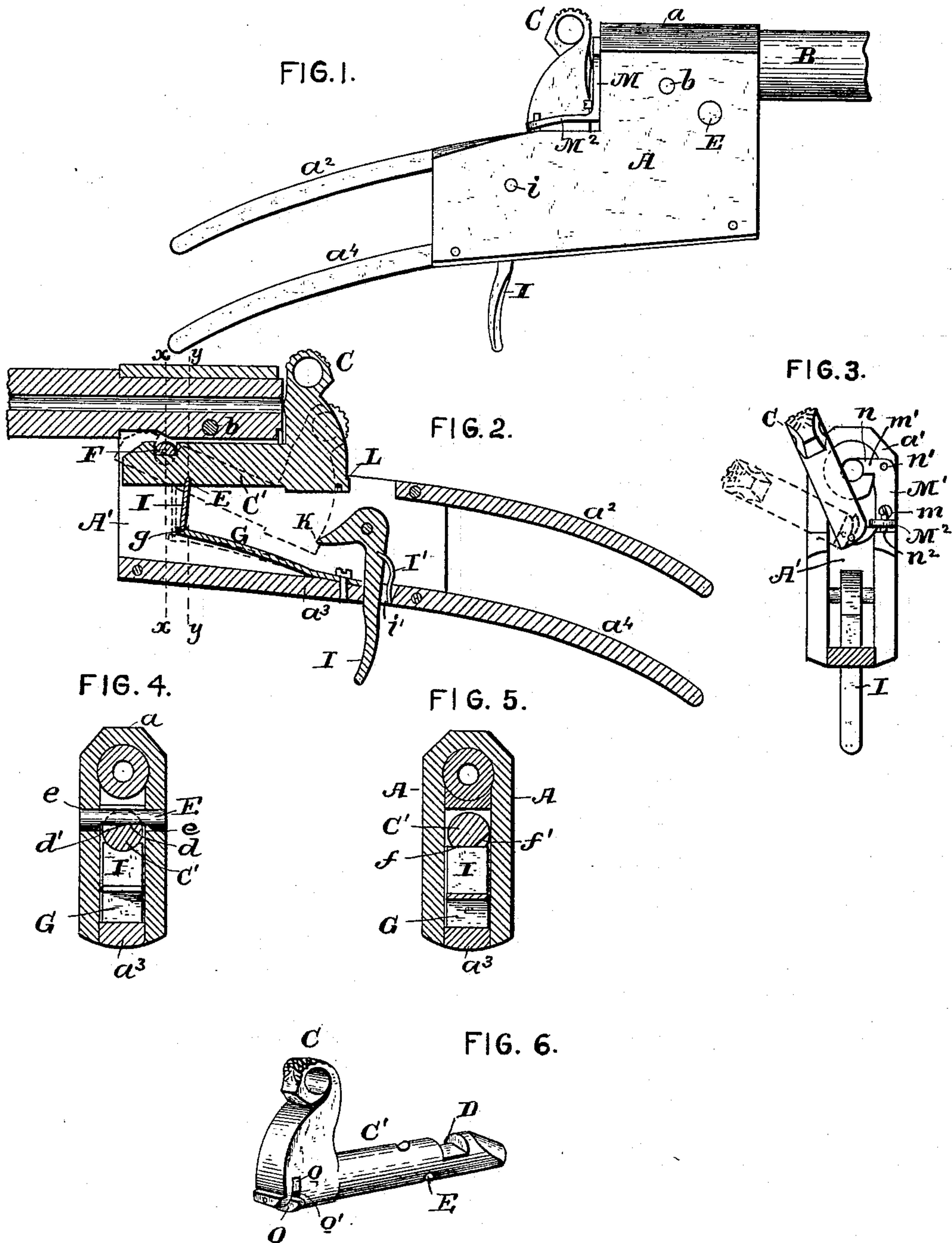


(No Model.)

C. M. RIDER.
BREECH LOADING FIRE ARM.

No. 400,712.

Patented Apr. 2, 1889.



ATTEST.
J. Henry Kaiser
Victor J. Evans.

INVENTOR.
Charles M. Rider
by Frank D. Johns
his Attorney.

UNITED STATES PATENT OFFICE.

CHARLES M. RIDER, OF NEWARK, OHIO, ASSIGNOR OF ONE-HALF TO
WILLIAM BAKER, OF SAME PLACE.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 400,712, dated April 2, 1889.

Application filed December 4, 1888. Serial No. 292,620. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. RIDER, a citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Breech-Loading 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 appertains to make and use the same.

