

United States Patent Office.

ELI WHITNEY, OF NEW HAVEN, CONNECTICUT.

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IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ELI WHITNEY, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new and improved Breech-Loading Arm; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of a double-barrel shot-gun, having my invention applied to it.

Figure 2 is a top view of the gun, with the barrels moved away from the breech-head, as in fig. 1.

Figure 3 is a longitudinal central section through the piece, with the barrel in a position for firing.

Figure 4 is a longitudinal section through one of the barrels, and its breech-closer, with a cartridge-shell, in proper position.

Figure 5 is a view of the breech ends of the two barrels.

Figure 6 is a view of the front end of the breech-closer.

Similar letters of reference indicate corresponding parts in the several figures.

The first part of my invention relates to an improvement in constructing double-barrel shot-guns for fixed ammunition, whereby both barrels can be moved forward and backward, in a line coinciding with their axes, by means of a guard-lever, for the purpose of exposing their breech-ends for receiving the cartridges, and admitting of the removal of the shells after the discharge of the loads. At the same time I make provision for firmly supporting both barrels and uniting them together, and resisting any movement of them consequent upon a discharge of the piece, as will be hereinafter described.

The second part of my invention relates to improvements on double or single-barrel side-arms, and consists in constructing the breech-closer on the forward end of a solid lock-frame, and adapting this closer to serve as a solid abutment, and also a receiver for the butt of a flanged cartridge and the reduced end of the barrel, as will be hereinafter described.

It also consists in the application of spring-extractors to the frame of the arm, for receiving and extracting the cartridge-shells during the act of moving the barrel or barrels of the piece forward in a right line, said springs being pivoted at their rear ends so as to arrest and hold the shells, as will be hereinafter described.

It also consists in adapting a side-arm, either double or single barrel, which has a movable barrel and stationary breech, to receive cartridge-shells which are constructed with a projecting percussion-pin, that is struck by a hammer that is located outside of the frame of the piece, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the frame of the piece, which is cast hollow, to receive within it the lock, the hammers E being applied to pins *a*, which have their inner end bearings in a central partition, A¹, and their outer end bearings in circular plates *a'*, which latter are fitted into holes that are made through the sides of the frame. The forward portion of the frame A has two circular enlargements formed on it, which are lettered *b b*, and will be hereinafter more fully explained. Below these enlargements *b b* the frame A is extended out so as to form receptacles A² A² for the wooden forked pieces A³ A³, that serve, in conjunction with the metallic projections A² A² of the frame, as supports and guides for the two barrels B B. The inner surfaces of these wooden guides A³ are parallel to each other, and, being separated, they form a slot for the reception of a long tenon, B', that projects from the barrels, as shown in figs. 1, 3, and 5. The guides A³ are secured rigidly to the projecting metallic portions A² of the frame A, and they are connected together by a bridge-piece, *c*, which is situated in front of the abutting portions *b b*, as shown in figs. 2 and 3. These guides are further strengthened by means of transverse pins, as will be further described.

The two barrels B B are firmly secured together by means of the web *d* and the central tenon B', these parts being brazed to the barrels, or secured to them in any other suitable manner. The long tenon B', which projects down between the two barrels, has a longitudinal slot, *d'*, through it, through which pass transversely two pins *e e'*, which serve to connect the barrels to the frame of the piece.

These two barrels B B are moved forward and backward in a right line, by means of two levers C O'. The lever C is pivoted at *f* to the rear end of the slotted tenon B', and also to the lever O' at *f'*. The lever O' is pivoted at *g* to the frame, by means of a transverse pin *g*. When the guard-lever O' is moved forward to the position shown in fig. 1, the two barrels B B are moved forward, so as to leave a space between their

breech-ends and the enlarged abutments *b b*, as shown in figs. 1 and 2. In this position of the barrels, the cartridges can be readily introduced into them, or the cartridge-shells can be removed from said breech-closers. When the guard-lever is drawn back to the position shown in fig. 3, the two barrels *B B* will be brought snugly against the breech-closers *b b*, and locked in this position by means of said guard-lever being brought in or nearly in a line parallel to the axes of the barrels, and secured in this position by means of a latch or other convenient fastening placed at the rear end of said lever. A tongue or tenon, *g'*, projects from the upper edge of the guard-lever *C'*, and enters a slot or depression which is made in a lower web, which is between the barrels, and greatly assists in holding the barrels to their place during the discharge of the piece. The two levers, *C* and *C'*, are so shaped and put together that when the barrels are in position for firing the piece, these levers will lie closely within their slot, and offer no obstruction to the handling of the piece.

