

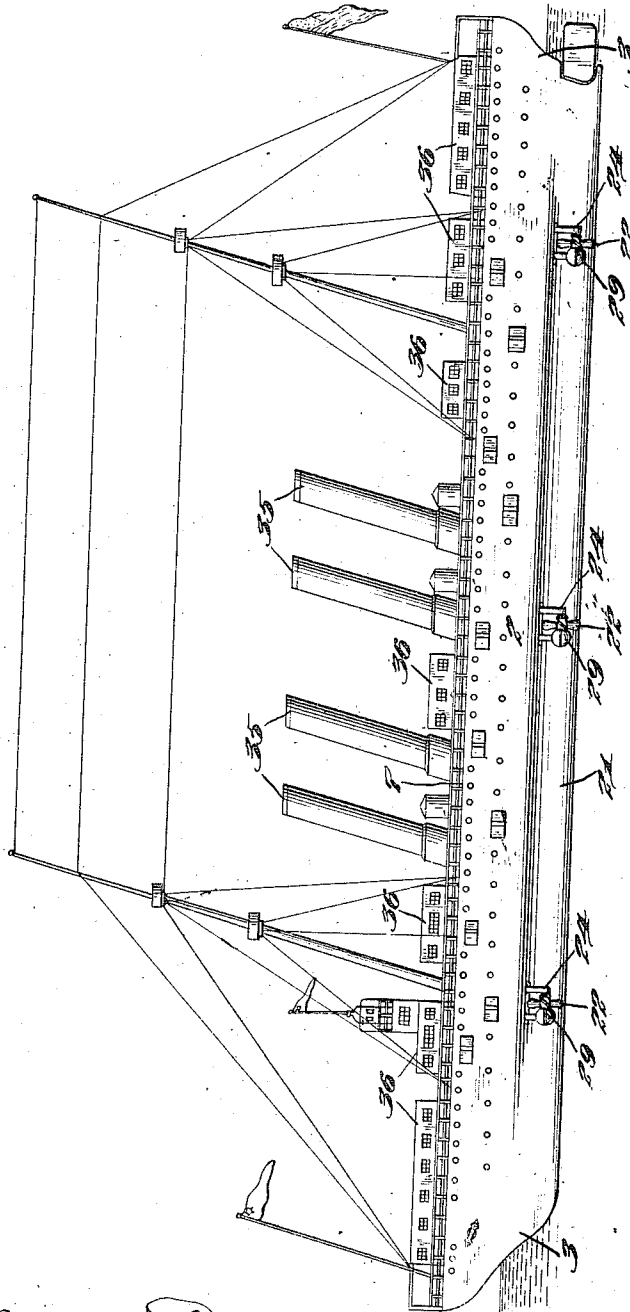
995,559.

D. M. PFAUTZ.  
STEAMSHIP.  
APPLICATION FILED APR. 19, 1910.

Patented June 20, 1911.

9 SHEETS—SHEET 1.

*Fig. 1.*



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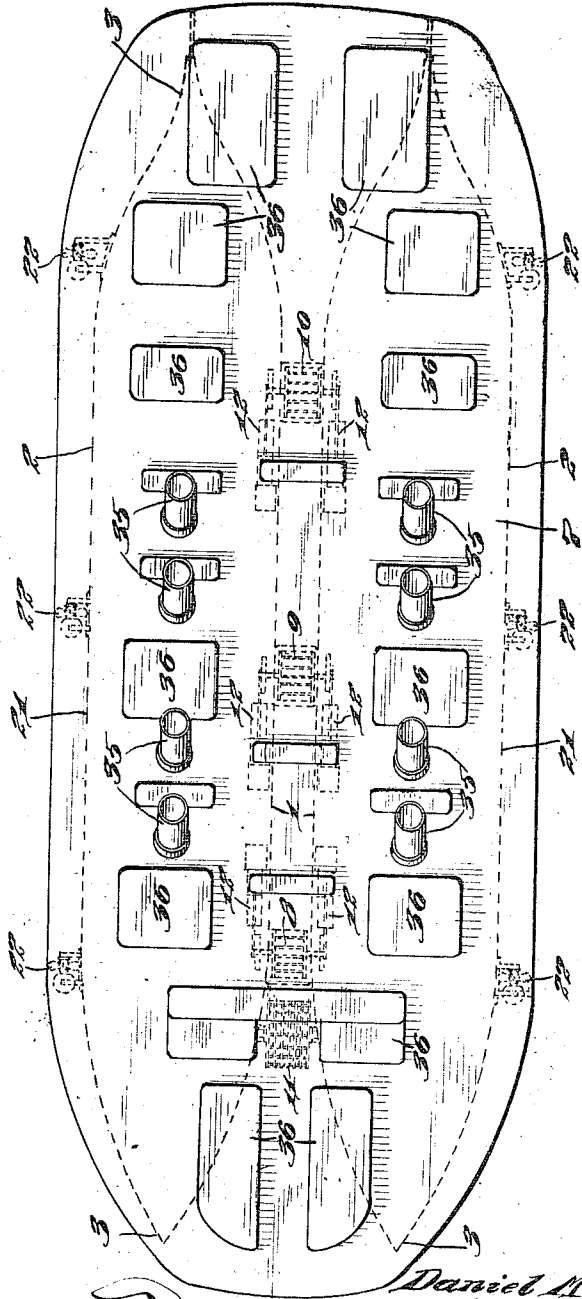
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9 SHEETS—SHEET 2.