My invention relates to certain improvements in breech-loading fire-arms, and more particularly to that class of arms in which the breech-block and hammer are formed in one piece; and it consists in certain novelty in the construction, arrangement, and combination of the various parts, all of which I will now proceed to point out and describe, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a piece embodying my invention, the barrel being broken away and the stock removed. Fig. 2 is a longitudinal section of the same, dotted lines indicating the position of the combined breech-block and hammer when cocked in position for firing, a shell being shown inserted in the breech. Fig. 3 is a rear elevation of the breech-block when acting upon the extractor, dotted lines showing the position of the same when in position to load. Fig. 4 is a transverse section taken on the line $x x$ of Fig. 2. Fig. 5 is a transverse section taken on the line $y y$ of Fig. 2, and Fig. 6 a detail showing the combined breech-block and hammer.

Referring to said drawings, A represents the breech-frame, which substantially consists of two parallel walls united at their upper forward portion, a , the rear portion of the walls being cut away, as shown.

a' is a plate secured between and partially closing the upper rear portion of the walls, and is formed with a shank, a^2 .

a^3 is a plate secured between and entirely closing the space between the lower edges of said walls. Said plate is also provided with a shank, a^4 . By means of these shanks the breech-frame is secured to the stock.

A' is a chamber formed within the breech-frame.

B is the barrel secured in the breech-frame in any suitable manner. In the present instance it is secured by means of a pin, b . Said barrel projects slightly back of the upper rear portion of the breech-frame.

C represents the combined breech-block and hammer, and is provided with a cylindrical shank, C' , extending forward within the chamber A' and preferably at right angles to the face of the breech-block and hammer, next to the breech.

D is a notch or recess in the upper side of the shank C' , near its forward end, the walls of said notch being parallel and its bottom being formed in two different planes, d and d' , at an angle to each other, their meeting point being slightly rounded, as shown.

E is a fulcrum-pin loosely mounted in bearings e in the side walls of the frame. Said fulcrum-pin engages with the notch D, and is cut away or made flat on one side. This flat side engages with the bottom of said notch D, and has a partial revolution as the shank is moved on its fulcrum. The extreme forward end of the shank is beveled or cut away to permit the movement of said shank when the combined breech-block and hammer is swung to or from the breech, as hereinafter described.

F is a notch or recess formed on the opposite side of the shank from the notch D and between it and the combined breech-block and hammer. Said notch F is preferably V-shaped in cross-section, and its bottom is also formed in two different planes, $f f'$, at an angle to each other, the plane f being parallel with the plane d in the bottom of the notch D.

G represents the main or hammer spring, secured at one end to the plate a^3 and projecting under the shank C' in front of the breech-block and hammer, its forward end being about under the notch F.

g is a transverse groove on the upper side of the free end of the spring.

H is a link or block having parallel ends, and is interposed between the free end of said spring H and the shank C' , one end of said link engaging with the groove g and the other with the notch F, the tension of the spring being sufficient to hold said link in place. Said spring G, through the medium of the link

H, exerts a pressure on the shank C' between its fulcrum and the combined breech-block and hammer, and normally holds said combined breech-block and hammer against the breech of the barrel, and also operates to throw the same up and against the breech to explode the cartridge, as hereinafter described.

I represents the trigger, which is pivotally secured on a pin, *i*, mounted in the lower rear portion of the frame back of the breech-block and hammer. Said trigger projects through a slot, *i'*, in the lower plate, *a*³, and is provided with a spring, *I'*, one end of which is secured to the rear of the trigger, the free end of the same engaging with the rear of the slot *i'*. Said spring serves to hold the trigger normally forward.

K is the sear of the trigger.

The lower rear portion or tumbler of the hammer is provided with a cocking-notch, L, with which the sear engages to hold the piece cocked.

When the combined breech-block and hammer is in its normal position, the breech being closed, as shown in Figs. 1 and 2, the flat portion of the fulcrum-pin engages with the plane *d* in the bottom of the notch D, and the upper end of the link H engages with the plane *f* in the bottom of the notch F. The parts being arranged as described, the tension of the spring is sufficient to resist the recoil caused by the explosion of the cartridge and hold said breech-block securely against the breech. Now, to cock the piece the hammer is depressed until the sear of the trigger engages with the cocking-notch of the hammer and holds said hammer cocked against the tension of the mainspring. To fire, the trigger is pulled, which disengages the sear from the cocking-notch, and the main or hammer-spring, exerting an upward pressure on the hammer-shank between its fulcrum and the hammer, throws said hammer up, causing it to strike the cartridge and explode the same.

