

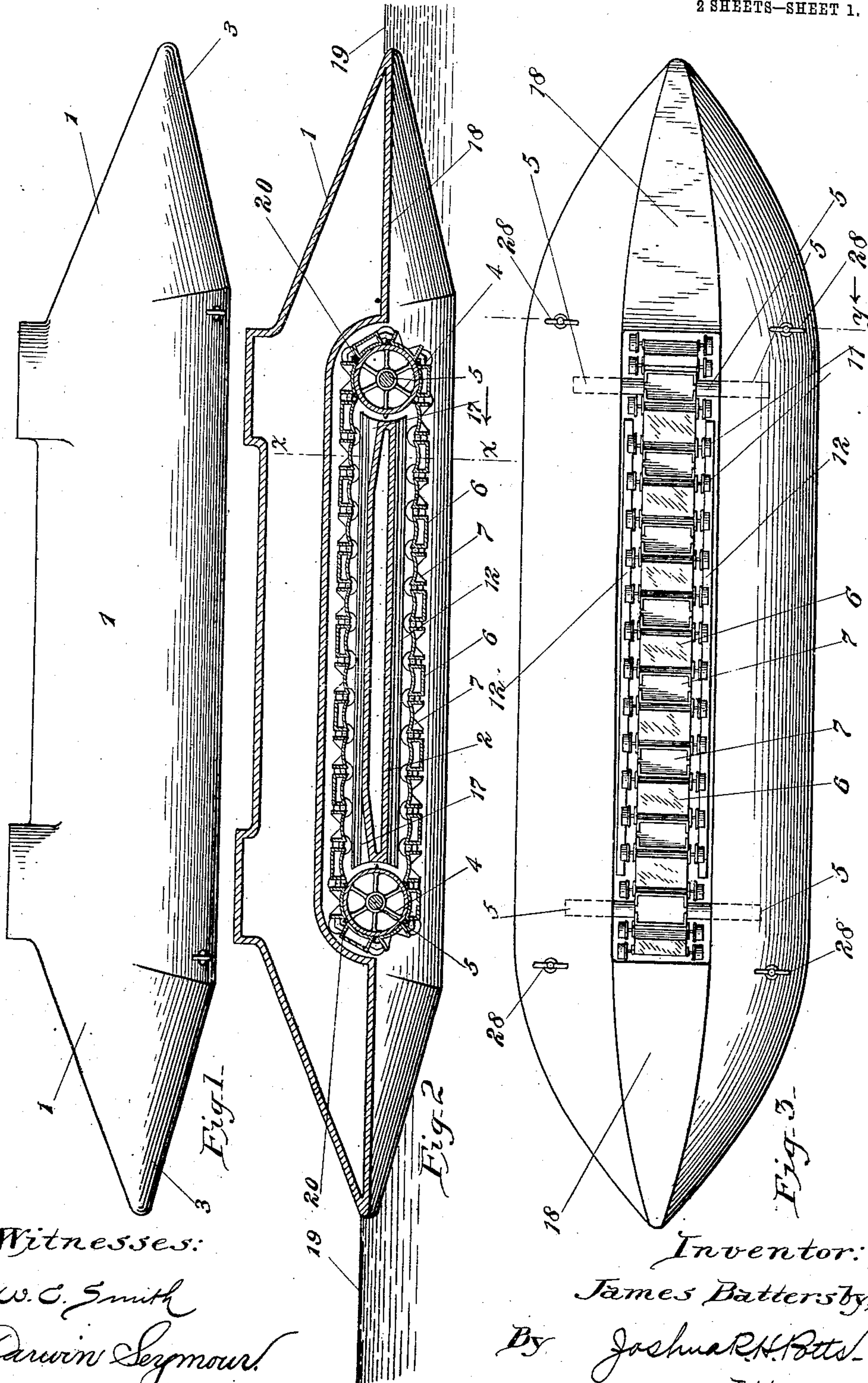
914,693.

J. BATTERSBY.  
VESSEL.

APPLICATION FILED JULY 13, 1908.

Patented Mar. 9, 1909.

