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A. T. DAWSON &amp; G. T. BUCKHAM.

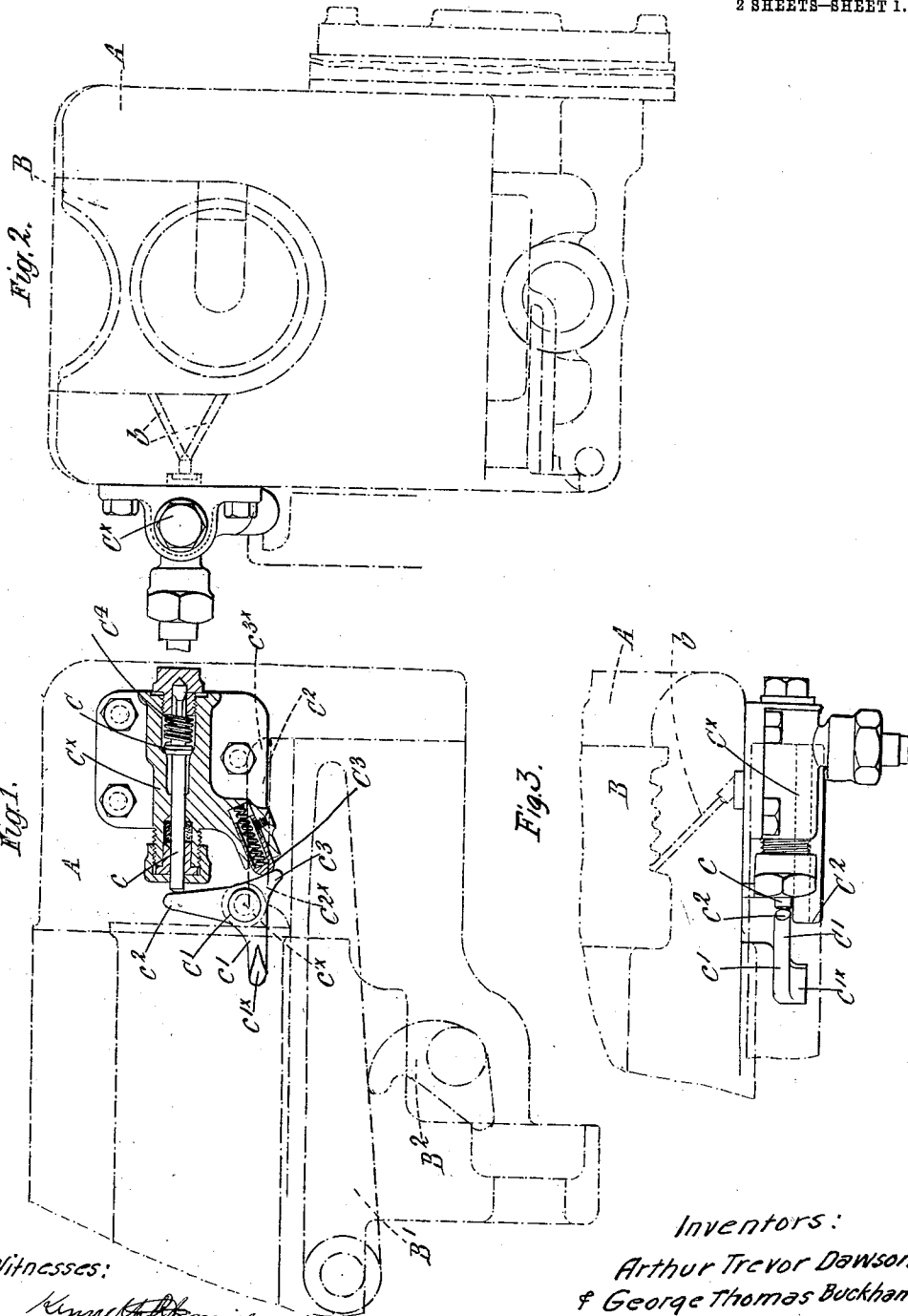
BREECH LOADING ORDNANCE.

APPLICATION FILED FEB. 27, 1911.

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Patented June 10, 1913.

2 SHEETS—SHEET 1.



Witnesses:

*Kimberly & Co.*  
*Josephine McLeod*

Inventors:

