

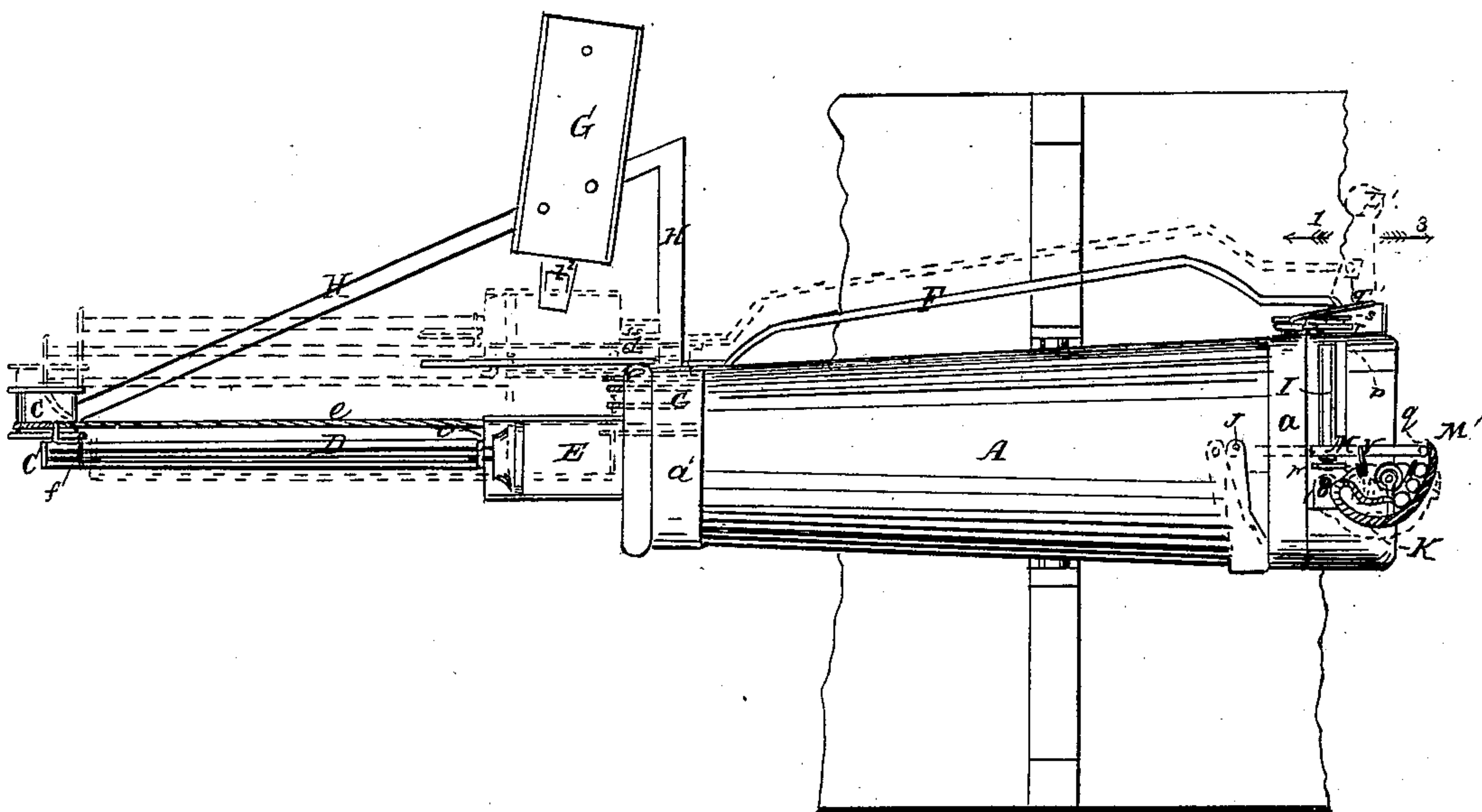
2 Sheets—Sheet 1.

W. E. MOORE.
Loading Ordnance.

No. 23,258.

Patented Mar. 15, 1859.

Fig. 1.



Witnesses.
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Fig. 2.