*Fig. 2*



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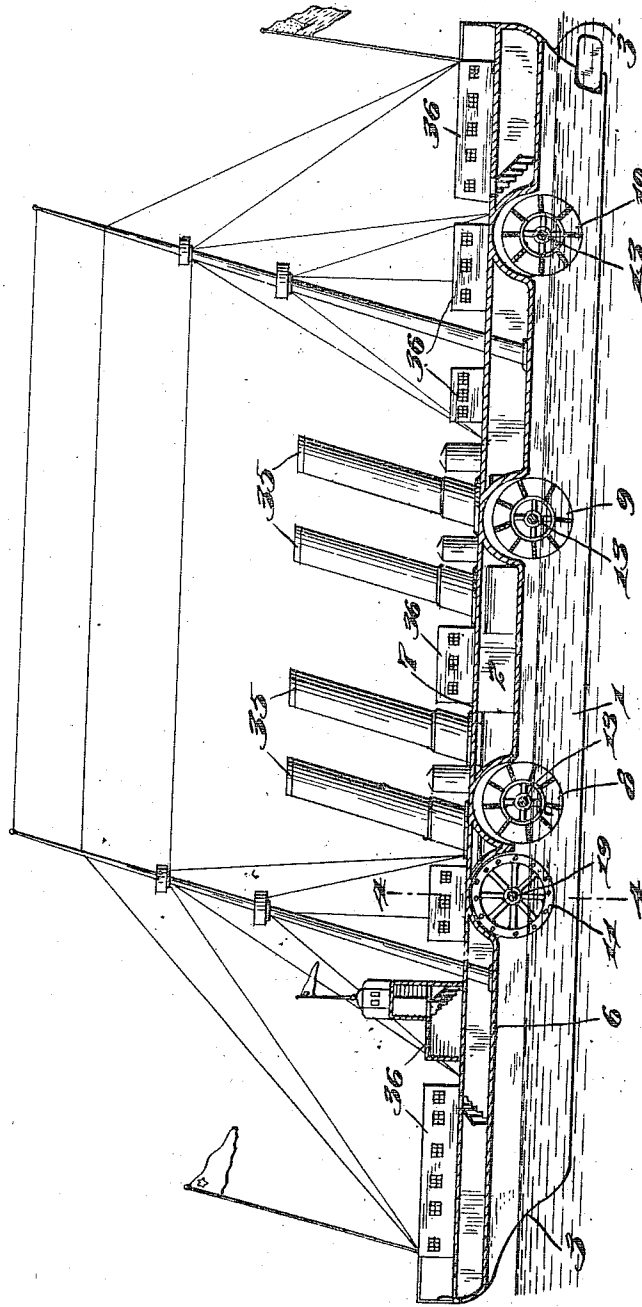
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9 SHEETS—SHEET 3.

