, a pendulous or oscillating carriage *j* is provided, which is preferably made in two parts, as shown particularly in Figs. 2 and 3, and arranged longitudinally of the shell in the living-compartment, so that it may swing laterally by the means hereinafter described, and thus maintain a horizontal position and provide the greatest degree of comfort possible for the occupants. To sustain this carriage or carriages in a horizontal position, as above described, an annular track *k* is provided and secured to each of the bulkheads *f*, which form the end of the living-compartment. Around this annular track is passed a link belt or chain *l*, which is provided with anti-friction-rollers *m*, running on the track. The ends of this link belt are secured to the oscillating carriages, as shown in Fig. 4, and in this way the carriage is able to maintain its comfortable horizontal position with the least amount of friction. In the drawings and as above suggested I have shown and

prefer to make the carriage in two parts, the outer ends of which are suspended in a pendulous manner from the bulkheads, while the inner ends are pivotally mounted upon a hollow trunnion *n*. This central hollow trunnion, however, may be dispensed with and the annular track above described secured to this skeleton wall *o*. The reason, however, that I prefer the skeleton wall provided with the hollow trunnion is that the living-compartment may be divided into two subcompartments partitioned off by means of a screen or otherwise, so that ladies and children may have the most comfortable subcompartments and the men, sailors, or crew the other. It is a mere matter of convenience in arrangement, however, and I do not desire to be limited to such structure any further than is pointed out in the claims.

As above suggested, the trunnion is made hollow, so that a hawser, as hereinafter described, may be passed through the boat from end to end thereof. It is possible that during very rough weather and a heavy load the suspending link belt or roller-chain might break and the oscillating carriage strike the bottom of the shell and be liable to be thrown around by every movement of the boat. In order to provide for such a contingency and furnish auxiliary mechanism that will permit the carriage to oscillate and maintain its horizontal position, anti-friction-rolls *p* are provided and secured to the carriage underneath and at each end of the same, so that should the chain or trunnion break these rolls will contact the ribs of the shell and permit it to travel around without disturbing the position of the carriage at its every movement.

To provide for ingress and egress to the living-compartment, the exterior shell is provided with one or more hatchways and doors *q*, (see Figs. 2 and 3,) which when the boat is aboardship and not in use is at the side thereof, so that passengers can get into and out of the living-compartment with the least possible exertion. It is desirable, however, that some means be provided by which passengers can have ingress and egress to the boat for any desired purpose without climbing on the roof thereof, and for this purpose stuffing-boxes *r* are provided, in which are rotatably mounted cylindrical frame portions *s*, one of which is provided with a foldable door *t*, as shown in Fig. 5, which may be kept closed by means of the bolt or latch mechanism to keep water out, or it may be opened in clear weather, so that a passenger may get out of the living-compartment and out of the containing-shell through the axial opening *u* at the front end of the boat and open the door *v*, either to save some unfortunate in the water, make a signal to a near-by vessel, or assist in landing or launching the boat.

It is desirable that some means be provided to permit air to enter the living-compartment at all times and at the same time keep out the water of the rough sea. In order to provide



for this, one of such rotatable frames *s* should be provided with an enlarged pipe *w*, as shown particularly in Fig. 3, having an arm extending upwardly and opening at its top portion, where it is provided with a hood or cowl *x* directly under the port-holes *h*, so that the splashing water may pass through the same, but not come down through the air-duct, the cowl *x* serving to prevent same, while at the same time permitting the air to enter into the living-compartment. The end wall of this air duct or pipe is provided with a circular door *y*, as shown particularly in Figs. 3, 7, and 8, which may be opened at any time desired for the purpose of putting out a hawser through the exterior opening *z* in the stern of the boat, this opening being large enough in diameter to permit of a sailor or one of the passengers passing his arm or a portion of his body through the same for the purpose of discharging signal-rockets or waving a flag to attract the attention of a near-by vessel. It will be understood, of course, that these doors *t* and *y* should be hermetically sealed with rubber cloth, gaskets, or otherwise when in position to prevent the air from leaving the living-compartment or water to enter the same, except as above provided.

It is desirable during a calm sea and fairly-pleasant weather to provide ways and means by which the boat may be propelled by the usual ways. In order to do this, it is desirable first to provide means by which the carriage is prevented from oscillating, so that an occupant may obtain a steady purchase for the purpose of rowing. To accomplish this result, a shoe 20 is provided, which is of such shape as to follow the contour of the exterior shell and bear against a wear-plate 21. This shoe is normally held in a free position—that is, from contact with the wear-plate—by means of the helical springs 22, which hold it normally in such position. To press it down against the wear-plate and make it act as a brake, a cam-lever 23 is provided, as shown particularly in Figs. 9 and 10. By lifting the free end of the cam-lever the cam proper, 24, contacts a stud 25, presses it down against the wear-plate, and thus acts to lock the oscillating carriage to the shell and prevent independent motions thereof. The side of the shell is provided with ports 26, closed by means of port-hole covers 27, out through which oars may be passed for the purpose of rowing, but which can be closed whenever desirable or necessary. A plurality of dead-lights 28 are provided to furnish light to the occupants of the boat.

It may be desirable during rough weather for the comfort of the occupants to prevent the rotations or oscillations of the shell from being observed, and thus eliminate the objectionable nauseating influence developed thereby. In order to minimize this objection, a canopy (not shown) can be provided and secured to the oscillating carriage, so as to entirely inclose the occupants of the carriage

and prevent them from seeing the lateral movements of the shell. As this can be done in any desired way and forms no material part of the invention, I have not thought it desirable or necessary to illustrate the same. In fact, I have thought that it might prove objectionable in that it might tend to complicate the drawings and render obscure the material part of the structure.

