

(No Model.)

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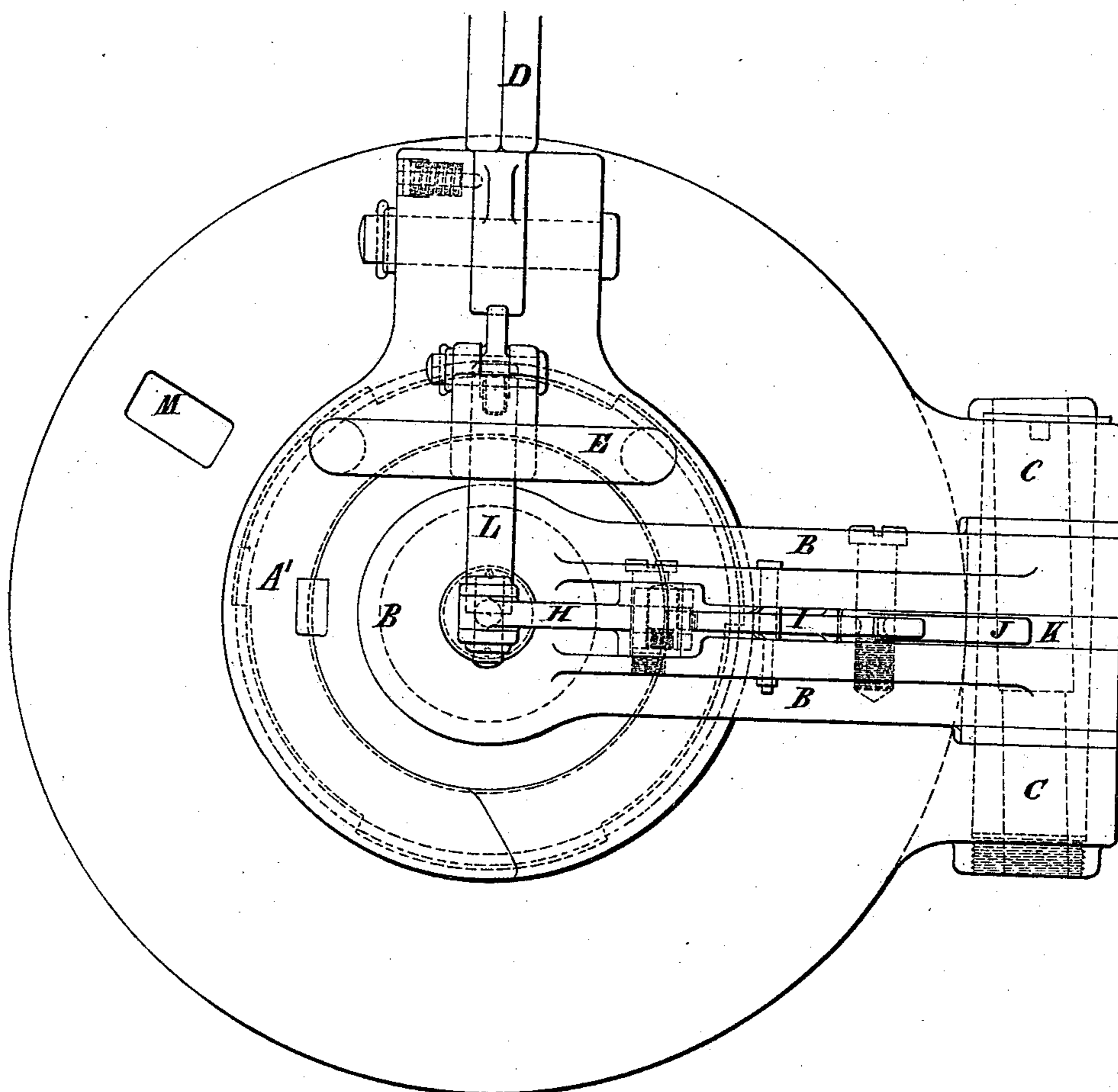
A. NOBLE.

## BREECH LOADING ORDNANCE.

No. 377,906.

Patented Feb. 14, 1888.

*Fig. 1*



Witnesses.

Baltus DeLong.  
H. L. Holmes.

*Inventor:*

A. Noble

W. Noble.  
My dear -  
Gallatin, Hoffman & Co.

(No Model.)

