Sheet 1. 2 Sheets.

J. Hyde:

Armor Clad Ships.

No. 37.232. Patented Dec. 23, 1862.

Fig. 1.

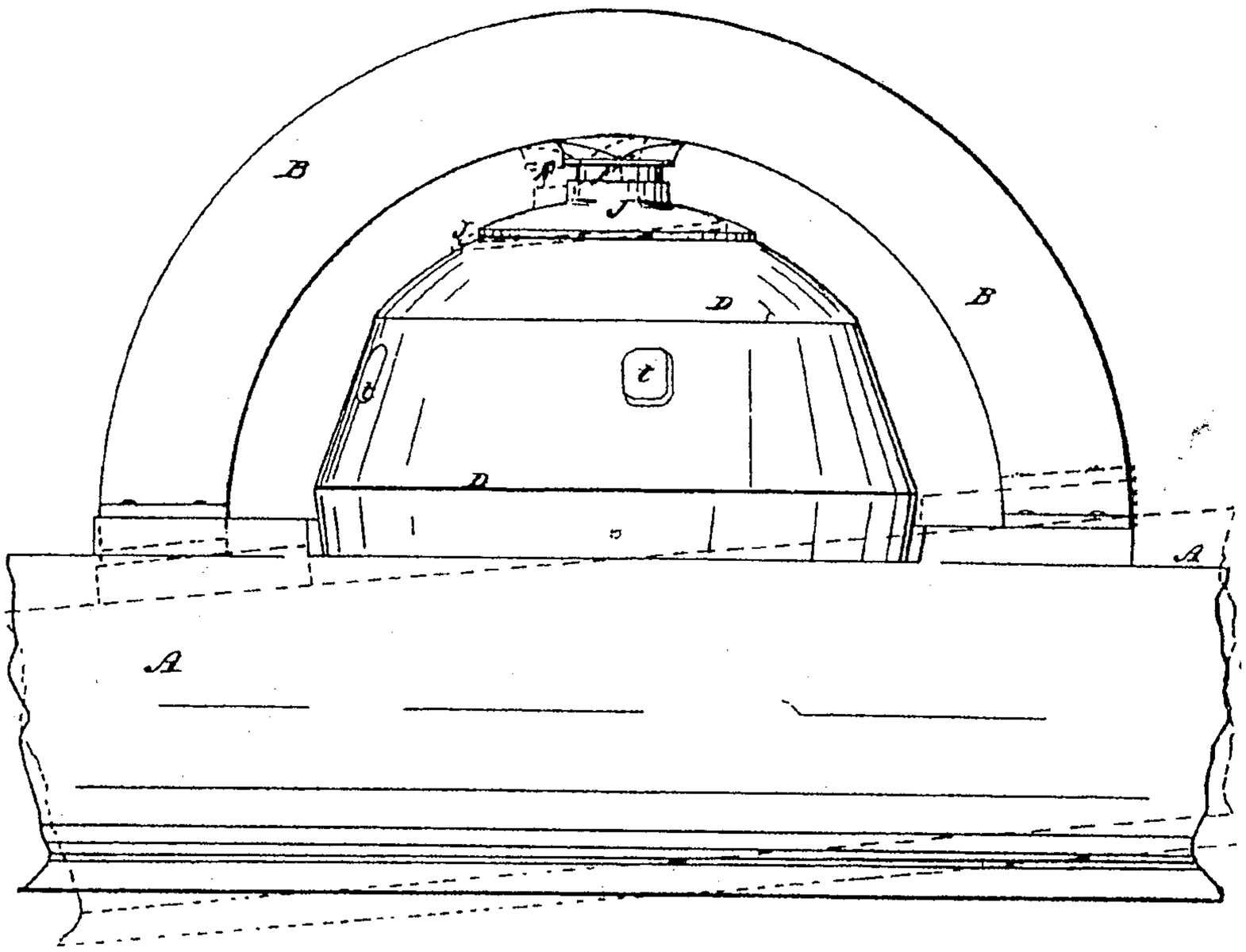
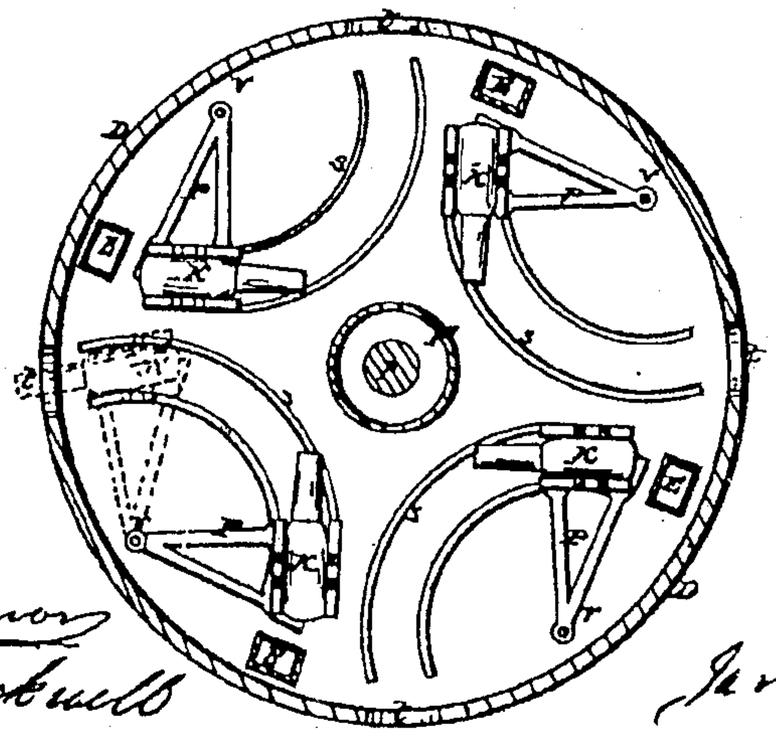