2 SHEETS—SHEET 1.



Witnesses:  
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Darwin Seymour

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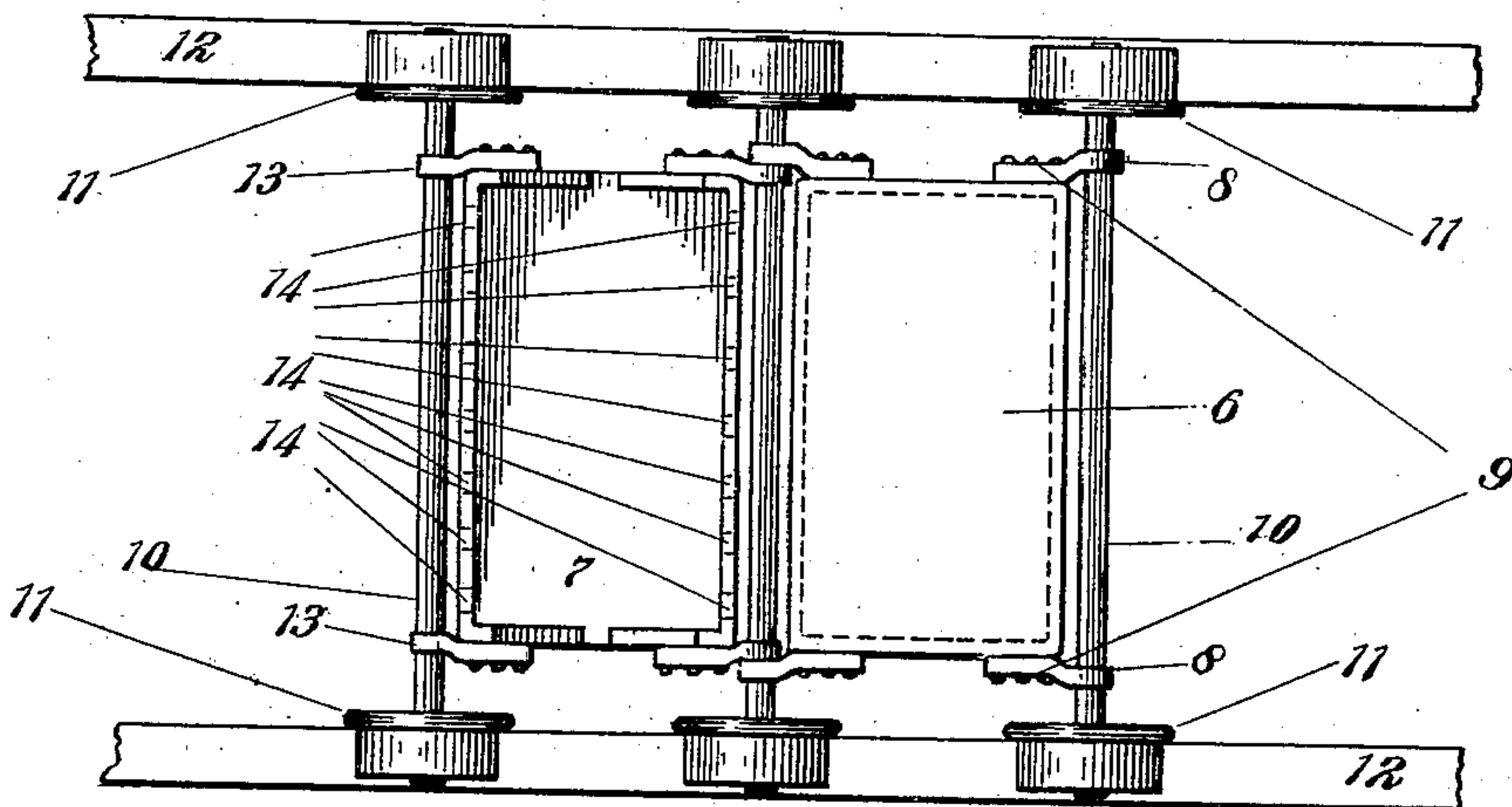
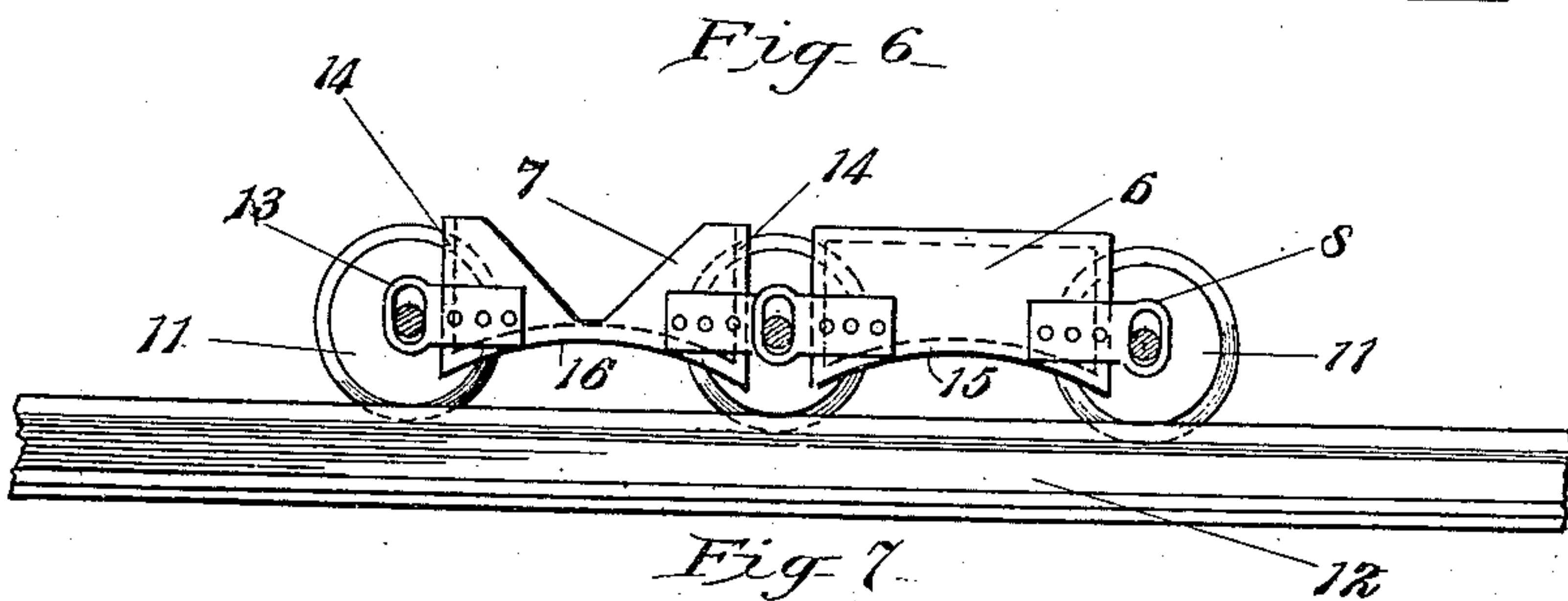
