No. 609,345. Patented Aug. 16, 1898.

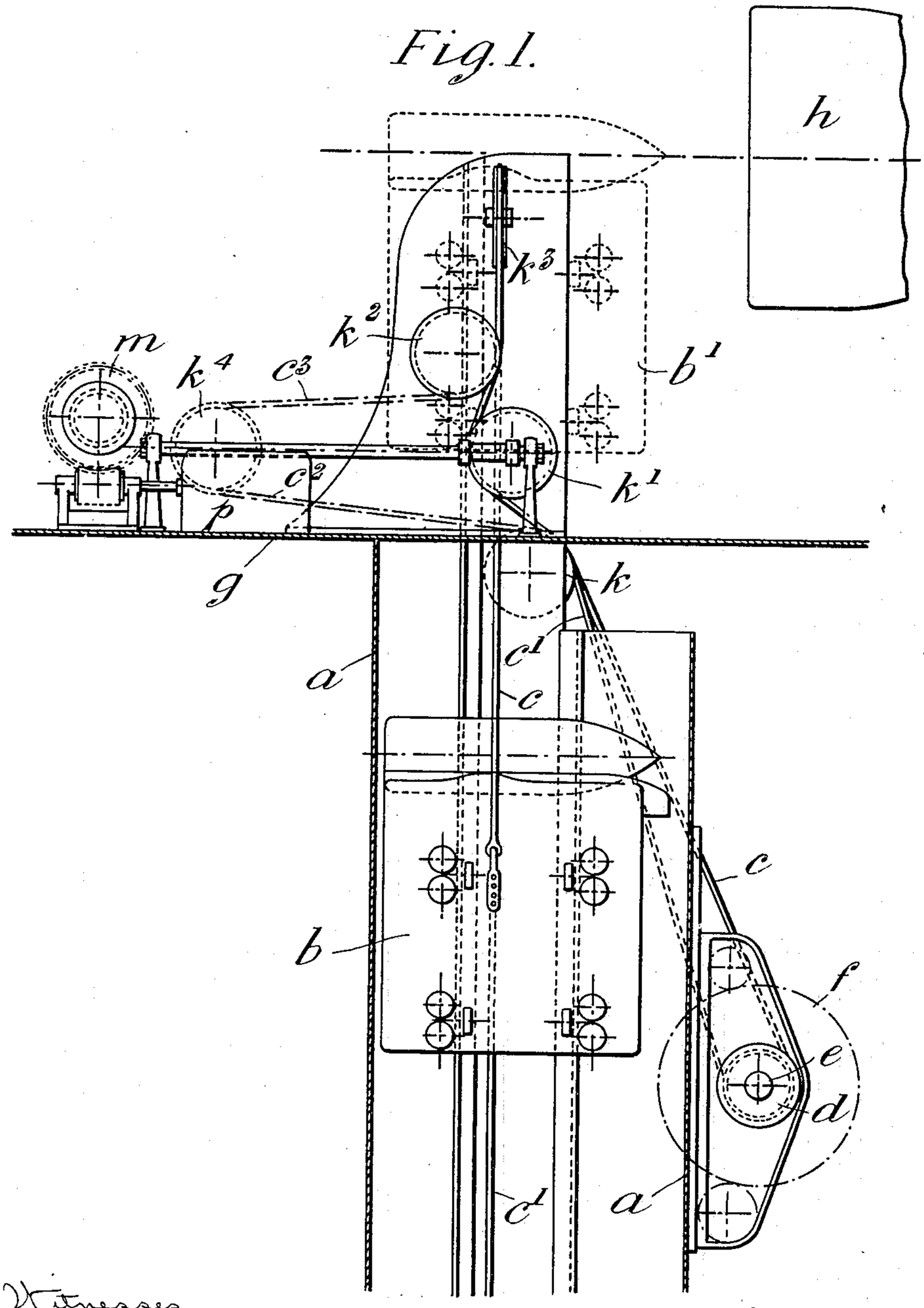
F. W. HAWKINS.