Fig. 4.



Witnesses:

James Blackwell

Inventor,

James Hyde

Sheet 2. 2 Sheets.

J. Hyde.

Armor Clad Ships.

No. 37,232. Patented Dec. 23, 1862.

Fig. 2.

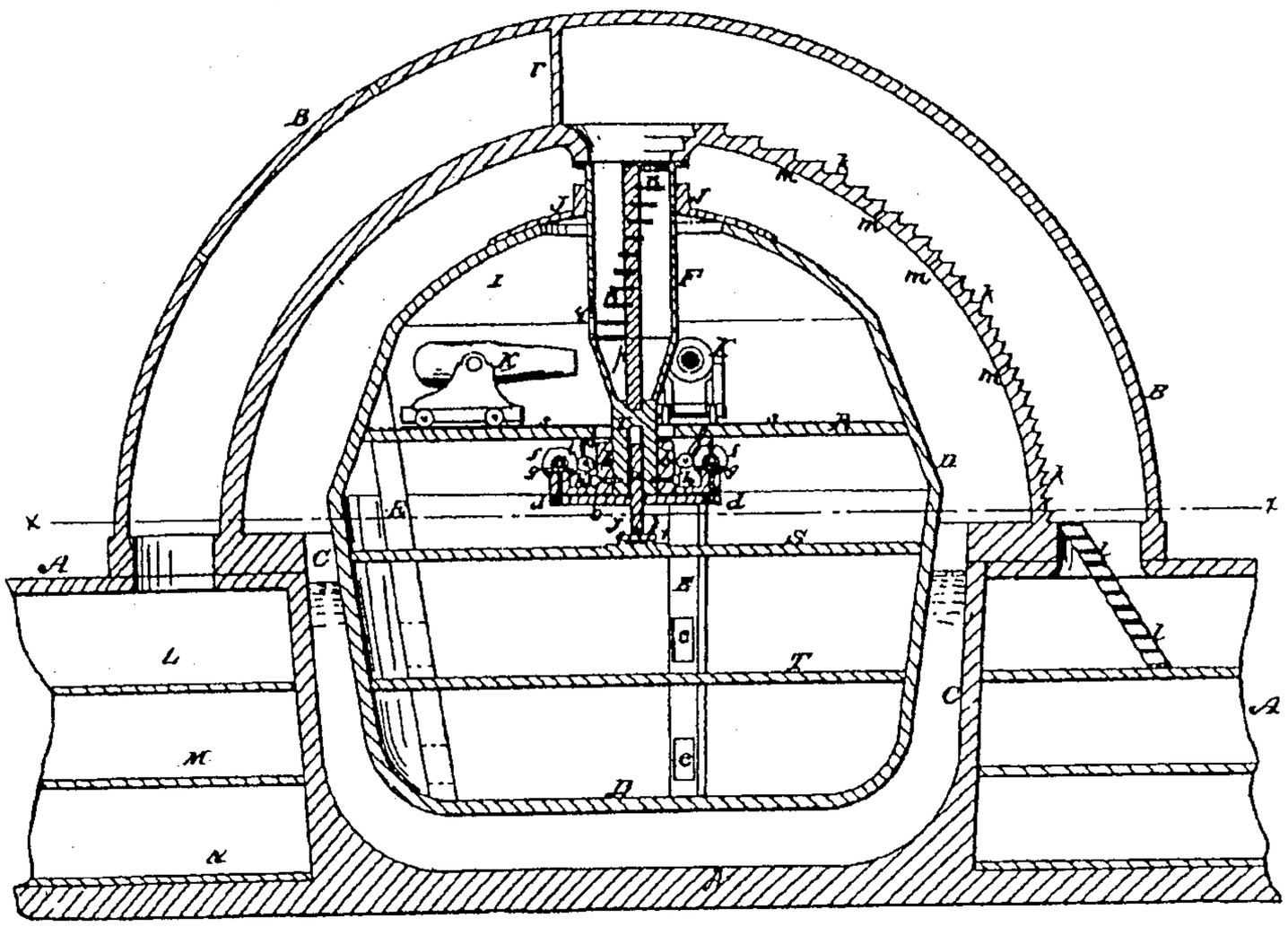
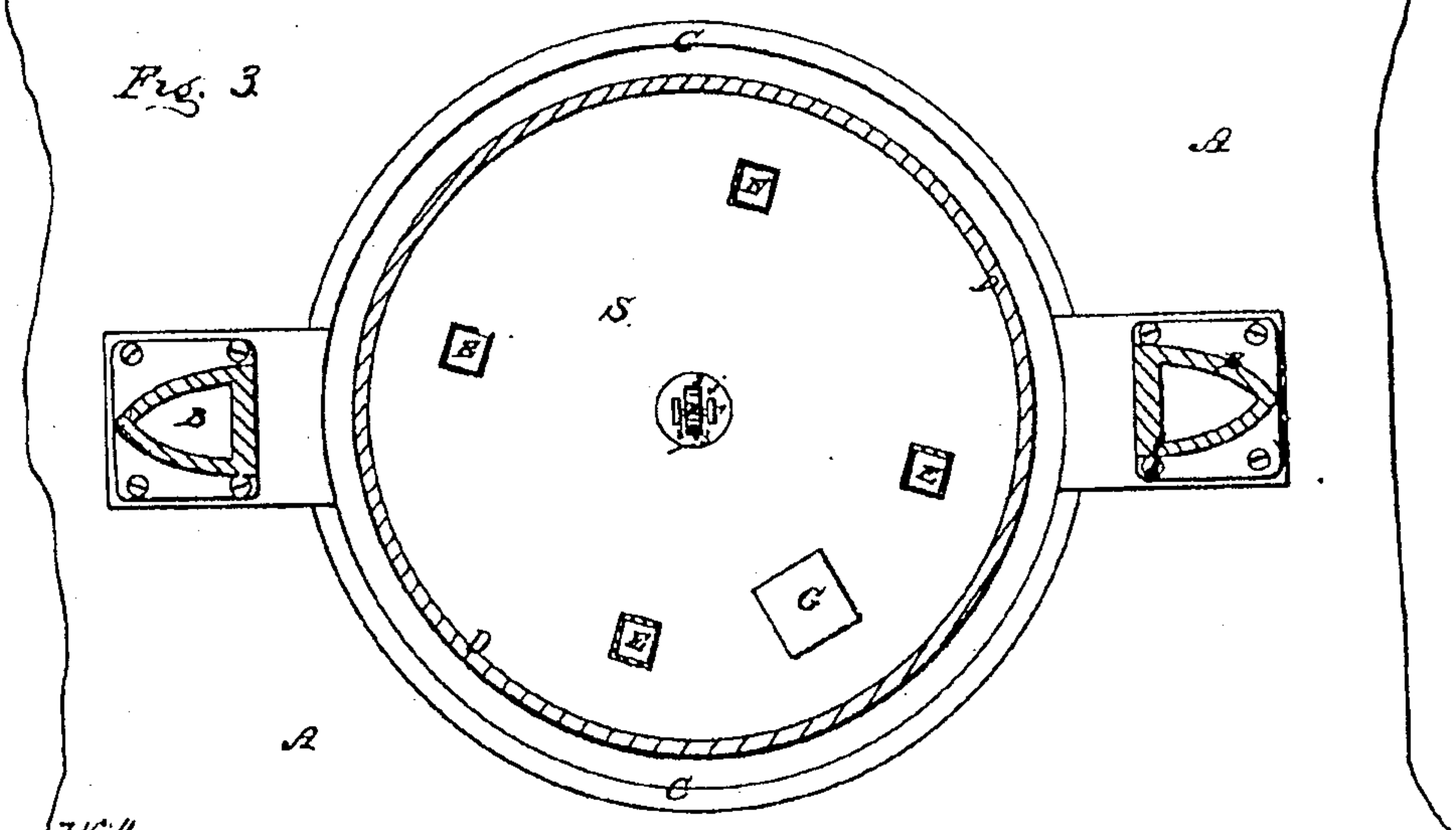