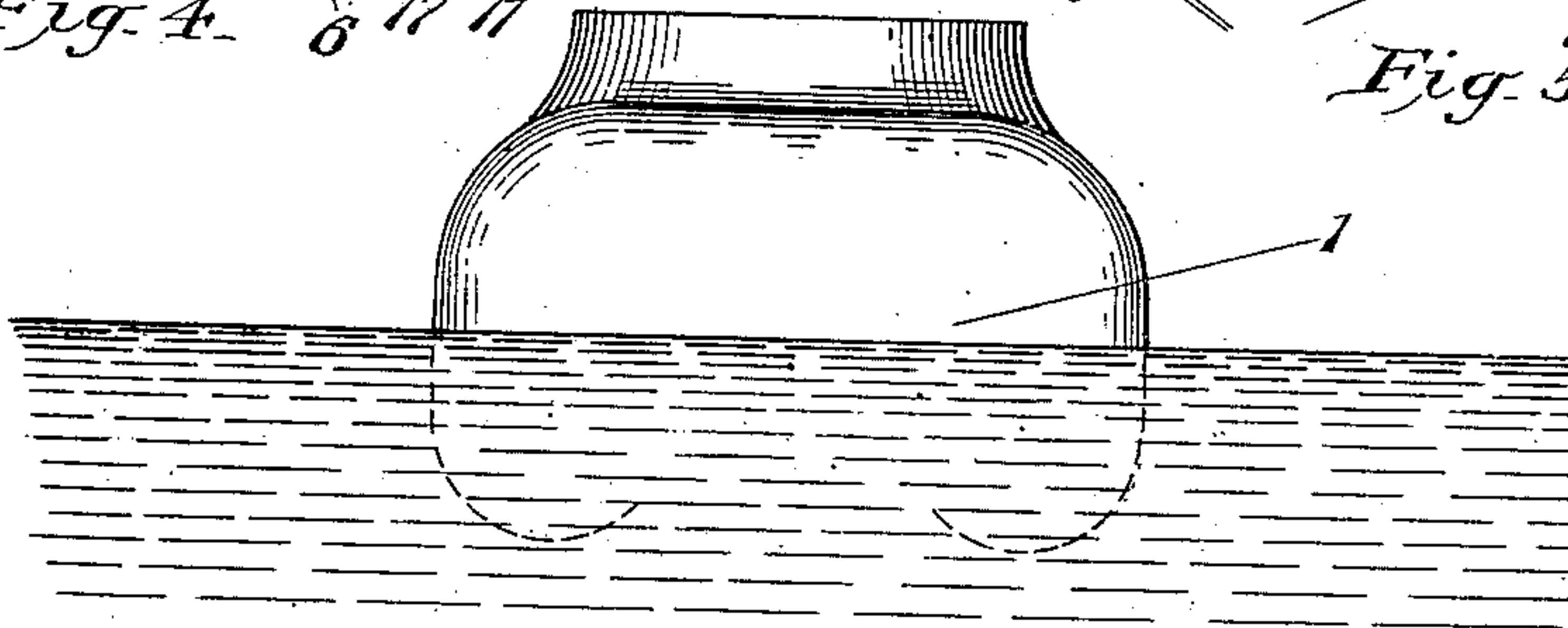
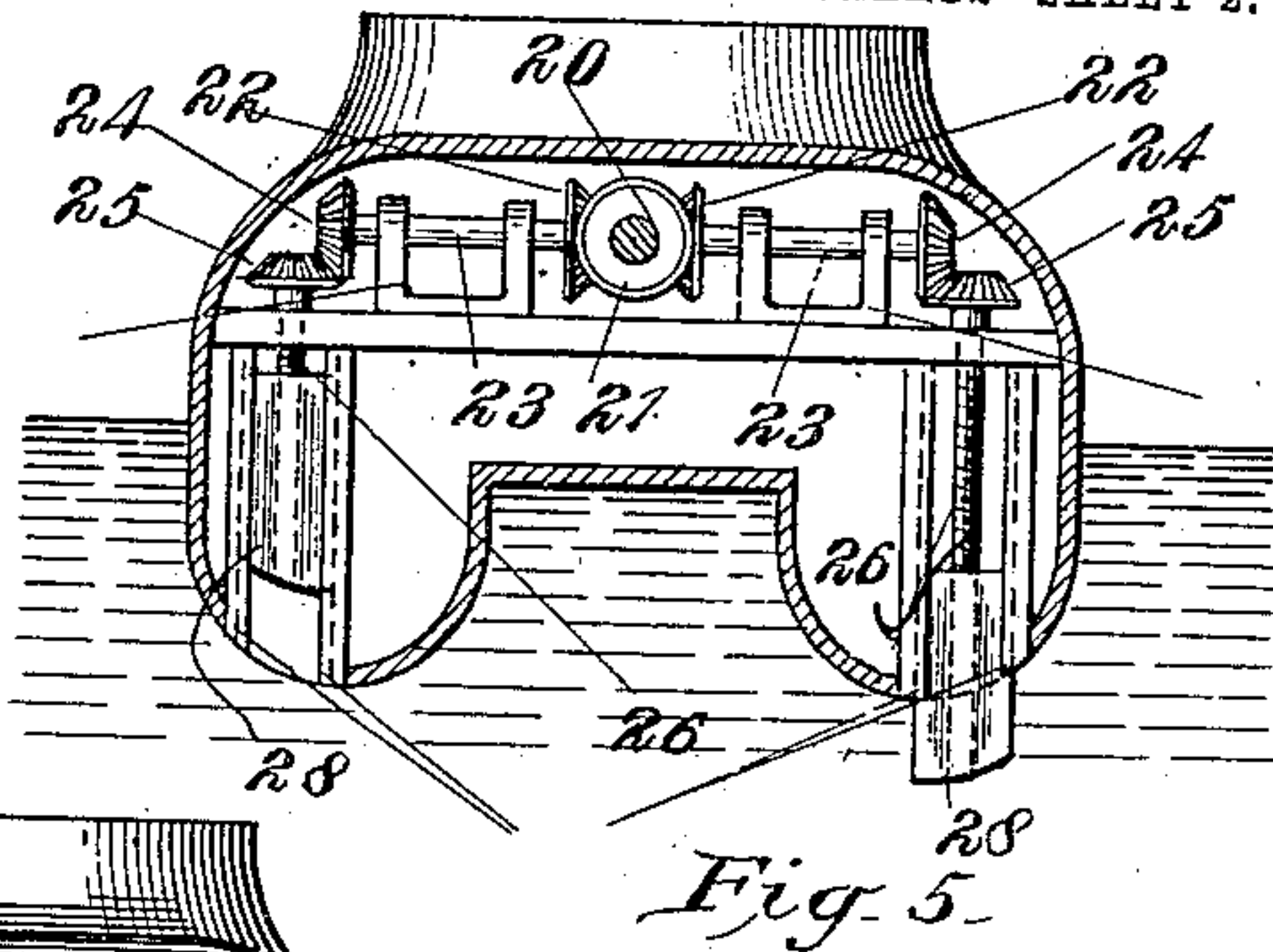
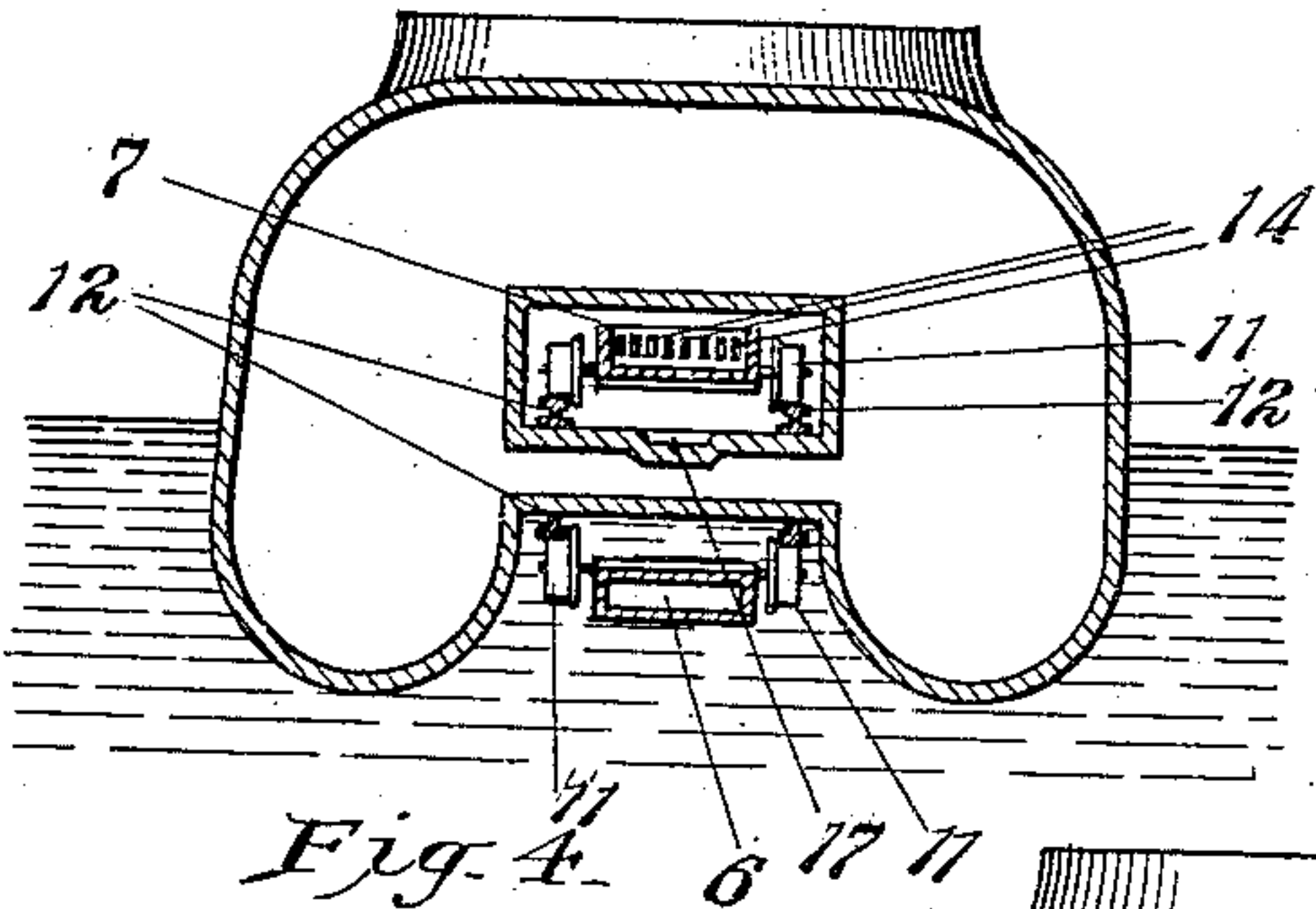
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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VESSEL.