*Fig. 3.*



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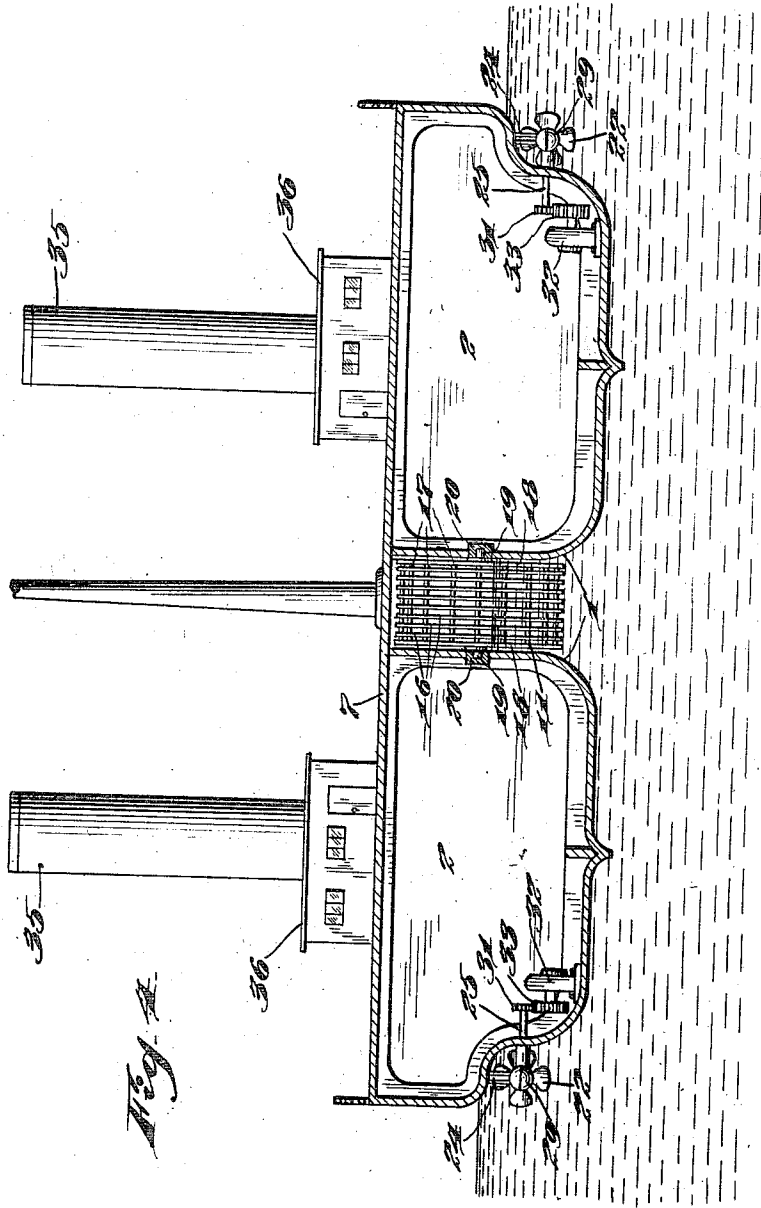
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9 SHEETS—SHEET 4.