APPARATUS FOR CHARGING HEAVY BREECH LOADING GUNS.

(Application filed Nov. 18, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



Witnesses
H. B. Keeler
Geo. W. Rea.

Inventor
Frank W. Hawkins
By James L. Norris
Atty.

No. 609,345. Patented Aug. 16, 1898.

F. W. HAWKINS.

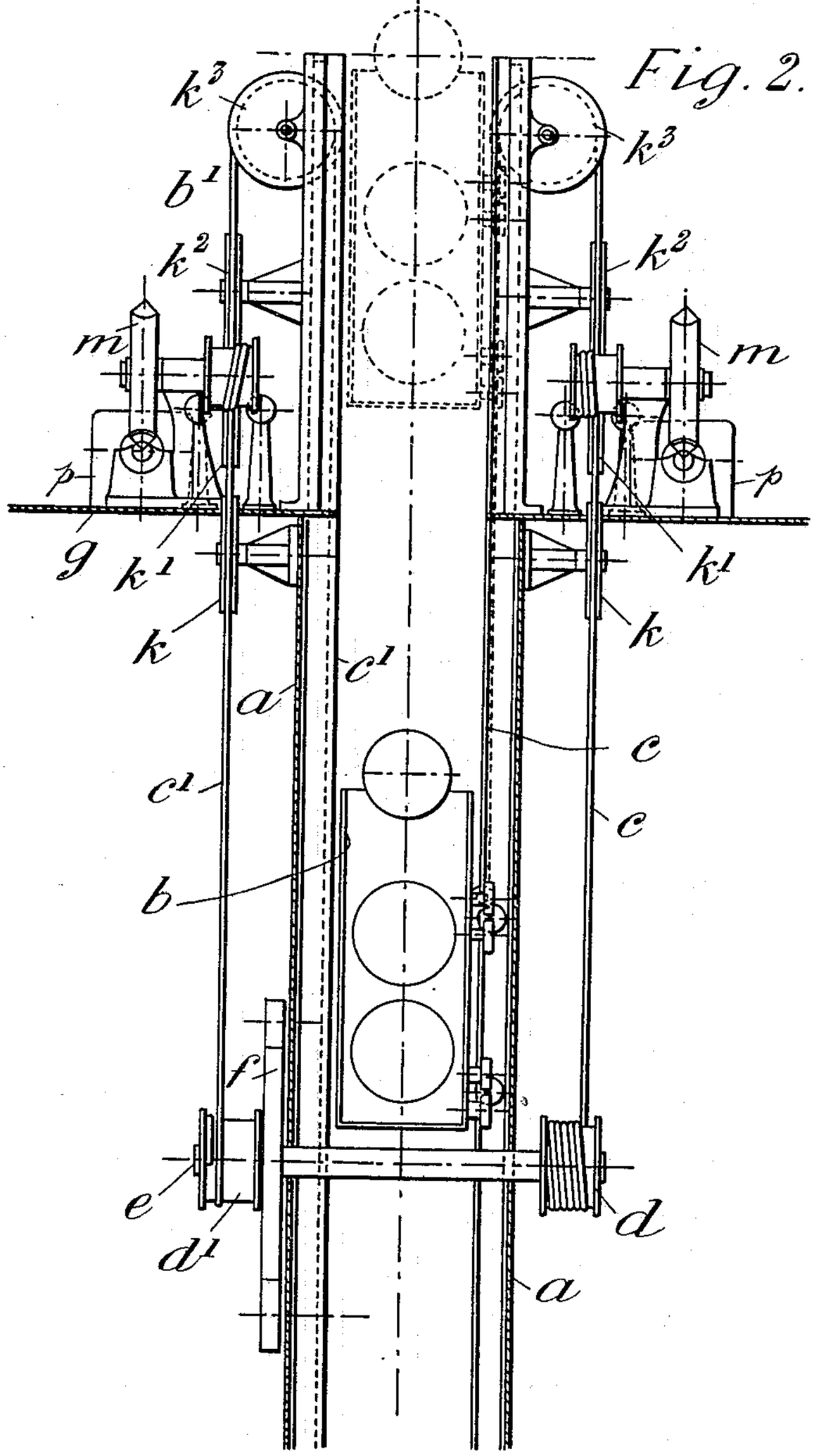
APPARATUS FOR CHARGING HEAVY BREECH LOADING GUNS.

