A. T. DAWSON AND G. T. BUCKHAM.

PERCUSSIVE FIRING MECHANISM OF ORDNANCE.

APPLICATION FILED APR. 16, 1915.

1,302,524.

Patented May 6, 1919.

2 SHEETS—SHEET 1.

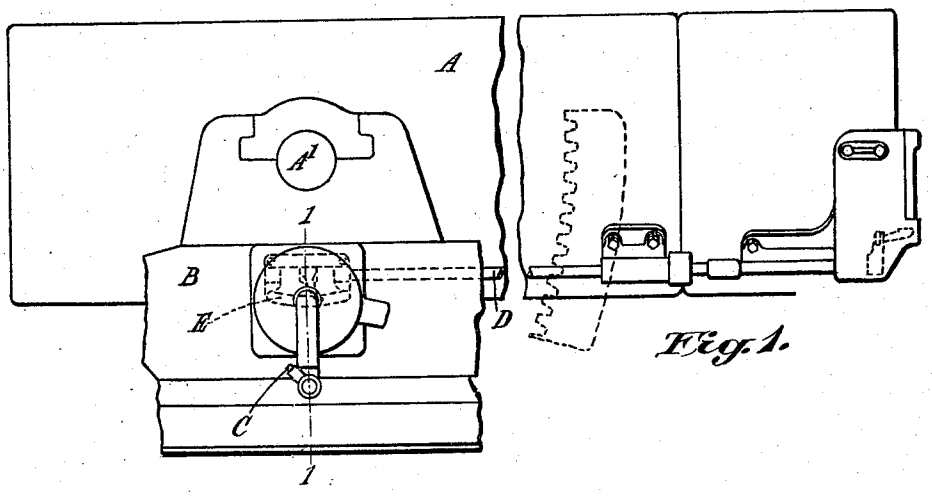


Fig. 1.

Fig. 3.

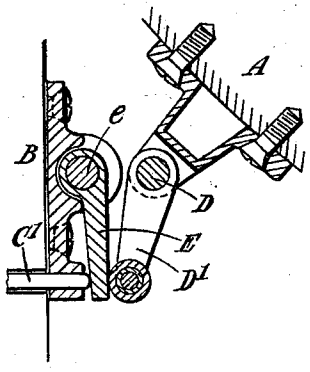


Fig. 4.

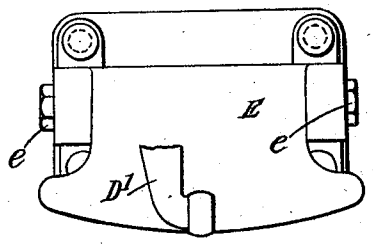
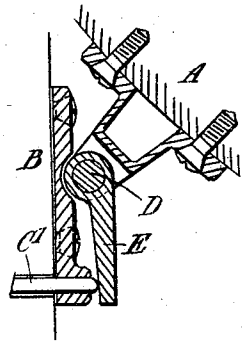


Fig. 7.



Inventors:
Arthur Trevor Dawson
& George Thomas Buckham
By Lennie Laine & Mann
Attys

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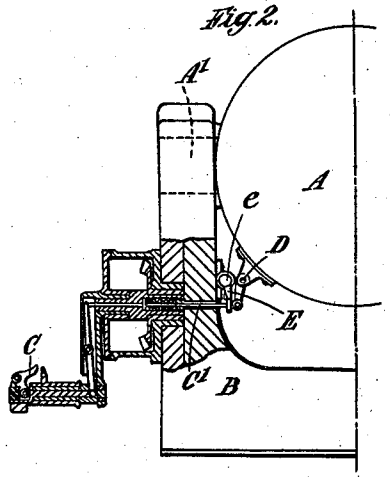
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2 SHEETS—SHEET 2.

Fig. 2.