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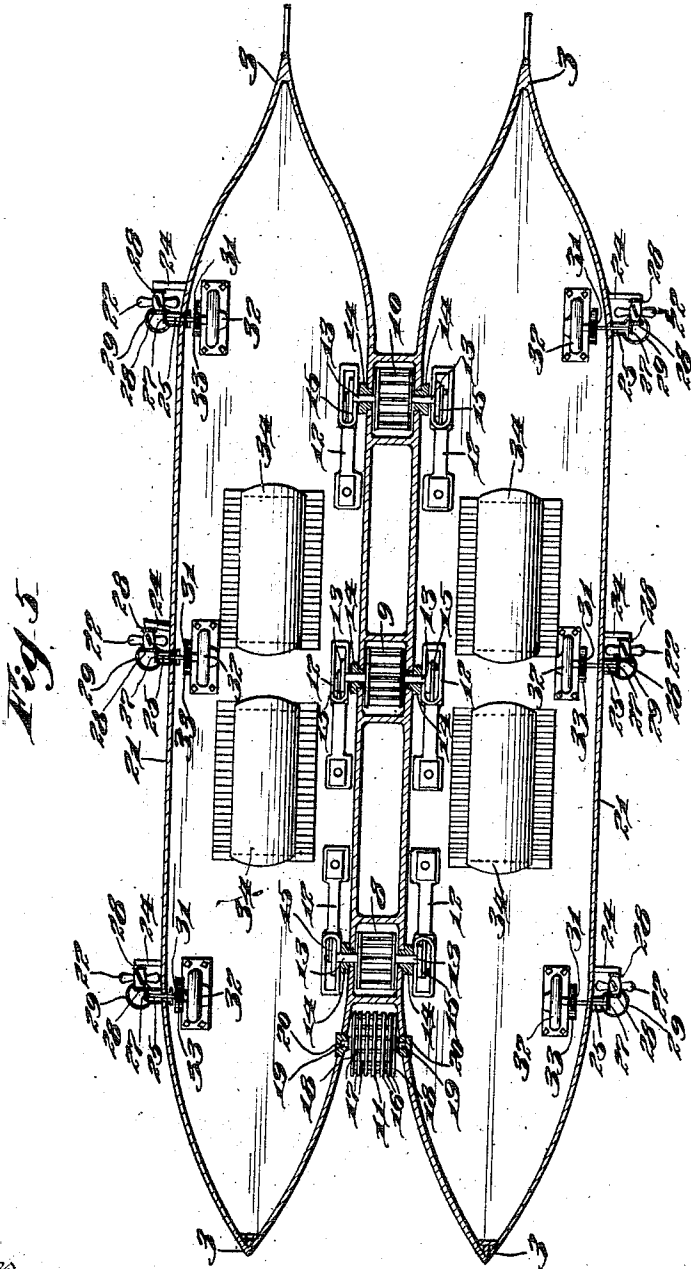
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9 SHEETS—SHEET 5.

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*Fig. 5*

Inventor

Witnesses

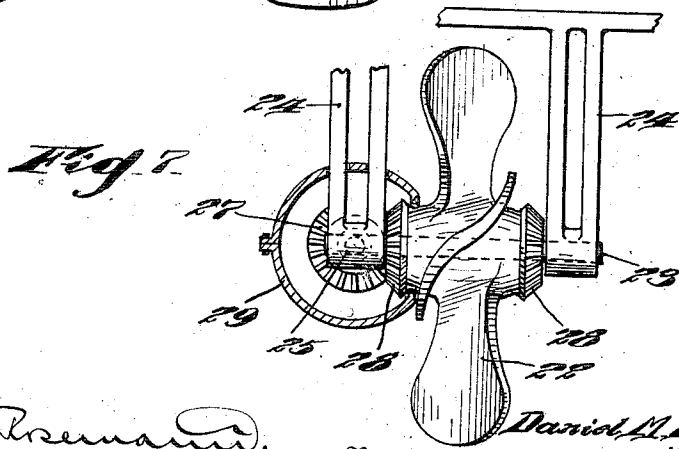
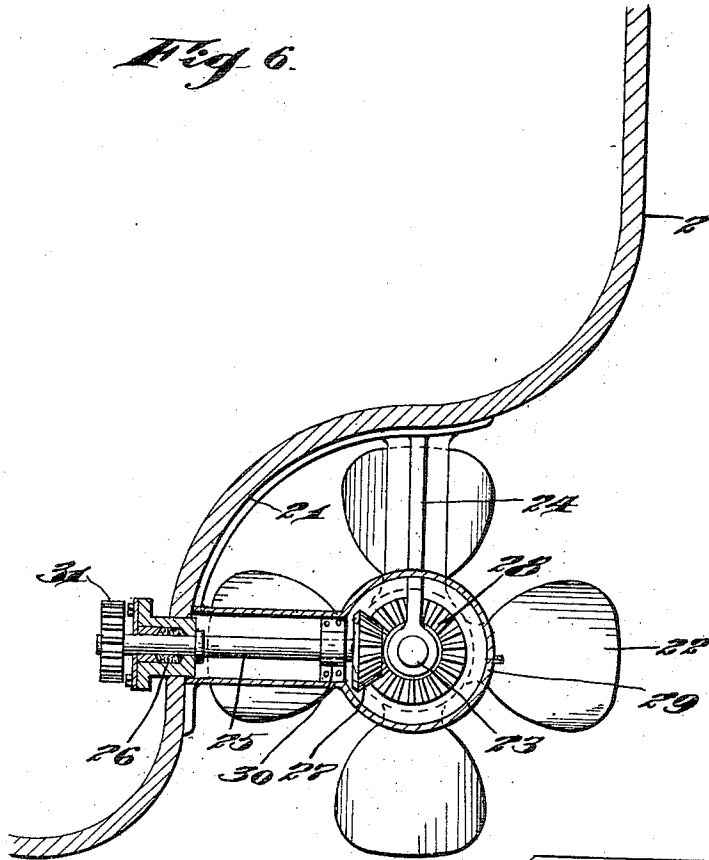
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9 SHEETS—SHEET 6.