No. 914,693.

Specification of Letters Patent.

Patented March 9, 1909.

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*To all whom it may concern:*

Be it known that I, JAMES BATTERSBY, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful improvements in Vessels, of which the following is a specification.

My invention relates to improvements in vessels, the principal object being to provide means or apparatus for the propulsion of vessels which will lessen the draft and permit higher speeds to be attained.

A further object of my invention is to provide a design in a hull that will permit a vessel to move with equal facility in either direction, and a further object is to provide a suitable steering mechanism that will be efficient and reliable whatever the direction of movement of the vessel.

Other objects will appear hereinafter.

With these objects in view, my invention consists in providing a longitudinal channel in the bottom of a vessel's hull and a partition across the channel in such a manner that chain-sprockets and the chain therefor, may be readily installed and operated.

My invention further consists in providing pontoons in the propelling chain adapted to have sufficient buoyancy to not only float the chain, but to add to the lightness of draft of the vessel.

A novel steering apparatus designed especially for use in conjunction with the sternless hull is also provided, as it is obvious that an ordinary rudder is not suitable for a vessel designed to move in either direction.

My invention further consists in details of construction which will be hereinafter fully set forth.

The preferred form of my invention is illustrated in the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a side elevation showing the symmetrical lines of the hull, Fig. 2 is a central longitudinal vertical section showing the propelling mechanism, Fig. 3 is a bottom elevation, Fig. 4 is a transverse section taken on the line *x* of Fig. 2, Fig. 5 is a transverse section taken on the line *y* of Fig. 3, Fig. 6 is a front elevation, Fig. 7 is a detail side elevation, and Fig. 8 is a detail top elevation.

Referring now to the drawings, 1 indicates the vessel's hull, and 2 a partition across the

channel formed in the bottom of the hull 1. The design of the hull 1 is symmetrical, the shape of each end 3 being the same. Chain-sprockets 4 are secured to the shafts 5 which may be journaled in any suitable manner. One of the chain-sprockets 4 is adapted to be a propelling sprocket and the other an idler.

