

No. 702,965.

Patented June 24, 1902.

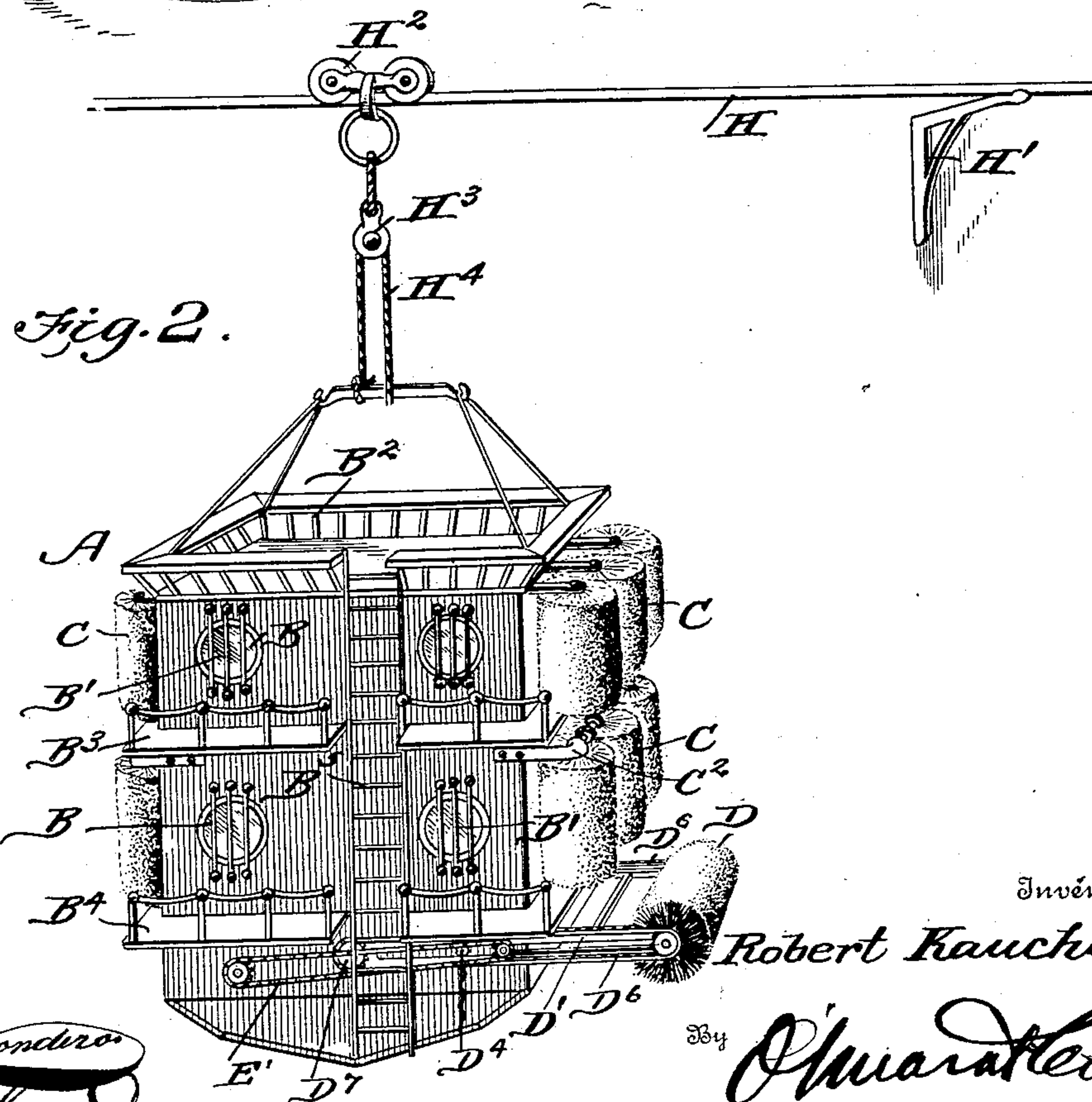
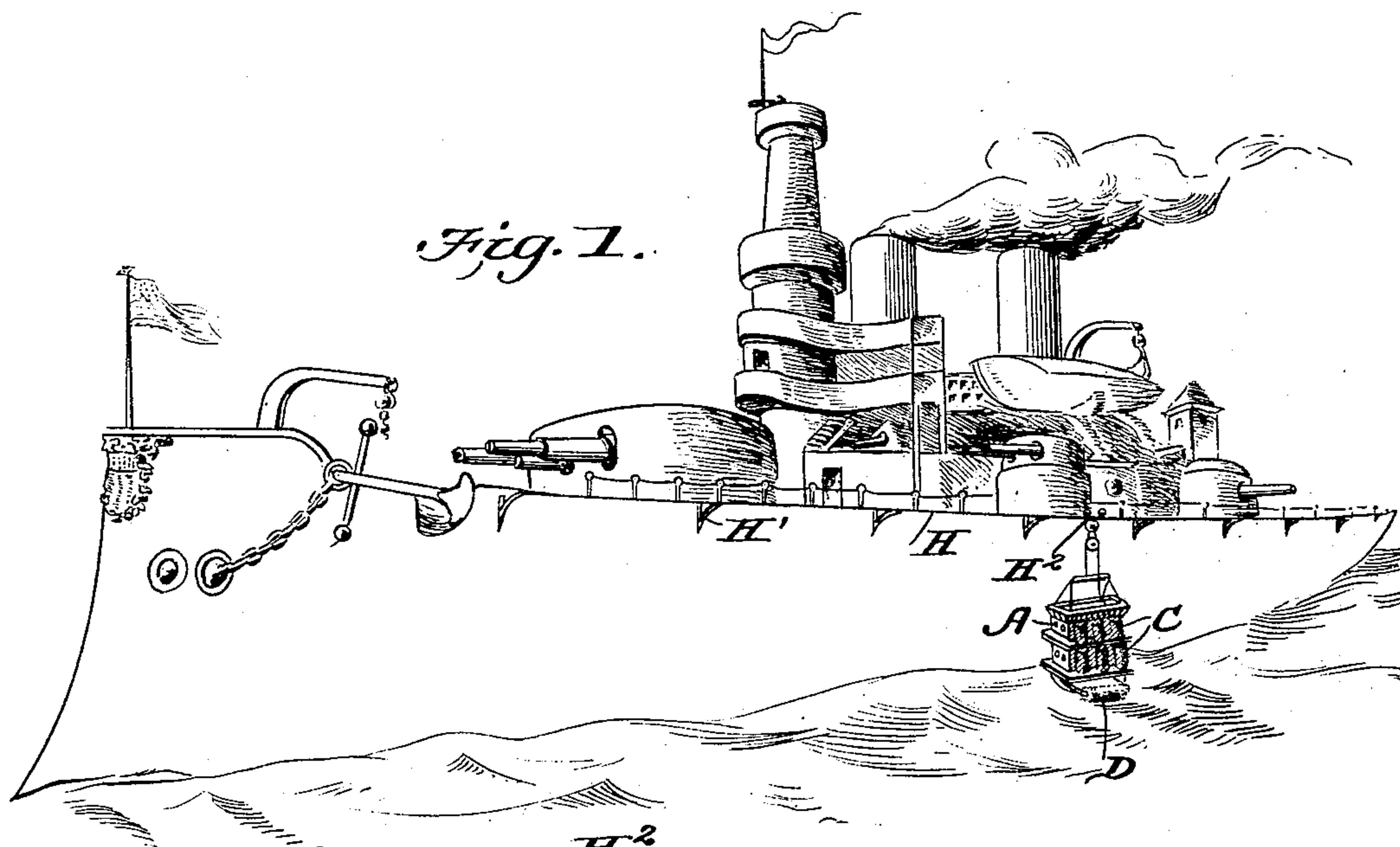
R. KAUCHER.