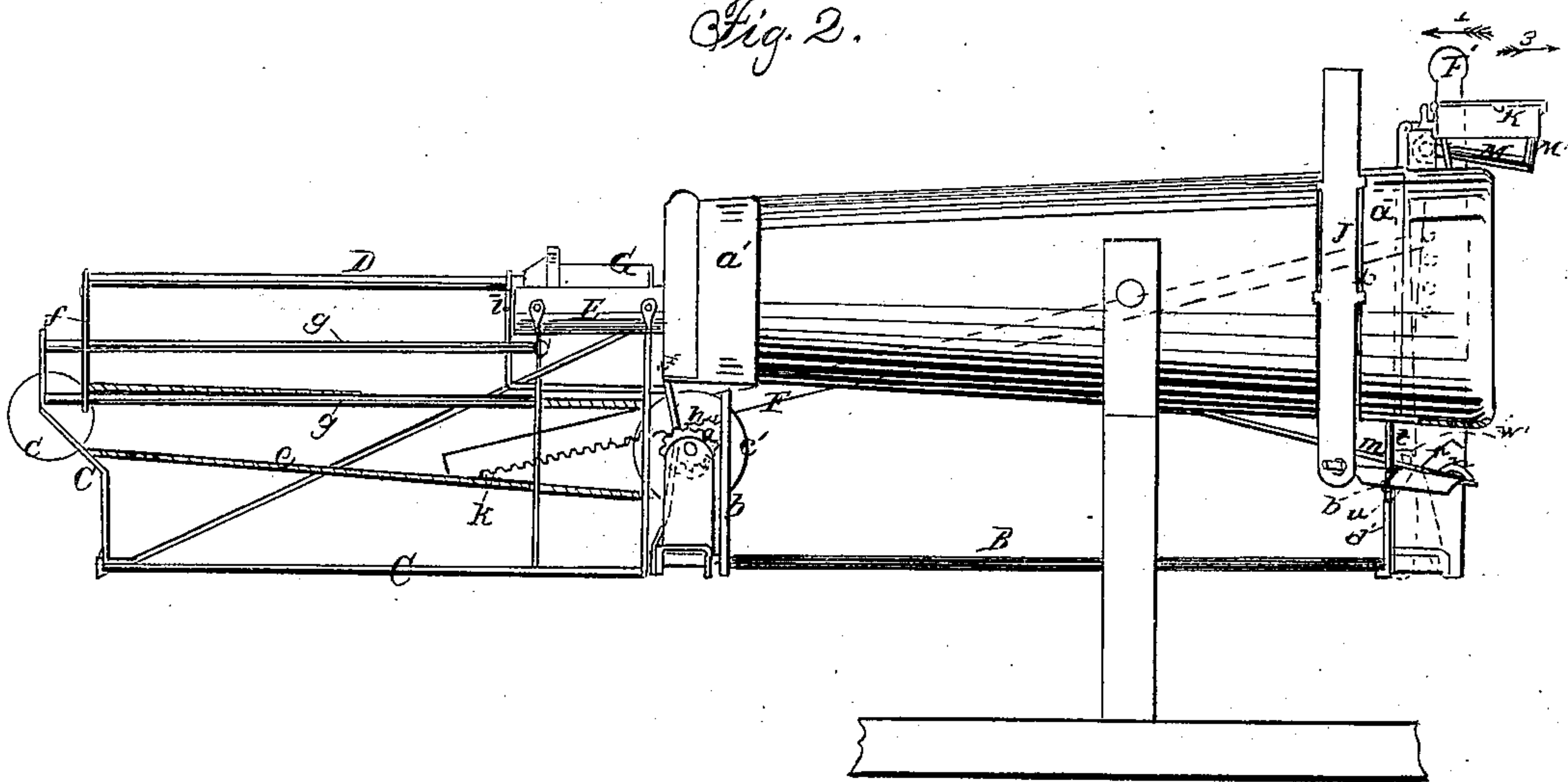
