

No. 709,436.

Patented Sept. 16, 1902.

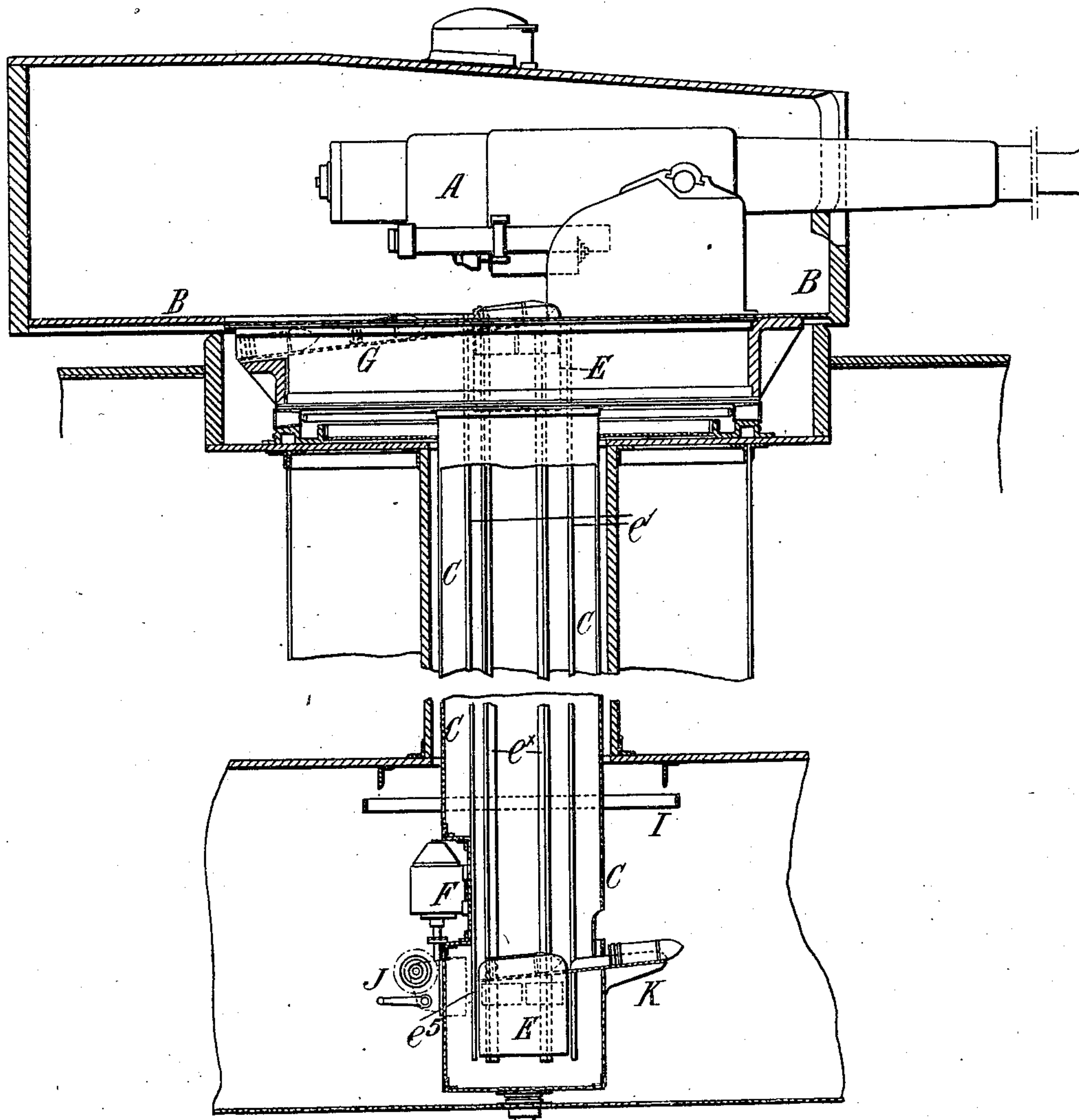
A. T. DAWSON & J. HORNE.
AMMUNITION HOIST FOR ORDNANCE.

