No. 608,565. Patented Aug. 9, 1898.

D. AHERN.

BOAT.

(Application filed Aug. 23, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig 1

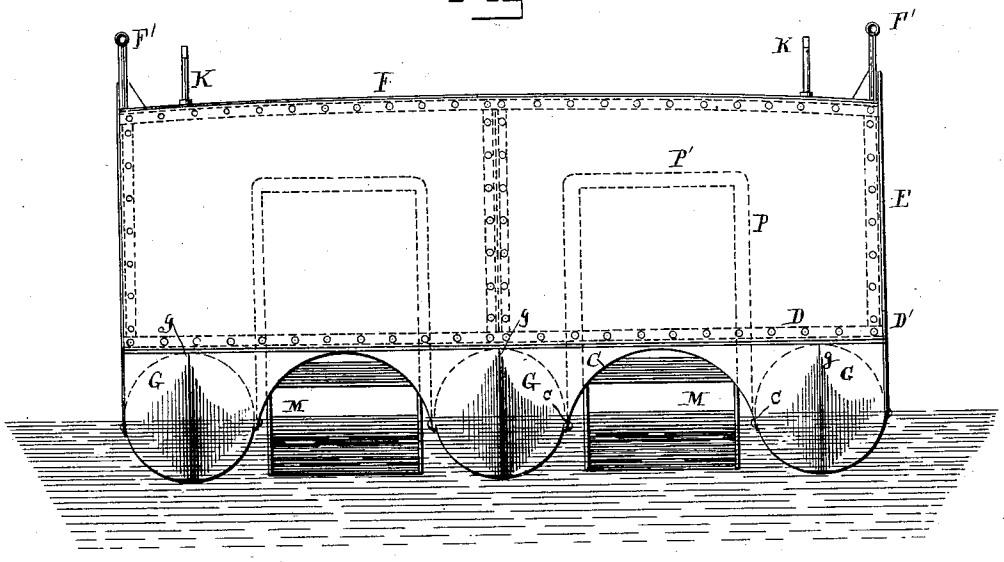
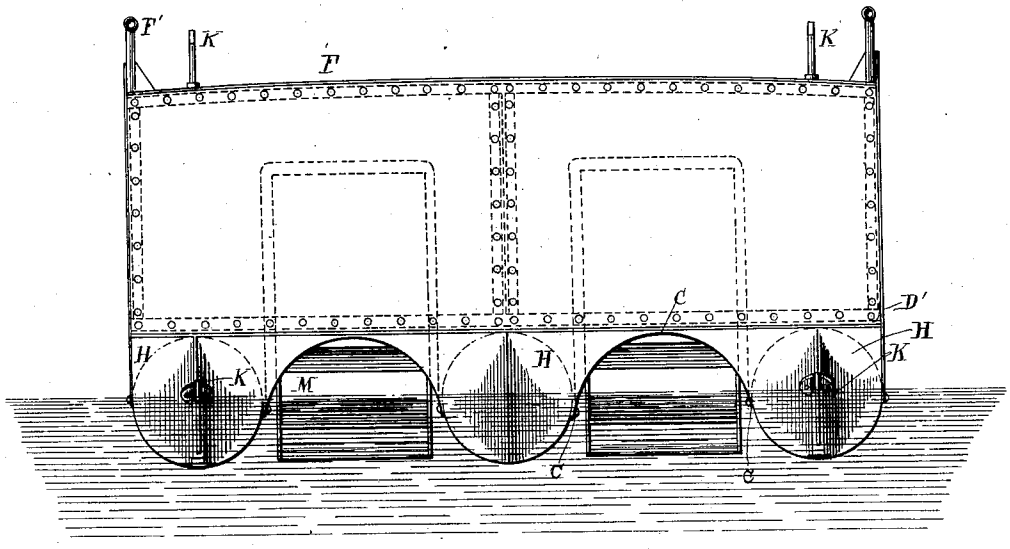