(Application filed Nov. 18, 1897.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 2.



Witnesses
H. B. Keeler
Geo. W. Rea.

Inventor
Frank W. Hawkins
By James L. Norris.
Atty

No. 609,345. Patented Aug. 16, 1898.

F. W. HAWKINS.

APPARATUS FOR CHARGING HEAVY BREECH LOADING GUNS.

(Application filed Nov. 18, 1897.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 3.

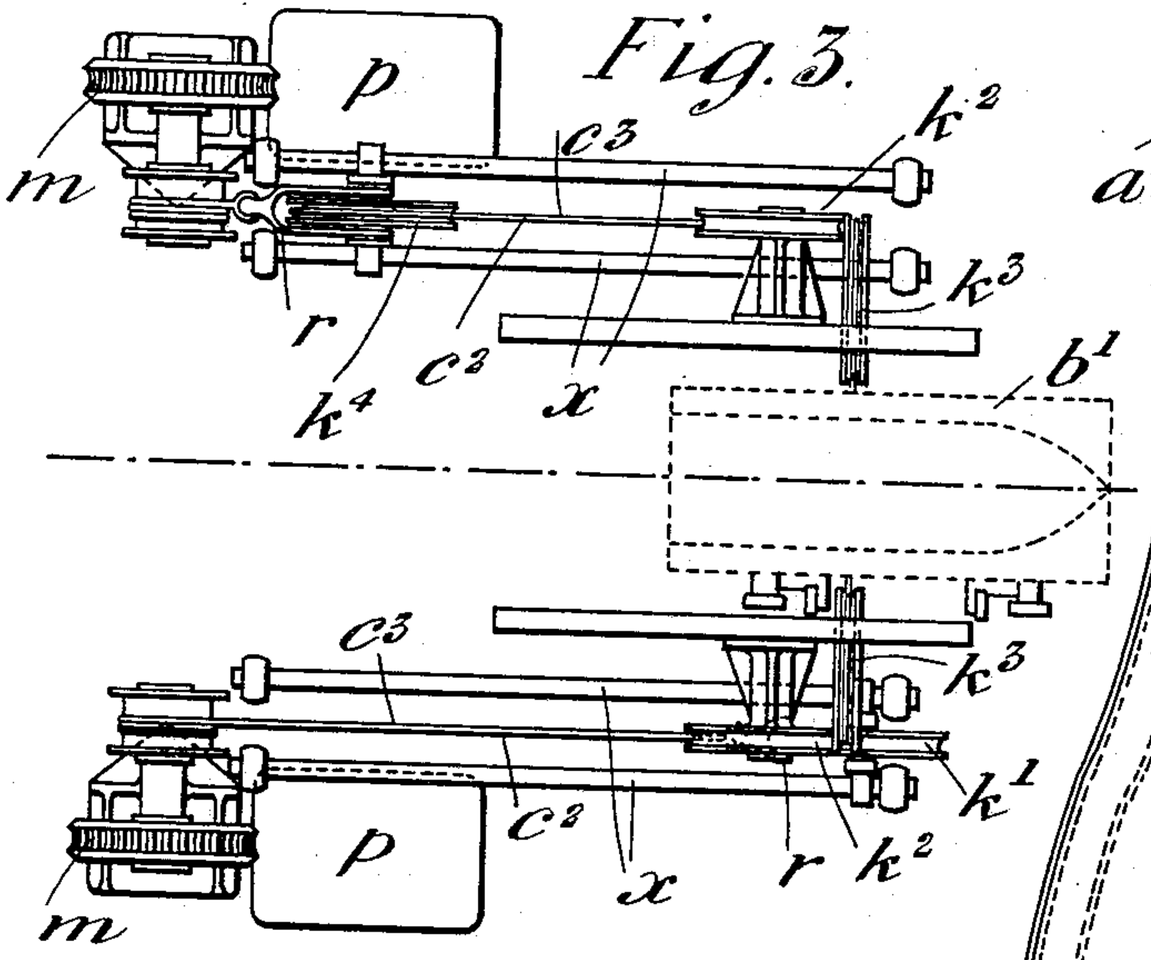


Fig. 2A.