(Application filed Jan. 10, 1902.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



Witnesses:

J. B. Keeler
Bruce S. Everett

Inventors
Arthur T. Dawson
James Horne

By James L. Norris.
Atty

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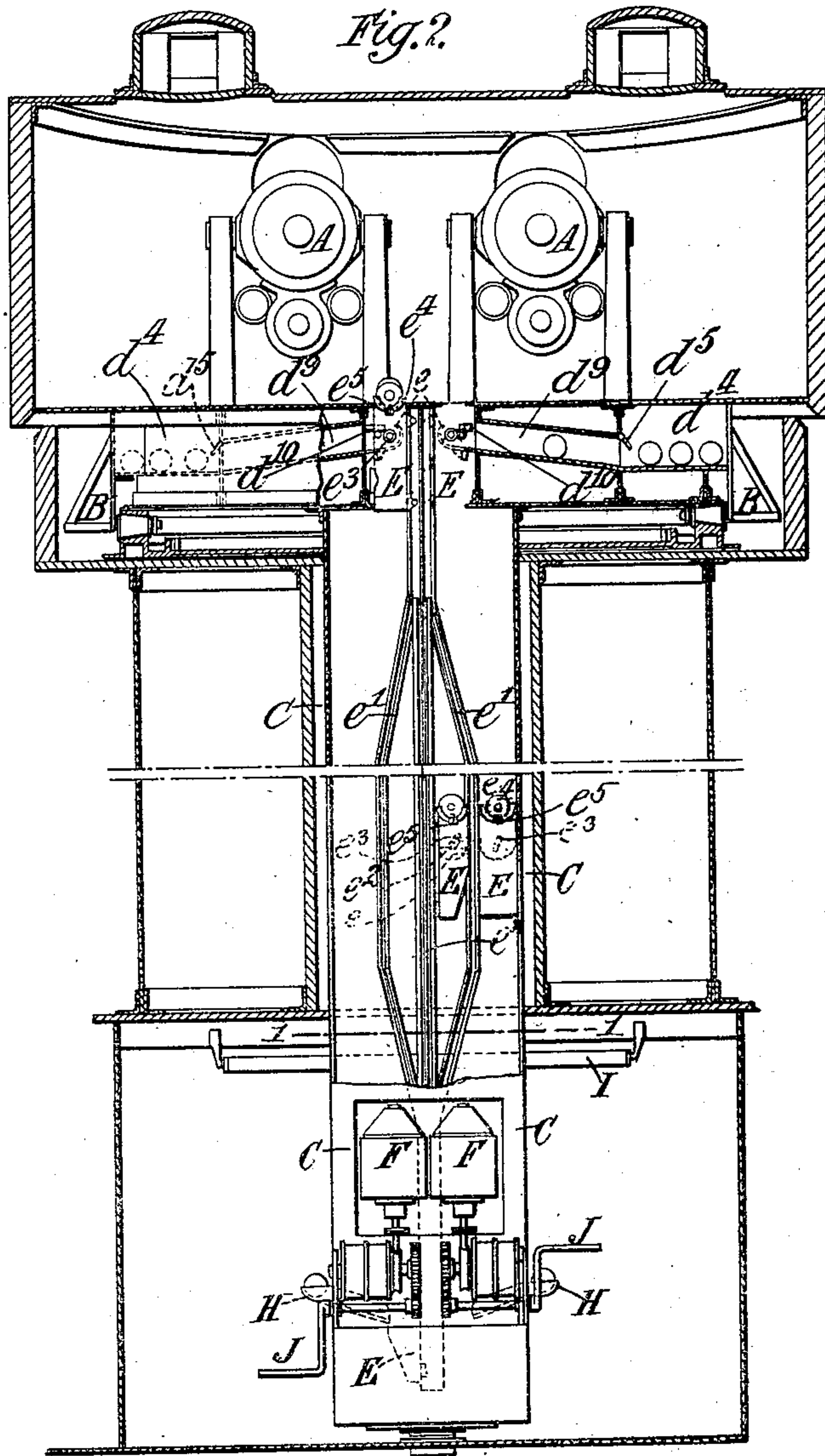
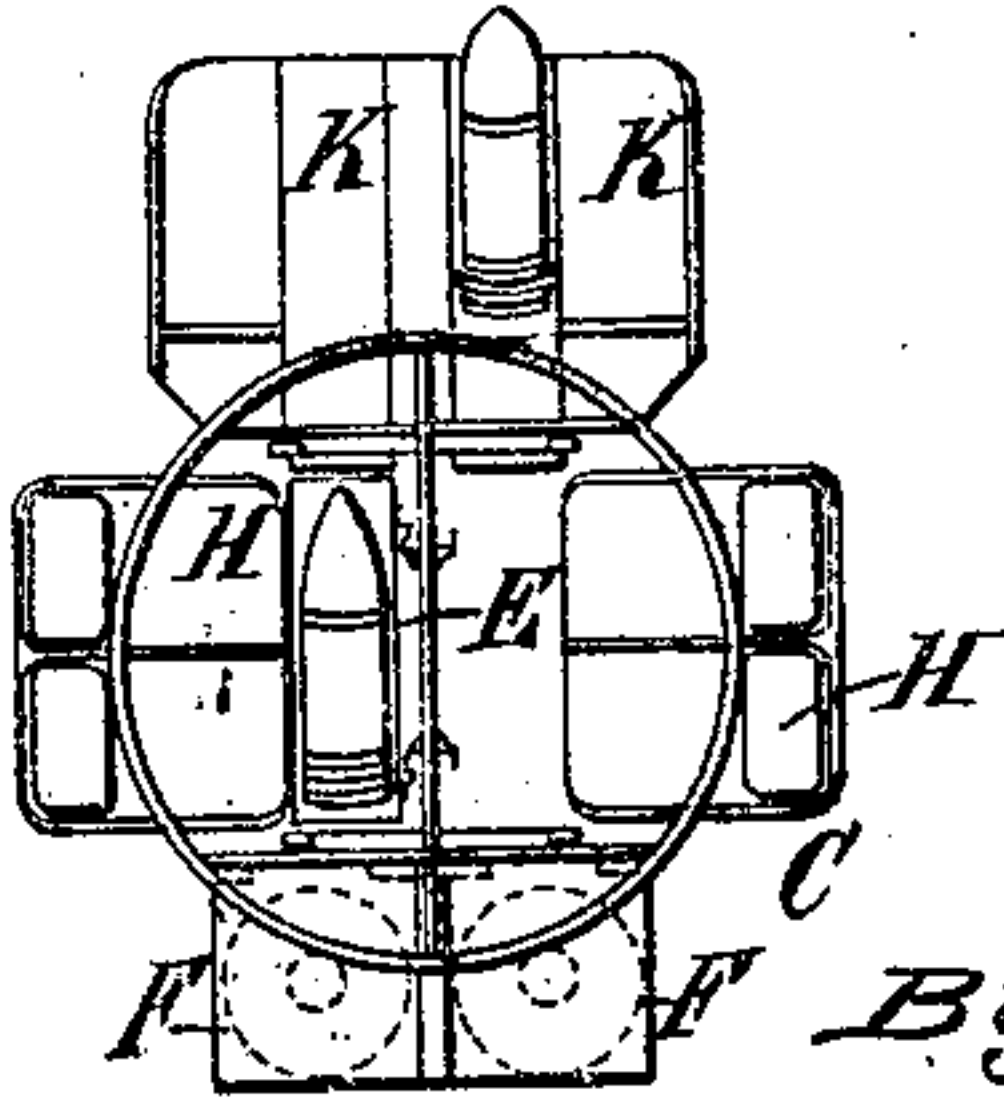


Fig. 4.



Witnesses:

W. B. Keeler

Ernest D. Frost.

