

No. 658,244.

Patented Sept. 18, 1900.

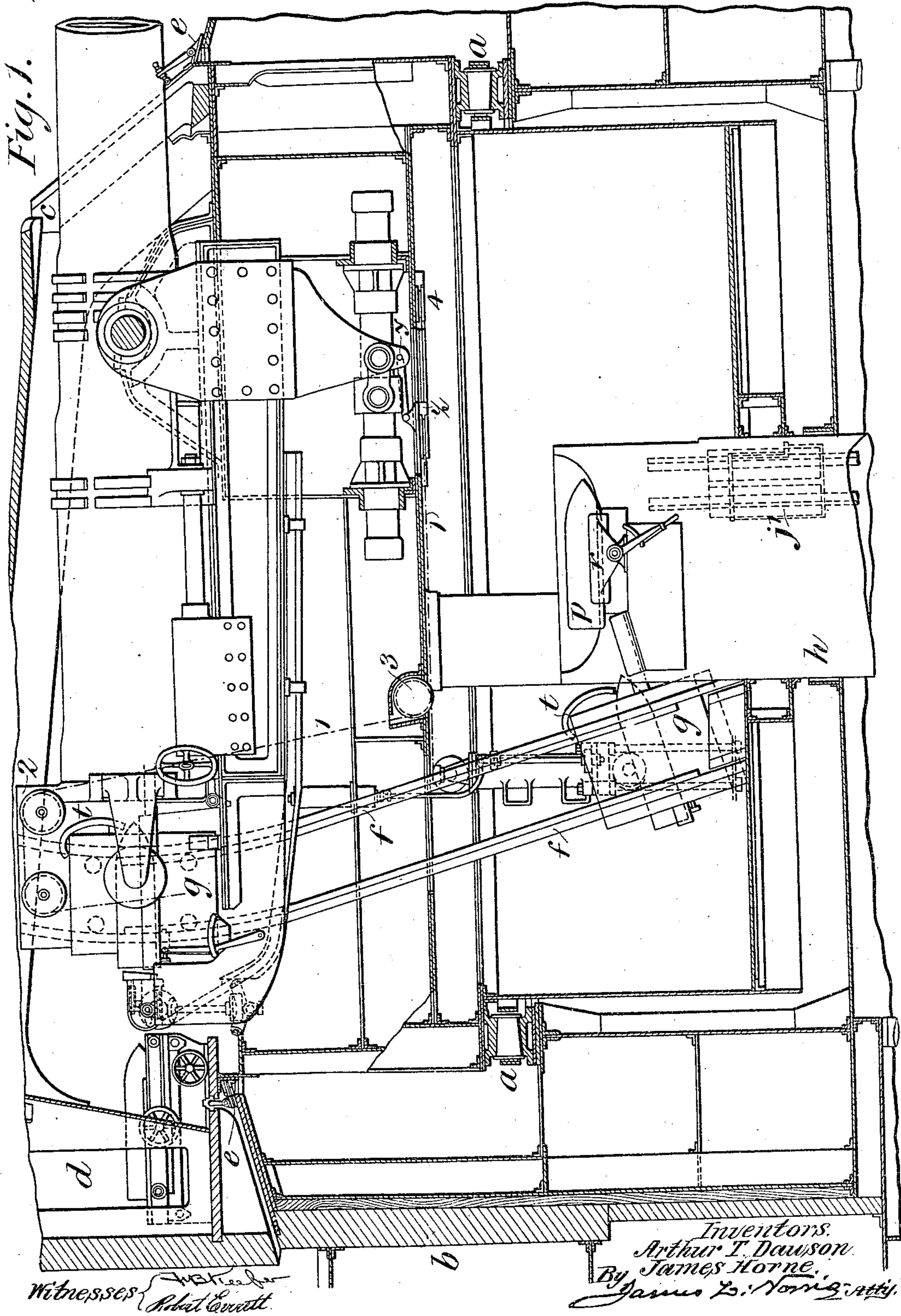
A. T. DAWSON & J. HORNE.