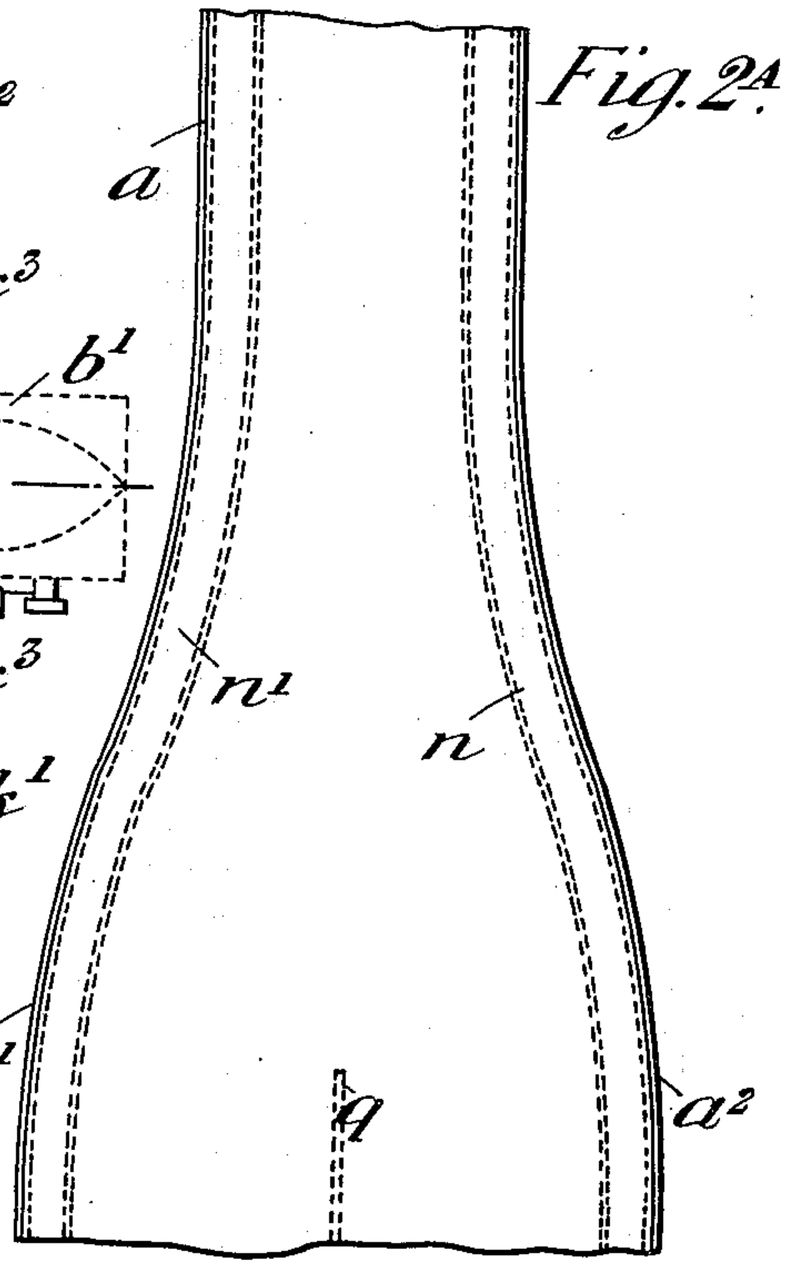