Fig 2



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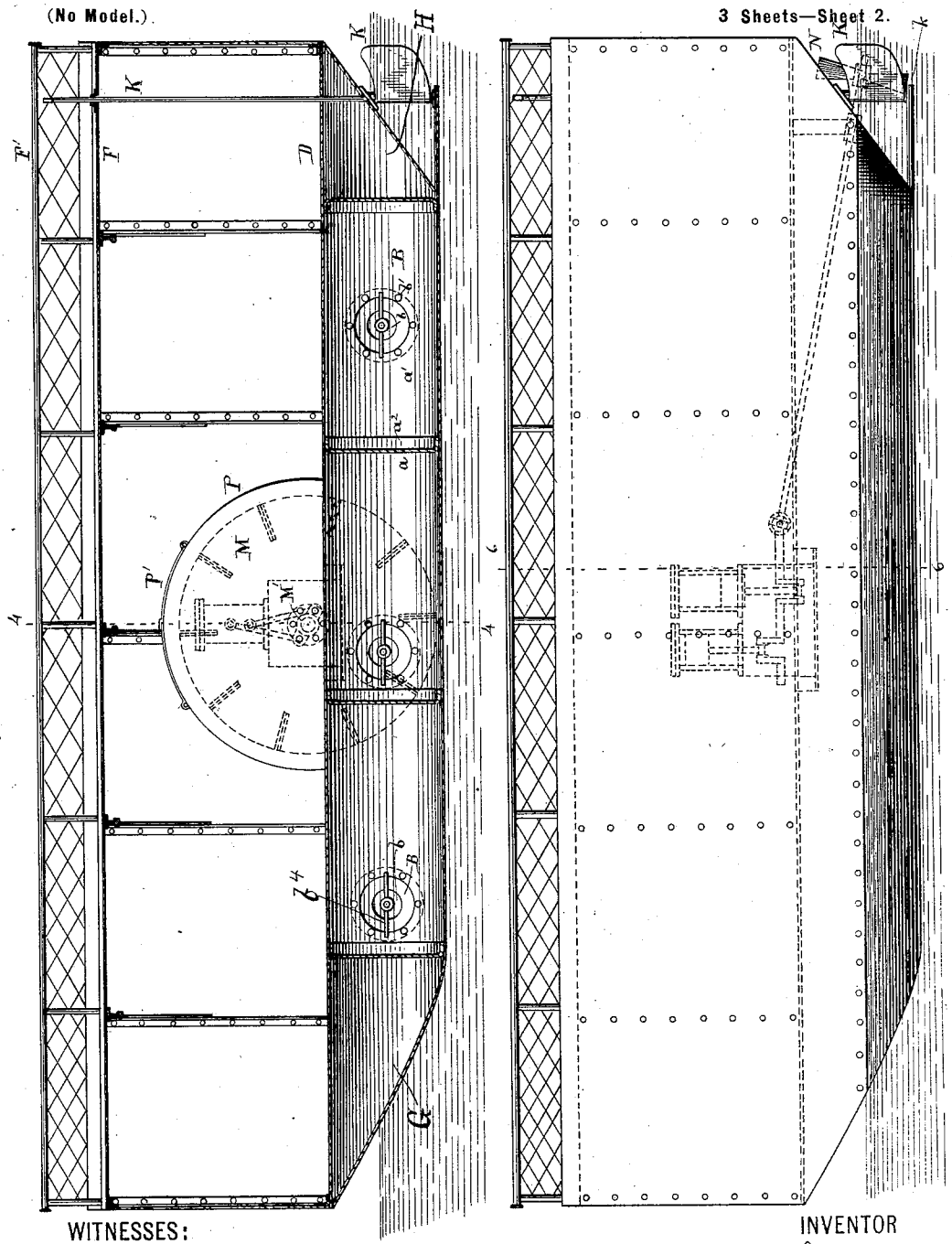
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(No Model.) 3 Sheets—Sheet 3.

