

(No Model.)

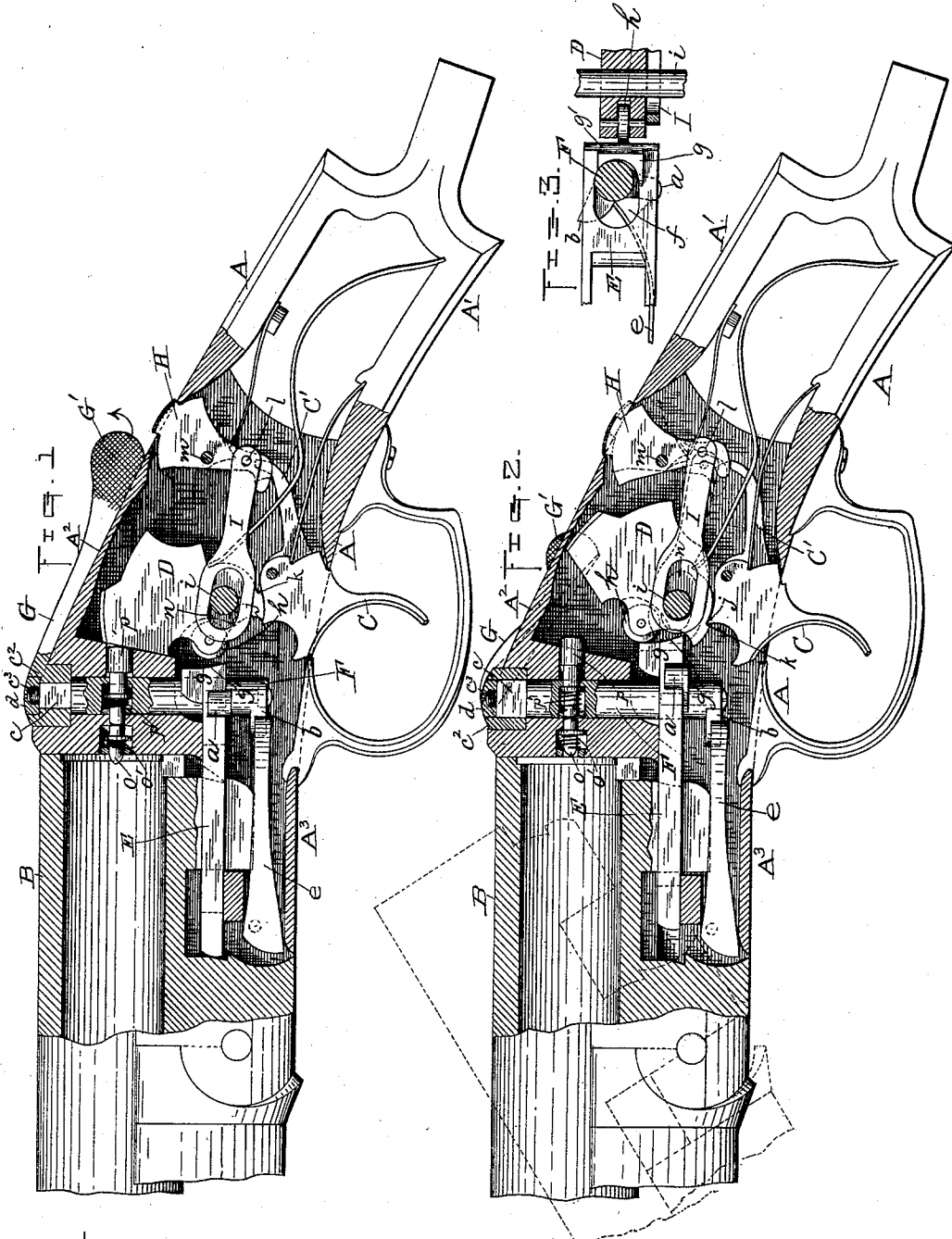
2 Sheets—Sheet 1.

I. JOHNSON & A. FYRBERG.

BREECH LOADING FIRE ARM.

No. 391,155.

Patented Oct. 16, 1888.



Witnesses;

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By A. A. Parker. Atty.

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Fig. 4.

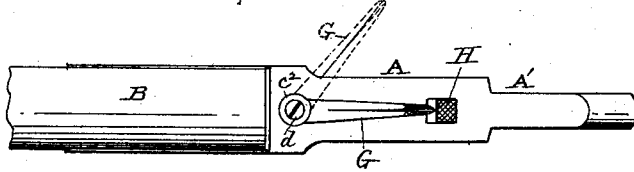


Fig. 5.