FLOATABLE CAISSON FOR CLEANING SHIPS' SIDES AND BOTTOMS.

(Application filed Oct. 15, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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Fig. 3.

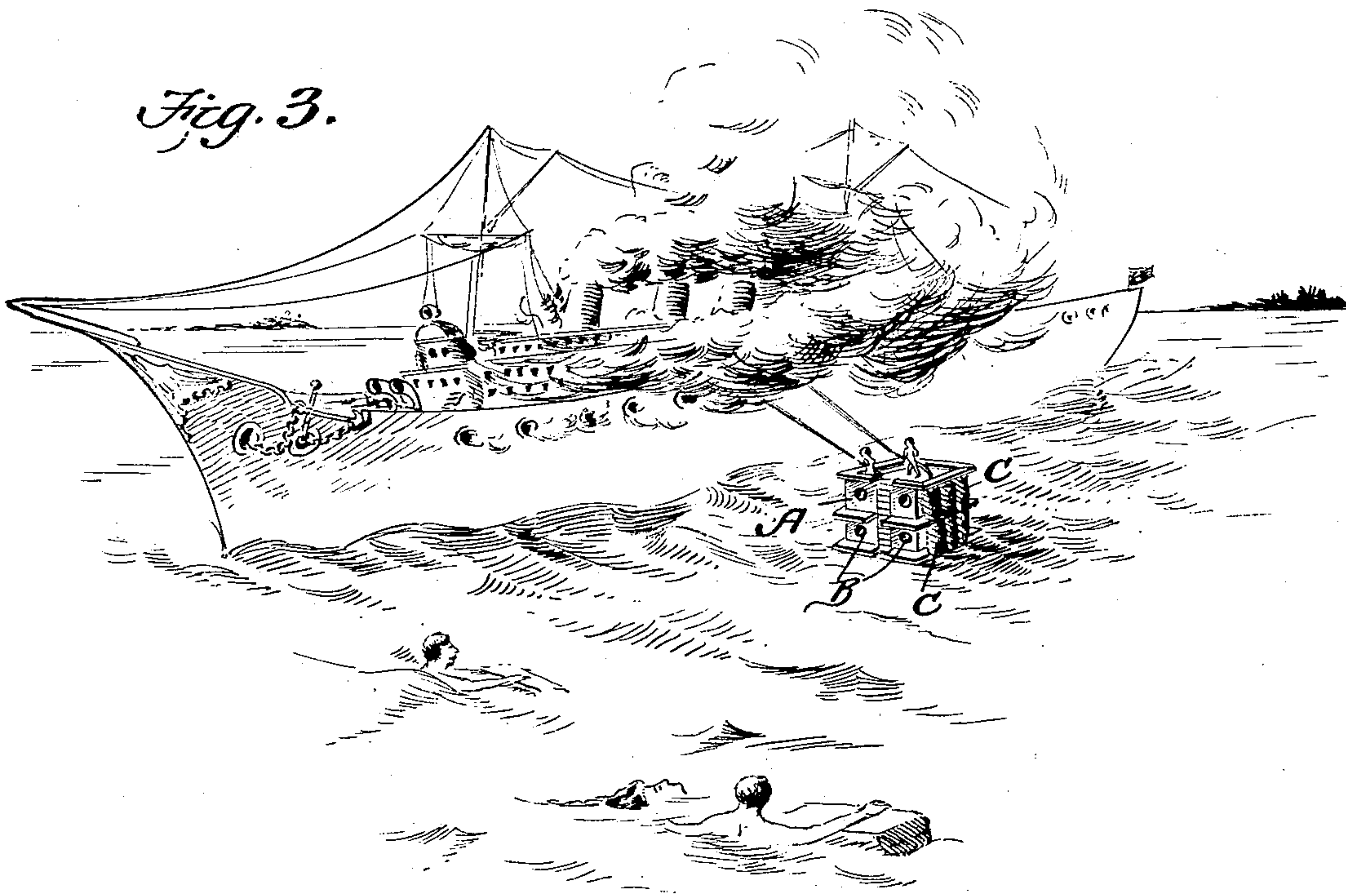
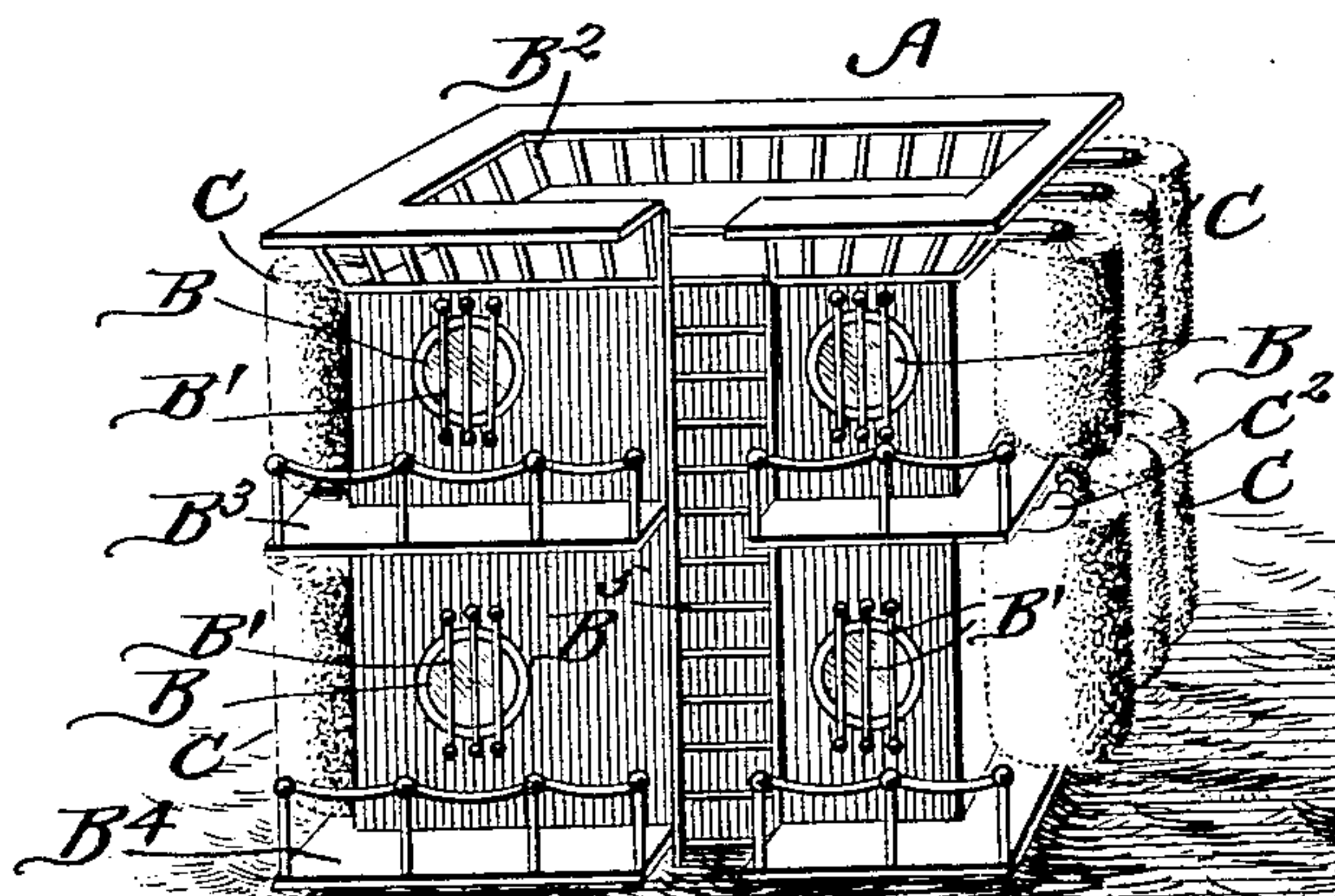


