

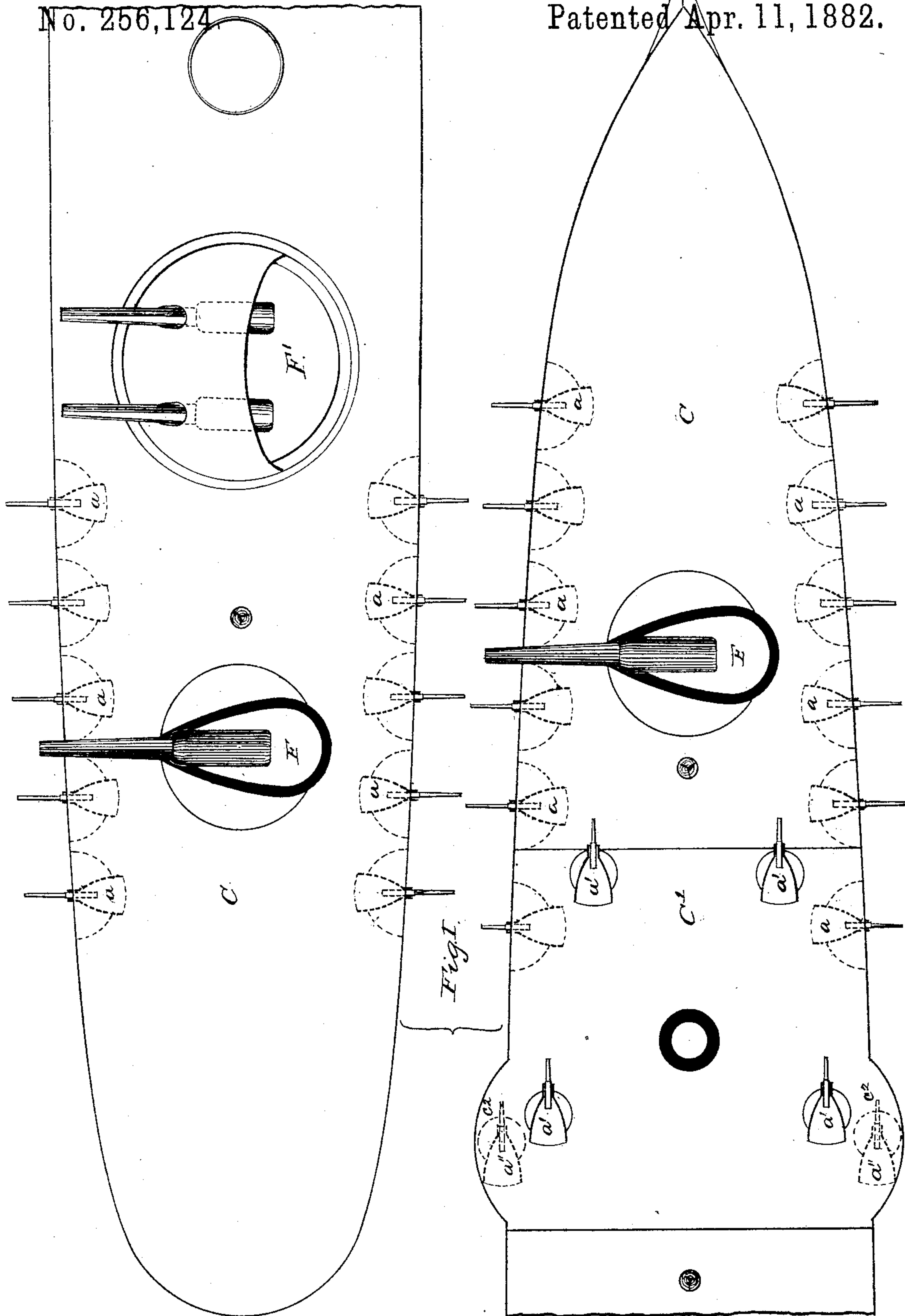
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4 Sheets—Sheet 1.

N. B. CLARK.
SHIELD FOR SHIP'S GUNS.

No. 256,124

Patented Apr. 11, 1882.



Attest:
David D. Cone
Wm. H. Wiley.