It is desirable that the open end of the air-tube *w* be always kept above the water-line—that is, considerably above the axial center of the boat. To accomplish this, a dog 29 is provided, easily engaging with one end of the oscillating carriage, as shown particularly in Fig. 3. It will be seen from this arrangement that any time the carriage is stirred or moved laterally the air-tube is simultaneously moved therewith and that during the rocking or lateral oscillations of the exterior shell it is kept at all times with its open end above the water-line and considerably above the axial center of the boat. The door *t* of the bulkhead which forms the end wall of the living-compartment in the bow of the boat is, as above described, mounted in the bulkhead *f* and should at all times be kept in position to permit easy ingress and egress from the living-compartment. To accomplish this result, a dog mechanism 30 is provided and secured thereto, the same as shown in connection with the air-tube mechanism 29, and easily engages the other end of the oscillating carriage, so as to be moved thereby.

A pin 31 is slidingly mounted on the exterior bulkhead at the stern of the boat, so that it may be dropped down for the purpose of twisting a hawser around the same or tying it thereto whenever it may seem desirable or necessary.

I claim—

1. In a life-boat of the class described, the combination of an outer cylindrical inclosing shell, a transverse bulkhead arranged at or near each end thereof between which is formed a living-compartment, an oscillating carriage in such compartment, and chain mechanism secured to such oscillating carriage and movably mounted on the bulkhead at a point above the axial center thereof to permit independent oscillations of the carriage, substantially as described.

2. In a life-boat of the class described, the combination of a rotatable cylindrical containing and inclosing shell, a bulkhead at or near each end thereof between which is provided a living-compartment, an annular track on the inner side of the bulkheads, and flexible mechanism supported on such track and connected to the oscillating carriage to support the outer ends thereof, substantially as described.

3. In a life-boat of the class described, the combination of a cylindrical inclosing shell provided with axial openings at each end thereof, bulkheads *c* arranged transversely of the shell at or near each end thereof and



providing in connection with the containing-shell annular compartments, a second pair of bulkheads arranged adjacent thereto and providing an air and water space between the bulkheads at each end of the shell and a living-chamber at the central portion of the shell, an oscillating carriage in the living-compartment, and means suspending it therein movably secured to the bulkheads at a point above the axial center thereof, substantially as described.

4. In a life-boat of the class described, the combination of an outer cylindrical inclosing shell, bulkheads arranged at or near each end thereof providing a living-chamber between the same, an annular track secured to the inside of such bulkheads, an oscillating carriage or carriages in such living-chamber, and a roller-chain passed around the upper part of the annular track and secured to the outer ends of the oscillating carriages, substantially as described.

5. In a life-boat of the class described, the combination of an outer cylindrical inclosing shell, bulkheads arranged transversely thereof at or near each end of the same providing air-compartments at the ends and a living-compartment between them at or near the central portion of the shell, an annular track on the side of such bulkheads, a door in one of such bulkheads inside the annular track at the central portion thereof, an oscillating carriage in the living-compartment, and flexible mechanism, such as a chain, secured to the carriage and passed around the upper portion of the annular track to sustain the carriage and permit it to oscillate, substantially as described.

6. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, bulkheads at or near each end thereof providing air-spaces adjacent to the end portion of the shell and a living-chamber between them at the center of the shell, an annular track on the inside of such bulkheads, a pipe or similar element forming an air-duct rotatably secured to one of the bulkheads inside of such annular track with its outer open end located above the axial center of the boat, an oscillating carriage in the living-compartment, chain mechanism connected to the oscillating carriage and passed over the upper portion of the annular track to suspend the oscillating carriage, and means connecting the air-tube and oscillating carriage to move the same simultaneously and keep the open end of the air-tube at all times above the axial center of the boat, substantially as described.

7. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, a pair of bulkheads arranged at or near each end of the boat providing air-spaces be-

tween them and a living-compartment between the inner pair of bulkheads, a tube passed from the exterior bulkheads out through the axial center of the boat and providing in connection with such bulkheads annular air-tight compartments, annular tracks inside of the inner bulkheads, a skeleton bulkhead or frame arranged transversely of the shell at or near the central portion thereof, two oscillating carriages in the living-compartment arranged between the skeleton partition and the inner bulkheads, a hollow trunnion upon which the inner ends of the carriages are rotatably suspended, roller-chain mechanism for suspending the outer ends of the oscillating carriages on annular tracks, a door rotatable in one of such bulkheads and connected with the oscillating carriage to be moved thereby and arranged in line with the axial opening in the shell, and an air-tube bent upwardly at right angles rotatably mounted in the other bulkhead and connected with the other oscillating carriage to be moved thereby, substantially as described.

8. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, a pair of bulkheads, one arranged at or near each end of the shell and providing a living-compartment between them, an annular track secured to the inside of each of such bulkheads, an oscillating carriage or carriages inside of such living-chamber, mechanism secured to the outer ends thereof and passed over the upper part of the annular track to movably hold the oscillating carriage in position, and antifriction-rolls secured to the lower part of such carriage and adapted under certain conditions to contact the outer and containing shell to permit the easy and independent oscillations of the carriage, substantially as described.

9. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, a pair of bulkheads, one arranged at or near each end of the shell and providing a living-compartment between them, an annular track secured to the inside of each of such bulkheads, an oscillating carriage or carriages inside of such living-chamber, mechanism secured to the outer ends thereof and passed over the upper part of the annular track to movably hold the oscillating carriage in position, a brake-shoe movably attached to the carriage, and means for moving it into engagement with the outer and inclosing shell to prevent the independent movement of the parts, substantially as described.

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