(No Model.)

L. H. SMITH.

BREECH LOADING GUN.

No. 383,325. Patented May 22, 1888.

Fig I.

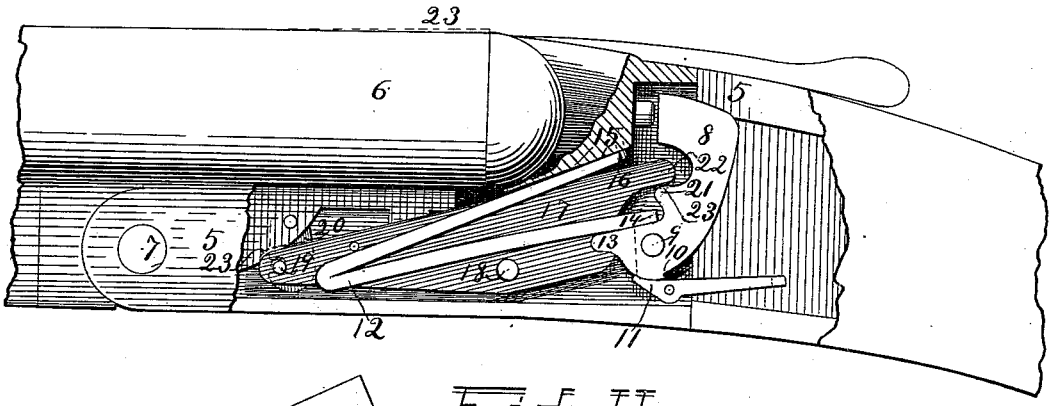
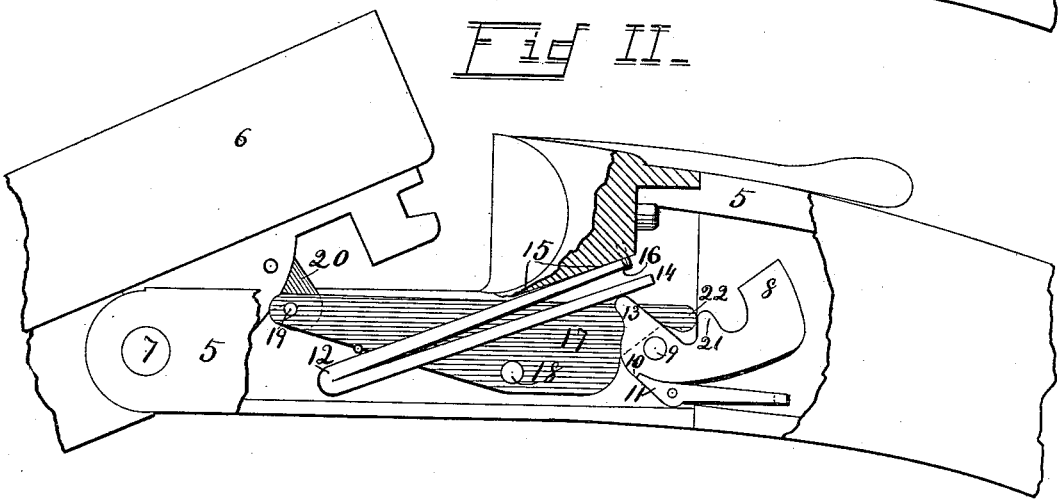


Fig II.



Witnesses,
L. E. E. Stevens.
P. E. Stevens.

Inventor.
Leroy H. Smith.
By his Attorney W. E. Stevens.

UNITED STATES PATENT OFFICE.

LEROY H. SMITH, OF LISLE, ASSIGNOR TO THE ITHACA GUN CO., OF ITHACA, NEW YORK.

BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 383,325, dated May 22, 1888.

Application filed February 6, 1888. Serial No. 263,148. (No model.)

To all whom it may concern:

Be it known that I, LEROY H. SMITH, a citizen of the United States, residing at Lisle, in the county of Broome and State of New York, have invented certain new and useful Improvements in Breech-Loading Guns; 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 appertains to make and use the same.

The invention relates to improvements in the breech-loading breakdown double gun for which I filed an application for Letters Patent on the 6th day of January, 1888, Serial No. 259,960; and its object is to simplify the construction of the cocking device, to make the same a safety-guard against premature discharge, and to simplify the form of the spring and hammer and yet to retain the spring in its place, and thereby to reduce the cost of making the gun.

To this end my invention consists of a gun-frame of peculiar form and a pair of hammers and of cocking-levers peculiarly hung therein, as hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I represents a side elevation of a portion of a gun, according to my invention, partly broken away to expose the interior with the working parts at rest. Fig. II represents the same parts at the instant when the hammer is fully cocked.

5 represents the gun-frame, to the rear end of which the main wooden portion of the stock is to be attached.

6 represents a pair of barrels hinged at 7 to the frame to tip vertically in the manner usual to breakdown guns.

8 is a hammer hinged in the frame on a pin, 9, and provided with a tooth, 10, to be caught by the sear 11 to hold the hammer cocked.