APPARATUS FOR SUPPLYING CHARGES TO HEAVY TURRET OR BARBETTE GUNS.

(Application filed Mar. 26, 1900.)

5 Sheets—Sheet 1.

(No Model.)



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Fig. 1^a

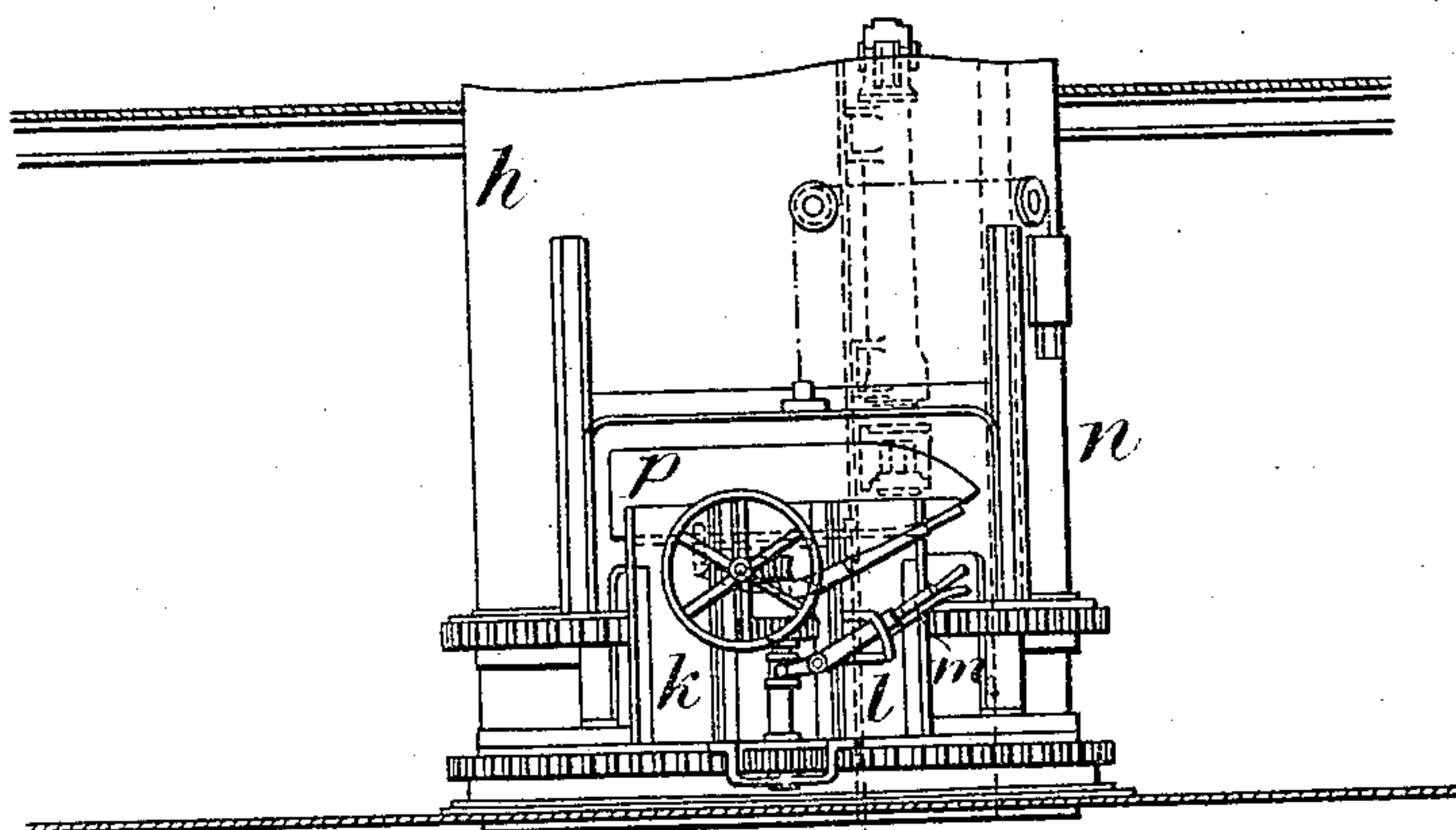
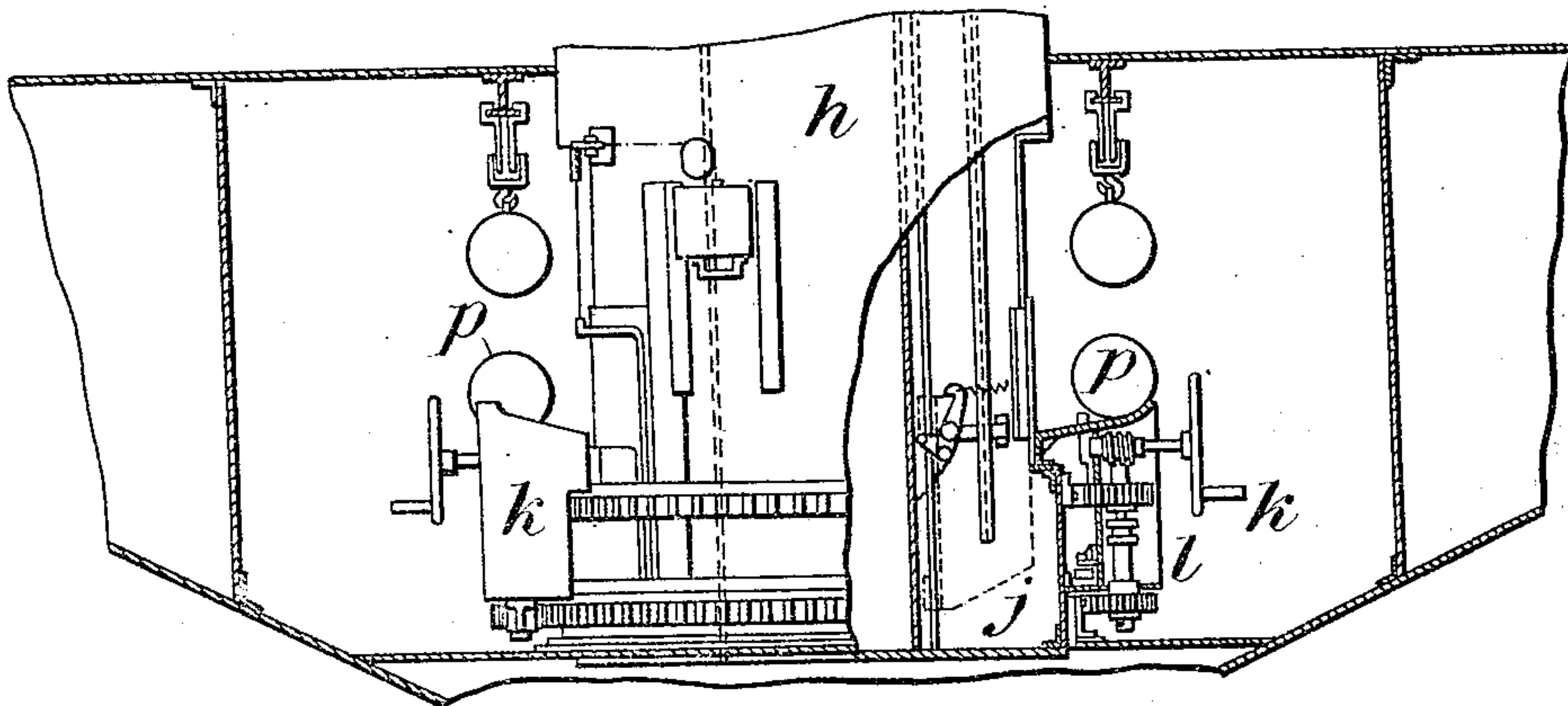