Inventors

Arthur T. Dawson

James Horne

By James L. Norris

Atty

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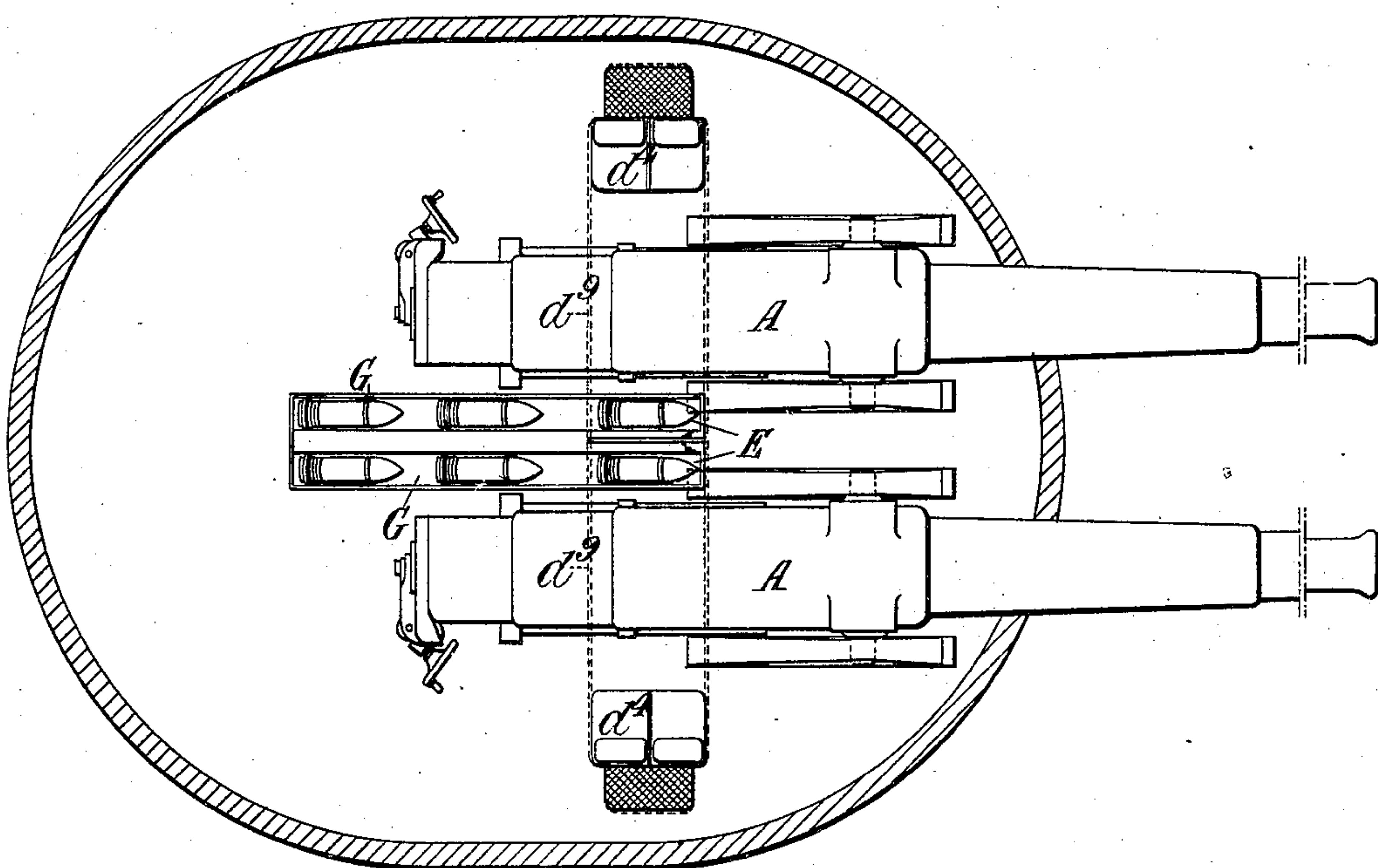
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(Application filed Jan. 10, 1902.)