Fig 4

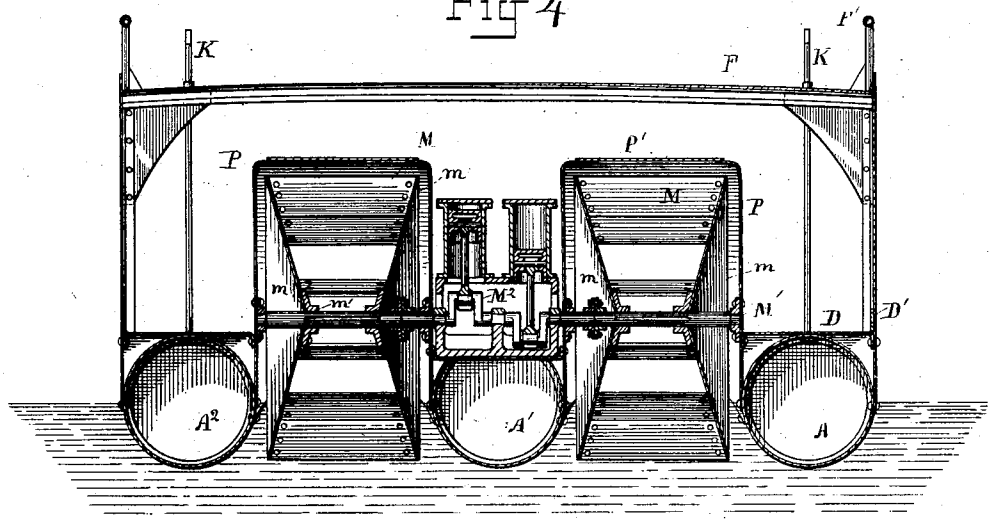
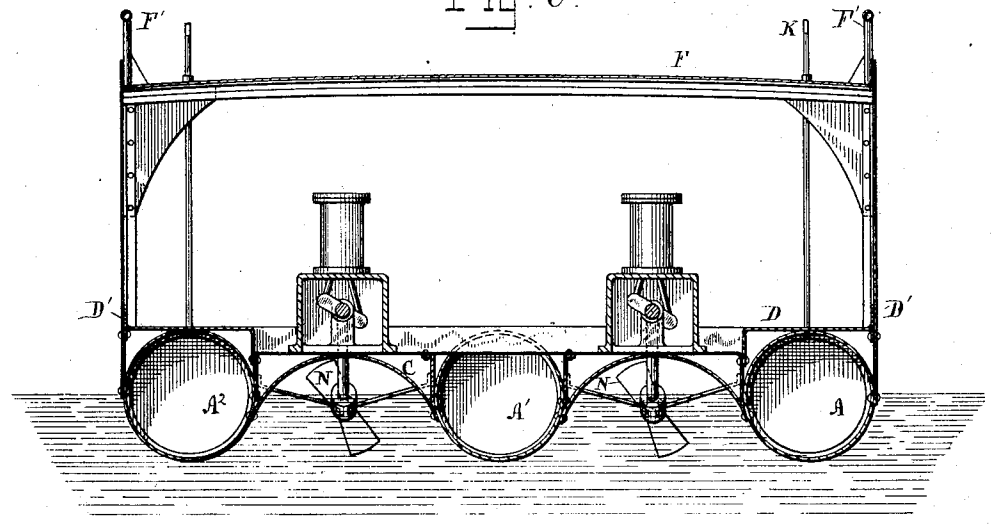


Fig. 6.



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UNITED STATES PATENT OFFICE.

DENIS AHERN, OF NEW YORK, N. Y.

BOAT.

SPECIFICATION forming part of Letters Patent No. 608,565, dated August 9, 1898.

Application filed August 23, 1897. Serial No. 649,110. (No model.)

To all whom it may concern:

Be it known that I, DENIS AHERN, a citizen of the United States, residing in the city of New York, in the county and State of New York, have invented a certain new and useful Improvement in Boats, of which the following is a specification.

This invention relates to improvements in boats, floats, or barges, and has for its object to provide a device having great buoyancy, non-sinkable, and provided with means for its propulsion and steering.

My improved boat or barge combines the elements of safety and durability. It is so constructed that should one portion of the hull be broken or punctured no foundering will occur. This I effect by means of water-tight compartments constructed in such manner as to render all portions of the hull buoyant notwithstanding the boat should be divided longitudinally or transversely. My improved boat may be constructed entirely of metal or may be of composite construction, wood and metal. The hull, however, is preferably of metal.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a front view; Fig. 2, a rear view; Fig. 3, a central longitudinal section through one of the cylinders, and Fig. 4 a cross-section on line 4 4 in Fig. 3. The succeeding figures show the same as propelled by screws. Fig. 5 is a side view, and Fig. 6 a cross-section on the line 6 6 in Fig. 5.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