The enlarged and rounded abutments *b b*, which are formed on the front end of the frame *A*, which encloses the lock, have annular recesses formed in them, for the purpose of receiving the annular flanges on the butts of the cartridge-shells, as shown in figs. 4 and 6, and these abutments *b b* are also recessed, for the purpose of receiving the annular flanges *h h*, which are formed on the breech-ends of the barrels. These abutments, therefore, serve as seats for the cartridges and breech-closers for the barrels, when the latter are in the position shown in figs. 3 and 4.

The cartridge-shells may be made of copper, steel, or other suitable metal, and I intend providing each shell with a percussion or firing-pin, *i*, which passes through the shell just in front of its flange, and is seated upon a percussion-cap, which is held in a recess in the butt of the shell, as shown in figs. 4 and 6. I desire to construct these cartridge-shells in such manner that they can be used for an indefinite length of time, and reloaded by the gunner at pleasure. For this purpose I prefer to make the shells of steel, with their front edges very thin, and their butts sufficiently thick to have a recess in them for the reception of a percussion-cap, or priming of any suitable description.

By reference to figs. 2, 4, 5, and 6, it will be seen that I have made short notches *j k* in the portions *b b* and *h h*, for the reception of the upright pin *i*. These notches allow the pins *i* on the cartridges to project from the enlargements *b b*, to be struck by the hammers *E*, and at the same time these notches allow the barrels *B B* to be brought snugly home in the recesses in said enlargements to effectually close and support the breech-ends of the barrels.

The hammers *E* are constructed so as to strike upon the rounded surfaces of the enlargements, which receive through them the firing-pins, so that these pins *i i* will not receive an undue blow, but only sufficient to explode the cap or percussion-powder at the inner ends of said pins. The cartridge-shells and their pins will thereby be prevented from receiving serious injury by repeated use.

I desire to extract the cartridge-shells from the barrels, and to retain them in the position shown in figs. 1 and 2, when the barrels are moved forward, so that the shells can be taken by hand from the extractors, and put away for further use. For this purpose I employ two springs *G G*, of the character shown in figs. 1 and 4, and pivot both of these springs to the frame of the piece by means of a transverse pin, *k'*. The body of each spring lies in a slot which is made in the wooden portion of the frame, and it is pivoted at its rear end, so that its forward end lies loosely in the slot. The thin spring tongue curves upward and backward, and terminates at a point which is just in front of the flange of a cartridge when inserted in the breech *b*, as shown in figs. 1 and 4. The cartridges are inserted into the breech-ends of the barrels, when these barrels are in the position shown in figs. 1 and 2, the pins *i i* on the cartridges projecting upward through the notches *j j*. The barrels are then brought back, and the flanged butts of the cartridge-shells seated in their respective recesses in the breech-pieces *b b*, as shown in fig. 4. This movement will bring the rear ends of the springs *G G* in front of the flanges on the cartridge-shells, so that, when the barrels are again moved forward, the shells will be retained by the springs, as shown in figs. 1 and 2, and may be readily removed by hand, and reserved for further use. It is not desired that the springs shall eject the shells from the piece, for in this case they would, in many instances, be lost. Hence the plan is adopted for holding the shells after they have been extracted from the barrels. The extracting-springs *G G* press the rear ends of the shells upward in their recessed breech-closers *b b*, and thus hold them after the barrels have been moved forward.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The construction of the slotted and grooved tenon *B'* on a double-barrel breech-loading shot-gun, substantially in the manner and for the purpose described.
2. The manner, substantially as herein described and shown, of constructing, arranging, and combining the stock, the lock, the barrels, the levers, and the slotted grooved tenon *B'*, for the purpose set forth.
3. Pivoting the spring-extractors *G*, which are constructed and arranged as described, at their rear ends, as and for the purpose set forth.
4. The construction of the breech-closers *b*, and the hollow metallic lock-frame, in the manner and for the purpose described, in combination with the reduced breech-end of the sliding barrels, as described.
5. The open slots *k k*, in combination with the open slots *j j*, substantially in the manner and for the purpose described.
6. The slotted and grooved tenon *B'*, attached firmly between the two barrels *B B*, and connected to a forked frame, *A³ A³*, and to two levers *C C'*, all substantially in the manner and for the purpose described.

ELI WHITNEY.

Witnesses:

H. D. WHITE,
WILLIS BRISTOL.