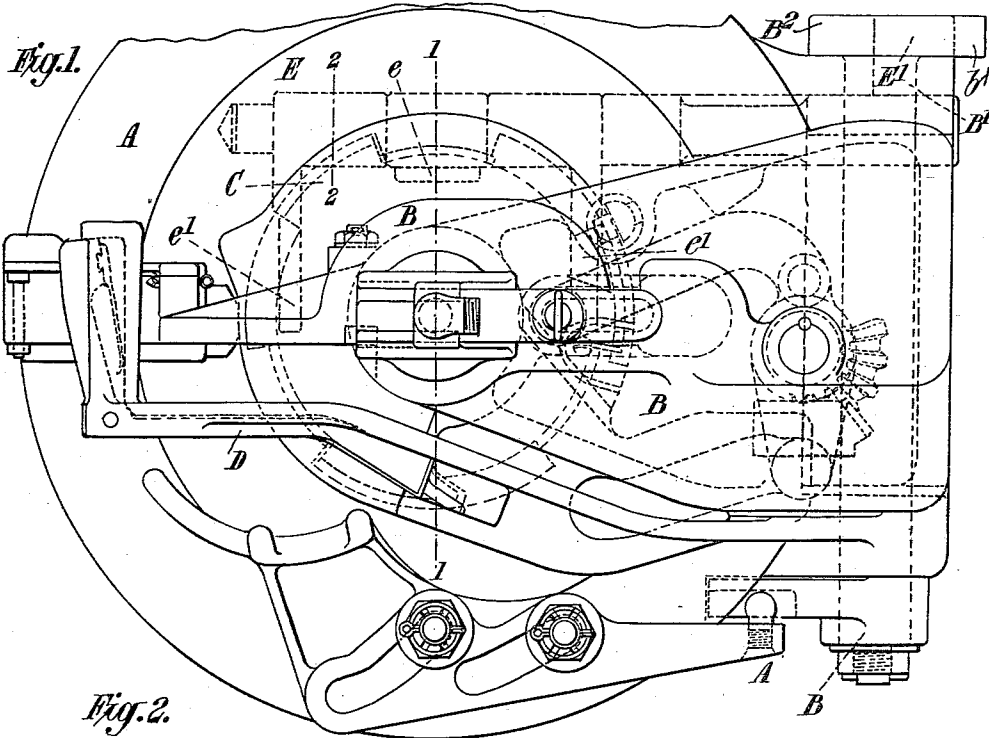


A. T. DAWSON & G. T. BUCKHAM.
 CARTRIDGE EXTRACTING AND EJECTING MECHANISM FOR BREECH LOADING ORDNANCE.
 APPLICATION FILED OCT. 2, 1909.

1,022,469.

Patented Apr. 9, 1912.

2 SHEETS-SHEET 1.



Witnesses;
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 Attorney

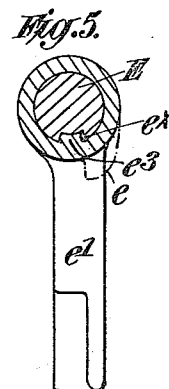
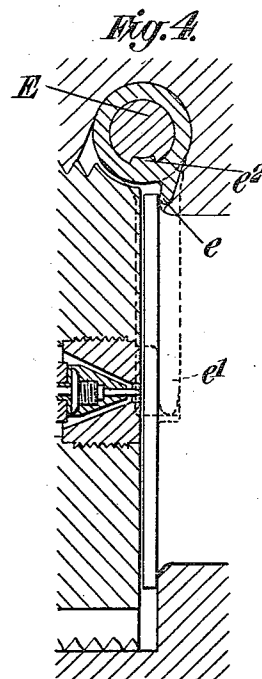
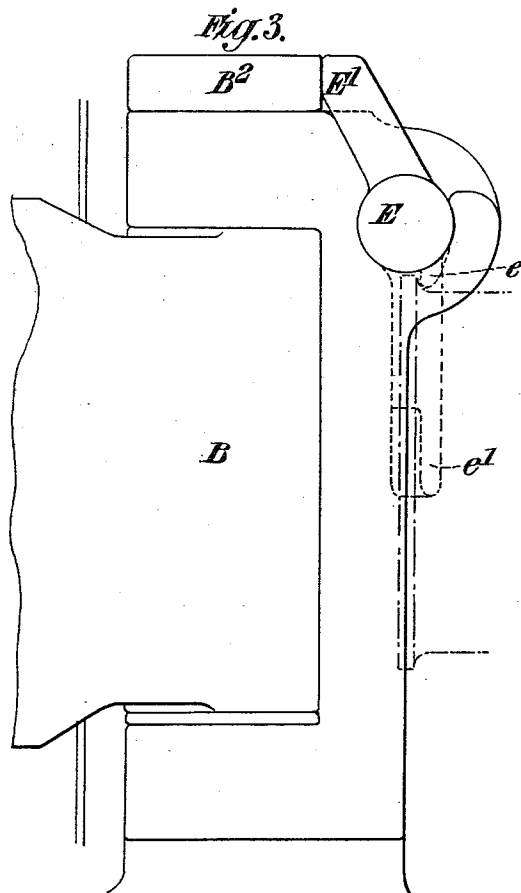
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UNITED STATES PATENT OFFICE.