Arthur Trevor Dawson  
 & George Thomas Buckham

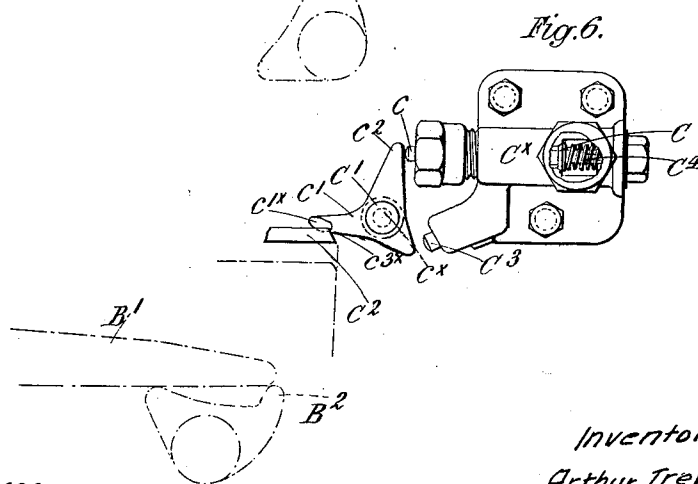
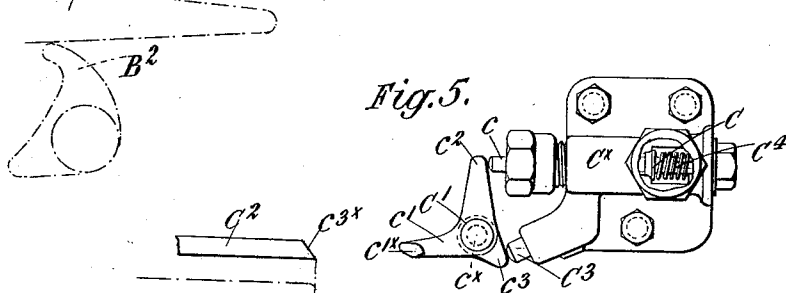
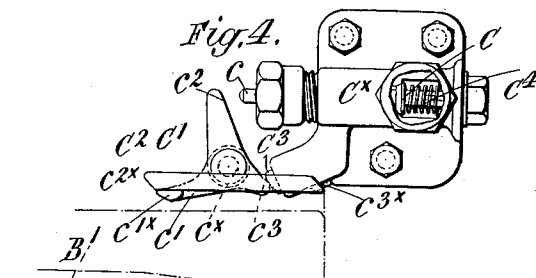
By *Reynolds & Goldsborough*  
 Attys.

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2 SHEETS-SHEET 2.



Witnesses:

*George T. Buckham*  
*Arthur Trevor Dawson*

Inventors:

*Arthur Trevor Dawson*  
*& George Thomas Buckham*  
*By Penne & Goldborough*  
*Attys.*

# UNITED STATES PATENT OFFICE.

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

## BREECH-LOADING ORDNANCE.

1,064,197.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed February 27, 1911. Serial No. 611,250.

*To all whom it may concern:*

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

This invention relates to breech loading ordnance of the kind in which a valve is provided for controlling a supply of compressed air or other suitable fluid to the breech during the run out movement of the gun with the object of obviating the backward rush of flame or hot gases, which is liable to occur on opening the breech when the gun is fired in a head wind, and also with the object of effectually clearing the bore of the gun of any combustible matter which may remain therein after firing.

The chief object of the present invention is to provide improved apparatus of this kind for use with ordnance of the semi-automatic type; our improved apparatus being characterized by simplicity in construction and by the fact that it does not interfere with the rapid assembling or dismantling of the breech mechanism.

According to our invention the valve for controlling the supply of the compressed air or other fluid is under the influence of a device which is so constructed and arranged that at a suitable period during the run out movement of the gun after recoil it coöperates with a member that causes said valve to open and allow the compressed fluid to enter the gun breech until just before the run out movement of the gun is completed. The said device for controlling the aforesaid valve may be rotatably mounted on the gun and near the breech end thereof and may be provided with a lateral projection for co-operating with inclines on the aforesaid member which is situated on a non-recoiling part of the gun. This member is of such a character that during recoil the said device is angularly displaced without operating the

valve, but on the run out movement the said device is displaced to open the valve and retain it open until just before the run out movement is completed.

In order that our 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 of the breech end of a gun provided with our improved apparatus, the valve casing being shown in section. Figs. 2 and 3 are respectively a rear view and a plan of Fig. 1. Fig. 4 is a side elevation showing the position of the parts during the recoil movement. Fig. 5 is a similar view showing the position of the parts when the gun is in the recoiled position, and Fig. 6 is a view showing the position of the parts during the run out movement of the gun, the valve having just been opened.

In these figures, which show the invention applied to a semi-automatic gun, A is the breech end of the gun, B is the sliding breech block, B', B<sup>2</sup> are the pawl and cam of the breech actuating mechanism and C is the valve for controlling the supply of compressed air or other fluid to the breech.