Inventor:
Nathan B. Clark

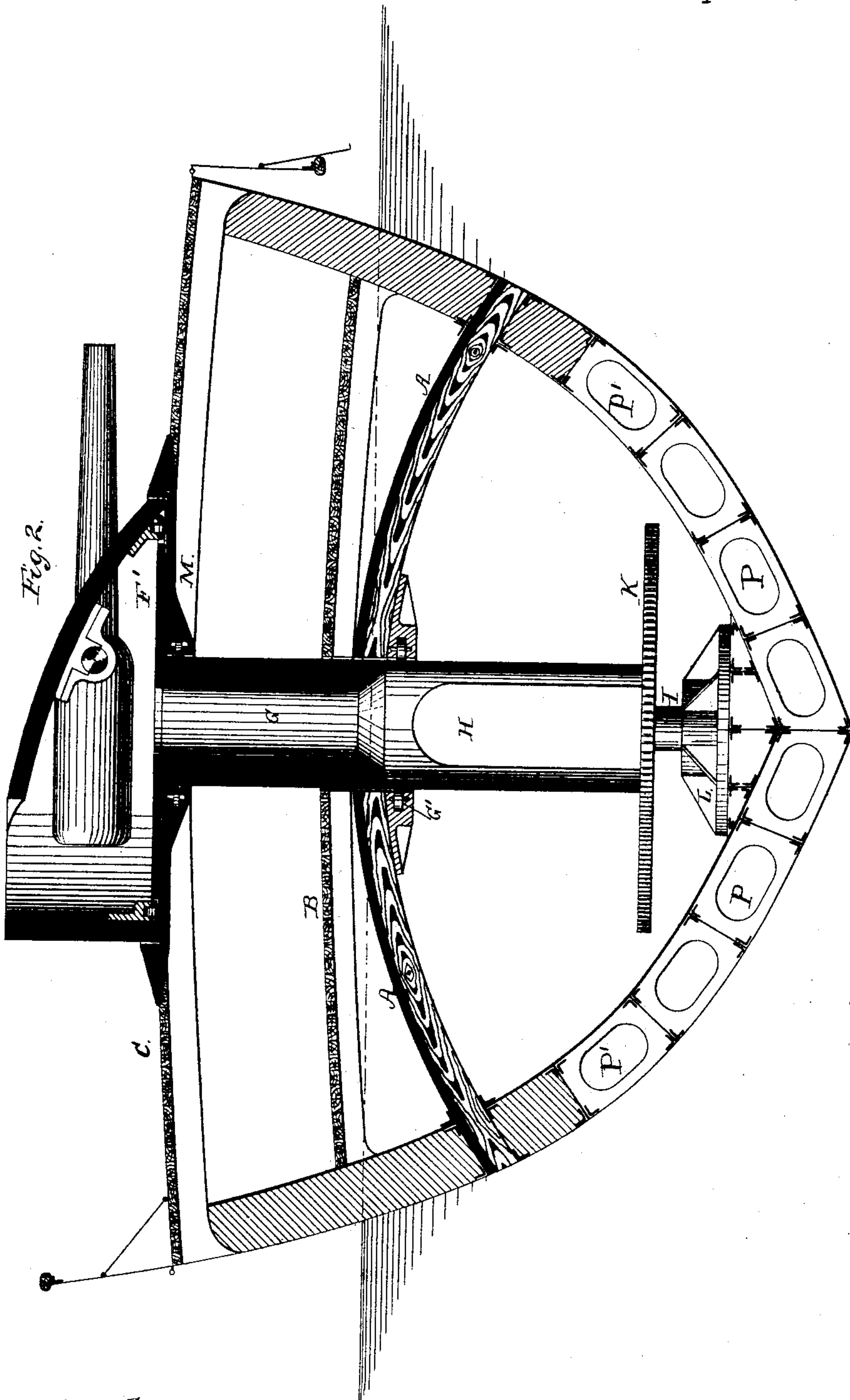
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4 Sheets—Sheet 2.

