

UNITED STATES PATENT OFFICE.

FREDERICK CURTIS, OF NEWTON, ASSIGNOR TO EDWARD H. ASHCROFT AND JOHN B. ALLEY, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 33,317, dated September 17, 1861.

To all whom it may concern:

Be it known that I, FREDERICK CURTIS, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare that the same are fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1 denotes a vertical and longitudinal section of a carbine constructed in accordance with my invention. Fig. 2 is also a vertical and longitudinal section, showing the breech-carrier drawn down and the breech withdrawn from the barrel. Fig. 3 is a horizontal section, and Fig. 4 a top view, of the said fire-arm. Fig. 5 is a side view of the movable breech or breech-pin as removed from the gun. Fig. 6 is a section of the expanding tube, to be hereinafter described. Figs. 7 and 8 are side views of the two portions of the guard, hereinafter described.

It is well known that one of the objections to the majority of breech-loading fire-arms in use is the inability to run or compress the powder within the barrel, as the cartridge, being inserted therein by the fingers, must necessarily lie loosely therein. Another serious objection is the liability of the working parts of the gun to become fouled by the gas and dirt from the explosion of the powder, and render it difficult, and oftentimes impossible, after a number of successive discharges, to work the piece. In Maynard's patent fire-arm, by the use of a metallic cartridge-case, he is enabled to keep the joint between the barrel and breech-seat comparatively clean and tight; but there are a number of objections to the said gun, such as the necessity of always having a supply of cartridge-cases, and the difficulty of withdrawing them from the barrel after each discharge. I have endeavored in my invention to combine the expanding tube or chamber with the movable breech-pin; and in such a manner that I gain all the advantages of the cartridge-case without its objections.

In the drawings above referred to, A denotes the barrel of the fire-arm, and *a* the bore of the same.

B is the movable breech or breech-pin, and

C the breech-carrier, the breech-pin being connected to the breech-carrier by means of a pin, *b*, and slot *c*, as seen in the drawings.

D is the guard for protecting the trigger *s*, and which serves at the same time, by means of a hooked projection, *e*, on its upper portion, and which hooks onto or over a corresponding catch, *f*, formed in the body or frame of the gun, to retain the breech-pin and its carrier in place during the discharge of the piece. The said guard D is made in two parts, *a*²*b*², which are hinged together and turn freely on and are connected with the breech-carrier by a pin or journal, E, as seen in Fig. 9, which is a vertical and transverse section of the fire-arm. The lower part, *b*², of the guard is formed with a shoulder, Figs. 1 and 8, *e*², which bears against the part *a*² of the guard, as seen in Fig. 1. When the lower part of the guard is drawn down, its shoulder *e*² will remove the hook *e* from the catch *f* and allow the breech-carrier to rotate. The rear part of the breech-carrier C is formed with a recess, *g*, in such manner that when the lower part of the guard has been drawn down sufficiently far to remove the hook *e* from the catch *f* its front part shall bear against the end of the recess *g*, and thus form a leverage for rotating the breech-carrier, as seen in Fig. 2, and withdrawing the breech-pin from the barrel. After the cartridge has been inserted within the barrel by turning back the breech-carrier by means of the guard D the breech-pin will be inserted within the barrel and the hook be forced over its catch *f* and retain the breech-pin in its place against the force of the explosion. A stout spring, *e*², is secured to the frame of the gun, and presses against the upper part of the portion *a*² of the guard, and serves to keep the guard in place against any sudden jar of the piece. The breech-carrier is furthermore provided with a recess, *f*², which contains a spiral spring, *g*², which presses against the lower rear part of the breech, and serves to retain it in the same position with regard to the breech-carrier that it has when it leaves the barrel.

It will be observed by referring to the drawings that the rear part of the bore of the barrel is made slightly larger than the rest, and of such a length that when the cartridge is in-

served within the bore the ball will bear against the slightly-raised shoulder a^3 . Under these circumstances, when the breech-pin is inserted into its place within the barrel, the powder will be compressed tightly within the bore and the end of the cartridge be punctured by the punching-nipple e' .

The movable breech is provided with an expansion tube or chamber, b' , which is fitted to it, as seen in the drawings, and secured thereto by the punching-nipple, which is screwed into it and the breech.

G denotes the percussion-nipple, which is placed on the upper part of the breech, and which connects with the bore of the barrel by the touch-hole or vent d' through the punching-nipple e' .

The gun is provided with a lock and hammer, in the usual manner.

The tube b' expands under the explosion of the powder, and during a large number of discharges will keep a perfectly clean tight joint between its outer surface and the bore of the barrel.

It is evident that slight modifications may be made of some of the parts without at all affecting the nature of the invention. For instance, the movable breech B may have trunnions and rock inside of the breech-carrier C; and, again, the configuration of the guard D and hook attached may vary slightly, and the same functions be preserved as shown in dotted lines in Figs. 7 and 8.

I do not claim making a fire-arm with a

movable expanding chamber to receive the whole charge, as in the case of E. L. Wright and T. P. Gould's Patent No. 22,325; nor do I claim constructing a movable breech in one piece and introducing it into the barrel on a taper, as in the case of F. D. Newbury's patent, August 12, 1856.

I claim—

1. Constructing the breech-pin and breech-carrier of a fire-arm in two parts, and so connecting them together as to be enabled to introduce and withdraw the said breech-pin into and from the bore of the barrel in the line of its axis, substantially in manner and for the purpose as above described.

2. In combination with the breech-carrier and the breech proper, when the two are jointed together, as described, a spring so arranged in relation to the said breech as to retain it in the same position with regard to the breech-carrier that it has when it leaves the barrel, and so as to establish a yielding connection of the parts, as herein set forth.

3. The peculiar construction of the guard D and its relation to the catch f , the trigger, and the working parts of the gun, substantially as hereinbefore described.

In testimony whereof I have hereunto set my signature this 27th day of June, 1861.

FREDERICK CURTIS.

Witnesses:

WILLIAM E. SMITH,
B. W. DUNKLEE.