Fig. 2^a



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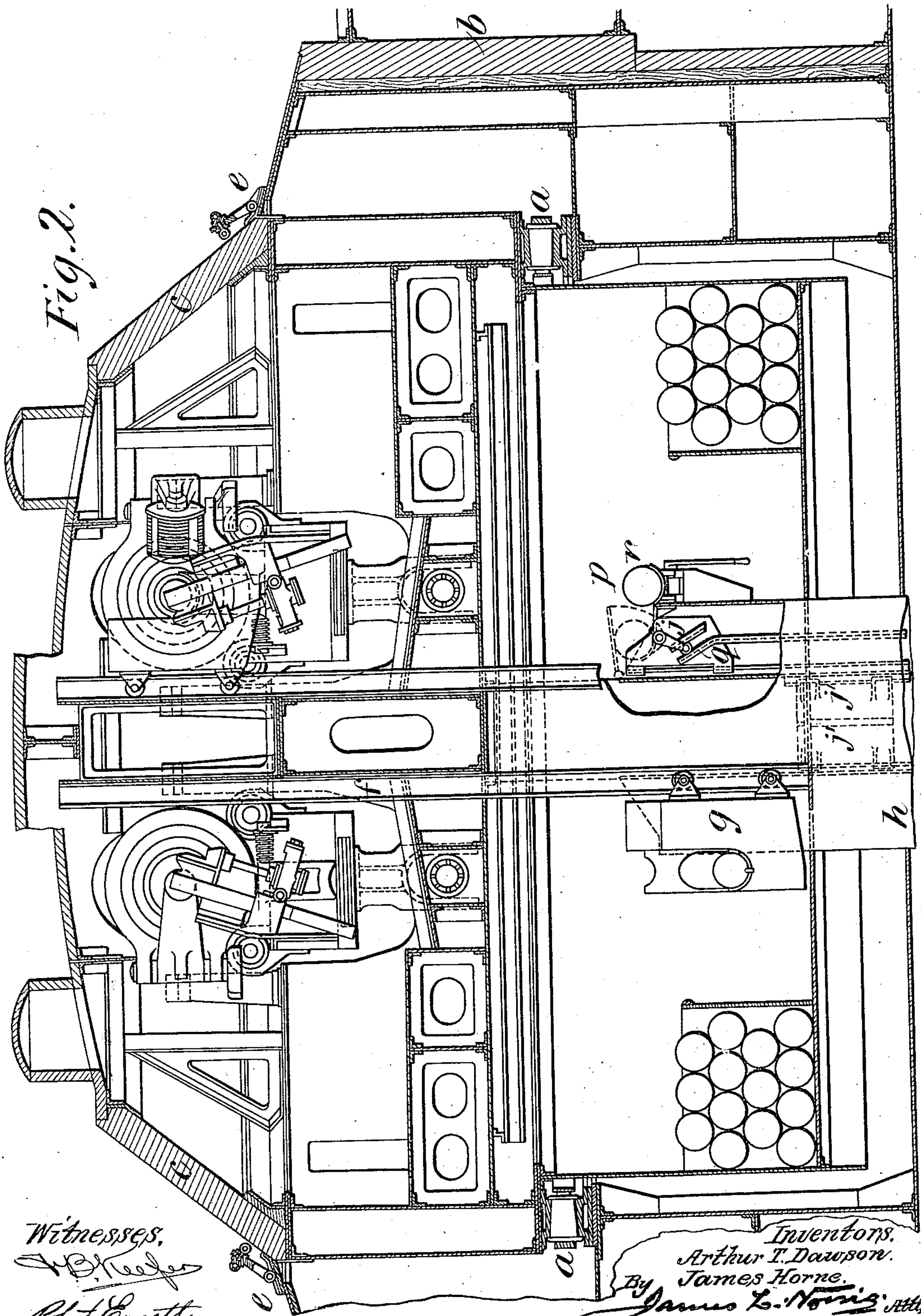
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