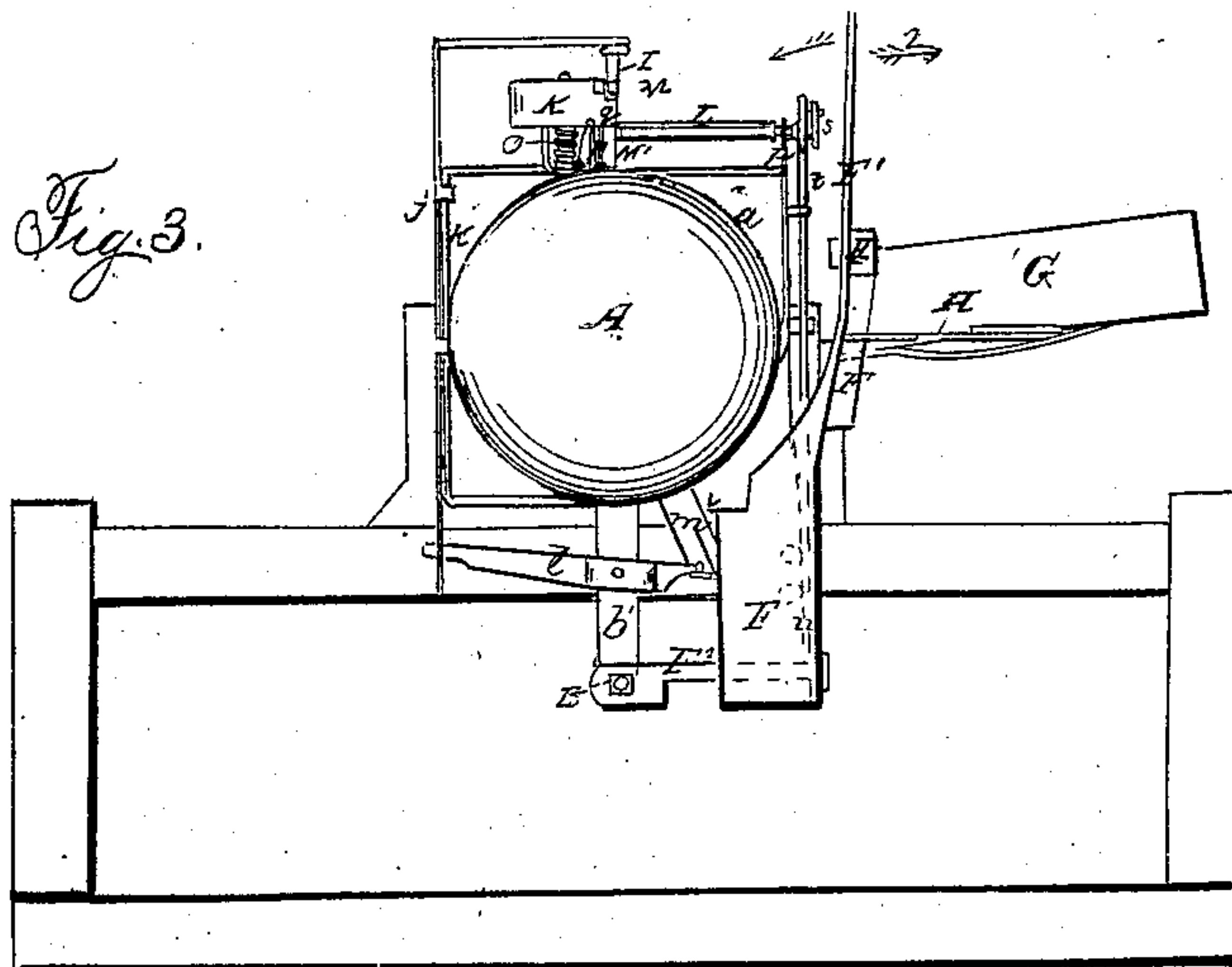