The propelling chain comprises a plurality of pontoons and shields alternately arranged, each pontoon 6 and each shield 7 being adapted to form a link of the chain. Each pontoon 6 is a closed box and is provided with lugs 8 secured by means of the rivets 9. A shaft 10 is journaled in the lugs 8 and is provided with flanged wheels 11 adapted to run on the rail 12. Each shield 7 is provided with lugs 13 adapted to receive the shaft 10, and slotted perforations 14 are provided in that part of the shield 7 adjacent to the pontoons 6. The ends of the pontoons 6 are thus protected from the full force of the water, this feature being important since the pontoons 6 are air-tight and preferably of light construction and should be protected from damage by high water pressure or by contact with floating objects in the water. The pontoons 6 and shields 7 are provided with concave surfaces 15 and 16, respectively, adapted to conform with the peripheral curvature of the chain-sprockets 4. An inclined groove 17 is provided to permit the water which drips from the chain to escape readily from the top of the partition 2. The portions 18 of the hull 1 permit the water to flow to and from the chain readily, but as these portions are below the water-line 19, the chain is protected from the force of the waves. The pontoon and shield lugs are provided with elongated bearings as shown.

The steering apparatus comprises a central shaft 20 and a driving bevel gear 21 secured thereon. The driven bevel gears 22 adapted to mesh with the gear 21 are secured to shafts 23. The bevel gears 24 secured to the shafts 23 are adapted to mesh with bevel gears 25 and to rotate the threaded shafts 26 and 27 to which gears 25 are secured. The vertically movable members 28 are tapped to receive the threaded shafts 26 and 27 which have right and left-hand threads respectively. The members 28 are adapted to slide in guides 29 the grooves of which are shown by dotted lines. The two members 28 are adapted to move in opposite directions by the action of threaded shafts 26 and 27, so



that when one is depressed as shown, the other will be in its highest position. In the neutral position the ends of the members 28 are flush with the bottom of the hull 1.

5 Each end of the hull 1 may be provided with a separate steering apparatus as shown in Figs 1 and 3, if desired. The operating shaft 20 may, of course, have suitable connection with the wheel-house of the vessel.

10 Having described my invention what I claim as new, and desire to secure by Letters Patents, is:

1. In a vessel, a hull comprising downwardly and longitudinally extending parallel portions terminating in convergent end portions, chain-sprockets suitably arranged and a propelling chain adapted to run on said sprockets, and means for driving said chain, substantially as described.

20 2. In a vessel, a hull having a longitudinal channel in the bottom thereof, in combination with chain sprockets and a propelling chain suitably arranged in said channel and means for driving said chain, said chain consisting of a series of pontoons and shields arranged alternately, substantially as described.

3. In a vessel, in combination with a hull provided with a channel adapted to receive a chain propeller, suitably mounted sprockets and driving means therefor, a buoyant chain adapted to run on said sprockets, the links of said chain consisting of pontoons and shields for said pontoons arranged alternately, a transverse partition in said channel, rails secured to said partition, and flanged wheels connected with said links and adapted to travel on said rails, substantially as described.

40 4. In a vessel, in combination with a hull provided with a channel and a partition therein, inclined groove in said partition, rails mounted on the upper and lower sides of said partition, a buoyant propelling chain suitably mounted in said channel, means for driving said chain, the links of said chain be-

ing pontoons and shields arranged alternately, and the pivotal shafts connecting said links being provided at their extremities with flanged wheels adapted to travel on said rails, substantially as described.

5. In a vessel, in combination with a hull whose ends are convergent and symmetrical, a channel and a partition therein, rails mounted on said partition, a buoyant chain propeller suitably mounted in said channel, said chain propeller being adapted to surround said partition, means for driving said propeller, a series of pontoons and shields alternately arranged in said chain, each pontoon and shield being provided with lugs in which wheel-carrying shafts are journaled, the wheels of said shafts being adapted to travel on said rails, and each shield being provided with a plurality of perforations in the portions adjacent to said pontoons, substantially as described.

6. In a vessel, in combination with a symmetrical hull having tapering extremities, a channel and a partition therein, rails mounted on said partition, a suitably arranged buoyant propeller, means for driving said propeller, a series of pontoons and shields alternately arranged in said propeller, said pontoons and said shields being provided with flanged supporting wheels adapted to travel on said rails and with concave surfaces to conform with the peripheral curvature of the sprockets provided in said propeller, and a steering apparatus comprising vertically movable members adapted to move in opposite directions by means of screws and a train of bevel gears, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES BATTERSBY.

Witnesses:

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WILLIAM C. SMITH.