Fig. 4.



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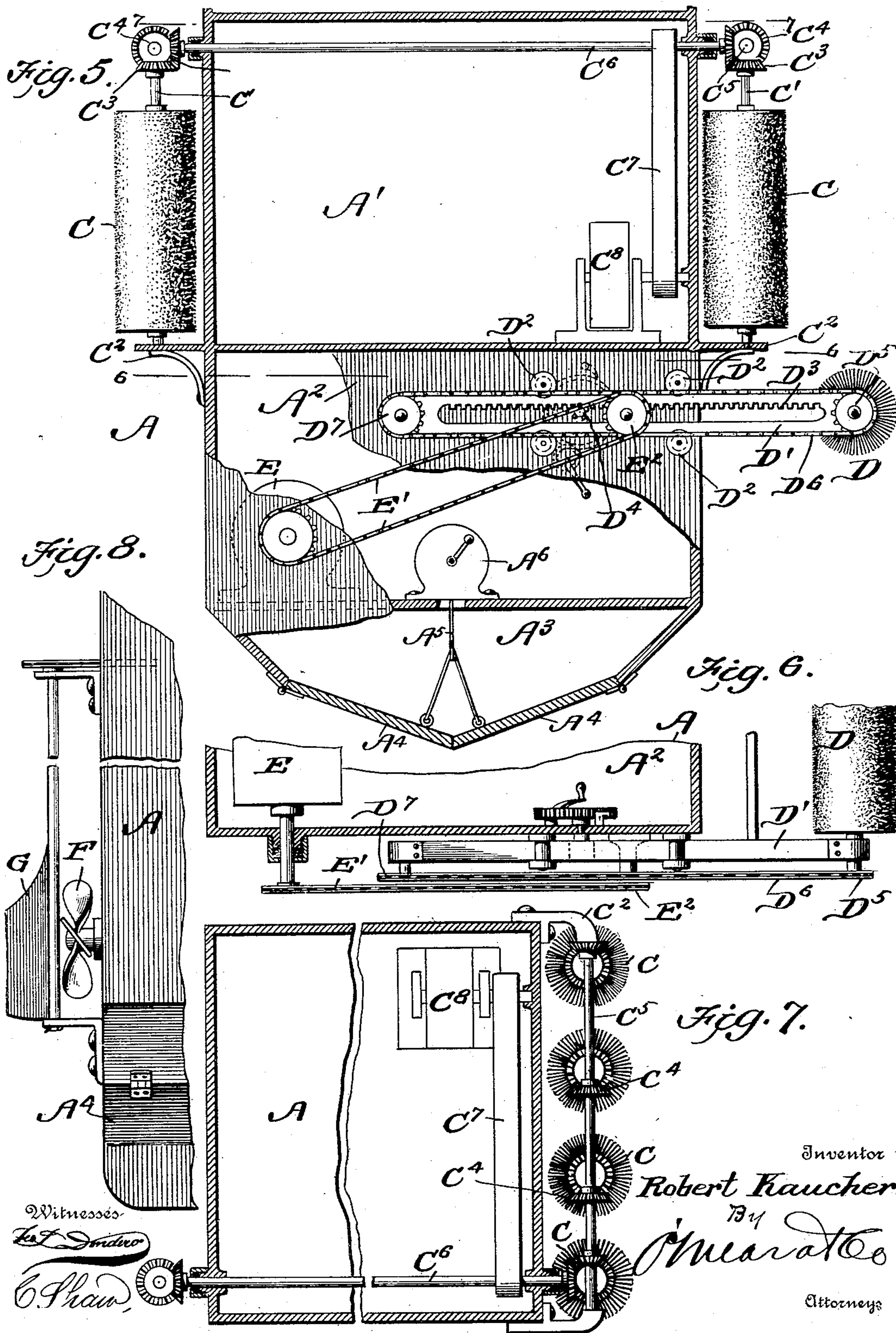
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

