(No Model.)

M. WHEELER.

BREECH LOADING ORDNANCE.

No. 343,556. Patented June 8, 1886.

Fig. 2.

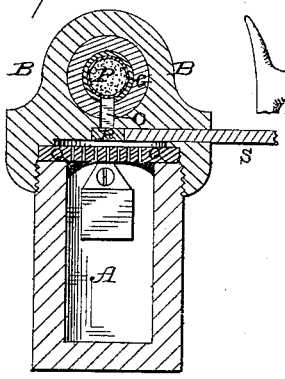


Fig. 1.

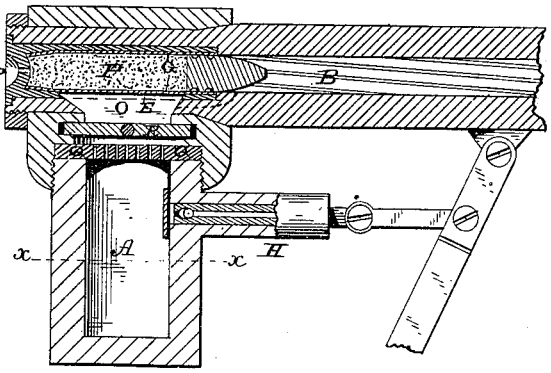


Fig. 3.

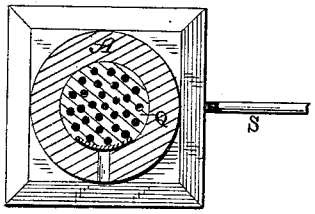


Fig. 4.

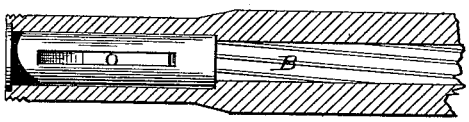
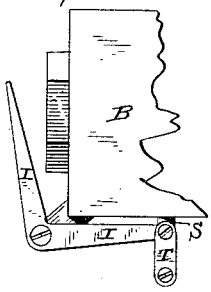


Fig. 5.

Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

MARSHAL WHEELER, OF WASHINGTON, DISTRICT OF COLUMBIA.

BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 343,556, dated June 8, 1886.

Application filed November 23, 1885. Serial No. 183,761. (No model.)

To all whom it may concern:

Be it known that I, MARSHAL WHEELER, of Washington, District of Columbia, have invented certain new and useful Improvements in Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in fire-arms and ordnance; and it consists in, first, the combination of the breech end of the barrel, having a slot or opening through it, with an air-chamber for holding compressed air, which escapes into the barrel at the same time that the discharge takes place, and a perforated plate placed between the air and breech chambers, so as to prevent the flame of the powder-gas from passing into the chamber; second, the combination of the breech end of the barrel, having a slot or opening through it, an air-chamber for holding compressed air, a perforated plate, a pump or other mechanism for compressing the air in the chamber, and a suitable sliding valve or other equivalent device, which prevents the escape of the compressed air from the chamber until the discharge takes place, all of which will be more fully described hereinafter.

The object of my invention is to connect to the breech end of a fire-arm or a piece of ordnance of any kind a chamber holding compressed air or gas, and which air or gas is discharged into the breech end of the barrel at the same time that the discharge occurs, so as to not only furnish oxygen to enable a perfect combustion of the powder to take place, and thus enable the powder to exert its full pressure upon the bullet or other projectile, but to prevent any report which may arise from the rush of air into the vacuum which has been formed in the chamber by the discharge, and to lessen the recoil of the piece.

Figure 1 is a longitudinal vertical section of a fire-arm embodying my invention. Fig. 2 is a vertical section taken at right angles to Fig. 1. Fig. 3 is a horizontal section taken through Fig. 1 on the lines *x x*. Fig. 4 shows a vertical section taken through the breech end of the barrel, and showing the slot which is made through its rear end. Fig. 5 is a detached view of the cartridge-shell, showing the opening made through its side. Fig. 6 is a plan view of the breech end of the barrel, showing the lever by means of which the slide is operated.

B represents the barrel of a breech-loading rifle fire-arm or piece of ordnance, of any size or construction that may be preferred, as my invention is adapted to be used in connection with fire-arms of all kinds and sizes.

In one side of the breech end of the barrel is formed a slot, O, of any suitable size or shape, just opposite the charge of powder contained in the cartridge P.

Screwed or otherwise connected in any suitable manner to the breech end of the barrel, just opposite the slot O, is an air-chamber, A, of any desired shape, size, or construction, but which should be of sufficient strength to withstand a high degree of pressure. Between the inner end of this chamber A and the slot O in the barrel is placed the plate Q, which is provided with a suitable number of small openings, as shown in Fig. 3, for the purpose of preventing the flame of the powder-gas from entering the body of the air-chamber, and the slide R, which shuts off all communication between the air-chamber and breech end of the barrel until a discharge is just about to take place. The air is compressed in the chamber A by means of an air-pump, H, of any suitable construction, which is applied to the barrel either as here shown or in any other manner that may be preferred.