12 is the mainspring, consisting of a bar of steel thickest in the middle, tapering evenly each way and bent near its middle and folded back upon itself in a manner common to gun-springs, except that its two arms are nearly straight, without any notch or projection. The hammer is provided with a toe, 13, projecting forward of its pivot 9, the upper side of the toe being a plane surface which extends back past the pivot as a bearing for the spring. When the hammer is cocked, the toe rises up against the pressure of the spring, and when the hammer is impelled by the spring to strike, the end 14 of the spring passing the center of the hammer, causes rebound and holds the hammer a little raised for safety. To cause this spring to remain in place without a notch or projection to hold it, I shape its base line 15 on the frame to form at all times an acute angle with the plane of the hammer-toe 13, opening in the same direction that the angle of the spring opens. As the two arms of the spring are never so much closed as to become parallel, and as the hammer at full-cock does not open the acute angle between the face of its toe and the base 15 enough to make it a right angle, all action of the spring tends to force it rearward, and this I oppose by a shoulder, 16, on the frame. This shoulder I make by inserting a pin at 16, as a matter of economy in construction.

17 represents a pair of cocking levers hung in the frame on hinge-pins 18 and permanently connected at their forward ends by a cross-bar, 19, which is to be connected with the barrels 6 in any usual or preferred manner, such as by the hook 20. The hammer 8 is provided with a cam-shaped projection, 21, whose upper side is a curve nearly coincident with the arc of a circle centered at the pivot 9, and whose lower side is a curve nearly coincident with an arc of a circle centered at the pivot 18 when the hammer is at full-cock.

The end 22 of the the cocking-lever 17 has a rounded cam-shaped form to bear at all times to the best advantage upon the projection 21 in the act of cocking the hammer, and yet to be free therefrom when the hammer is caught at the rebound, as shown in Fig. I, and also to be in such intimate relation thereto that any amount of movement of the barrel from its seat in the frame which would put it in a position dangerous to be fired will bring the ends of the levers in the path of the projection 21 of the hammer, so that the hammers cannot then strike an effective blow to fire the gun. The dotted lines 23 in Fig. I show how

the levers would be thus interposed in the path of the hammers by a very slight rise of the rear end of the barrels.

It may be observed that in my previous application hereinbefore referred to the hook-pin, the hinge-pin, and the cam end of the cocking-lever are in a straight line, and the hammer hinge-pin is below the cocking-lever hinge-pin, while in the present case the hinge-pin of the cocking-lever is below the line of the hook-pin and cam end and below the hinge-pin of the hammer. By this means the direction of movement of the cam end 22 of the cocking-lever is made the same or nearly parallel with the direction of movement of the hammer at the projection 21, thus producing a direct lever action upon the hammer in this case, while in the former case the action is that of the knuckle-joint or double wedge.

The act of breaking down the gun works through the hood 20 and levers 17 to cock the hammers, and when the gun is again closed the levers return to their position of rest, as shown in Fig. I, while the hammers remain cocked, as in Fig. II, until released from the sears by the usual process. This safety arrangement of the cocking levers and hammers does not in any way affect nor interfere with any safety device adapted to prevent the action of the triggers at certain times, and it is not of a similar nature therewith.

Having thus fully described my invention, what I desire to secure by Letters Patent is the following:

1. The combination of a gun-frame, a spring folded on itself nearly in the middle, forming two arms of nearly equal length, and a hammer hinged in the frame and having a forward-projecting toe with a plane upper face, which plane extends back past the center of the hammer, the said frame having a plane face opposite to the center of the hammer and at an acute angle with the said plane of the hammer-toe, and provided with a shoulder for the stationary end of the spring to stop against, the said end of the spring resting upon the plane face of the frame both before and behind the point opposite the center of the hammer, substantially as shown and described.

2. The combination of a gun-frame having a downward internal face, a hammer hinged in the frame opposite the midway portion of the said face and having a plane upward face extending both sides of the hammer-center, and an angular spring having two arms of nearly equal length, the said two plane faces forming an acute angle opening in the same direction that the spring opens, and the spring bearing between the said faces, substantially as shown and described.

3. The combination of a gun-frame, a hammer hinged therein and provided with a cam-shaped forward projection between the hammer-face and hinge and nearly in line therewith, and a cocking-lever hinged midway, near its lower edge, in the frame, and having a cam-shaped rear end to engage the said projection, the under side of the said projection being nearly tangent to the circle of motion of the end of the said lever, whereby the rear end of the lever in moving downward cocks the hammer and brings the said projection nearly in the line of centers of the hammer and cocking-lever.

4. The combination of a gun-frame, a hammer hinged therein and provided with a cam-shaped forward projection, and a cocking-lever hinged below its central line in the frame and provided with a cam shaped rear end, the upper side of the said projection on the hammer being a curve nearly coincident with the arc of a circle centered at the hammer-pivot, and whose lower side is a curve nearly coincident with an arc of a circle centered at the pivot of the cocking lever when the hammer is at full-cock, substantially as shown and described.

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

LEROY H. SMITH.

Witnesses:

P. G. ELLSWORTH,

T. M. LEARY.