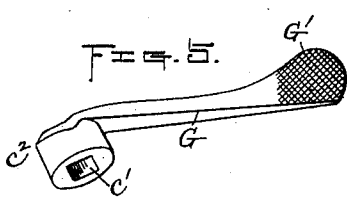


Fig. 6.

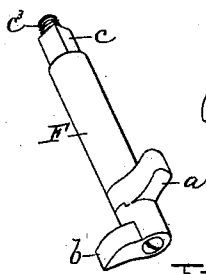


Fig. 8.

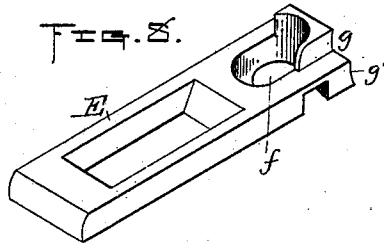


Fig. 7.

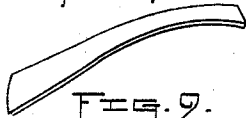


Fig. 9.

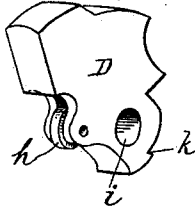


Fig. 10.



Fig. 12.

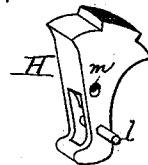


Fig. 13.



Fig. 11.

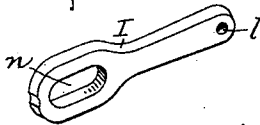


Fig. 14.

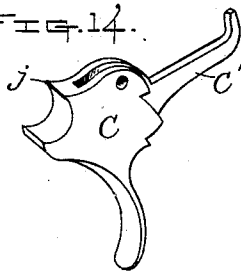


Fig. 15.



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UNITED STATES PATENT OFFICE.

IVER JOHNSON AND ANDREW FYRBERG, OF WORCESTER, MASSACHUSETTS;
SAID FYRBERG ASSIGNOR TO SAID JOHNSON.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 391,155, dated October 16, 1888.

Application filed June 21, 1888. Serial No. 277,750. (No model.)

To all whom it may concern:

Be it known that we, IVER JOHNSON and ANDREW FYRBERG, both of the city and county of Worcester, and State of Massachusetts, have
5 invented certain new and useful Improvements in Fire-Arms; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this
10 specification, and in which—

Figure 1 represents a part side view and vertical section of so much of a gun as is necessary to illustrate our improvements. Fig. 2
15 is a similar view showing the various working parts in different positions from those shown in Fig. 1, to more fully illustrate the operation thereof. Fig. 3 is a horizontal section
20 through the crank-shaft and part of the hammer, showing also a top view of the lugs or projections on said shaft, the hammer friction-roll, and part of the slide-bolt and lock-lever connecting-link of the gun. Fig. 4 represents, upon a reduced scale, a top or plan
25 view of that portion of the gun shown in Figs. 1 and 2; and Figs. 5 to 15, inclusive, are detached perspective views of the various working parts of the gun, hereinafter more fully described.

Our invention relates to breech-loading guns
30 having a concealed hammer; and it consists of improvements in the mechanism for raising the hammer and for locking the trigger; also in the combination thereof with the barrel-locking mechanism and in the firing-pin construction, as hereinafter more fully set forth,
35 the same constituting improvements upon the gun set forth in our United States Patent No. 350,681, dated October 12, 1886.

Following is a detailed description of our
40 invention, which will enable others to fully understand the nature and purpose of our said improvements.

In the drawings, the parts marked A represent the frame, comprising the handle part A',
45 to which the back-stock is in practice applied, the receiver A², and the fore-hand A³.

B is the barrel; C, the trigger; D, the hammer; E, the slide-bolt; F, the crank-shaft, and G the top lever for operating said crank-shaft
50 and slide-bolt, and through the same the other working parts of the gun, as hereinafter described.

The crank-shaft F is fitted to turn in a vertical opening in the frame, extending down across the firing-pin opening, thus necessitat-
55 ing a change in the firing-pin construction from that shown in said United States Patent. To the upper end of said crank-shaft is fastened the top lever, so as to be turned thereby, and its lower end is provided with the two lateral
60 projections or lugs *a b*, for the purpose hereinafter specified. In this instance the lever is fastened to the crank-shaft by forming a square part, *c*, on the upper end of the shaft, and a correspondingly-shaped opening, *c'*,
65 in the head *c²* of the lever, so that it may be fitted over said shaft. After being thus fitted the parts are held by means of a nut, *d*, fitted in a socket in the top of the lever and turned
70 down over the threaded end *c³* of the shaft. Said nut not only serves to hold the lever to the shaft, but also, in connection with the head *c²*, to hold said shaft against downward vertical movement, as is shown in Figs. 1 and 2. It is held against upward movement by means
75 of the slide-bolt E, said slide-bolt being provided with a transverse slot in the under side of its rear end to receive the lateral projection *a* on said shaft. Said lateral projection also serves to draw back the slide-bolt when
80 the shaft is turned by swinging out the top lever, as is indicated by the arrow in Fig. 1 and dotted lines Figs. 2 and 4. In thus operating the crank-shaft when the outward pressure on the top lever is removed said shaft
85 and lever are sprung back automatically into their normal positions by means of a suitable spring, *e*, which acts upon the lateral projection *b* with an opposite force to that of the lever.