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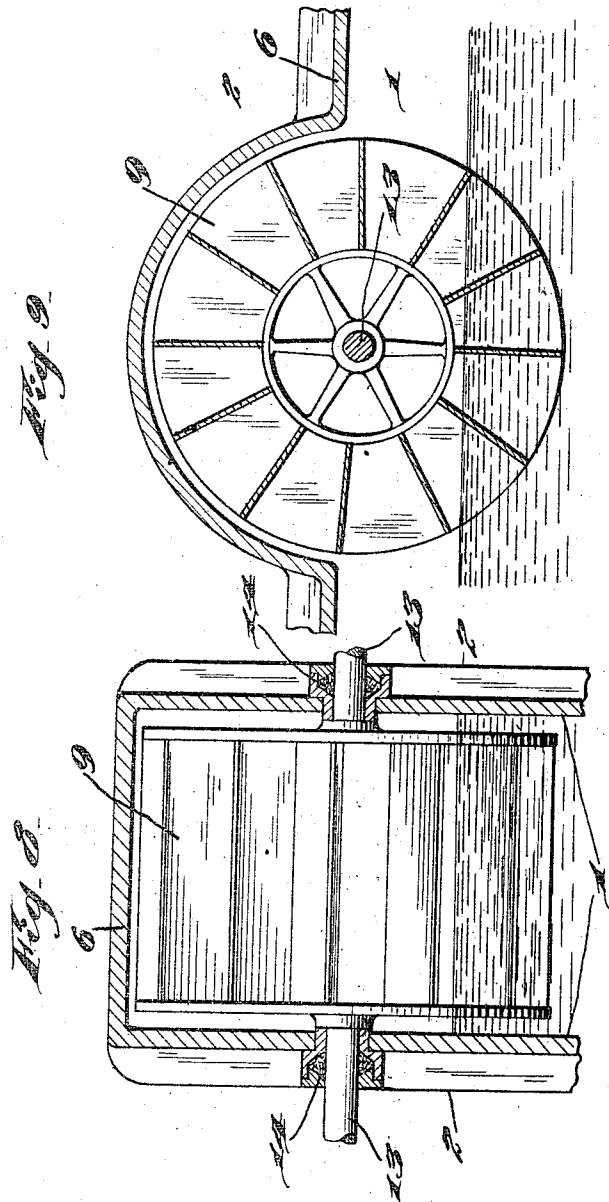
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995,559.

Patented June 20, 1911.