(No Model.)

5 Sheets—Sheet 3.

Fig. 3.



Witnesses:

J. B. Keeler

Wm. S. Elliott

Inventors

Arthur T. Dawson

James Horne

By

James L. Norris

Atty

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(Application filed Jan. 10, 1902.)

(No Model.)

5 Sheets—Sheet 5.

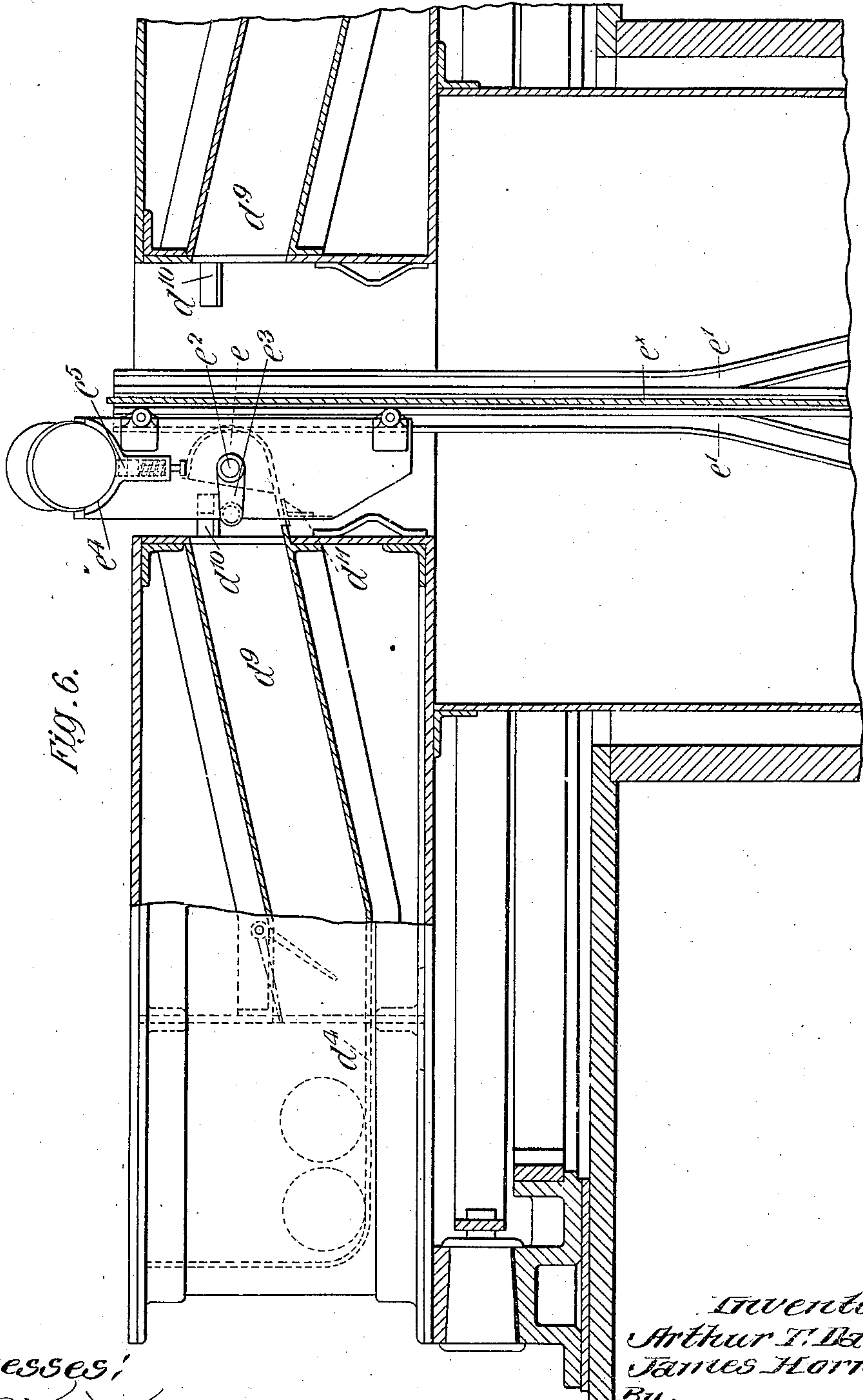


Fig. 6.