Fig. 3.



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WILLIS E. MOORE, OF CRAWFORDSVILLE, INDIANA.

IMPROVEMENT IN LOADING ORDNANCE.

Specification forming part of Letters Patent No. 23,258, dated March 15, 1859.

To all whom it may concern:

Be it known that I, WILLIS E. MOORE, of Crawfordsville, in the county of Montgomery and State of Indiana, have invented a new and useful Improvement in Loading Ordnance; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan or top view of a cannon with my invention applied to it. Fig. 2 is a side elevation of the same. Fig. 3 is a rear end view of the same.

Similar letters of reference in each of the several figures indicate corresponding parts.

The object of my invention is to load, cap, and fire a cannon or other piece of ordnance by machinery and from a position near the rear end of the cannon or ordnance, and thus enable one man to perform the work of six with greater facility, without any danger of losing his life except by explosions.

The nature of my invention consists, first, in the combination, with a cannon or other piece of ordnance, of a system of mechanism which will receive the charge, carry it opposite the bore of the cannon, force the same up to the breech of the cannon, and then be capable of being moved out of line with the bore of the same, as hereinafter specified.

It consists, second, in combining with said system of mechanism a needle for pricking the cartridge after it has been forced up to the breech, said needle coming into action simultaneously with the retreat out of line with the bore of the cannon of the mechanism employed for introducing the charge, and then retreating out of the way, ready for the application and explosion of the cap.

It consists, third, in the combination of a cap-charger and exploding-hammer, with the first and second systems of mechanism above mentioned, whereby simultaneously with the retreat of the needle a cap is brought over the touch-hole and exploded, as hereinafter described.

It consists, fourth, in a cartridge-box which has a yielding spring-stop, in combination with the first system of mechanism above mentioned, whereby said mechanism retreats out of line with the bore of the cannon a

cartridge is caused to fall from the box into the conveying-receiver thereof, ready to be carried in line with the bore of the cannon, and also when said cartridge is conveyed to the position stated the escape of other cartridges from the box is prevented, as hereinafter specified.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a cannon. It is of ordinary construction and mounted in the usual manner. At each end of the cannon I provide a draw-band, *a a'*, and from each of said bands have project a vertical bearing, *b b'*, as shown. These bearings support a longitudinally-turning shaft, B, which lies directly under the center of the cannon. On the front end of said shaft a light frame, C, is attached. This frame supports the sliding ramrod D and the pulleys *c c'*, pinion *d*, and chain *e*, by which the ramrod is operated. The ramrod is governed in its movements by means of a guide, *f*, and rods *g g* of the frame. The frame C also supports and carries a cartridge-receiver, E, which is fastened securely on the upper inner end of the frame, and is shaped so as to correspond to the shape of the cartridge and the head of the ramrod, the former of which lies longitudinally in the receiver, and the latter slides back and forth in it.

F is a sliding connecting-rod, furnished at one end with cog-teeth *h h*, so as to gear with the teeth of the pinion *d*, as shown, and is connected at its other end with a pivoted hand-lever, *F'*, at the rear end of the cannon. This lever is attached to a fixed crank-arm, *F''*, of the central shaft, B, as shown. *i i'* is a spring-catch for holding the frame C in line with the bore of the cannon.

G is a cartridge-box arranged on a support, H, projecting from the front draw-band, *a'*, and the side of the frame C, as shown. This cartridge-box is set inclined, and has a spring-stop, *i''*, at its discharge end to retain the cartridges from falling out unless it is depressed.

From this description of the mechanism which forms the first and fourth features of my invention it will be seen that, if the parts are in the position shown in black and the cannon not charged, by forcing the lever *F'* in the direction of the arrow 1, the head of

the ramrod will bear against the part *i'* of the spring-catch, and thereby draw the part *i* out of the notch *j* of the cannon, and thus release the frame from the cannon. Then by depressing the lever in the direction of the arrow 2 the frame and all its appurtenances turn with the shaft B, and are thrown to a position out of line with the bore. The parts being thus adjusted and the spring-stop of the cartridge-box depressed by the side of the cartridge-receiver coming in contact with it, a cartridge rolls into the receiver. The lever is now moved back to its original position and the frame brought in line with the bore of the collar and confined by the spring-catch *i'*. Simultaneously with the moving of the frame the spring-stop *i''* rises and prevents the cartridges rolling out of the box G. The lever is now moved in the direction of the arrow 3, and the connecting-rod F is made to slide over the pinion *d*, and consequently the pinion *d* and pulley or drum *c'* are caused to revolve, and, owing to the chain *e* being passed around it and the ramrod-guide attached to the chain, the ramrod is caused to move toward the end of the cannon, and in its movement force the cartridge from the receiver into the cannon and up to the breech thereof. The cannon is now charged, and all is ready for the withdrawal of the ramrod, pricking of the cartridge, and capping and firing.

I will now describe the pricking mechanism.