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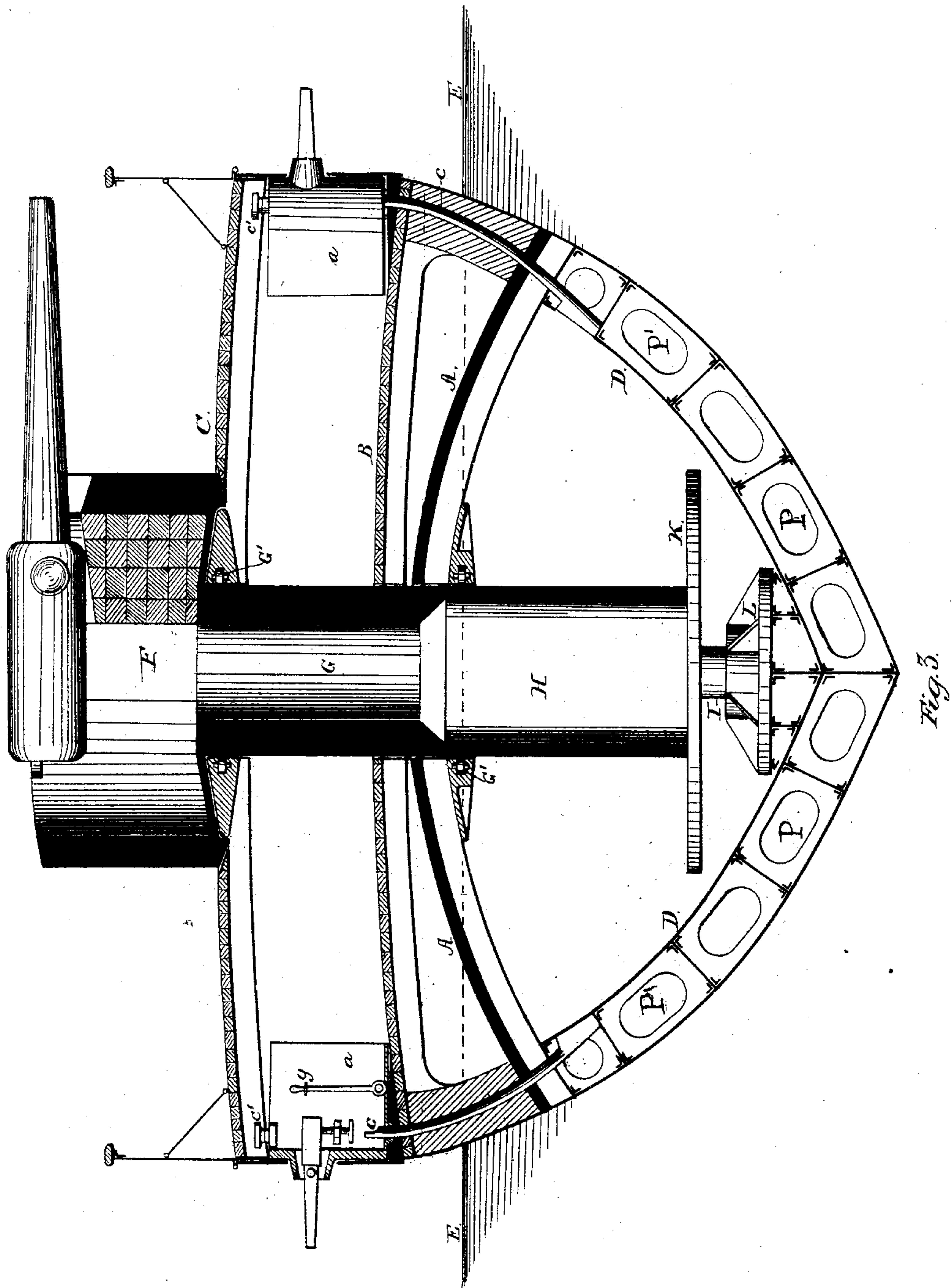
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4 Sheets—Sheet 4.

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Fig. 4.