C' is the device for controlling the valve, and C<sup>2</sup> is the member with which the said device coöperates. The said device C' is in the form of a lever provided with three arms c', c<sup>2</sup>, c<sup>3</sup>, one (c') of which carries the aforesaid lateral projections c'<sup>x</sup>, another (c<sup>2</sup>) normally bears against the end of the stem c of the valve C, and the third (c<sup>3</sup>) is in engagement with a spring controlled plunger C<sup>3</sup> which is mounted in the valve casing C<sup>4</sup> attached to the gun. The aforesaid member C<sup>2</sup> that coöperates with the lateral projection c'<sup>x</sup> on the valve lever, is in the form of a bar attached to the cradle and having its forward and rear ends formed with inclined surfaces c<sup>2x</sup>, c<sup>3x</sup> substantially parallel to each other. When the gun recoils, the said lateral projection c'<sup>x</sup> strikes the incline c<sup>2x</sup> at the forward end of the bar C<sup>2</sup> (which by being attached to the cradle

is of course stationary) thereby causing the lever C' to rock about its pivot  $c^x$  and compress the aforesaid spring plunger C<sup>3</sup> by means of the arm  $c^3$ . During this movement of the valve lever the arm  $c^2$  appertaining to the valve C moves away from the valve stem and the valve is therefore not operated; this position of the parts is shown in Fig. 4. The valve lever C' clears the bar C<sup>2</sup> before the completion of the recoil movement of the gun, and the said lever is then returned to the normal position shown in Fig. 5 by its spring plunger C<sup>3</sup>. As the gun returns to the run out position, the aforesaid lateral projection  $c'^x$  on the valve lever C' coöperates with the inclined surface  $c^x$  of the bar as shown in Fig. 6, and the said valve lever C' is thereby rotated in the reverse direction to that described above with the result that the control valve C is actuated to allow the compressed air or other fluid to enter the gun breech through the passages  $b$  (Figs. 2 and 3). The supply of fluid persists until the gun has completed its return movement when the aforesaid projection  $c'^x$  moves out of contact with the bar C<sup>2</sup>, and the valve C and the valve lever C' are then returned to their normal position by the spring C<sup>4</sup> appertaining to the valve.

The valve lever C' and the bar C<sup>2</sup> are so arranged in relation to the pawl B' and the cam B<sup>2</sup> or other automatic means for actuating the breech mechanism, that the valve is opened when the cartridge case is being ejected from the gun. The positions of the said pawl and cam with relation to the various positions of the valve actuating means are clearly shown in Figs. 4, 5 and 6. What we claim and desire to secure by Letters Patent of the United States is:—

1. In breech loading ordnance, the combination with a valve carried by the gun for controlling a supply of compressed fluid to the breech, of a device also carried by the gun and coöperating with said valve, a relatively stationary member with which said device coöperates to open the valve during the run out movement of the gun, and means for automatically closing the valve at substantially the completion of the run out movement of the gun.

2. In breech loading ordnance, the combination with a valve carried by the gun for controlling a supply of compressed fluid to the breech, of a device coöperating with said valve, a relatively stationary member with which said device coöperates to open the valve during the run out movement of the gun, and means for automatically closing the valve at substantially the completion of the run out movement of the gun.

3. In breech loading ordnance, the combi-

nation with a valve carried by the gun for controlling a supply of compressed fluid to the breech, of a device also carried by the gun and coöperating with said valve, a relatively stationary member with which said device coöperates to open the valve during the run out movement of the gun and to retain said valve open until just before the run out of the gun is completed, and means for automatically closing the valve at substantially the completion of the run out movement of the gun.

4. In breech loading ordnance, the combination with a valve carried by the gun for controlling a supply of compressed fluid to the breech, of a device coöperating with said valve, a relatively stationary member with which said device coöperates to open the valve during the run out movement of the gun, and to retain said valve open until just before the run out of the gun is completed, and means for automatically closing the valve at substantially the completion of the run out movement of the gun.

5. In breech loading ordnance, the combination with a valve carried by the gun for controlling a supply of compressed fluid to the breech, of a device also carried by the gun and coöperating with said valve, a lateral projection on said device, a relatively stationary member with which said projection engages to open the valve during the run out movement of the gun, and means for automatically closing the valve at substantially the completion of the run out movement of the gun.

6. In breech loading ordnance, the combination with a valve for controlling a supply of compressed fluid to the breech of a device coöperating with said valve, a lateral projection on said device, a bar carried by the cradle and formed with inclined surfaces with one of which said projection engages to open the valve during the run out movement of the gun, and means for automatically closing the valve at substantially the completion of the run out movement of the gun.

7. In breech loading ordnance, the combination with a valve for controlling a supply of compressed fluid to the breech, of a lever having three arms, one of which engages with said valve, a lateral projection carried by another arm, a spring controlled plunger engaging with the third arm, and a bar carried by the cradle and having inclined surfaces with one of which said lateral projection engages to open the valve during the run out of the gun.

8. In breech loading ordnance, the combination with a valve for controlling a supply of compressed fluid to the breech, of a lever having three arms, one of which engages with said valve, a lateral projection carried

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by another arm, a spring controlled plunger  
engaging with the third arm, a bar carried  
by the cradle and having inclined surfaces  
with one of which said lateral projection en-  
gages to open the valve during the run out  
5 of the gun, and means for automatically  
closing the valve at substantially the comple-  
tion of the run out movement of the gun.

In testimony whereof we affix our signa-  
tures in presence of two witnesses.

ARTHUR TREVOR DAWSON.  
GEORGE THOMAS BUCKHAM.

Witnesses:

CHAS. GOLDSMITH,  
HENRY KING.

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