I do not limit myself in regard to the kind of compressor that is used, for any means which can be successfully used for compressing air or gas in this connection may be substituted for the air-pump here shown.

In forts where the air or gas is to be supplied to the air-chambers connected to the large pieces of ordnance, connection may be made with any suitable reservoir which is located at any convenient point.

The slide R has an arm or projection, S, extending through the side of the barrel or the upper end of the air-chamber, and this end is connected by a suitable pivoted joint, T, with the lever I, which is to be struck by the falling of the hammer an instant before it strikes the cap of the cartridge P. When the lever I

is moved by the hammer, just previous to the discharge, the slide is moved so as to uncover the slot O, and thus permit the air or gas in the chamber A to escape therefrom and press against the side of the cartridge P at the instant of discharge. This cartridge P, as here shown, consists of a metallic shell having a slot or opening, E, through its side, and which slot E corresponds to the slot O through the breech-chamber of the barrel. In filling this shell a paper tube or cylinder, G, is first placed inside of the shell, so as to close the slot E, and then the powder is poured into the shell and paper cylinder, and then the bullet is inserted. When the discharge takes place, the gas bursts the paper cylinder G and passes through the slot O toward the air-chamber, rarefying and compressing the air or gas to a still greater degree, as the ball or projectile moves outward through the barrel, and the air from the chamber furnishing oxygen to the burning powder, so as to enable a complete combustion to take place in the barrel B, instead of having a large portion of the powder burned only after it has passed outside of the muzzle of the gun, as is now the case with guns of the present construction. The air from this chamber A continues passing through the barrel for some seconds after the discharge has taken place, and at a much greater pressure than the pressure of the external atmosphere. The consequence is, that there is no rushing into the barrel of the external atmosphere to fill the vacuum which has been formed by the discharge, and hence all or a greater portion of the report which follows a discharge is either prevented or softened to a very great extent. As this compressed air furnishes oxygen to the powder and enables a perfect combustion of the powder to take place in the barrel of the gun, much lighter charges of powder can be used and with the same effective results than is used at the present time. Even if the report is not deadened or entirely prevented, the saving in powder alone will be very great.

As here shown, a metallic cartridge-shell is used; but in heavy ordnance no shell is necessary, for the air may come directly against the side of the flannel bag which contains the powder, if so desired.

Where this invention is used in connection with heavy ordnance, and compressed air is used in the chamber A, the slide R may be connected to the lanyard so as to be operated just before or at the same time the fuse is ignited. A little slack of the lanyard between the arm S and the fuse will cause the slide R to be moved before the fuse is ignited.

In case it is desired to use the air-chamber in connection with the cartridges of the present construction, and which have no slots E through their shells, the slot O may be made to commence beyond the end of the shell, in which case the powder-gas will pass into the slot O backward through its front end, instead of bursting directly into it, as above described.

I do not limit myself to any mere details of construction as here shown, for they may be varied at will without departing from the spirit of my invention. The air-chamber, for instance, may be placed in the stock of a rifle or shotgun or located in any other convenient place.

Instead of a flat valve being used in the air-chamber, as is here shown, a valve of any other construction may be used.

It is not altogether necessary that compressed air should be used in the chamber A, for the atmosphere which is contained therein will furnish oxygen enough to the breech end of the barrel to enable a perfect combustion of the powder to take place.

I am aware that it is old in pneumatic ordnance to place a cartridge in the rear of a projectile in a barrel and to separate this cartridge from the compressed-air chamber by means of a valve, and this I disclaim. My invention differs from this, in placing a perforated plate between the breech-chamber and the compressed-air chamber, so that the flame of the powder-gas cannot pass into the chamber and consume the air. In my invention the compressed air acts not to assist in propelling the projectile, but to prevent recoil, to assist in a more perfect combustion of the powder, and to deaden the report.

Having thus described my invention, I claim—

1. The combination of the barrel of a fire-arm in which powder is used to propel the projectile, and having a slot or opening through its breech-chamber, with an air-chamber which is connected to this slot or opening, and which chamber is provided with a perforated plate, to prevent the passage of the flame into the chamber, substantially as set forth.

2. The combination of a barrel of a fire-arm having a slot or opening through its breech-chamber, an air-chamber which communicates with this slot or opening, a perforated plate which is placed between the end of this chamber and the slot in the breech-chamber of the barrel, and a slide which is placed between the slot in the breech-chamber and the perforated plate, and an arm or lever connected to this slide, and which is operated by the hammer of the gun, substantially as specified.

3. The combination of the barrel of the fire-arm having a slot or opening through its breech-chamber, the cartridge-shell having a slot, E, through its side, corresponding to the same, the paper cylinder G, which closes this slot, and the compressed-air chamber, which communicates with the slot O, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MARSHAL WHEELER.

Witnesses:
F. A. LEHMANN,
L. L. BURKET.