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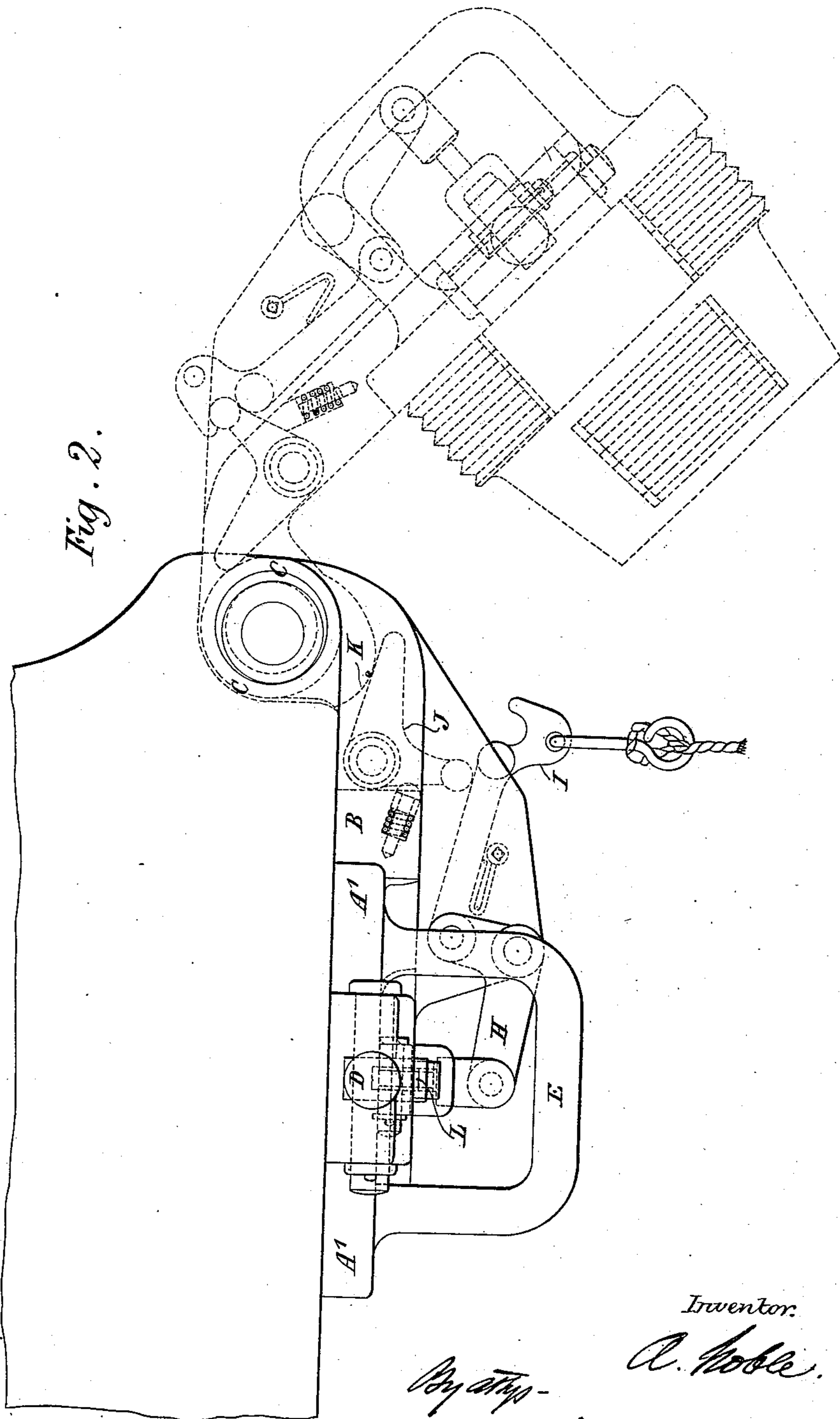
A. NOBLE.

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Fig. 2.



Witnesses.  
Baltard Long  
J. L. Holmes

Inventor.

A. Noble.

By atty-

Galvin, Hoffman & Hyatt.

(No Model.)