Referring to the drawings by letters, A, A′, and A^2 are three metal cylinders hermetically closed at the ends and provided with a plurality of transverse partitions *a*, forming within said cylinders air-tight compartments *a′*. Said partitions are secured by means of their annular flanges a^2, being held by rivets upon the inner circumferential surface of the cylinder. Each of said compartments so formed is provided with a manhole and manhole-cover B and a hand-hole with cover *b* therefor. The manhole-covers B are secured by means of a plurality of bolts *b′*, having nuts by which the manhole-plates are firmly clamped upon the cylinders. The hand-hole consists of a shouldered plate provided with a gasket held in place by the ordinary clamp b^4. I prefer to have the nuts upon the outer surface of the cylinders, so that they may be tightened whenever necessary without removing the hand-hole cover.

The cylinders A A′ A^2 are connected together by means of the curved plates C, which are riveted to the cylinders at *c* and also to the main deck portion D. By this means the cylinders and the deck are held as rigidly together as though formed integrally. The sides of the deck portion D adjacent to the edges are bent upwardly, forming right-angle flanges D′, to which are bolted or riveted the stanchions E, supporting the upper deck F, or if it be preferred to have the space between decks inclosed a metal plate may be similarly secured. Suitable companion-ways and hatches are provided, as well as a railing F′, for the upper deck, all of ordinary construction. I provide a forward end portion G, which is riveted to the cylinders, deck, and curved plates C. Said portion is so constructed that the parts forward of each cylinder shall be upwardly curved like the prow of a small boat and presenting a sharp edge or cut-water *g*. Between each cut-water and the next the connecting portion of the material is of the same curvature as that of the plates C. A suitable stern portion H is also provided, similarly secured to the deck, cylinders, and curved plates. The stern may, if preferred, be provided with an overhang and is equipped, preferably, with two rudders K K, each suitably hung in eyebolts *k* or otherwise and both controlled by suitable connections from the same tiller or wheel. The rudders are preferably located rearwardly of and in line with the outer cylinders.

I provide means for propulsion which may be either paddle-wheels M or screw-propellers N, with suitable engines for operating the same. The engines, paddle-wheels, and propellers are preferably employed in duplicate; but the paddle-wheels are mounted rigidly upon the same shaft M′, the crank-arms M^2 being preferably integral therewith. When paddle-wheels are employed, a por-

tion of the lower deck D and curved plates C are cut away on each side of the central cylinder A′, so as to permit the engagement of the wheels with the water beneath. The central cylinder A′ is also flattened at the midlength to permit the rotation of the crank-arms M^2 and play of the piston-rods. When paddle-wheels are employed, they are preferably constructed as shown in Fig. 4, having two conical plates *m*, with facing apexes bolted upon hubs *m′* of the same contour, the hubs being preferably keyed upon the shaft M′. Each of the wheels is inclosed by a water-tight casing P, provided with a door or manhole, with hatch P′ therefor, preferably hinged. When propellers are used, any suitable means may be employed for journaling the shafts.

When unloaded, the boat may be ballasted by pumping water into two or more of the cylinder-compartments, selecting those which, with the ballast, will cause an even displacement of all parts of the boat. The peculiar curvature of the bottom increases about forty per cent. the extent of the bearing-surface of the structure upon the water, and yet provides for the free passage of the water longitudinally of the vessel, with the propelling devices well defended against injury.

If preferred, the paddle-wheels may be keyed upon detachable shaft portions, which are secured to the main portion of the shaft by bolts through meeting flanges.

I claim as my invention—

The combination in a water-craft, of a series of air-tight metallic cylinders, each having a plurality of transverse partitions *a* forming separate air-compartments, a manhole and air-tight cover for each compartment, a hand-hole and suitable cover for each manhole-cover, curved plates C riveted to and holding said cylinders parallel to each other, a horizontal deck D covering said cylinders and suitably secured thereto and to the curved plates, an upper deck supported upon and above the deck first mentioned, shaft or shafts carrying propellers or paddle-wheels operatively mounted upon the lower deck, and separately-formed prow and stern portions suitably secured to the body portion of the craft, the stern portion being provided with rudders and operating-gearing therefor, substantially as herein shown and specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

DENIS AHERN.

Witnesses:
W. W. HILL,
M. F. BOYLE.