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CARTRIDGE EXTRACTING AND EJECTING MECHANISM FOR BREECH-LOADING
ORDNANCE.

1,022,469.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed October 2, 1909. Serial No. 520,711.

To all whom it may concern:

Be it known that we, ARTHUR TREVOR DAWSON and GEORGE THOMAS BUCKHAM, subjects of the King of Great Britain, both residing at 32 Victoria street, Westminster, in the county of London, England, have invented certain new and useful Improvements in Cartridge Extracting and Ejecting Mechanism for Breech-Loading Ordnance, of which the following is a specification.

This invention relates to cartridge extracting and ejecting mechanism for breech loading ordnance, particularly quick firing guns in which the breech screw is rotatably mounted in a swinging carrier.

An extractor has heretofore been proposed comprising two ejecting arms and a central lip lying near the fulcrum of the extractor, the said lip being integral with the ejecting arms and acting to exert an initial powerful prising action. The said extractor is actuated by a cam surface which first moves the extractor slowly and then quickly to eject the cartridge case by means of the aforesaid ejecting arms.

The chief object of the present invention is to devise a simple form of extracting and ejecting mechanism that shall be more powerful and efficient in its action.

According to the present invention the aforesaid central wedging piece or extracting arm and the two ejecting arms are mounted independently of each other on a spindle which is adapted to be actuated by a cam or the like on the carrier hinge pin. The arms are connected to the spindle in such manner that a certain amount of lost motion can take place between the wedging piece and the ejecting arms, so that the said ejecting arms remain stationary during the action of the wedging piece. The horizontal spindle carries at its outer end a striking arm situated on the exterior of the gun and the head of the carrier hinge pin is formed to act as a cam and to engage with the striking arm on the horizontal spindle. The operation of this cam has the effect of first causing a slow wedging or gradual prising action on the cartridge case, through the extracting arm, and then, through the intervention of the ejecting arms, causing a

sharp blow to be given to the prised cartridge case to eject it.

In order that the said invention may be clearly understood and readily carried into effect the same will be described more fully with reference to the accompanying drawings, in which:—

Figure 1 is a front elevation, and Fig. 2 a plan of breech mechanism with our improved extracting and ejecting mechanism applied thereto. Fig. 3 is a side elevation as seen from the right of Fig. 1. Fig. 4 is a local section taken approximately on the line 1. 1. of Fig. 1 through the central wedging piece. Fig. 5 is another local section taken approximately on the line 2. 2. of Fig. 1 through the boss of one of the ejecting arms.

A is the breech end of the gun.

B is the swinging carrier and B' its hinge pin.

C is the breech screw and D the breech actuating hand lever.