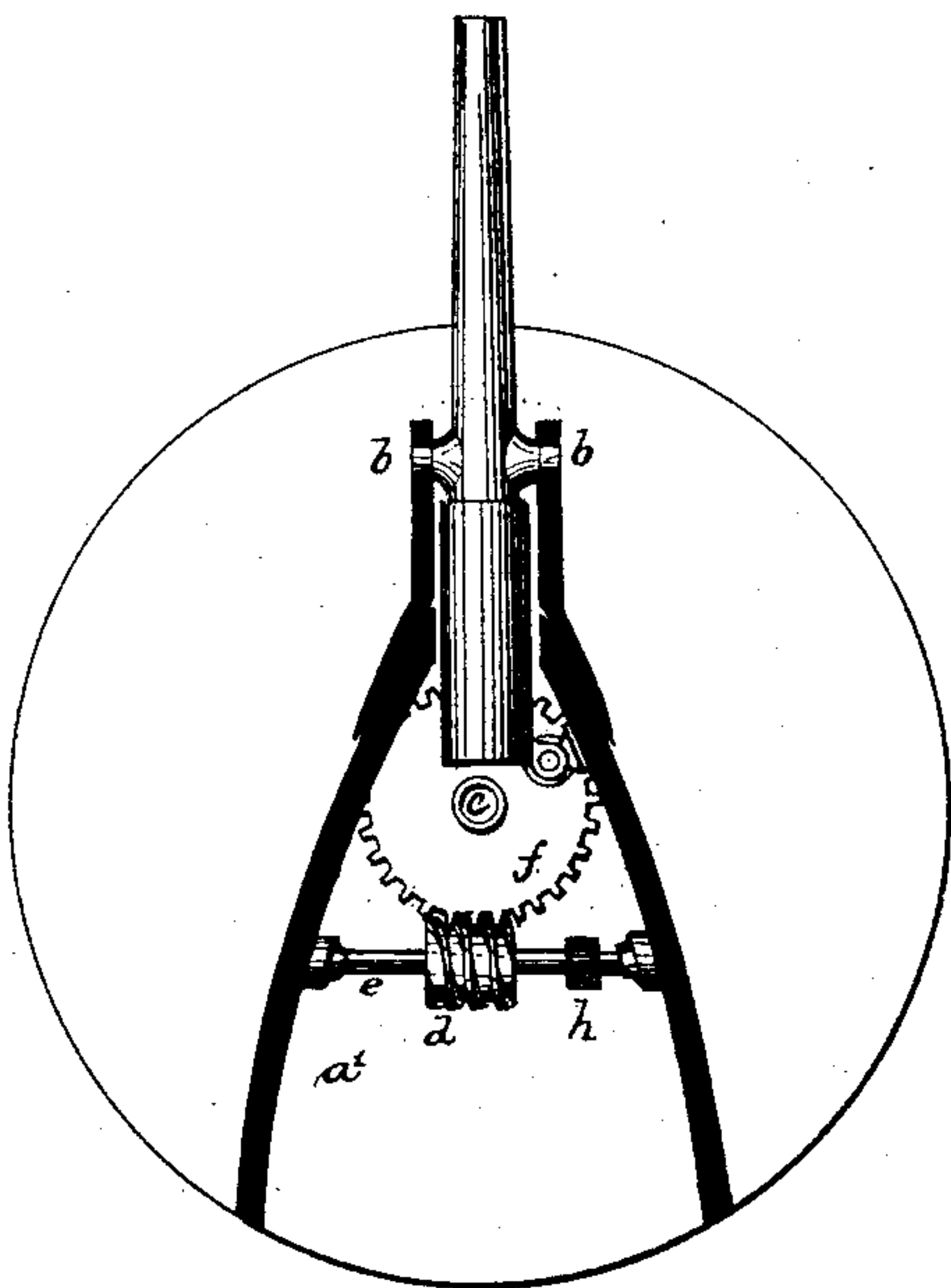
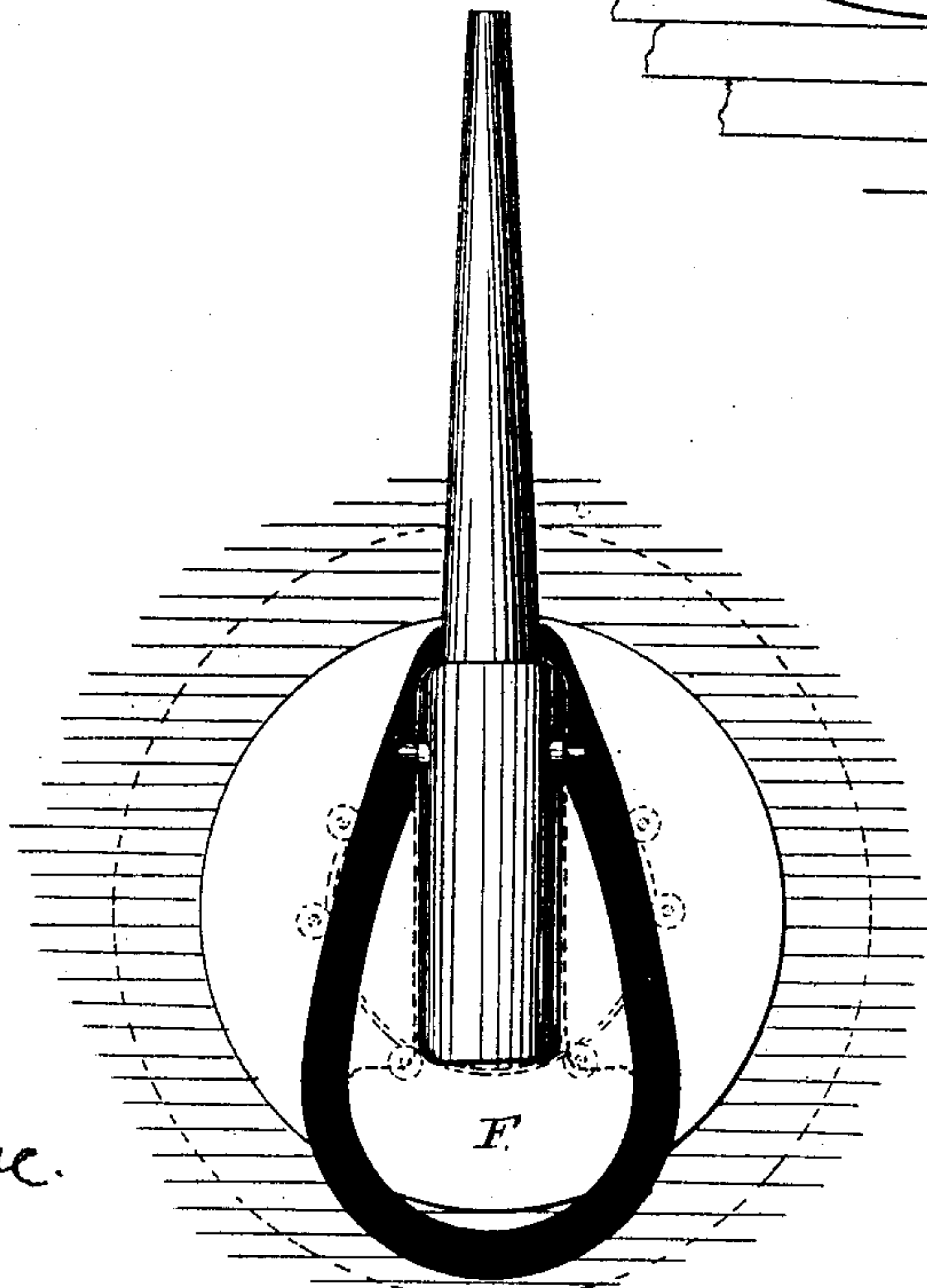