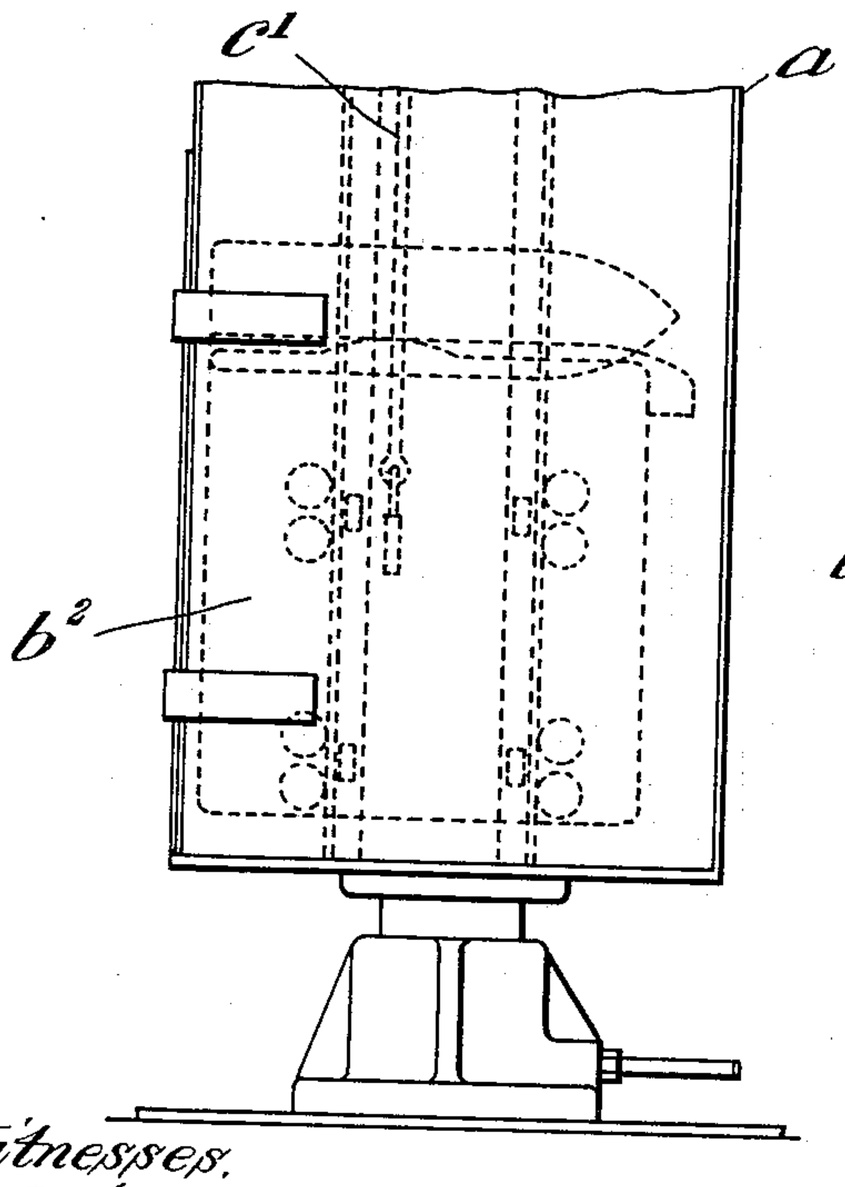