E is the horizontal spindle upon which are keyed the central wedging piece or extracting arm *e* and the two ejecting arms *e'* *e'*. The keying of the said wedging piece and ejecting arms to the spindle E is effected by forming the latter with a longitudinal key-way with which a key *e²* on the wedging piece engages, the dimensions of this key being such as to fit the said key-way (Fig. 4) and retain the wedging piece firmly fixed to the spindle so that no relative angular movement can take place between the wedging piece and the spindle. Each of the ejecting arms is also formed with a key *e³* engaging with the said key-way in the spindle but these keys are of less width than the key-way (Fig. 5) so as to permit of a small amount of idle motion to take place between the spindle and the ejecting arms. The outer or free end of the said spindle E is furnished with the striking arm E' whose free end lies contiguous to the cam B² with which the upper end or head of the hinge pin B' is provided. This cam is formed with two active surfaces *b* *b'* (Fig. 2) which are adapted to successively act upon the said striking arm E' during the outward swinging movement of the carrier B. The surface *b* of the said cam operates to move the spindle E slowly while the extracting arm *e* is

performing its wedging action on the cartridge case, the ejecting arms e' meanwhile remaining stationary by reason of the clearance e^x (Fig. 5) that exists between the keyway on the spindle E and the keys e^3 on the ejecting arms. By the time this clearance has been taken up by the movement of the spindle E the other surface b^x of the cam B² acts upon the striking arm E' and imparts a sudden rapid movement to the spindle E together with the ejecting arms e' thus promptly ejecting the cartridge case from the breech chamber.

The principal advantage of this type of extractor is that the slow wedging action on the cartridge case followed by the powerful "throw" of the cartridge case is obtained by independent extracting and ejecting arms instead of by a single piece of the kind referred to above. Another advantage is that the parts are simple in construction and necessitate very little cutting away of the effective section of the gun. The idle motion of the spindle E also obviates any additional cutting into the gun for the ejecting arms, which would otherwise be necessary to give free play to the wedging piece or extracting arm e prior to the ejecting arms coming into action.

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

1. In cartridge extracting and ejecting mechanism for ordnance, the combination with the ejecting arms and the short extracting arm between said ejecting arms, of a spindle on which said arms are mounted, and means for connecting the extracting arm and the ejecting arms with said spindle so that lost motion can take place between the extracting arm and the ejecting arms.

2. In cartridge extracting and ejecting mechanism for ordnance, the combination with the extracting arm and the ejecting arms of a spindle on which said arms are mounted, means for rigidly connecting the extracting arm with said spindle, and means for connecting the ejecting arms with the spindle so that relative movement can take place between said spindle and the ejecting arms.

3. In cartridge extracting and ejecting mechanism for ordnance, the combination with the extracting arm and the ejecting arms, of a spindle on which said arms are mounted, a key on said extracting arm fitting in a keyway formed in said spindle, a key of less width than said keyway on each

of the ejecting arms, and means for actuating said spindle when the breech is being opened.

4. In cartridge extracting and ejecting mechanism for ordnance, the combination with the extracting arm and the ejecting arms, of a spindle on which said arms are mounted, a key on said extracting arm fitting in a keyway formed in said spindle, a key of less width than said keyway on each of the ejecting arms, a striking arm on the outer end of said spindle and a cam for actuating said striking arm to rotate the spindle when the breech is being opened.

5. In cartridge extracting and ejecting mechanism for ordnance, the combination with the extracting arm and the ejecting arms, of a spindle on which said arms are mounted, a key on said extracting arm fitting in a keyway formed in said spindle, a key of less width than said keyway on each of the ejecting arms, a striking arm on the outer end of said spindle, and a cam on the carrier hinge pin for actuating said striking arm to rotate the spindle.

6. In cartridge extracting and ejecting mechanism for ordnance, the combination with the extracting arm and the ejecting arms, of a spindle on which said arms are mounted, a key on said extracting arm fitting in a keyway formed in said spindle, a key of less width than said keyway on each of the ejecting arms, a striking arm on the outer end of said spindle, and a cam having two active surfaces which are adapted to successively act on the said striking arm to rotate the spindle.

7. In cartridge extracting and ejecting mechanism for ordnance, the combination with the extracting arm and the ejecting arms, of a spindle on which said arms are mounted, a key on said extracting arm fitting in a keyway formed in said spindle, a key of less width than said keyway on each of the ejecting arms, a striking arm on the outer end of said spindle, and a cam having two active surfaces, which operate on said striking arm to first rotate the said spindle slowly for the extracting operation and then quickly for the ejecting operation.

In testimony whereof we affix our signatures in presence of two witnesses.

ARTHUR TREVOR DAWSON.

GEORGE THOMAS BUCKHAM.

Witnesses:

HENRY KING,
ALFRED PEAKS.