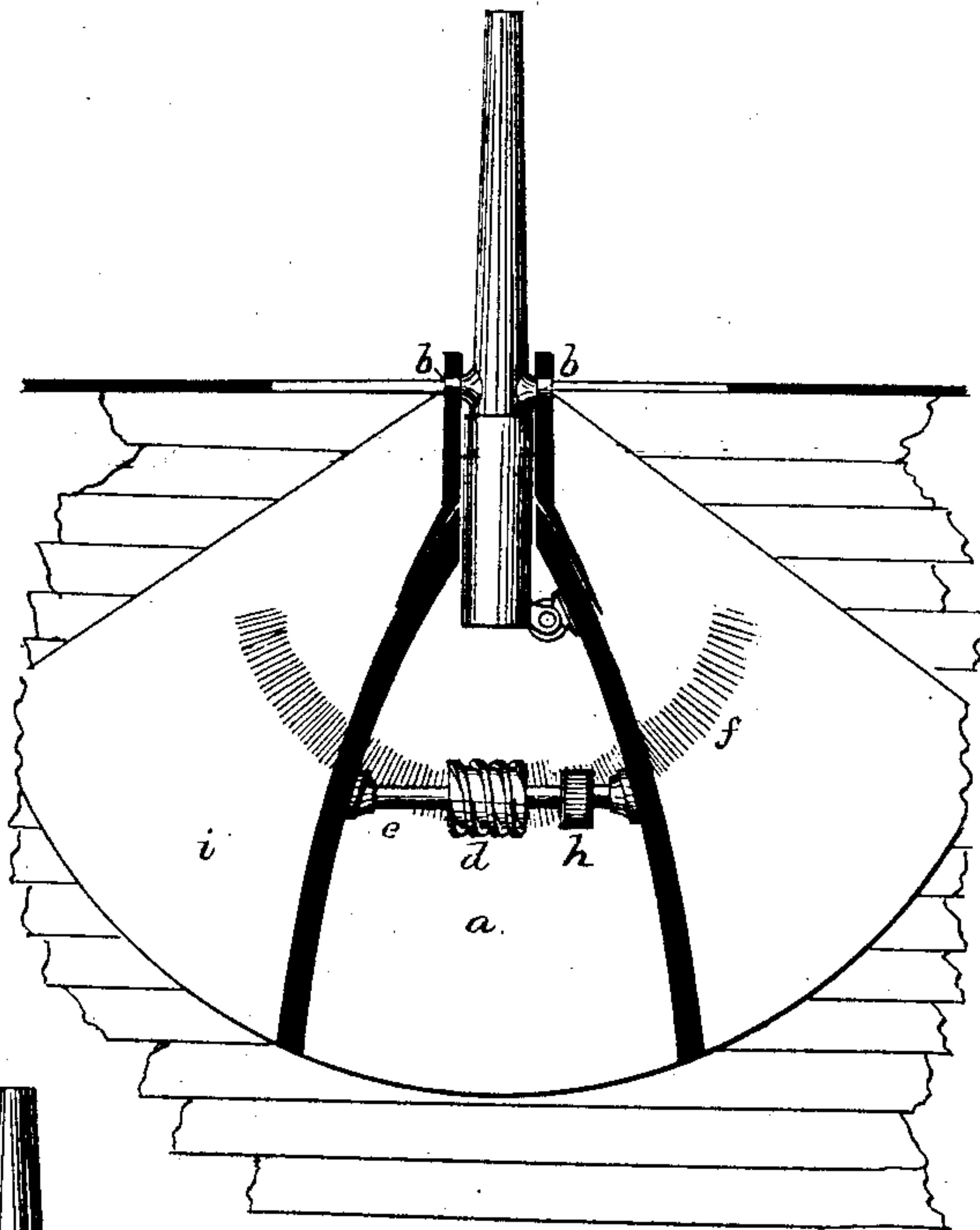