ROBERT KAUCHER, OF ROCHESTER, NEW YORK.

FLOATABLE CAISSON FOR CLEANING SHIPS' SIDES AND BOTTOMS.

SPECIFICATION forming part of Letters Patent No. 702,965, dated June 24, 1902.

Application filed October 15, 1901. Serial No. 78,738. (No model.)

To all whom it may concern:

Be it known that I, ROBERT KAUCHER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and useful Floatable Caisson for Cleaning Ships' Sides and Bottoms, of which the following is a specification.

This invention is a floatable caisson particularly adapted for repairing and cleaning the sides and bottoms of ships while afloat and also capable of use for cleaning or repairing walls bordering water-fronts.

The caisson constructed in accordance with my invention is also capable of aiding in extinguishing fires and also serving as a life-saving light at sea; and another object is to provide a caisson capable of use for sounding depths, locating rocks or wrecks, and also for recovering bodies from sunken ships.

With these and other objects in view the invention consists in the details of construction and novelties of combination, all of which will be fully described hereinafter and pointed out in the claims.

In the drawing forming a part of this specification, Figure 1 is a perspective view showing the caisson traveling along the side of a vessel the side of which is being cleaned. Fig. 2 is a perspective view of the caisson suspended from the cable, said caisson being turned around to expose the brushes. Fig. 3 is a perspective view illustrating the use of the caisson as a fire-fighting apparatus particularly adapted for use in connection with ocean steamships. Fig. 4 is a perspective view of the caisson floating independent of any support. Fig. 5 is a vertical sectional view, partly in elevation. Fig. 6 is a sectional detail taken on the line 6 6 of Fig. 5. Fig. 7 is a section on the line 7 7 of Fig. 5; and Fig. 8 is a detail view showing a portion of the casing and illustrating the arrangement of the propeller, rudder, and dumping-bottom.

It is the purpose of my invention to construct a floatable caisson capable of a number of different uses, and the said caisson can be made any size or shape desired, according to the purpose for which it is intended. Furthermore, the caisson can be provided with any auxiliary appliances desired; but

in illustrating the invention these auxiliary appliances have not been illustrated, inasmuch as they form no essential part of my invention.

The caisson A is constructed of stout serviceable timber securely fastened to a steel frame, and in practice I prefer to cover the exterior of the caisson with asbestos and also with a sheathing of material whereby it is rendered as near fireproof as possible, so that it may be employed for fighting fires at close range.