Although the construction shown is preferable, any other suitable device for springing
90 back the shaft and lever may be used in lieu thereof.

In the rear end of the slide-bolt E is formed
95 an oblong vertical opening, *f*, (see Fig. 3,) to receive the crank-shaft F. The extremity of said rear end is also provided with the head or enlargement *g*, adapted to bear upon and force back the hammer D when the slide-bolt
100 is moved back, as previously described. To facilitate said operation of forcing back or raising the hammer, the back side of said head is in this instance curved slightly, as shown

at g' , and the front side of the hammer is provided with a small friction-roll, h . By this construction it is obvious that when the bolt is drawn back the head first strikes at the lower end of its curve g' against the roll, and as it is continued to be drawn back and the hammer further raised the roll travels up over said curve, thereby causing but little or no friction, and in consequence rendering the operation of raising the hammer very easy to perform, although in practice the line of contact is arranged but little above the level of the hammer-pivot i , as is shown in Figs. 1 and 2.

When at full-cock, as shown in Fig. 2, the hammer is held by the trigger C and lock-lever H in substantially the same manner as shown in our United States Patent, previously referred to, the end j of the trigger holding against a notch, k , in the bottom of the hammer, and said trigger being in turn held in a locked position by the rear end of its arm C' bearing against the bottom of said lock-lever H, as is shown by full lines in said Fig. 2. As said trigger, its lock-lever, and the manner of locking the barrel are fully described in said patent, it is deemed unnecessary to again describe the same in detail in connection with our present improvements.

At one side of the hammer is arranged a link, I, hinged at its rear end at l to the lock-lever H, below its pivot m , and at its opposite end provided with a transverse oblong slot, n , to receive the hammer-pivot i , said pivot thus serving as a support for said slotted end of the link and as a guide for said link in its longitudinal movements, hereinafter described. The link is pushed back to bring the lock-lever into position to lock the trigger, as shown in Fig. 2, by the operation of drawing back the slide-bolt E to raise the hammer, said hammer being raised a little in advance of the link being pushed back, so as to fully cock the same before the projection j on the trigger catches into the notch k in the hammer, and said trigger is locked, as previously described.

The mechanism hereinbefore described differs from that in the United States Patent herein cited mainly in the introduction of the crank-shaft F and changes in the construction of the slide-bolt, hammer, and lock-lever connection to correspond therewith, said alterations in the construction, as pointed out in the claims, constituting the essential feature of this part of our invention.

We are aware that a vertical shaft corresponding to shaft F is not new in a fire-arm, and therefore make no claim, broadly, thereto.

Our improvement in the firing-pin construction consists in making said pin in two parts, o and p , having independent springs o' p' , for imparting a yielding back-pressure thereon, and in the arrangement of said parts o and p in relation to the crank-shaft and hammer. The forward pointed part, o , is arranged wholly within the frame in a suitable opening formed therein in substantially the usual well-known

way, except for its being somewhat shorter and extending only a short distance into the front side of said frame, while the other part, p , is arranged in a transverse opening formed in the shaft, and an opening in the frame back of and in line therewith, as is fully shown in Figs. 1 and 2.

When in their normal positions, the inner end of the part o is just clear of the shaft, and the other part, p , extends through said shaft, but not beyond it, and its outer or rear end projects outside of the frame just sufficiently for the hammer to strike and force the same in the required distance to explode the cartridge. In order that the shaft may be turned by its lever, the opening in the frame for said outer or rear end of the part p is in practice made wider than the diameter of the pin for the above purpose.

By the above construction it will be observed that the action of the shaft F is not interfered with in the least, while at the same time the firing-pin may be operated to discharge the cartridge in the usual way.

If desired, the spring p' may be dispensed with and the spring o' made to serve the double purpose of springing back both parts of the pin. The use of both springs is preferable, however, as the inner ends of the parts o p may thereby be arranged at a little distance apart, and thus obviate any liability of improper action by the part p catching in the opening of the other as the part o becomes worn by use.