I is a needle for pricking the cartridge. It is attached to an angular swiveling bar, J, which, at a certain stage, overhangs the touch-hole and slides up and down on a guide, *k*, which is attached to the side of the cannon or draw-band *a*. This bar is connected by its vertical end to one end of a pivoted rocking arm, *l*, which is hung on the vertical bracket or bearing *b'* of the rear draw-band. *m* is a spring for holding down the loose end of the rocking arm with a yielding force, the connection between the spring and said arm being formed by an oblong slot, so as to allow play to the spring independently of the arm. *n* is a cam on the lever F' of the shaft B. This cam is so shaped on its sides that it forces the spring laterally as the lever F' is depressed in the direction of the arrow 3, and thus insures the throwing of the inner end of the arm in front of the cam when the lever F' has been depressed to the proper extent. We will now suppose the ramrod to be in the position it was left after forcing the cartridge up to the breech of the cannon. Now, by moving the lever in the direction of the arrow 4 the ramrod will be withdrawn from the bore of the cannon to the position shown in Figs. 1 and 2, and simultaneously with this operation the front inclined edge of the cam *n* will elevate the inner spring end of the rocking arm *l*, and consequently depress the outer end, and cause it to draw down the bar J, so as to throw the needle I round in line with the touch-hole, and to cause it to pass down into the same and

prick the cartridge. The cartridge is now pricked, ready for being fired.

I will now proceed to describe the mechanism for applying and exploding the cap.

K is an ordinary self-feeding cylindrical cap-holder, furnished with a spring-follower, *x*, which forces the caps out as fast as removed by the hammer. This cylinder is pivoted at *o* to the top of the cannon or draw-band *a*, in rear of the touch-hole, and is rendered self-adjusting by means of a coil-spring.

L is a turning shaft arranged across the top of the breech of the cannon in bearings *p p* of the cannon or draw-band *a*.

M M' is a combined hammer and nipple, keyed fast on this shaft, and made long enough and arranged so as to have its nipple M', when adjusted for receiving a cap from the cap-cylinder, to rest in such a position that it will take the cap from the discharge-passage *q* of the cylinder when it rises, as illustrated in black in Fig. 1. The shaft L is combined with the main turning shaft B by means of an eccentric, *r*, crank-arm F², and links *s t u*, one of which is slotted, as at *w'*, so that it shall turn at right angles with shaft B when the lever F' is operated, as presently described, and so that the hammer shall not be moved at the commencement of the depression of the lever F', but rapidly when the lever has nearly completed its movement, and thus more certainly explode the cap.

V is an inclined pivoted stop for the hammer to come in contact with in its descent, and thus move the cap-cylinder gradually to one side out of its path as it falls back to take a cap. This stop retreats out of the way as the hammer rises, but assumes its proper position again as soon as the hammer passes by it. The cap-cylinder also adjusts itself as soon as the hammer gets to a proper position, and by adjusting itself brings the cap in the space *q* in line with the nipple of the hammer. It is essential to thus shift the cap-cylinder, for if the hammer were allowed to fall back and pass down through the discharge-opening of the cap-cylinder it would force the cap, which is ready to be removed from the discharge-space, down through said opening, and thus cause a waste of a cap at each operation.

With this last-described mechanism it will be seen that by depressing the lever in the direction of the arrow 2, for the purpose of withdrawing the needle from the touch-hole and turning it to one side, and for throwing the ramrod out of line with the bore and the receiver in position for receiving another charge, as shown in red, the hammer, which has a cap over its nipple M', will be brought up and over rapidly until the cap comes forcibly in contact with the metal of the cannon round the touch-hole and is exploded, and the cannon consequently fired. The cannon is now ready for reloading, and the motion which is given to the lever to bring the charge which has already been deposited in the receiver in line with the bore restores the hammer to a proper position

for performing another. The reloading of the cannon is now to be proceeded with in the same manner as when loading it with the first charge.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a cannon or other piece of ordnance, of a system of mechanism which will receive the charge, carry it opposite the bore of the cannon, force the same up to the breech of the cannon, and then be capable of being moved out of line with the bore of the same, substantially as and for the purposes set forth.

2. Combining with the above system of mechanism a needle for pricking the cartridge after it has been forced up to the breech, said needle coming into action simultaneously with the retreat out of line with the bore of the cannon of the mechanism employed for introduc-

ing the charge, and then retreating out of the way, ready for the application and explosion of the cap, substantially as and for the purposes set forth.

3. The combination of a cap-charger and exploding-hammer with the first and second systems of mechanism above claimed, whereby simultaneously with the retreat of the needle a cap is brought over the touch-hole and exploded, substantially as and for the purposes set forth.

4. A cartridge-box which has a yielding spring-stop, in combination with the first system of mechanism above mentioned, substantially as and for the purposes set forth.

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Witnesses:

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