Fig. 5.



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Fig. 6.

UNITED STATES PATENT OFFICE.

NATHAN B. CLARK, OF PHILADELPHIA, PENNSYLVANIA.

SHIELD FOR SHIP'S GUNS.

SPECIFICATION forming part of Letters Patent No. 256,124, dated April 11, 1882.

Application filed February 28, 1882. (No model.)

To all whom it may concern:

Be it known that I, NATHAN B. CLARK, a citizen of the United States, residing at Germantown, Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Armor for War-Ships; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in armored vessels; and it consists in details of construction as hereinafter pointed out and claimed, the same being generally intended for use with such an armored vessel as is described in my Patent No. 231,899, of September 7, 1880; but when the present improvements are capable of use with vessels of other construction or with fortifications I propose they shall be so used.

In the accompanying drawings, forming part of this specification, Figure 1 is the plan of the deck of a vessel, (broken in two parts for convenience of illustration,) showing the outlines of the gun-shields. Fig. 2 is a cross-section on line *x x*. Fig. 3 is a similar section on line *y y*. Fig. 4 is a plan of one of the hurricane-deck guns and shield. Fig. 5 is a similar plan of one of the broadside-guns and shield. Fig. 6 is a plan of gun and shield shown in Fig. 3.

The drawings are intended to represent a cruising-vessel armored on my deflecting system, having broadside-guns of small caliber, capable of rapid and continuous fire, and heavy armor-piercing guns, all the guns being protected either in whole or in part by deflecting-shields, hereinafter described.