The operation of loading, cocking, and firing the arm is, in brief, as follows: Assuming that the various operating parts are in their normal positions, as indicated in Fig. 1, the top lever, G, is first swung out to one side, as indicated by dotted lines in Fig. 4, by pressing the thumb of the right hand against the outer end, G' , of said lever, which operation unlocks the barrel, cocks the hammer, and locks the trigger. Now while said thumb-pressure is still on the lever the barrel is swung down with the left hand into the position indicated by dotted lines, Fig. 2, when said pressure is released, and the lever, the crank-shaft F, and slide-bolt E are allowed to be sprung back into their normal positions. A cartridge is then placed in the barrel and said barrel swung up and sprung into position again. By now drawing back the upper end of the lock-lever H the lower end thereof is moved forward, as indicated in Fig. 1, and by dotted lines, Fig. 2, thereby unlocking the trigger, when the same may be operated and the arm discharged in the usual way.

Although our invention is more particularly devised for the style of guns herein specified and shown, it may be applied to other kinds of fire-arms, and we therefore do not limit ourselves thereto.

If desired, the slide bolt and its operating mechanism may be combined with the hammer only, or with the trigger-lock mechanism independent of said hammer—as, for instance,

the fire-arm may be made without the trigger-lock device and the hammer raised as previously described; or said arm may be made with an exposed hammer operated independently, as usual, and provided with said lock device operated as in the present case.

We are aware that a friction-roll has heretofore been employed on the hammer of a fire-arm, an instance of which is shown in a United States Patent No. 369,437, to A Dickerman, dated September 6, 1887, and we therefore make no claim, broadly, thereto.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a fire-arm, the combination of the top lever, G, with a crank-shaft, F, fitted to turn in a vertical opening in the frame between the barrel and hammer, also having the lug or projection *a* near its lower end, and suitable means for springing the same back when the pressure upon the lever is released, the slide-bolt E, having a transverse slot, or the equivalent thereof, near its rear end, whereby it may be moved forward and back by engagement with the aforesaid lug on shaft F, said bolt also having a suitable head adapted to bear against the hammer when the bolt is drawn back, said hammer, the link I, trigger C, and hinged lock-lever H, adapted to engage with said link and trigger and to be operated by hand at the top, all substantially as set forth.

2. The combination of the top lever, G, and shaft F, fitted to turn in a vertical opening in the frame between the barrel and hammer, also having the lugs *a b* upon the lower end thereof, with the slide-bolt E, having a transverse slot near its rear end to receive the lug *a*, also a vertical slot to receive the shaft, and an enlargement or head, *g*, at its rear extremity, a suitable spring engaging with the lug *b* for springing back said shaft when released from counter-pressure, the hammer D, having the friction-roll *h* upon the front side thereof, adapted to engage with the aforesaid head on bolt E, trigger C, having the arm C', link I, arranged at one side of the hammer, adapted to engage with the bolt E and connected with the lower end of the hinged lock-lever H, and said lock-lever adapted to engage with trigger-

arm C' and to be operated by hand from the top, substantially as and for the purpose set forth.

3. The combination of the top lever, G, crank-shaft F, fitted to turn in a vertical opening in the frame between the barrel and hammer, also having the lug *a* near its bottom end, and means for springing it back when released from counter-pressure, and the slide-bolt E, having a transverse slot to receive the lug *a* aforesaid, a vertical slot to receive the shaft, and an enlargement or head, *g*, with the hammer D, having the friction-roll *h* upon the front side thereof, substantially as and for the purpose set forth.

4. The combination of the top lever, G, crank-shaft F, fitted to turn in a vertical opening in the frame between the barrel and hammer, also having the lug *a* near its bottom end, and means for springing it back when released from counter-pressure, and the slide-bolt E, having a transverse slot to receive said lug *a*, a vertical slot to receive the shaft, and an enlargement or head, *g*, with the trigger C, adapted to engage with the hammer, as usual, also having the arm C', link I, arranged at one side of the hammer, adapted to engage with the slide-bolt and connected with the lower end of hinged lock-lever H, and said lock-lever adapted to engage with said arm C' and to be operated by hand at the top, substantially as and for the purpose set forth.

5. The combination of the crank-shaft F, having a transverse opening therein for the passage of the firing-pin, with said firing-pin made in two parts, *o p*, fitted in line with each other, the part *o* in the frame in front of the shaft, and the part *p* in said shaft and an opening in the frame back of said shaft, and means for exerting a yielding back-pressure thereon to keep them in their normal positions, except when forced forward by the hammer-stroke, substantially as shown and specified.

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