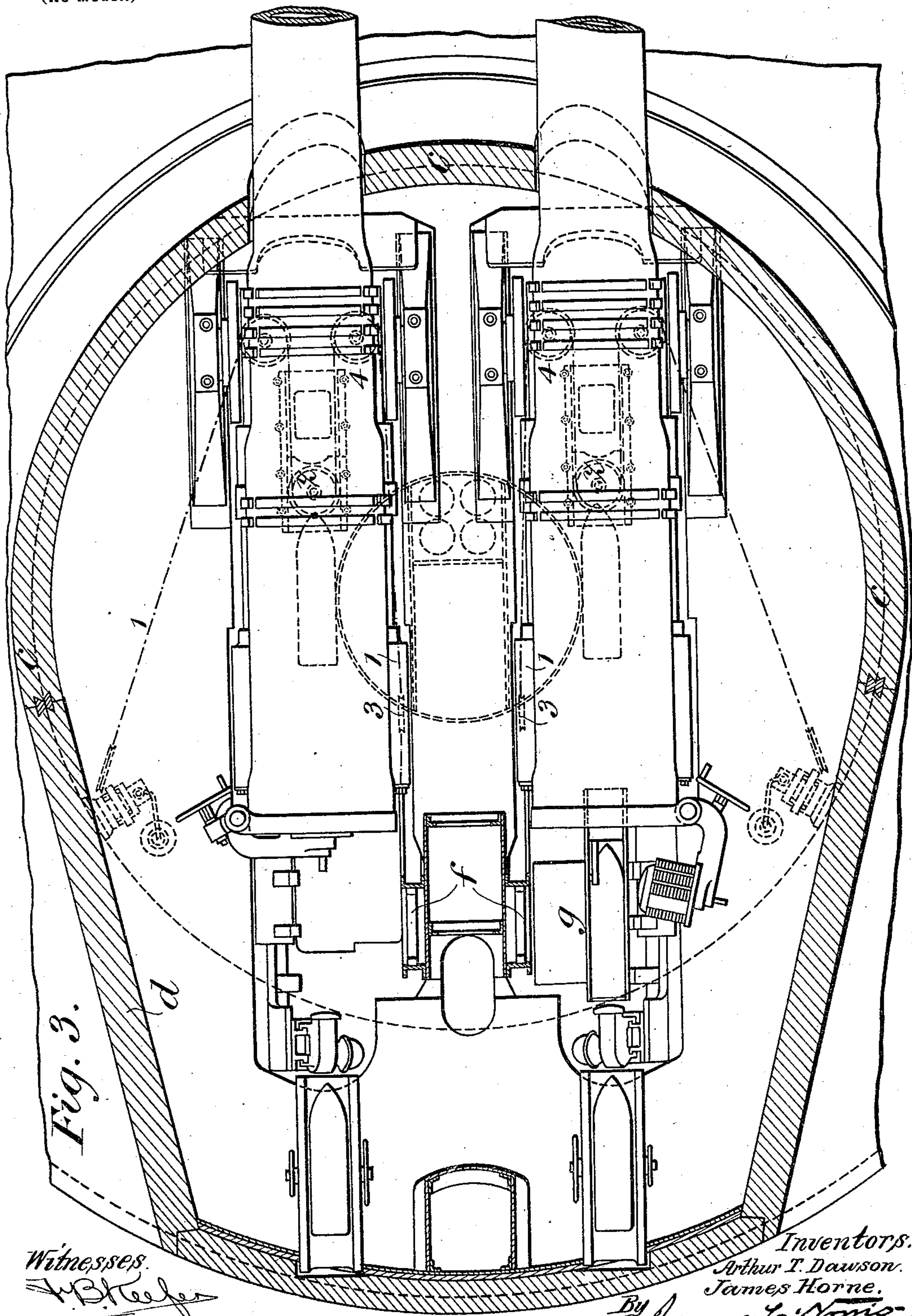
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(Application filed Mar. 26, 1900.)