The caisson is divided into an upper compartment A¹, a lower compartment A², and a ballast-compartment A³, and the upper and lower compartments may be subdivided, if so desired, into any suitable number of compartments. The ballast-compartment A³ is intended to receive the ballast necessary for submerging the caisson to any desired depth. This ballast-compartment has a sectional hinge-bottom A⁴, the sections being held closed by means of the cables A⁵, connected to a suitable winding mechanism A⁶, located in the lower compartment, and by means of this winding mechanism of the ballast-compartment can be opened or closed, as desired, and a portion or the whole of the ballast dropped. In case any accident should occur while the caisson is submerged the ballast could be immediately dropped by instantly opening the bottom of the ballast-compartment, thereby relieving the said compartment of the excessive weight, and the caisson would of course immediately rise to the surface of the water. The caisson is provided with suitable windows B, protected by iron bars B¹, and I also provide the upper railing or guard B², the upper gallery B³, and the lower gallery B⁴, and the exterior ladder B⁵ is arranged upon the side of the caisson.

Air-tight trap-doors are of course provided in the top of the caisson and also in the intermediate floors. Vertical cleaning-brushes C, preferably made of steel, are mounted upon shafts C¹, said shafts being journaled in the brackets C², projecting from the side of the caisson, and at their upper ends are provided with the beveled gears C³, which mesh with the beveled gears C⁴, carried by cross-shaft C⁵, driven by means of the shaft C⁶, journaled in the caisson and operated by means of a

belt C⁷, driven by the electric motor C⁸, arranged within the compartment of the caisson, as most clearly shown.

Any suitable number of brushes can be employed, and they can be made any size desired, and, furthermore, I propose to make these brushes adjustable, so that as they become worn the wear can be taken up and compensated for, thereby permitting the brushes to be used to their full extent. I also provide a horizontal cleaning-brush D, which is arranged opposite the compartment above the ballast-compartment and is particularly adapted for cleaning the bottom of the ship. This brush D is journaled between the outer ends of the adjustable beams D', said beams traveling between the guide-rollers D², arranged upon the exterior of the caisson, said beam being slotted longitudinally and provided with a rack-bar D³, in which measures a pinion D⁴, operated from the interior of the caisson, whereby the beams can be moved in or out, so as to move the brush in or out, to or from the bottom of the ship. The shaft of the brush D has a sprocket D⁵ at each end, and traveling over the said sprockets are the chains D⁶, said chain passing also around the sprocket D⁷, arranged at the opposite end of the adjustable beam.

E indicates an electric motor operating the sprocket-chain E', which drives a sprocket-wheel E², which is mounted upon a shaft carrying a sprocket-wheel which engages a sprocket-chain D⁶, and thereby operates the same. This arrangement insures a uniform action of the brush irrespective of its adjustment.

A suitable propeller F is arranged at one end of the caisson and a rudder G, so that the caisson can be made to navigate whenever necessary.

It will thus be seen that I provide a floatable caisson which can be used for cleaning the sides and bottom of a ship, and in practice I prefer to arrange a rail H, which is supported from the upper edge of the side of the ship by brackets H', the caisson being suspended from the said rail or track by means of a movable carriage or trolley H² and the pulley H³ and cable H⁴. This construction

insures the proper contact of the brushes and also enables the caisson to be quickly and easily moved along the side of the vessel. The caisson can be carried on board ship and launched at any time necessary.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A floatable caisson divided into a series of compartments, each compartment having suitable lights or windows, the upper railing arranged upon the top of the caisson, the upper and lower galleries, the vertical cleaning-brushes, and the horizontal cleaning-brush all arranged and adapted to operate substantially as shown and described.

2. A floatable caisson having horizontal adjustable journal-beams arranged at opposite sides, a horizontal brush journaled within the ends of said adjustable beams and means contained within the caisson for adjusting the said beams in or out, substantially as described.

3. A floatable caisson having upright rotary brushes journaled adjacent to the sides of said caisson, the horizontal rotary brush journaled within the outer ends of the adjustable beams arranged upon the sides of the caisson and at a point below the vertical brushes and means contained within the caisson for operating the vertical brushes and means for operating and adjusting the horizontal brush substantially as described.

4. A floatable caisson comprising a series of compartments arranged one above the other, the vertical rotary brushes arranged upon the sides of the caisson, the horizontal rotary brush arranged adjacent to one side of the caisson, below the vertical brushes, the adjustable brackets carrying the said horizontal brush, means contained within the caisson for operating the vertical and horizontal brushes and a suitable traveling support connected to the said caisson, substantially as and for the purpose described.

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