9 SHEETS—SHEET 7.



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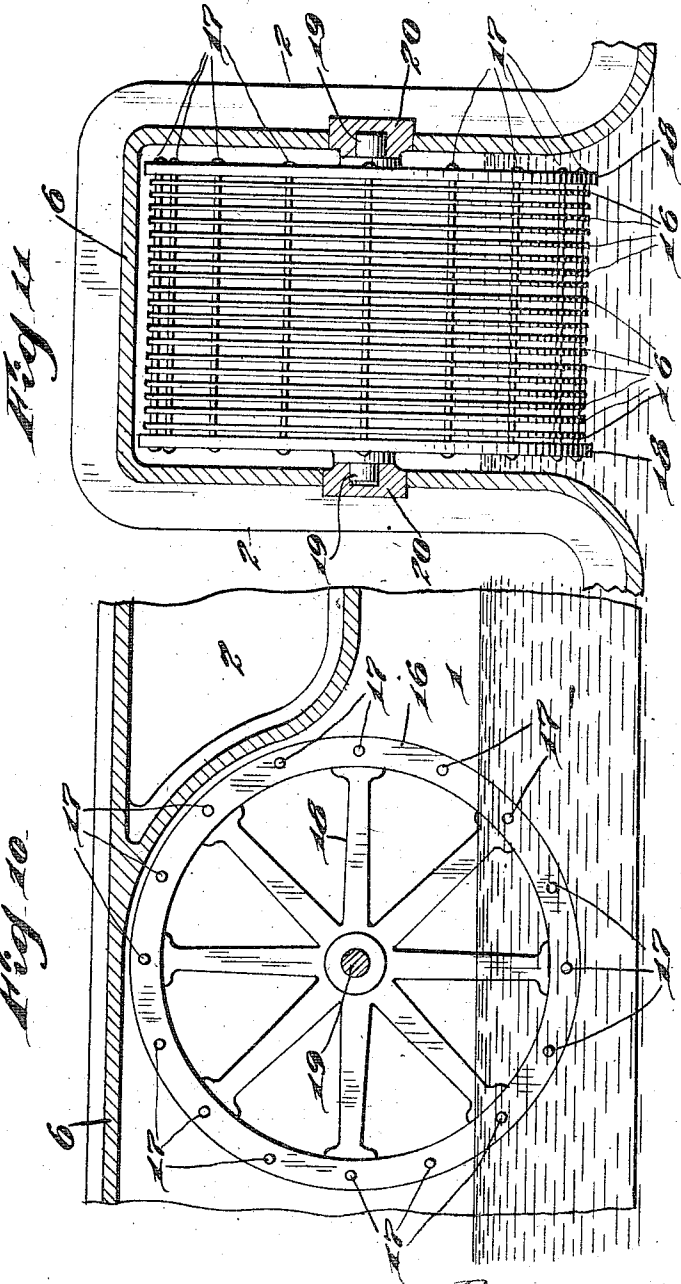
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9 SHEETS—SHEET 8.



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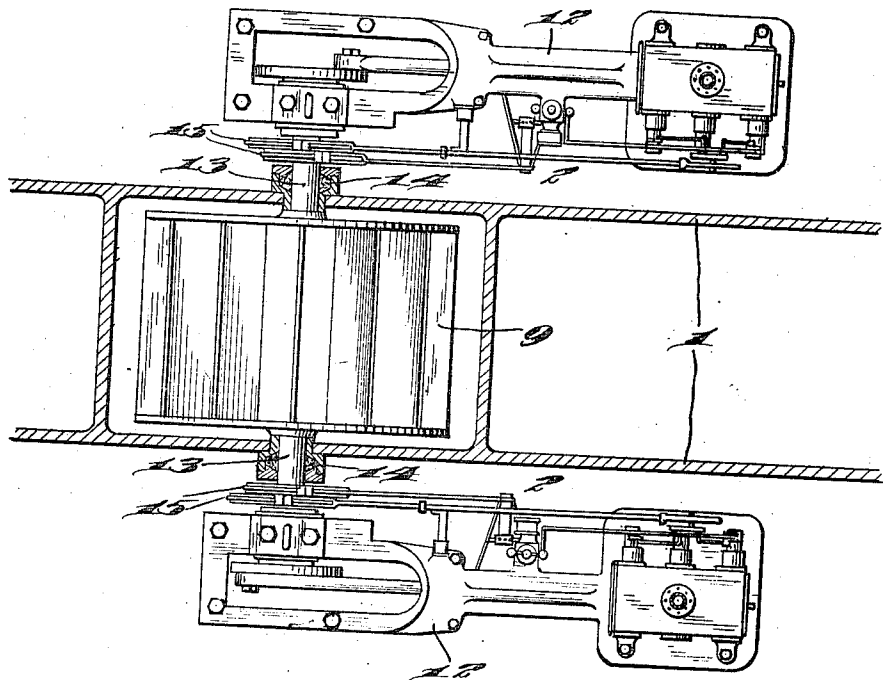


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9 SHEETS—SHEET 9.

*Fig. 12.*



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# UNITED STATES PATENT OFFICE.

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TO WILLIAM H. TIGERMAN, OF PHILADELPHIA, PENNSYLVANIA.

## STEAMSHIP.

995,559.

Specification of Letters Patent. Patented June 20, 1911.

Application filed April 19, 1910. Serial No. 556,353.

*To all whom it may concern:*

Be it known that I, DANIEL M. PFAUTZ, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Steamships, of which the following is a specification.

My invention relates to improvements in steam ships, the primary object of the invention being to provide a steam ship with improved propelling means operating in connection with an improved hull or hulls whereby the maximum of power is attained to propel the ship through the water at an extremely high speed, far in excess of the speed attained by ships in ordinary use.