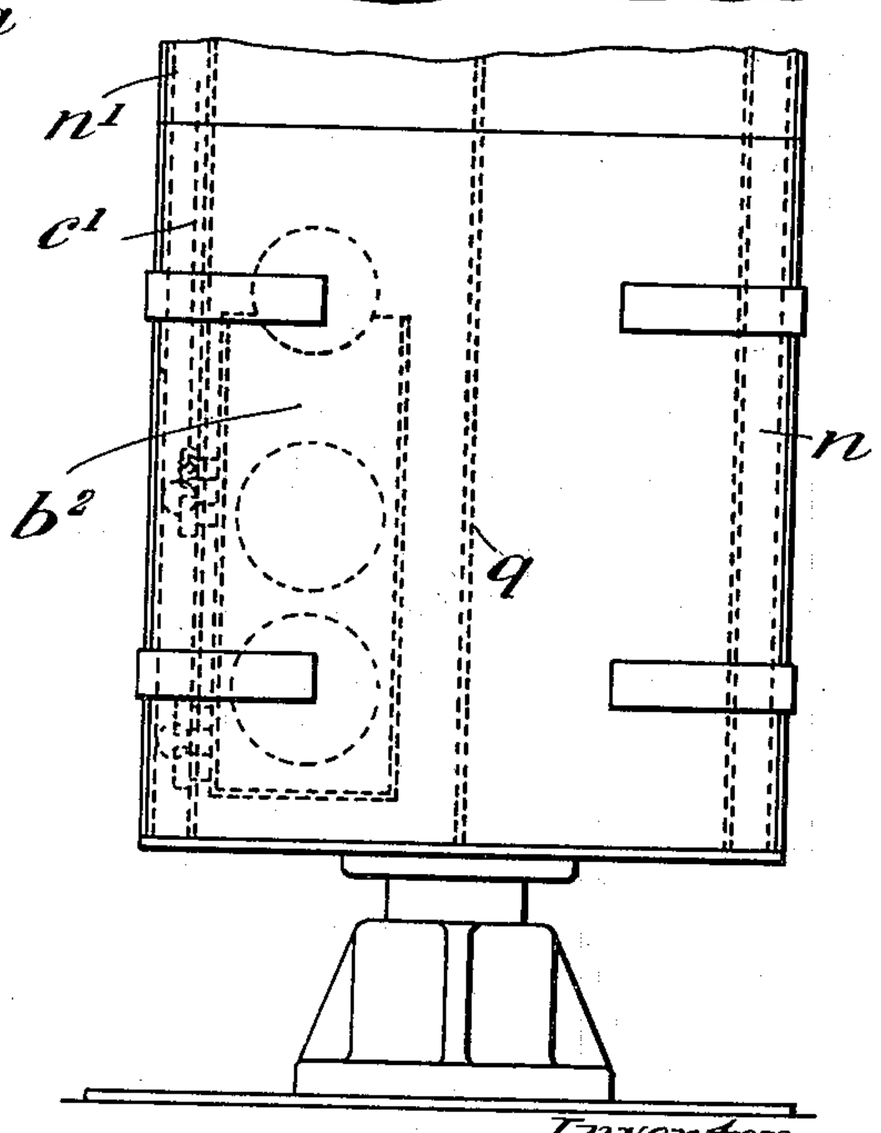