Fig. 3.



Witnesses;
Wm. B. Payson
James Blackadder

Inventor;
James Hyde

UNITED STATES PATENT OFFICE.

JAMES HYDE, OF NEW YORK, N. Y., ASSIGNOR TO THOMAS KEECH.

IMPROVED FLOATING BATTERIES FOR SHIPS AND OTHER NAVIGABLE VESSELS.

Specification forming part of Letters Patent No. **37,232**, dated December 23, 1862.

To all whom it may concern:

Be it known that I, JAMES HYDE, of New York, in the county of New York, in the State of New York, have invented certain new and useful Improvements in Floating Batteries; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to that kind of floating battery in which the guns are arranged within a revolving or rotating "turret" or case, which is made shot-proof, and with ports, through which the guns are discharged. In the various batteries of this class heretofore made it has been necessary to employ an immense amount of power to operate the revolving turret, and the amount of requisite machinery has been so great as to render it impractical to have the craft sea-going and possess any very great comparative speed. And another great practical difficulty in making a successful battery of this kind has been the impossibility of keeping the guns nearly level and working them rapidly and easily.

These and other minor difficulties it is the object of my present invention to overcome in the production of a sea-going craft which may be made to possess the requisite degrees of strength and speed, while at the same time the revolving turret is so constructed and combined with the body of the ship as to be readily turned and adjusted by a few men, and remains nearly level while the guns are being worked.

My invention consists in the employment, in combination with any kind of ship's hull or body of a floating turret, so arranged as to float in water contained within the ship's hull (or in a compartment formed therein) and be readily rotated by machinery in the turret, as hereinafter more fully explained; and my invention further consists in forming a communication between the inside of the ship and the inside of the turret by a suitable passage-way through hollow frames which sustain the central shaft and through the said shaft, as hereinafter more fully described; and my invention further consists in a novel arrangement of the guns on curved railways in a manner which will be presently explained.

To enable those skilled in the art to make and use my invention, I will describe one of my improved floating batteries, referring by letters to the accompanying drawings, forming part of this application.

Figure 1 is a side elevation. Fig. 2 is a vertical longitudinal section. Fig. 3 is a horizontal section at the line *x x*, Fig. 2; and Fig. 4 is a plan view of the gun-deck or floor of turret.

In the several figures the same letter of reference indicates the same part of the apparatus.

A represents the hull or body of a ship with its different decks L M N, and constructed in any desired model, about the center of which is formed a reservoir or compartment, C. This reservoir C is nearly filled with water, as shown in blue tint in the drawings, in which floats the turret or gun-house D. This turret D should be made in the usual way, of plates of iron sufficiently strong to withstand shot, and somewhat dome-shaped, (where it projects above the hull A), to deflect shot fired against it.