From the arrangement of the various parts of my said invention, as above described, it will be seen that the shank has an axial movement and is capable of a partial revolution in one direction, thus permitting the breech-block and hammer to be turned to one side. When it is desired to uncover the breech to load, without cocking the piece, said breech-block is turned to the left, its shank turning on its axis. When in this position, the upper end of the link H engages with the plane *f'* in the bottom of the notch F, and the tension of the spring is sufficient to hold said breech-block in this position. The breech being uncovered, the cartridge is inserted and the breech-block returned to its normal position. This construction insures perfect safety in loading, as it is impossible to explode the cartridge by the sliding contact of the breech-block and hammer with said cartridge as it passes over the face of the same. The mainspring permits the breech-block to yield or

move slightly back as the breech is being closed.

To carry the piece with the combined breech-block and hammer in a safety position, or what may be termed "half-cocked," the breech-block and hammer is turned to one side until the flat portion of the fulcrum-pin engages with the plane *d'* in the bottom of the notch D, the tension of the mainspring holding it in this position. When so half-cocked, the breech is partially closed, so as to retain the cartridge. At the same time it is impossible to operate the hammer to explode said cartridge until said breech-block and hammer is returned to its normal position, thus insuring absolute safety when the piece is at "half-cock."

M represents an extractor, which consists, substantially, of a bell-crank lever pivotally secured to the rear end of the upper portion of the frame by means of a pin, *m*. One arm, *M'*, of said lever extends up to the breech of the barrel and is provided with a projecting end, *m'*, which normally rests in a recess, *n*, formed in one side of the breech of the barrel, and is flush with the surface of said breech, and is adapted to engage the rim of a shell when inserted in said barrel. The lower arm, *M*², of the lever is slightly bent, and forms a spring through which the extractor is operated. Said arm *M*² is located on the upper edge of the lower rear portion of the right-hand wall of the frame.

n' *n*² are guide-pins secured to the frame and engaging with holes in the ends of the lever and serve to hold the same in position and prevent it from moving laterally. Said holes, however, are of sufficient size to permit a limited movement of the extractor-lever on its pivot or fulcrum.

In the lower rear corner of the combined breech-block and hammer I form a slot, O, in which is pivoted a spring-actuated dog, *o*, having a spring, *o'*.

To extract a shell, the combined breech-block and hammer is turned to the left in the same manner as in uncovering the breech, and as said breech-block is moved the end of the dog *o* engages the spring-arm *M*² of the extractor-lever, forcing said arm up against its tension, as shown in Fig. 3. As the breech-block is forced over to the limit of its movement and the breech uncovered, the dog releases the spring-arm and it springs back to its normal position, throwing the upper arm of the lever out. The projecting end of said upper arm, engaging with the rim of the shell, expels it from the barrel. The breech then being uncovered, another cartridge is inserted and the piece is again ready for firing.

It will be noticed that my said invention is composed of very few parts, which are exceedingly simple in their construction, can be readily and easily assembled, and which are almost impossible to get out of order. I am thus enabled to produce a simple, strong, and effective breech-loading fire-arm, which thor-

oughly accomplishes the objects for which it is designed.

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

1. In a breech-loading fire-arm, the combination, with the breech of the barrel, of a combined breech-block and hammer pivoted to permit of a swinging motion in a plane at an angle to the face of the breech and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech, substantially as shown and described.

2. In a breech-loading fire-arm, the combination, with the breech of the barrel, of a combined breech-block and hammer pivoted to permit of a swinging motion in a plane at an angle to the face of the breech and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech, and a spring holding said combined breech-block and hammer normally against said face, substantially as shown and described.

3. In a breech-loading fire-arm, the combination, with the breech of the barrel, of a combined breech-block and hammer pivoted to permit of a swinging motion in a plane at an angle to the face of the breech and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech, a spring holding said combined breech-block and hammer normally against said face, and a trigger adapted to engage the breech-block and hammer and hold the same in a cocked position against the tension of the spring, substantially as shown and described.

4. In a breech-loading fire-arm, the combination, with the breech of the barrel, of a combined breech-block and hammer having a shank pivoted to permit said breech-block and hammer to have a swinging motion in a plane at an angle to the face of the breech and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech, substantially as shown and described.

5. In a breech-loading fire-arm, the combination, with the breech of the barrel, of a combined breech-block and hammer having a shank pivoted to permit said breech-block and hammer to have a swinging motion in a plane at an angle to the face of the breech and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech, and a spring holding the breech-block and hammer normally against said face, substantially as shown and described.

6. In a breech-loading fire-arm, the combination, with the breech of the barrel, of a combined breech-block and hammer having a shank pivoted to permit said breech-block and hammer to have a swinging motion in a plane at an angle to the face of the breech

and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech, a spring holding said combined breech-block and hammer normally against said face, and a trigger adapted to engage the breech-block and hammer and hold the same in a cocked position against the tension of the spring, substantially as shown and described.