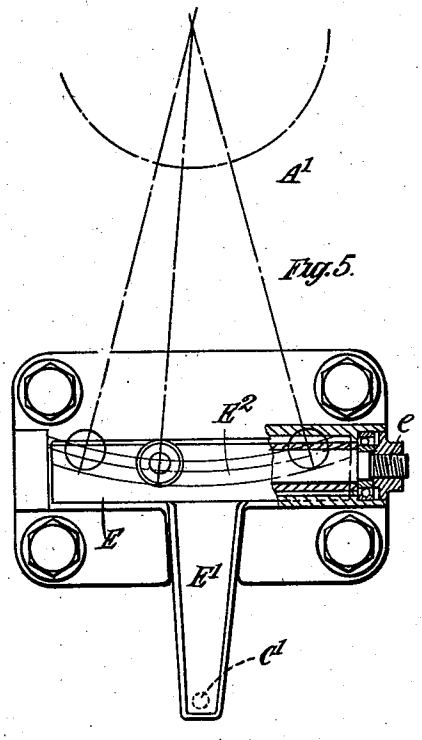
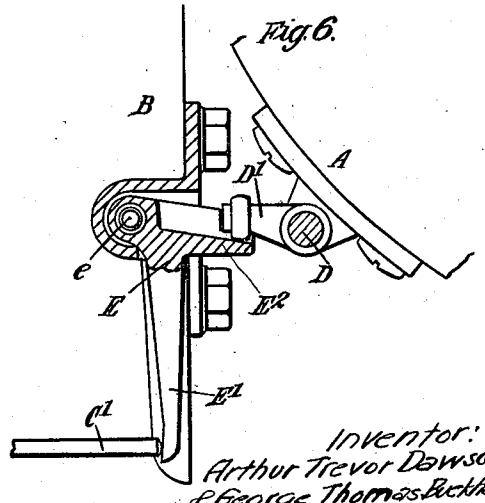


Fig. 5.

Fig. 6.



Inventor:
Arthur Trevor Dawson
& George Thomas Buckham
By Fennemore Craig & Marvin
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR TREVOR DAWSON AND GEORGE THOMAS BUCKHAM, OF WESTMINSTER, LONDON, ENGLAND, ASSIGNORS TO VICKERS LIMITED, OF WESTMINSTER, LONDON, ENGLAND.

PERCUSSIVE FIRING MECHANISM OF ORDNANCE.

1,302,524. Specification of Letters Patent. Patented May 6, 1919.

Application filed April 16, 1915. Serial No. 21,933.

To all whom it may concern:

Be it known that we, Sir ARTHUR TREVOR DAWSON, knight, and GEORGE THOMAS BUCKHAM, both subjects of the King of Great Britain, residing at Vickers House, Broadway, Westminster, in the county of London, England, have invented certain new and useful Improvements in or Relating to the Percussive Firing Mechanism of Ordnance, of which the following is a specification.

This invention relates to percussive firing mechanism of the kind in which the cradle carries a firing shaft adapted to be actuated through the intermediary of a pivoted member from a trigger or firing handle mounted on or carried by a member pivoted on the gun carriage in a position which is some distance removed from the axis of the gun trunnions, and the chief object of the present invention is to provide improved means for actuating a rotary firing shaft without its being necessary to make the said shaft telescopic or provide it with universal joints.

According to this invention the trigger or firing handle is adapted to operate upon the rotary firing shaft through the intermediary of a member which is hinged longitudinally with respect to the gun and is of such formation that the connection between the trigger or firing handle is maintained at all angles of elevation of the gun. The said longitudinally hinged member may be mounted on the carriage and may coöperate with an arm or projection on the rotary firing shaft so that when the said member is rocked by the trigger or firing handle, rotary movement is imparted to the firing shaft and the gun is fired.

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

Figure 1 is a side elevation showing one constructional form of the improved firing mechanism.

Fig. 2 is a section taken approximately on the line 1, 1 of Fig. 1.

Fig. 3 is an enlarged view of part of Fig. 2, and

Fig. 4 is a side elevation showing the formation of the aforesaid member.

Figs. 5 and 6 are respectively a sectional side elevation and a sectional end elevation showing another constructional form of the improved firing mechanism and

Fig. 7 is a view similar to Fig. 3 of a further constructional form of the invention.