B is a hollow arch-like frame, extending from the hull A over the turret D, and from which projects downward the hollow shaft F, in the the lower end of which is fitted, so as to slide freely up and down, a stud or shaft, *a*. Said shaft *a* is connected to the floor or deck S of the turret D by two cross pivots, 1 and 2, forming a universal joint. Around the lower part of shaft F, at the solid part 1, is arranged and secured a frame, *b*, on which is hung a system of gearing for turning the spur-gear *c*, which is keyed onto shaft *a*, and consequently turns the turret in the reservoir. In one-half of the hollow frame B there is formed a staircase, *k*, over which, from the steps *l*, persons can pass from the interior of hull A to the winding stairway *n* in hollow shaft F, and thence down through the doorway *q* into the turret. On the upper deck, R, of the turret is constructed the railway for the guns K. The arrangement of said railway *s* and the gun-carriages will be best understood by reference to Fig. 4, which is a plan of deck R. The four guns K travel on four railways, *s*, each about in the shape of a quarter of a circle, the carriages being constructed with sector-frames P, which are hung at one end on pivots V, around which the carriages travel.

In Fig. 4 I have drawn the carriages in their normal position, and shown one in red

lines run out to its port ready for action or firing. The ports *t* are made in the usual manner, with closing iron doors.

E are elevators or dumb-waiters, through which ammunition is passed up from the lower decks of the turret to the gunners, as required. It will be seen that by turning the crank-handles *o o* the gears *h h* will impart motion to the gears *f f*. On the shafts of gears *f f* are two bevel-gears, *i i*, which mesh into and drive the gears *g g*, on the shaft of which latter are two spur-pinions, *d d*, which drive the large gear *c*, secured to shaft *a*. (See Fig. 2.) It will be understood, then, that by turning the handles *o o* the turret D is rotated, its shaft *a* turning in the socket formed in the lower end, I, of the shaft F, and also sliding up and down in said socket to suit the variable positions of the turret D in its reservoir. While the turret is free to rotate on the shaft *a*, it is also free to tip in any direction by virtue of the universal joint formed by pivots 1 and 2, by which the shaft *a* is coupled to the deck S at the point *j*. (See Figs. 2 and 3.) To admit of this tipping or careening, (caused by the motions of the ship or by the turret having more weight of cannon on one side than the other,) and at the same time always have the top of the turret, through which the stationary shaft F passes, closed tight, I arrange a collar, (dish-shaped,) J, around the upper end of shaft F, sufficiently large to always keep covered the opening made in top of D, to admit sufficient play of the turret.

I have shown one-half of the hollow frame B divided off by a partition, *r*, to form a smoke-stack. In the other portion, used as the passage-way, small holes *m* may be made through the inner and outer sides for ventilation.

It will be understood that, by having the turret D floating in a reservoir, as shown and described, all friction from the usual supporting mechanical devices is avoided, and the turret can be readily turned by hand-power in lieu of steam-power now used, with its necessary accompaniments of machinery.

By thus dispensing with all the machinery and engines now used to operate the turret in this class of batteries, I am enabled to construct my hull with the adaptations to greater speed and seaworthiness than can be attained when the heavy turret is not floated and is operated in the manner heretofore practiced.

It will be understood that by having the turret to float, as described, the careening of the ship will not affect said turret so much, the tendency of the water in the reservoir being to maintain its level, whereby the turret D is caused to float in a level condition while the hull A tips, as illustrated in red lines at Fig. 1, whereby a greater degree of accuracy can be attained in firing the guns than can be arrived at in the present mode of construction.

The small red circle in Fig. 1 indicates the center of motion of the ship around the turret. There are suitable traps or openings for communication between the different compartments or decks of the turret, as seen at G, Fig. 3, in the deck S.

When the turret is not in use for war purposes, it may be used with great comfort as a cabin, being free from the unpleasant motion of the hull or ship.

It is obvious that my invention is subject to many modifications without departing from its spirit, and I desire to be secured by Letters Patent against all infringements in machines or apparatus involving my invention, though differently constructed in detail.

If it be found necessary in practice, I propose to put steadying rolls or guides around the turret or reservoir near top of latter, to prevent rocking of turret in the reservoir.

Having described the construction and operation of my improved floating battery, so that one skilled in the art could make and use the same, what I claim as new, and desire to secure by Letters Patent, is—

1. The employment of a floating turret, in combination with a floating tank or ship's hull, substantially in the manner and for the purposes hereinbefore described.

2. Forming a communication between the interior of ship A and inside of floating turret D, through the frame B and hollow shaft F, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand and seal this 23d day of August, 1862.

JAMES HYDE. [L. S.]

In presence of—

WM. H. RAYNOR,

JAMES BLACKWELL.