Witnesses:

W. B. Keeler
Ernest D. Elliott

Inventors
Arthur T. Dawson
James Horne

By *James L. Norrie*
Atty

UNITED STATES PATENT OFFICE.

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

AMMUNITION-HOIST FOR ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 709,486, dated September 16, 1902.

Original application filed August 19, 1901, Serial No. 72,629. Divided and this application filed January 10, 1902. Serial No. 89,247. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR TREVOR DAWSON, late lieutenant of Royal Navy, residing at 32 Victoria street, Westminster, in the county of London, and JAMES HORNE, engineer, of Vickers Sons & Maxim, Limited, Naval Construction Works, Barrow-in-Furness, in the county of Lancaster, England, subjects of the King of Great Britain, have invented certain new and useful Improvements in Ammunition-Hoists for Ordnance, of which the following is a specification.

Our invention relates to hoisting apparatus for supplying powder charges and projectiles to the platforms or turn-tables of turret or similar gun mountings, and is designed to afford the means for raising such charges and projectiles safely and rapidly to the platform, and is particularly advantageous for maintaining a continuous supply to a pair of guns in a turret or barbette mounting.

According to our invention we provide apparatus whereby the projectile and powder charge are simultaneously raised to a position between a pair of guns in the same cage or carrier, which travels up suitable guide-rails in a trunk or tube attached to the under side of the turn-table or platform. We prefer to have four cages—i. e., two for each gun. The trunk has a partition-plate whereby it is divided into two compartments, forming a duplex hoist. The cages or carriers and the chains or ropes whereby they are supported are arranged to move so that when one cage is at its highest position the other is ready for loading at the bottom of the trunk.

The powder charge is carried in the cage or carrier beneath the projectile in a tray, which swings on trunions and is automatically tilted when the cage reaches its highest position, allowing the charge to roll out laterally along an incline to a position on one side of the gun, whence it may be lifted out by hand and conveyed to the breech of the gun.

The projectiles are carried on the top of the cage or carrier in a sloping position and retained by a spring-bolt until the cage reaches its highest position, when the said spring-bolt is released automatically and the projectile

slides down a longitudinally-inclined trough to a position at the rear of the guns and level with the gun-platform, from which position it may be lifted to the gun-breech by a suitable crane or otherwise.

In order that our said invention may be clearly understood and readily carried into practice, we will proceed to describe the same more fully with reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section, and Fig. 2 a transverse section, of a turret provided with a pair of guns mounted “en barbette” and provided with hoisting apparatus whereby a projectile and two half-charges can be simultaneously raised in the same cage or carrier. Fig. 3 is a sectional plan of Fig. 1, and Fig. 4 is a section on the line 1 1 of Fig. 2. Fig. 5 is a sectional elevation, on a larger scale, of the upper part of the hoist shown in Fig. 1. Fig. 6 is a sectional elevation, also on a larger scale, of the upper part of the hoist shown in Fig. 2. Fig. 7 is a horizontal section on the line 2 2 of Fig. 5.

In all the figures like letters of reference indicate similar parts.