A is the deflecting-shield described in my patent hereinbefore referred to. This shield covers the engines, boilers, magazines, and other vital parts of the ship.

B is the gun-deck for the broadside-battery.

C is the spar-deck, on which the heavy armor-piercing guns are mounted.

C' is the hurricane-deck, covering only a por-

tion of the ship and carrying lighter guns, capable of being trained in any direction.

D is the frame of the vessel below the main shield A.

E is the side of the vessel above the main shield, which side should be filled in with cotton, cork, or similar material, as described in my patent.

The turrets or rotating gun-shields F and F' are supported on hollow columns G. These columns G are strong enough to resist the heaviest shot between the shield A and the bottoms of the turrets, which they support, but are made lighter below said shield. The columns form a means of communication between the turrets and that part of the vessel below the shield A by means of openings, as H. It is my purpose to supply these tubular passages with hydraulic or steam lifts, so that men or ammunition may be readily conveyed to or from the turrets. Power for operating the guns in the turrets may also be supplied by means of water-pipes for conveying hydraulic pressure or by other similar means.

The columns G are supported on journals I, resting in bearings L, and may be rotated by pinions operating on the gears K, or otherwise, as found desirable, the turrets being attached to and rotating with the columns. The columns rest against anti-friction bearings G' in or attached to the decks of the vessel. A hydraulic lift may be placed under the pivot I to raise the turret and its supporting-column clear of obstruction should the turret or bearings become jammed, which might occur from the blow of heavy projectiles striking the shield or column near the bearings.

I have shown at F' a turret for two guns, circular in plan, having the side at the rear of the guns cylindrical, but the front side, through which the guns pass, inclined, as shown. The trunnions of the guns are shown as supported just beneath the inclined armor, but may of course be supported from below. The bottom of the turret rests in a circular depression in the plate M, which is about flush with the deck C, and may be supported in said plate on wheels or rollers, as shown, the thickness of the plate M being sufficient to protect from shot deflected upward by the shield A,

as well as those that might strike when the vessel rolls.

The top of turret F' , in rear of the guns, may be open or covered by a grating.

5 F represents a turret for a single gun, supported on a tubular standard, G . This turret is rounded in the rear of the gun, as shown, but tapering or V-shaped toward the front, the sides being slightly curved, as shown. The
10 turret or shield presents acute-angled deflecting-surfaces toward an enemy when the gun is trained in his direction. The muzzle of the gun always projects in front of the shield, and near the top thereof, as shown clearly in
15 Fig. 3. The top of the shield or turret may be turned in partly over the gun, as shown in Fig. 6. A shot striking the turret F from the front will be deflected sidewise, while a shot striking the turret F' will be thrown upward.

20 I prefer the perpendicular V or wedge shield for single guns, as giving most available space in proportion to the weight.

In either of the turrets described I inclose only the breech portion of the gun, so that the
25 weight of the shield may be reduced to a minimum.

The gun will be loaded by machinery, so that two or three men only will be required in the turret with the gun. The guns may be
30 trunnioned to the turrets, or mounted in such a way as to permit a slight recoil, as found best in practice.

The heavy guns in the turrets may be turned completely round the circle, as shown, and all
35 the turrets' guns may be trained to bear on a single object in almost any position within range, save as the turrets interfere with each other, should the hurricane-deck C' be omitted. I have shown, however, a hurricane-deck, C' ,
40 on which four light guns are mounted in shields a' of the character shown in Fig. 4. The same form of shield may be used with some of the broadside-guns, as at a'' . These hurricane-deck shields are, however, principally intended
45 to protect men working machine-guns to be used against torpedo-boats. These shields are made in the form of a V or wedge, somewhat rounded, as hereinbefore explained, and are preferably only large enough to protect one
50 man. The rear of the shield is open. The gun passes through the sharp edge of the V . These guns are intended to be light rifled guns, or machine-guns, as the Hotchkiss revolving cannon. The trunnions of the gun rest in a pro-
55 jection from the front of the shield, as shown at b . The shield a , carrying its gun, swings on pivots c c' , so as to train the gun sharp fore or aft when desirable. The muzzles of the broadside-guns pass through slots or port-holes
60 in the vessel's sides. The pivot c' finds a bearing in the deck or beams overhead. The pivot c is a pipe or tube extending down through the armor A , and through this tube the ammunition may be passed up for the use of the
65 gun. As the tube forms the pivot on which the shield turns, a passage is always open

through it to the shield, no matter how the gun may be trained.