7. In a breech-loading fire-arm, the combination, with the breech-frame and breech of the barrel, of the combined breech-block and hammer having a shank provided with a notch near its forward end, a fulcrum-pin mounted in the frame and engaging with said notch, a mainspring holding the shank in engagement with its fulcrum-pin and the combined breech-block and hammer normally against the face of the breech, and a trigger adapted to engage the breech-block and hammer and hold the same in a cocked position, all constructed, arranged, and operating substantially as shown and described, whereby the breech-block and hammer may have a swinging motion in a plane at an angle to the face of the breech and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech.

8. In a breech-loading fire-arm, the combination, with the breech-frame and the breech of the barrel, of a combined breech-block and hammer having a shank provided with a notch in the upper side of its forward end, having its bottom in two different planes at an angle to each other, a fulcrum-pin mounted in the frame and engaging with said notch, a notch on the under side of the shank having its bottom formed in two different planes at an angle to each other, a mainspring secured in the frame, a link engaging at one end with the mainspring and at its other end with the notch in the underside of the shank, and a trigger adapted to engage the breech-block and hammer and hold it in a cocked position against the tension of the spring, all constructed, arranged, and operating substantially as shown and described, whereby the breech-block and hammer may have a swinging motion in a plane at an angle to the face of the breech and an axial motion which permits it to be turned laterally in a plane substantially parallel with the face of said breech.

9. In a breech-loading fire-arm, the combination, with the breech-frame and breech of the barrel, of the combined breech-block and hammer C, having the shank C', provided on its upper side near its forward end with the notch D, having its bottom formed in two different planes, d and d' , at an angle to each other, and on its under side with the notch F, having its bottom formed in two different planes, f and f' , at an angle to each other, the fulcrum-pin E, mounted in the frame and engaging with the notch D, the mainspring G, the link H, engaging at one end with the end of

the spring H and at its other end with the notch F, and the trigger I, adapted to engage the combined breech-block and hammer and hold it in a cocked position against the tension of the spring, all constructed, arranged, and operating substantially as shown and described.

10. In a breech-loading fire-arm, the combination, with the breech-frame and the breech of the barrel, of the combined breech-block and hammer C, having the shank C', provided on its upper side near its forward end with the notch D, having its bottom formed in two different planes, d d' , at an angle to each other, the fulcrum-pin E, engaging with the notch D and normally resting against the plane d , and a spring holding said shank in engagement with its fulcrum-pin and permitting said shank to have an axial movement, whereby, as said combined breech-block and hammer is turned laterally, when the fulcrum-pin engages the plane d' the piece will be held in a safety or half-cocked position, substantially as shown and described.

11. In a breech-loading fire-arm, the combination, with the breech-frame and breech of the barrel, of a combined breech-block and hammer, C, having the shank C', provided with a fulcrum-pin mounted in the frame and having a notch, F, on its under side, having its bottom formed in two different planes, f f' , at an angle to each other, the spring G, and the link or block H, secured on the end of said spring and having its upper end in engagement with the notch F and normally resting against the plane f , said spring permitting the shank to have an axial movement, all constructed, arranged, and operating substantially as shown and described.

12. In a breech-loading fire-arm, the combination, with the breech-frame and breech

of the barrel, of a spring extractor-lever pivoted to the frame at one side of the breech and having one end adapted to engage the rim of a shell when inserted in the barrel, and a breech-block pivoted to permit of a lateral movement with relation to the breech and adapted when moved laterally to engage the spring-extractor and operate the same, substantially as shown and described.

13. In a breech-loading fire-arm, the combination, with the extractor-lever M, pivoted to the breech-frame and having one end adapted to engage the rim of a shell and provided with the spring-arm M², of the breech-block C, pivoted to permit of a lateral movement with relation to the breech and adapted when turned laterally to engage said spring-arm and lift it against its tension to cause it to operate the extractor when released from the breech-block, substantially as shown and described.

14. In a breech-loading fire-arm, the combination, with the breech of the barrel, the extractor-lever M, pivoted to the breech-frame and having a projecting end, m' , normally resting in the recess n in the breech of the barrel, and having the spring-arm M², of the breech-block C, pivoted to permit of a lateral movement with relation to the breech and provided with the spring-actuated dog o, adapted to engage said spring-arm M² as the breech-block is turned laterally and operate the extractor, all constructed, arranged, and operated substantially as shown and described.

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

CHARLES M. RIDER.

Witnesses:

JOEL M. DENNIS,
EDWIN B. DENNIS.