A is the gun cradle A′ one of the trunnions, B the carriage, C the trigger or firing handle, and D the rotary firing shaft. E represents the aforesaid member interposed between the trigger or firing handle and the rotary firing shaft, this plate being longitudinally hinged at *e e* to the carriage.

In the examples shown the trigger C is carried by the handle of the elevating or training hand wheel or lever which is mounted on the carriage in a position which is eccentric with the gun trunnion. This trigger actuates a sliding rod C′ arranged axially within the boss of the hand wheel as is well understood.

The outer end of the rod C′ rests in contact with the outer surface of the member E which in the example shown by Figs. 1 to 4 is in the form of a plate arranged more or less vertically. In contact with the inner surface of the plate E is a roller carried by an arm D′ on the rotary firing shaft D, and the plate is shaped (as shown in Fig. 4 for example) so that the said roller remains in contact with the plate at all angles of elevation of the gun.

In the example shown by Figs. 5 and 6 the member E is in the form of a downwardly extending arm E′ and an inwardly projecting ledge E^2. The sliding rod C′ rests in contact with the outer surface of the arm E′ and the ledge E^2 has a curved surface which as shown in Fig. 5 is concentric with the gun trunnions. In contact with this curved surface is a roller carried by an arm D′ on the rotary firing shaft D.

The hinges *e e* of both the aforesaid forms of plate may be supported in roller or ball bearings.

It will be understood that the member E instead of being a separate member interposed between the trigger or firing handle and the rotary firing shaft D, can be rigidly connected to the said shaft as shown by Fig. 7.

The rotary firing shaft D may actuate a spring plunger for engaging with a sleeve carried by the gun in a similar manner to that set forth in the specification of our prior British Patent No. 16216 of 1911.

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

1. In percussive firing mechanism for ordnance, the combination with the manually operated firing device arranged on the gun carriage in a position which is some distance removed from the gun trunnions, of a rotary firing shaft carried by the gun cradle, a longitudinally pivoted member for transmitting movement thereto, and a member operated by said firing device, said members being in loose contact with one another at all angles of elevation of the gun notwithstanding the movement taking place between said members during the elevation of the gun.

2. In percussive firing mechanism for ordnance, the combination with the manually operated firing device arranged on the gun carriage in a position which is some distance removed from the gun trunnions, of a rotary firing shaft, a longitudinally pivoted member, means for transmitting movement from said firing device to said member, and an arm on said shaft in loose contact with said member at all angles of elevation of the gun.

3. In firing mechanism for ordnance, the combination with the gun elevating device pivoted on the gun carriage in a position which is some distance removed from the gun trunnions, of a trigger on said elevating device, a rotary firing shaft, a longitudinally pivoted member, means for transmitting movement from said trigger to said member, and an arm on said shaft in loose contact with said member at all angles of elevation of the gun.

4. In percussive firing mechanism for ordnance, the combination with the manually operated firing device arranged on the gun carriage in a position which is some distance removed from the gun trunnions, of a rotary firing shaft, a member, means for pivotally supporting said member longitudinally with respect to the gun, means for transmitting movement from said firing device to said member, and an arm on said shaft in loose contact with said member at all angles of elevation of the gun.

5. In firing mechanism for ordnance, the combination with the gun elevating device pivoted on the gun carriage in a position which is some distance removed from the gun trunnions, of a trigger on said elevating device, a rotary firing shaft, a member, means for pivotally supporting said member longitudinally with respect to the gun, means for transmitting movement from said trigger to said member, and an arm on said shaft in loose contact with said member at all angles of elevation of the gun.

6. In percussive firing mechanism for ordnance, the combination with the manually operated firing device arranged on the gun carriage in a position which is some distance removed from the gun trunnions, of a rotary firing shaft, a vertically disposed plate, means for pivotally supporting said plate longitudinally with respect to the gun, means for transmitting movement from said firing device to said plate, and an arm on said shaft in loose contact with said plate at all angles of elevation of the gun.

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

ARTHUR TREVOR DAWSON.
GEORGE THOMAS BUCKHAM.

Witnesses:
HENRY KING,
JNO. R. CASWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."