A further object is to provide a ship with an improved shape of hull, and provide along both sides of the hull, a plurality of propellers independently controlled, which not only serve to drive the ship through the water at a high speed, but which may be independently operated to turn the ship in a body of water slightly greater than the length of the ship.

A further object is to provide a ship having a passage longitudinally through the same, in which a plurality of paddle wheels are located, and independently driven, each succeeding wheel from bow to stern being driven at a speed in excess of the speed of the wheel in front, and provide at the entrance to this passage in front of the foremost wheel a rotary screen or buffer wheel, which is adapted to strike a log or other floating matter which would otherwise injure the paddle wheels, and knock such log or floating matter downward where it will be retained by the agitated water, due to the action of the paddle wheels until the ship passes over the same, thereby preventing any floating matter from injuring the paddle wheels.

A further object is to provide an improved construction of propeller mounting, in which the hubs of the propeller are provided with integral beveled gears at both ends, so that in the event of injury to either of said gears, the propeller may be reversed, and further to provide an improved casing inclosing the intermeshing beveled gears of the propeller to positively exclude matter which might entangle and clog the gears.

A further object is to provide my improved ship with a plurality of propellers at each side, arranged in line in an undercut or coved portion of the hull, independently mount each propeller and independently operate each propeller.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1, is a view in side elevation illustrating my improvements. Fig. 2, is a top plan view. Fig. 3, is a view in longitudinal section, through the center of the ship. Fig. 4, is a view in cross section on the line 4, 4, of Fig. 3. Fig. 5, is a view in longitudinal horizontal staggered section illustrating the position of the several propelling mechanisms. Figs. 6, and 7, are fragmentary sectional views at right angles to each other, illustrating one of my improved propellers. Figs. 8, and 9, are sectional views at right angles to each other, illustrating one of my improved paddle wheels. Figs. 10, and 11, are section views at right angles to each other, illustrating my improved screen wheel, and Fig. 12, is a sectional plan view illustrating one of the paddle wheels and the engines for operating the same.

My improved ship is provided with a longitudinal passage or channel 1, extending throughout the hull 2, from end to end of the ship, and both ends of the hull at each side of this channel 1, taper to a fine edge as shown at 3, thus the lower portion of the hull constitutes in effect, two separate hulls located side by side, but as a matter of fact the hulls are built solidly together, and the top 6, of the channel 1, and the upper-deck 7, are all built solidly together, so that the ship has but a single rigid hull capable of a great carrying capacity, and state rooms in abundance for passengers. In this channel 1, which extends fore and aft of the ship, I provide three rotary paddle wheels 8, 9, and 10, and in front of the foremost paddle wheel 8, I provide a rotary screen wheel 11, the construction and operation of each of which will more fully hereinafter appear.

Each of the paddle wheels is driven by two engines 12, located in the hulls at opposite sides of the channel, and connected to

the crank shaft 13 of the paddle wheel. These crank shafts extend through stuffing boxes 14, in the walls of the channel, and as the valve operating eccentrics 15, of each engine are located on this shaft 13, the engines are compelled to operate in unison, and a uniform driving power is had at each end of the crank shaft.

In operation, the foremost paddle wheel 8, turns at the slowest speed, the second paddle wheel 9 at a somewhat higher speed, and the third paddle wheel 10 at the highest speed. This is to make up for the current imparted to the water by the first paddle wheel, so that each of the paddle wheels will have a certain amount of driving power.

The screen wheel 11, as shown most clearly in Figs. 10, and 11, consists of a series of metal rings 16, which are connected by cross rods 17 with spoked wheels 18, at the ends of the series of rings, and these spoked wheels 18 have axle stubs 19, which are mounted in bearing 20, in the walls of the channel. The screen wheel turns loosely in its bearings, and is revolved by the action of the water as the ship moves. The purpose of this screen wheel is to strike a log or other floating matter which finds its way into the channel, knock it down below the surface of the water, and the agitation of the water by the paddle wheels 8, 9, and 10, will keep the log or other floating matter below the surface, so that it cannot injure the paddle wheels, and cannot rise to the surface until the ship has passed over the same.

Both sides of the hull of the ship have a cove or under-cut portion 21, extending substantially throughout the length of the ship, and the body of the hull overhangs this under-cut or coved portion in which at each side of the ship three propellers 22 are located.