Fig. 1A.





Witnesses.
T. B. Keegan
Robert Everett.

Inventor.
Frank W. Hawkins.
By James L. Norris. Atty.

UNITED STATES PATENT OFFICE.

FRANK WILLIAM HAWKINS, OF SHEFFIELD, ENGLAND, ASSIGNOR TO VICKERS SONS & CO., LIMITED, OF SAME PLACE.

APPARATUS FOR CHARGING HEAVY BREECH-LOADING GUNS.

SPECIFICATION forming part of Letters Patent No. 609,345, dated August 16, 1898.

Application filed November 18, 1897. Serial No. 659,040. (No model.) Patented in England January 29, 1897, No. 2,442.

To all whom it may concern:

Be it known that I, FRANK WILLIAM HAWKINS, of River Don Works, Sheffield, in the county of York, England, have invented new and useful Improvements in Apparatus for Charging Heavy Breech-Loading Guns, (for which a patent has been obtained in Great Britain, dated January 29, 1897, No. 2,442,) of which the following is a specification.

My invention relates to apparatus for charging heavy breech-loading guns, by which the supply of ammunition is facilitated and is under control from the gun-platform, as I shall describe with reference to the accompanying drawings.

Figure 1 is a side elevation, Fig. 2 a front view, and Fig. 3 a plan, of apparatus constructed according to my invention. Fig. 1^a is a side view, and Fig. 2^a is a front view, of the lower part of the lift.

a designates the upper part of the ammunition trunk or lift, which, as shown in Fig. 2^a, branches out at its lower end and is there divided by a partition *q* into two trunks. Said lift is provided with two cages or carriers, of which one, *b*, is shown elevated, the other, b^2, being then at the bottom of the trunk. Said cages or carriers are guided in the ways *n n'*, respectively located on inner opposite sides of the lift or trunk.

The cages are raised by means of ropes or chains *c c'*, which are wound in opposite directions on two barrels *d d'* on the shaft *e* of the winch *f* and are so arranged that when the one cage is in the position *b* the other is at the base of one branch of the lift in position to be charged from the magazines and shell-rooms.

The cage or carrier *b* is in ready position below the gun-platform *g* and has only to be raised a short distance to the position *b'* to bring the charge in line with the bore of the gun *h* when the gun has to be charged. This further elevation of the cage is effected in the following manner: The lifting rope or chain *c* from the winch *f* passes over pulleys *k k'*, k^2 k^3 before being attached to the cage *b*, and one of these pulleys *k'*, which is mounted in a yoke *r*, sliding on guides *x*, can be moved laterally to the position k^4 by means of the winch *m*, which is worked by a motor *p* on the gun-platform *g*. The lifting-rope *c* is thus drawn into a loop c^2 c^3, and the cage is raised to the loading position *b'*.

When the gun is charged, the movable pulley *k'* is allowed to be returned from the position k^4 to the position *k'*, the cage descending to the position *b*.

By operating the winch *f* the empty cage can then be sent down to the base of one branch of the lift to receive a fresh charge, while by the same operation a charged cage is raised from the other branch of the lift to the ready position *b*.

Although winches *f* and *m* are shown as the apparatus for controlling the movements of the cages, obviously this might be effected by hydraulic lift apparatus or other suitable means. In cases where there is only one charging-cage the arrangement of the movable pulley may obviously be applied as described for raising the cage from ready to charging position.

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

1. An ammunition-hoist comprising a trunk or lift, carriers slidably supported therein, hoisting mechanism at the side of said trunk or lift, a series of pulleys at the top thereof, cables extending from the hoisting mechanism over said pulleys and connected to the carriers, and supplemental hoisting mechanism for raising each carrier to charging position comprising a pulley engaging the cable of said carrier and means for moving said pulley laterally, substantially as described.

2. An ammunition-hoist comprising a trunk or lift divided into two working ways or compartments at its lower end, guideways located on inner opposite sides of said trunk or lift and extending from top to bottom thereof, carriers slidably supported in said guideways, hoisting mechanism at the side of said trunk or lift, a series of pulleys at the top thereof, oppositely-wound cables extending from the hoisting mechanism over said pulleys and connected to said carriers, and supplemental hoisting mechanism for raising the carriers to charging positions comprising pul-

leys engaging the cables and means for moving said pulleys laterally, the combination operating substantially as set forth.

3. An ammunition-hoist comprising, in combination with the gun-platform, a trunk or lift divided into two working ways or compartments at its lower end, guideways located on inner opposite sides of said trunk or lift and extending from top to bottom thereof, carriers slidably supported in said guideways, hoisting mechanism at the side of said trunk or lift, a series of supporting-pulleys and a series of guide-pulleys located at the upper portion thereof, cables oppositely wound on said hoisting mechanism and extending along said guide-pulleys and over said supporting-pulleys and connected to said carriers and operated by the hoisting mechanism to raise one carrier to a "ready" position while lowering a companion carrier to the bottom of the trunk or lift, and mechanism for raising the carriers independently from a "ready" to a charging position comprising guides supported on the gun-platform, yokes slidably mounted on said guides and carrying pulleys each of which engages a cable of a carrier between a pair of guide-pulleys, and winding-drums mounted on said platform and having cables connected with said yokes and operating independently to move said yokes with their pulleys over said guides and thereby draw the cable engaged by each pulley to one side, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of November, A. D. 1897.

FRANK WILLIAM HAWKINS.

Witnesses:

WM. LAYCOCK,

H. G. COOLEY.