The small shields a may be turned from below by causing the tubes to rotate; but preferably the tubes are fixed, and the shields are
70 turned by means of a worm, d , on a shaft, e , engaging with a fixed cogged pinion or segment, f , made in the armored deck. The shaft e has its bearings in the sides of the shield, and is
75 rotated by a lever, g , engaging with pinion or ratchet h by means of a dog or pawl. Of course these shields may be turned by levers or other suitable mechanism, and rest on anti-friction
80 rollers, if found desirable. The floor of these light shields is formed of a light plate, i , secured to the deck; or it may have a light floor to move with the shield. The top is covered by light plating. The shields a' are like those
85 last described, being wedge-shaped in front and open in the rear, and are pivoted on tubes c , but are capable of rotation entirely around the circle by means of a worm, d , engaging a pinion, f , on pipe e , or by turning the pipe, as before described.

The shields may be mounted on sponsons projecting over the sides of the vessel, as at
90 c^2 , so that the guns a^2 may be made to bear directly forward or aft.

P P' , Figs. 2 and 3, are water-tight compartments formed by the vessel's double bottom,
95 into which water is to be admitted as coal and stores are consumed, in order to immerse the shield A to the proper point before going into action.

As the armor of my vessel is of less weight than ordinary armor-clads, she can attain greater speed, and can therefore choose her own position in combat. In a contest with an
100 armored vessel no attempt would be made to use the light broadside-guns in the small V -shields, unless it might be the machine-guns to fire through the enemy's port-holes or into the muzzles of his heavy guns, which would
105 effectually disable them. The gun-deck in action would be generally deserted, and the whole upper works might be shot away without materially injuring the buoyancy or stability of
110 the vessel, the crew being safely housed beneath the shield A , except the few men engaged working the heavy guns, who would be protected in the turrets.

In an engagement with an unarmored ship or with shore-batteries of field-artillery my
115 broadside-guns would come in play, the caliber of the guns being sufficient to pierce unarmored ships, and the shields being sufficient to protect the gunners from projectiles of considerable weight.

The heavy turret-guns may be used at the
120 same time to search for the vitals of the enemy's ship, or to bombard distant objects over the heads of shore-batteries with which the broadside and hurricane-deck guns may be engaged.

What I claim is—

1. A rotating turret for heavy guns, having

the side in the rear of the gun of a semi-cylindrical form, as shown, and the front portion, through or over which the muzzle of the gun passes, of nearly a wedge or V shape, as shown and described.

2. A rotating turret for guns, having the side in the rear of the guns of a semi-cylindrical form, as shown, and the front portion, through which the muzzles of the guns pass, sloping or curving downward, substantially as shown and described.

3. A rotating shield for a gun, having its front portion, through which the gun passes, of the rounded wedge shape described, its rear open, and being pivoted to swing about a fixed point, as described.

4. The V-shaped shield, of substantially the form described, in combination with the pipe *c*, through which ammunition may be passed when said shield is made to pivot on said pipe, substantially as set forth.

5. The pivoted V-shaped shield carrying a gun, as described, in combination with the side of the vessel pierced with port-holes, through

which the muzzles of the guns may pass, as set forth.

6. The V-shaped shield described, pivoted below on a tube passing downward through the deck, and having its upper pivot in the deck or framing above, substantially as described.

7. The V-shaped shield described, combined with the pinion *f*, fixed to the tube *c*, for rotating the shield by means of the shaft *e* and worm *d*, as set forth.

8. The V-shield described, in combination with shaft *e*, having its bearings in the sides of the shield, the worm *d*, pinion *f*, tube *c*, and operating-lever *g*, all the parts being constructed and relatively arranged substantially in the manner herein described and shown.

In testimony whereof I affix my signature in presence of two witnesses.

NATHAN B. CLARK.

Witnesses:

W. H. SMILEY,
C. E. CONANT.