Each propeller is independently operated, and they are all precisely alike, so that the description of one will apply alike to all.

By reference particularly to Figs. 6, and 7, it will be noted that the propeller 22 is mounted to turn upon a short shaft 23, and the latter supported in a bracket 24, secured to the hull. 25, represents a short shaft which extends through a packing gland 26 in the side of the hull, and a beveled pinion 27 is secured to the outer end of this shaft 25, and is in mesh with the beveled gear 28, integral with one end of the propeller 22.

It will be noted that the propeller 22 has a gear 28 at each end, and this permits the propeller to be reversed in the event that the gear at one end becomes damaged. The intermeshing gears and the shaft 25 are enclosed in a sectional casing 29, which prevents seaweed and other entanglements from getting between the gears, and inter-

fering with the drive of the propellers, and in this casing a bearing 30 is provided for shaft 25. A gear wheel 31 is secured on each shaft 25, at its inner end, and this gear wheel 31 is driven by a motor 32, there being a separate motor 32 for each propeller, and each motor 32 driving a gear wheel 33, in mesh with gear 31.

While I have illustrated diagrammatically electric motors for driving the propellers, I do not limit myself to any particular form of motor, nor to any particular means for controlling the motors, but it is to be understood that the motors are to be under the control of either the pilot or the engineer, so that any or all of said propellers may be driven as desired in either direction, which enables the ship to be rapidly propelled forward or rearward, and be turned in a very short space, and in fact, be turned in water slightly greater than the length of the ship.

By constructing a ship as above explained, each half of the ship may contain its boilers as indicated at 34, with separate smoke stacks 35, and with separate superstructures 36, so that the channel between the ship, while it serves to separate the hull into practically two hulls, the upper deck of the ship is one continuous, smooth deck affording a wide commodious promenade for passengers making the ship a very beamy one, so that the motion of the waves will have little effect upon the ship, making the vessel an extremely comfortable and desirable one for passengers, and one that has enormous capacity for freight. The greatest advantage of the construction, however, is the high speed which the vessel will attain with the great driving power of the three propellers at each side, and the three paddle wheels in the central channel. It cannot accurately be estimated just what speed the ship will make, but I believe it will be far in excess of anything heretofore accomplished with marine vessels.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. In a ship, the combination with a hull having a longitudinal central channel there-through, of paddle wheels in said channel and a rotary screen wheel comprising a plurality of rings secured together forming an openwork cylinder mounted to run free in the forward end of the channel, substantially as described.

2. In a ship, the combination with a hull having a longitudinal central channel there-through, of a series of paddle wheels in said channel, located one behind the other, and a rotary screen wheel comprising a plurality of rings secured together forming an openwork cylinder mounted to run free in advance of the forward paddle wheel, substantially as described.

3. In a ship, the combination with a hull having a longitudinal central channel there-through, of a rotary screen wheel in the forward portion of said channel comprising a plurality of rings secured together forming an openwork cylinder mounted to run free in the channel, and propelling means in said channel back of said screen wheel, substantially as described.

4. In a ship, the combination with a hull having a cove or cut-under portion at each side below the water line and extending throughout the length of the hull, of a plurality of brackets secured to the sides of the hull in said coves, short shafts in said brackets, propellers mounted to turn on said shafts, beveled gears on both ends of the hubs of said propellers, shafts projecting through the sides of the hull, pinions thereon engaging one of the gears on the propellers, and casings inclosing said intermeshing gears and driving shafts, substantially as described.

5. In a ship, the combination with a hull

having a cove or cut-under portion at each side below the water line and extending throughout the length of the hull, of a plurality of brackets secured to the sides of the hull in said coves, short shafts in said brackets, propellers mounted to turn on said shafts, beveled gears on both ends of the hubs of said propellers, shafts projecting through the sides of the hull, gearing between the propellers and said last-mentioned shafts, casings inclosing said gearing and last-mentioned shafts, and means inside the hull for driving the shafts, substantially as described.

6. In a ship, the combination with a hull having a longitudinal central channel and coves or under-cut portions in its outer sides and extending throughout the length of the hull, of a series of paddle wheels in the channel, a series of propellers in each coved portion, a rotary screen wheel turning freely in the forward end of the channel, and independent motors driving each paddle wheel and each propeller, substantially as described.

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

DANIEL M. PFAUTZ.

Witnesses:

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