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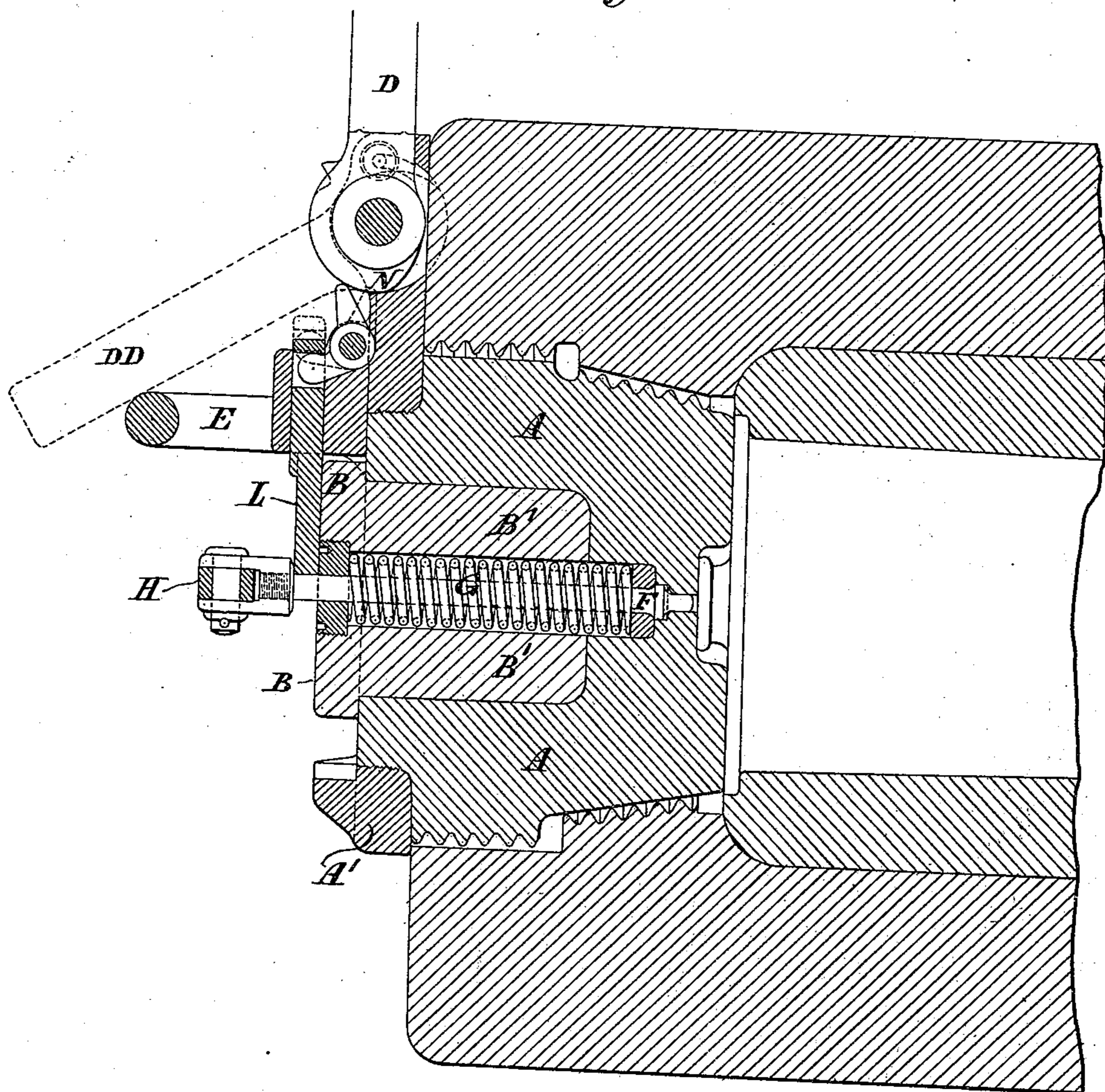
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Fig. 3.



Witnesses.  
Baltus D. Long.  
W. L. Holmes.

Inventor.  
A. Noble.  
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J. J. Adams, J. J. Adams & Co.

# UNITED STATES PATENT OFFICE.

ANDREW NOBLE, OF NEWCASTLE-UPON-TYNE, ENGLAND, ASSIGNOR TO W. G. ARMSTRONG, MITCHELL & CO., (LIMITED,) OF SAME PLACE.

## BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 377,906, dated February 14, 1888.

Application filed May 10, 1887. Serial No. 237,734. (No model.) Patented in England April 10, 1885, No. 4,470, and in Italy September 30, 1885, No. 18,762.

*To all whom it may concern:*

Be it known that I, ANDREW NOBLE, late captain in the Royal Artillery, a subject of the Queen of Great Britain, residing at Jessnondene House, Newcastle-upon-Tyne, England, manufacturing engineer, have invented certain new and useful Improvements in Breech-Loading Ordnance, (for which a patent has been granted to me in Great Britain, dated April 10, 1885, No. 4,470, and in Italy, dated September 30, 1885, No. 18,762,) of which the following is a specification.

My improvements relate to that class of breech-loading ordnance in which the breech-piece is held in place by interrupted screw-threads upon it taking into correspondingly-interrupted screw-threads within the interior of the breech, so that by giving a partial turn to the breech-piece it can be made to engage with or be disengaged from the screw-threads within the breech.

Heretofore in breech-loading guns of this class the breech-piece has been so made that when it has been turned to disengage it from the screw-threads within the breech it has had to be drawn back a distance before it could be turned aside around a hinge-joint at one side of the breech.

According to my invention I make the breech-piece of such a form that it can at once be turned aside without previously drawing it back, as heretofore.

The drawings annexed show the breech end of a gun closed in the manner above described.

Figure 1 is a back view of the breech; Fig. 2, a plan view, and Fig. 3 a vertical section.