5 Sheets—Sheet 4.

(No Model.)



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No. 658,244.

Patented Sept. 18, 1900.

A. T. DAWSON & J. HORNE.

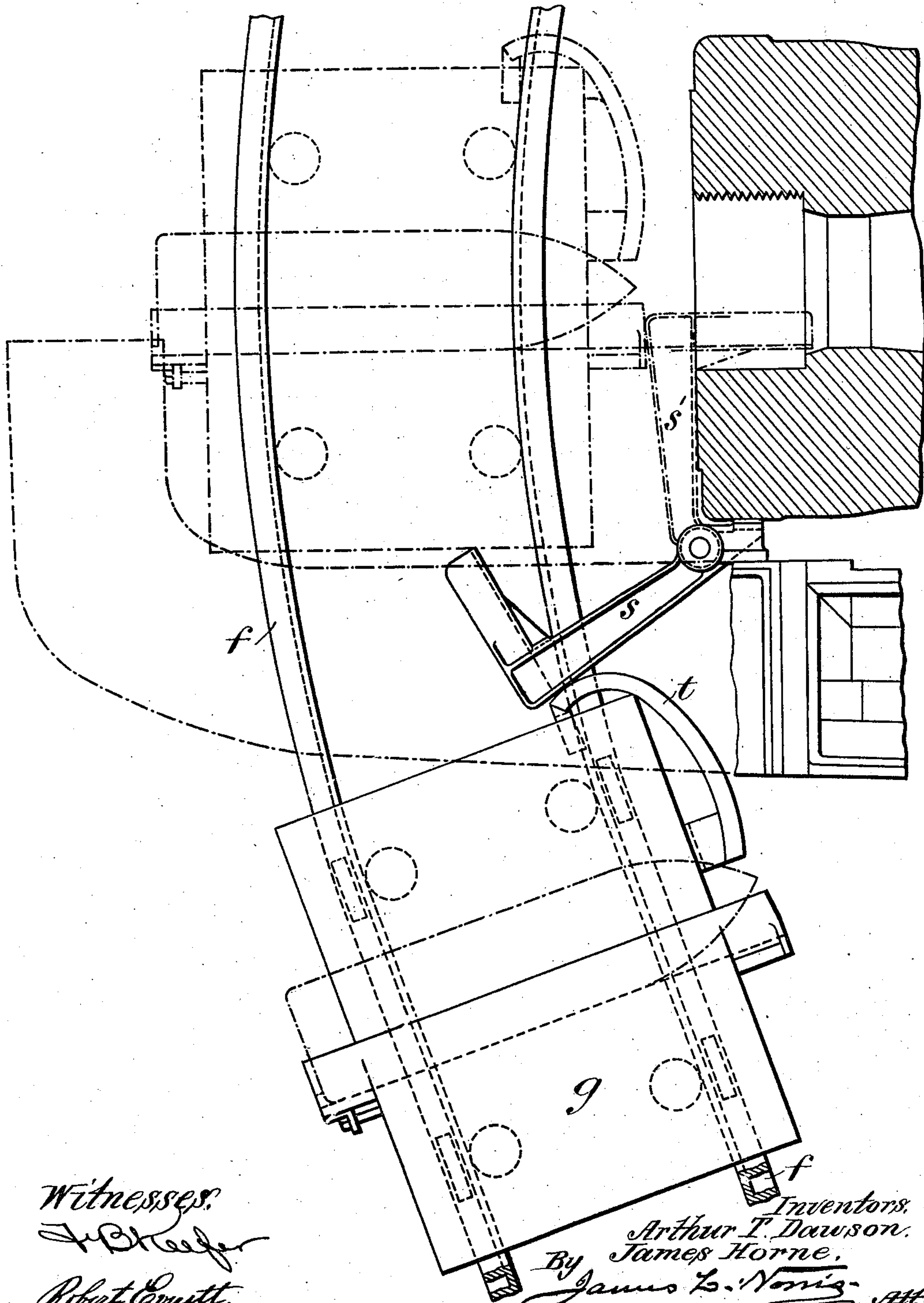
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5 Sheets—Sheet 5.

(No Model.)

Fig. 4.



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UNITED STATES PATENT OFFICE.