A A are the guns. B is the rotary platform or turn-table upon which the said guns are mounted. C is the vertical trunk or frame attached to the said platform or turn-table so as to revolve therewith, and E E are the cages, by means of which the powder charges and projectiles are conveyed from the bottom of the said trunk or frame to the gun-platform. These cages or carriers travel in their upward and downward movements along two separate sets of guide-rails e' and e'' . Switches are employed in connection with the guide-rails which are of the well-known construction and not shown on the drawings. The movement of the said cages or carriers is effected by suitable hoist-motors F F, located at the bottom of the trunk C and working in such a manner that when one cage of each pair is at its uppermost position the other is ready for loading at the bottom of the trunk C. The cages or carriers are so constructed in the example illustrated that they each carry two half powder charges

and a projectile, the latter being located at the upper part of the cage and the powder charges beneath it. The powder charges are carried in a tray e , which is adapted to swing laterally on trunnions e^2 for the purpose of discharging the powder charges into the lateral chutes d^9 , leading to the trays d^4 . In order to effect the tilting movement of these swinging trays, they are provided with arms e^3 , which are adapted to strike against fixed projections or stops d^{10} on the chutes d^9 as the said carriers E reach their uppermost position. The powder charges thus escape from the swinging trays and pass along the inclined chutes d^9 into the trays d^4 , whence they are taken by hand and conveyed in any suitable manner to the breech of the guns. The top portion e^4 of each of the cages or carriers E is recessed and inclined to receive the projectile, which is maintained in position by a spring-bolt e^5 , adapted to be automatically released by coming against a fixed stop e^6 as the said cage or carrier reaches its uppermost position. The projectile then slides or is pushed longitudinally down an inclined trough G , Figs. 1, 3, and 5, into a position at the rear of the guns and level with the gun-platform. From this position the projectiles can be lifted to the breech of the guns by a suitable crane or otherwise. The projectiles are loaded into the cages or carriers E from inclined trays K , situated near the bottom of the trunk C , and the powder charges are loaded into the cages or carriers from inclined trays H , also situated near the bottom of the trunk C . The powder charges are placed in the said trays H by hand, and the projectiles are placed in their trays K by an overhead trolley, which runs upon a transporting-rail I , as is well understood.

The aforesaid hoist-motor F may be driven electrically or otherwise, and it is preferably provided with a hand-winch J for enabling it to be worked by hand should occasion arise.

What we desire to claim and secure by Letters Patent of the United States is—

1. In ammunition-hoists for ordnance, the combination with the gun-mounting and the trunk leading from the magazine to the mounting, of a pair of ammunition cages or carriers for each gun, of rails within the trunk for said cages to travel along, of means whereby each cage carries both the projectile and the powder charge, of means for supplying the projectile and powder charge to the cage and of means for automatically and simultaneously releasing said projectile and powder

charge from the cage when it reaches its uppermost position so that the projectile is discharged from the cage longitudinally and the powder charge is discharged transversely, substantially as described.

2. In ammunition-hoists for ordnance, the combination with a cage or carrier provided with an upper inclined surface to receive the projectile, of a swinging tray for receiving the powder charge or charges, of a spring-bolt for normally retaining the projectile in place on the cage, of an arm on said swinging tray, of means for actuating said spring-bolt and said arm for liberating the projectile and powder charge when the cage reaches its uppermost position, of inclined chutes into which the powder charges enter transversely by the tilting movement of the swinging tray and of inclined troughs into which the projectiles slide longitudinally when released from the cage substantially as and for the purpose described.

3. In ammunition-hoists for ordnance, the combination with the gun-mounting and the trunk leading from the magazine to the mounting, of a pair of ammunition cages or carriers for each gun, of rails within the trunk for said cages to travel along, said rails affording a separate path for the cages during their upward and downward travel, of power hoisting apparatus for actuating said cages, of a hand-winch for enabling the cages to be actuated in the event of the power hoisting apparatus becoming inoperative, of trays near the bottom of the trunk for supplying the projectiles and powder charges to the cages, of inclined chutes near the top of the trunk for receiving and conveying the powder charges to trays provided for their reception, and of inclined troughs near the top of the trunk for receiving the projectiles and conveying them to the rear of the guns and level with the gun-platform, substantially as and for the purpose described.

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

ARTHUR TREVOR DAWSON.
JAMES HORNE.

Witnesses to the signature of Arthur Trevor Dawson:

HENRY KING,
WALTER W. SHARPE.

Witnesses to the signature of James Horne:

R. B. D. BRADSHAW,
EDWARD MUIR YOUNG.