A is the breech-piece, with divided screw-threads on its exterior to engage with corresponding divided screw-threads in the interior of the breech.

B' is a pivot which carries the breech-piece A, and on which the breech-piece is free to turn in the direction of screwing or unscrewing. This pivot is at the end of a bar, B, which at its other end can swing on a hinge-joint, C, to one side of the breech.

In the construction shown in the drawings the breech-piece is made in steps, so that it is of larger diameter at its rear than at its front

end, and the portions of the screw-thread on the one step are made to be in front of the spaces between the portions of the screw-thread on the other step. The foremost step is also made conical, as best seen in Fig. 3. By making this end conical the breech-piece when not interlocking with the screw-threads in the breech can be freely turned to one side on the hinge-joint C.

It is not essential that the breech-piece should be formed in steps, as shown. It might be formed with the ordinary divided screw, but tapered to such an extent that it can at once be swung aside when the divided screw upon it is not interlocking with the divided screw in the breech. In the construction shown in the drawings the breech-piece A has fixed to its rear end a ring, A'. A portion of the rear end of this ring is slotted away where the bar B lies across it. When one end of the slot comes against the upper side of the bar, the breech-piece is in its unlocked position, and when the opposite end of the slot is brought against the under side of the bar the breech-piece is in its locked position. The ring A' has jointed to it a lever, D, by which the breech-piece can be turned on its axis B', and is also provided with a handle, E, by which the breech-piece can be turned to one side on the joint C.

Any suitable arrangement of mechanism may be used for firing the gun. The arrangement shown in the drawings is as follows: The central firing-pin or hammer, F, is, as usual, projected forward by a coiled spring, G. The rear end of the hammer is connected to one arm of a crank-lever, H, the other arm of which has jointed to it a hook-piece, I. This hook is pressed by a spring against the end of one arm of a crank-lever, J, the other arm of which is made to rest against a fixed cam-surface, K, at the hinge C. When the breech-piece is turned to one side on the hinge C, the crank-lever J is brought into such a position that the hook I can hook over it. When the breech-piece is turned into position to close the breech, the lever J returns to the position shown in Fig. 2, and, acting through the hook I on the lever H, causes the firing-pin to be drawn back. The parts of the firing mechanism remain in this

position until the hook I is drawn back by a lanyard. The spiral spring G then throws the striker forward and fires the gun.

In order to prevent the gun from being fired unless the breech is securely closed, I preferably use a safety-bolt, such as shown at L, Fig. 3. When the safety-bolt is in the position shown in this figure, the hammer cannot be thrown forward sufficiently to fire the gun and the gun cannot be fired until the lever-arm D is turned down into the position shown by dotted lines, so as to raise the safety-bolt out of the way of the hammer. As will be seen, the lever-arm cannot be moved into this position until the breech-piece has been turned into its locked position and the boss of the lever D has so been brought opposite to a recess, M, in the rear end of the breech. The safety-bolt drops into position to prevent the gun from being fired at the time when the hammer is drawn back to full-cock as the breech is being closed.

M is a recess in the rear end of the breech, into which the cam N on the heel of the lever D enters when the lever D is turned down to the position DD. This cam locks the breech-piece when closed, so that it cannot be unscrewed by the vibrations and strains of firing. When the breech-piece has been swung into its position within the breech, the breech-piece has to have a partial turn given to it to cause the divided screw upon it to lock with the divided screw in the breech. This cannot be done unless the lever-arm D extends outward from the ring A' in the position shown by full lines in Fig. 3. The safety-bolt must therefore of necessity be free to drop into position to lock the hammer, and the safety-bolt cannot be again raised until the breech-piece is securely locked.

I would have it understood that I do not

limit myself to the use of this particular means of firing the gun, as other arrangements might be employed for the purpose. The arrangement shown is, however, a convenient one.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination, substantially as set forth, of the gun having the interrupted screw-threads in its breech, which is of less diameter at front than at rear and tapered to gradually enlarge it from the front backward, the breech-piece supported by the hinge-joint at the side of the breech and provided with interrupted screw-threads for engaging the breech-threads, and tapering from its small or inner end toward its larger rear end correspondingly with the taper of the interior of the breech, whereby when the breech and breech-piece threads have been disengaged the breech-piece can be turned aside on the hinge-joint at once, or without being first drawn directly backward.

2. The combination of the gun, with the interior of its breech stepped or made of two or more diameters, having the interrupted screw-threads, and with the innermost step made of less diameter at front than at rear and tapered to gradually enlarge it from the front backward, and the breech-piece supported by a hinge-joint at the side of the breech and stepped, threaded, and tapered correspondingly with the breech, substantially as and for the purpose set forth.

A. NOBLE.

Witnesses:

WM. JOHN GREY,  
Notary Public.

T. PURVIS.