ARTHUR TREVOR DAWSON, OF LONDON, AND JAMES HORNE, OF BARROW-IN-FURNESS, ENGLAND, ASSIGNORS TO THE VICKERS, SONS & MAXIM, LIMITED, OF SHEFFIELD, ENGLAND.

APPARATUS FOR SUPPLYING CHARGES TO HEAVY TURRET OR BARBETTE GUNS.

SPECIFICATION forming part of Letters Patent No. 658,244, dated September 18, 1900.

Application filed March 26, 1900. Serial No. 10,250. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR TREVOR DAWSON, residing at 28 Victoria street, Westminster, London, and JAMES HORNE, residing at Barrow-in-Furness, in the county of Lancaster, England, citizens of England, have invented a certain new and useful Apparatus for Supplying Charges to Heavy Turret or Barbette Guns, (for which we have applied for a patent in Great Britain, dated May 4, 1899, No. 9,415,) of which the following is a specification.

Our invention relates to means of supplying large-caliber guns in barbettes or turrets with projectiles and explosive charges, as we shall describe, referring to the accompanying drawings.

Figures 1 and 1^a show the upper and lower parts of a longitudinal section. Figs. 2 and 2^a show the upper and lower parts of a transverse section, and Fig. 3 is a plan of a barbette with a pair of heavy guns mounted therein. Fig. 4 is a side view, partly sectional, showing the ammunition-cage and loading-tray.

The two guns are mounted independently on a turn-table revolving on a live-roller ring *a* and roller-path carried on a structure within the barbette and independent of the barbette-wall *b*, so that in case of distortion or partial destruction of the wall the roller-path is not affected. Over the guns and their mountings is carried on the revolving turn-table an armored hood or shield, the front and sides *C* of which are sloped and circular in plan, from which a part *d* is extended rearward to give space for the gun-crew and to balance the guns and mounting. The opening between the stationary barbette-wall *b* and the revolving shield *c* is made watertight by a flexible apron *e*, which may be raised or lowered, as desired, by means of screws; but to the mounting or shielding of the guns we make no claim.

Under the turn-table, attached to it, and revolving with it inside the roller-path is a chamber, from the floor of which two sets of guide-rails *f* extend obliquely upward to positions behind the breeches of the guns, and cages *g* travel along these rails, carrying am-

munition up to each of the guns. From the chamber, attached to and revolving with it, extends down into the interior of the vessel a trunk *h*, provided with guides along which travel cages *j*, carrying projectiles and explosive charges from the shell-rooms and magazines up to the chamber below the turn-table.

At the base of the trunk *h* two revolving bogies *k* serve to transfer projectiles from an overhead traveler to the cages *j* in the trunk *h*. Each of these bogies has mounted on it a vertical shaft *l*, which can be turned by a winch-handle and worm-gear, and on the shaft are two free pinions, the one gearing with a circular rack on the trunk and the other with a circular rack on the floor. Between the two pinions is a clutch sliding on a feather on the shaft *l*. This can, by a lever *m*, be engaged with either of the pinions, but not with both at once, and thus the bogie can be caused to travel around relatively to the trunk or the vessel, so as to bring projectiles from any position to position facing the lift-cage *j* of the trunk. The top of the bogie is an inclined tray, on which the projectile *p* is held by stops connected together and to a lever *n*, by depressing which the stops are lowered, allowing the projectile to roll down onto a receiving-tray which is mounted on a horizontal axis on the cage *j*, so that on the ascent of the cage an arm attached to the tray becomes engaged in sloping guides *q*, and the tray of the cage *j* is thus tilted, causing the projectile which it carries to roll onto a receiving-trough *r*, which is inclined by a hand-lever, so that the projectile which it receives slides lengthwise onto the cage *g*, by which it is carried up till it comes in line with the bore of the gun.

The rails *f*, leading from the chamber to the breech of the gun, have their upper parts curved concentric with the trunnions, so that the axis of the projectile *p*, carried on the cage *g*, is always radial on the upper part of its course, so that it is brought in line with the bore of the gun whatever be the elevation of the gun.

As shown in Fig. 4, a loading-tray *s*, which is pivoted on the loading-arm, is kept by a

spring in its lower position out of the way of the gun when it recoils; but when the cage *g* ascends a cam-bar *t* upon it raises the tray and swings it around its pivot into the bore of the gun, as indicated by the dotted line *s'*, and in this position it protects the internal screw-threads for the breech-plug while the projectile and explosive charge are passed into the gun.

10 The ammunition-cages are raised and lowered preferably by hydraulic cranes; but other suitable motors might be employed.

The cage *g* abuts against fixed stops on the rearward extension of the slide when it ascends to the position where the projectile is in line with the bore of the gun. In order that the cage may keep this position when the gun is elevated or depressed during loading, the change in the length of the crane-rope is compensated in the following manner: To a pin *y* on a downward projection of the gun-slide at a distance from the axis of the trunnion equal to half the distance from the axis of the trunnion to the middle of the cage *g* when it is in its highest position is attached a sliding frame carrying a pulley *z*. The crane-rope 1 is passed down from the pulley over the cage around guide-pulleys 2, 3, and 4 and around the pulley *z* to the crane. When 30 the gun is elevated or depressed, the pin *y* moves half the distance moved over by the middle of the cage *g*, and consequently the pulley *z*, which moves with the pin *y*, just gives out or takes up the amount by which 35 the rope has to be lengthened or shortened to suit the change of elevation of the gun, the cage *g* being thus kept stationary relatively to the gun.

Having thus described the nature of this invention and the best means we know of carrying the same into practical effect, we claim—

1. In an apparatus for supplying charges to turret or barbette guns, the combination of a turn-table carrying one or more guns, and a 45 trunk or lift-shaft suitably attached to the said turn-table, of a cage traveling upon the said trunk and provided with a tray at its top, a pair of inclined and curved guide-rails, a cage *g* adapted to travel upon the said guide-rails and provided with a cam-bar, a trough 50 interposed between the cage traveling upon the trunk and the said guide-rails and adapted to automatically receive a projectile from

the cage upon the trunk and deliver it to the cage which travels upon the guide-rails, and 55 a loading-tray connected to the loading-arm of each of the said guns and operated by the said cam-bar.

2. In an apparatus for supplying charges to turret or barbette guns, a vertically-moving 60 cage, a tray carried thereby and mounted upon a longitudinal rocking shaft, an arm carried by said shaft, a stationary oblique guide for said arm, a receiving-trough mounted upon a transverse rocking shaft, means for 65 tilting said trough, a vertically-moving cage, a cam-bar connected thereto, and a loading-tray operated by said cam-bar.

3. In an apparatus for supplying charges to turret or barbette guns, the combination with 70 a turn-table mounting, and a pair of turret-guns, and a chamber arranged under the turn-table mounting, of a pair of inclined and curved guide-rails, a loading-cage for projectiles adapted to travel along each guide-rail, 75 a trunk or lift-shaft connected to the said turn-table mounting, means operating upon the said trunk or lift-shaft for transferring a projectile to the said loading-cage, and a loading-tray hinged to the loading-arm of each of 80 said guns and automatically operated by said loading-cage.

4. In an apparatus for supplying charges to turret or barbette guns, the combination with the turn-table mounting, a pair of turret-guns, 85 and a chamber arranged under the said turn-table, of a pair of suitably-disposed inclined and curved guide-rails, a loading-cage for projectiles adapted to travel along each guide-rail, and a loading-tray hinged to the load- 90 ing-arm of each gun and operated by the said loading-cage.

In testimony whereof we have hereunto set our hands in presence of the subscribing witnesses.

ARTHUR TREVOR DAWSON.
JAMES HORNE.

Witnesses to the signature of the above-named Arthur Trevor Dawson:

HENRY KING,
GEO. H. BRIDGES.

Witnesses to the signature of the above-named James Horne:

W. H. ATKINSON,
HAROLD JAMES.