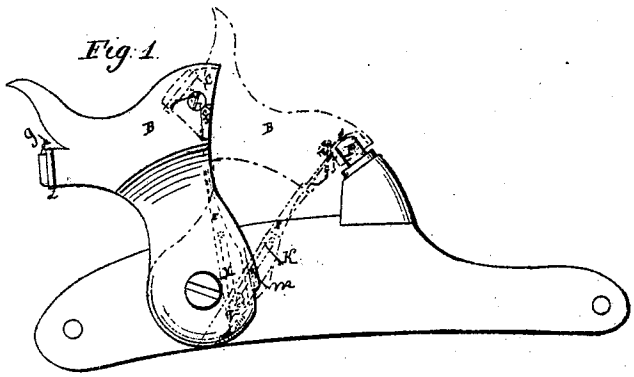
F. H. BELL.

Primer for Fire-Arm.

No. 23,545. Patented Apr. 12, 1859.

Fig. 1.



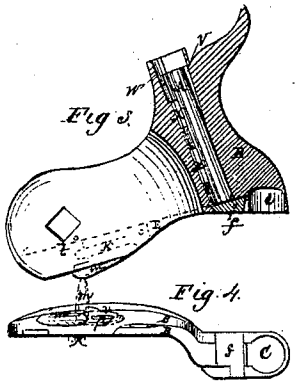


Fig. 3.

Fig. 4.

Fig. 5

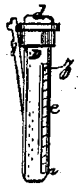


Fig. 6.

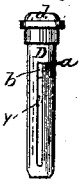


Fig. 9.



Fig. 10.



Fig. 7

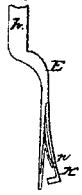


Fig. 8.

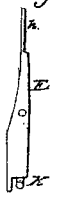


Fig. 2.

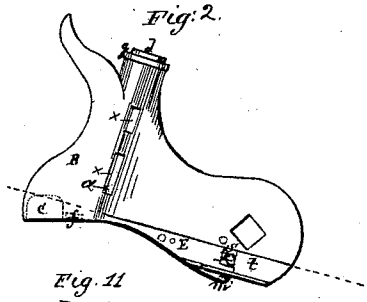


Fig. 11.



Francis H. Bell

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANCIS H. BELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

SELF-PRIMING GUN-LOCK.

Specification of Letters Patent No. 23,545, dated April 12, 1859.

To all whom it may concern:

Be it known that I, FRANCIS H. BELL, of the city and county of Washington, in the District of Columbia, have invented a certain new and useful Improvement in Automatic Primers for Firearms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing of the same, making part of this specification, in which—

Figure 1 represents a side elevation of a lock and hammer to which my improvements have been applied; Fig. 2, a side elevation of the inner side of the hammer detached from the lock; and Fig. 3, a side elevation of the other side and partial section taken vertically and longitudinally through the head of the hammer; Fig. 4 represents a plan of the front side of the hammer. Fig. 5 represents a side elevation of the magazine or shield detached from the chamber; and Fig. 6 a similar view of the same in a different position showing the plunger and spring retracted as when prepared to be charged with caps, Figs. 7 and 8 represent similar views of the slide detached from the hammer that forces the caps from the magazine into the discharging chamber of the hammer, and Figs. 9 and 10 similar detached views of the cam that throws the slide in and out of gear with the lock plate. Fig. 11 represents a section of the hammer taken through the line *x x* of Fig. 2, and looking in the direction of the arrows.

My improvement relates to that class of primers in which the magazine that contains the caps (of the wafer variety) is located in the hammer; and more especially to that recently patented to Wm. H. Bell. These as heretofore constructed are defective in so far as that when once charged no means are provided to throw the slide or plunger of the hammer which forces the cap into the discharging chamber, in and out of gear, hence in raising the hammer to full cock, and then letting it down upon the nipple again, a cap must be passed from the magazine chamber into the discharging chamber of the hammer, and there exploded; or if the hammer is slowly let down upon the nipple, lost by dropping out. This is a serious difficulty and is attended with danger, as in carrying the loaded arm should anything such as a twig, &c., catch the hammer, and drag it backward, and suddenly release it, the gun would be exploded. Again in training soldiers or in seeing that the hammer or nipple is in proper order it is frequently necessary to operate the hammer, but as in the old way of operating the plunger or slide, a cap would be lost every time the hammer is raised and depressed it becomes an object of paramount importance to prevent such loss. And again were the slide thrown out of gear when the head of the slide is withdrawn from the mouth of the magazine chamber, and there held in place in using the hammer with the common percussion cap, thus leaving the passage or communication between the discharging and magazine chambers open, there is danger of the caps in the magazine exploding, as well as of being thrown out of it by the jar of the hammer in its descent upon the nipple.

My invention consists in combining with the slide that forces the cap into the discharging chamber, as constructed and operated, certain devices to be hereafter described for the purpose of throwing the slide in and out of gear as desired, and so that when out of gear the slide will close the mouth of the magazine.

To enable others skilled in the art to make, construct and use my invention I will now proceed to describe it in detail, omitting a particular description of such parts of the hammer and lock, as are common to others and unessential to a full understanding of my present improvement. Here premising that it is specially intended to be applied to magazine hammers for the use of percussion primers of the wafer variety, in which the magazine is located in the hammer.

In the accompanying drawing the magazine chamber (A) is represented as being arranged in the hammer (B) in a horizontal plane although it may be set at any suitable angle, on the inner side of this chamber is cut slots, in this instance two in number, although more, or only one may be used; these slots are made of a size sufficient to give vent to such part of the discharge of the cap as may possibly find entrance in the magazine when exploded. These slots are so arranged as that the pin (*a*) formed on or otherwise secured to the side of the plunger (*b*) shall be seen as it traverses the slot (*x*), cut in the side of the magazine (A) that contains the caps; by which arrangement the party using the cock can always de-

termine whether there are caps still remaining in the magazine; as when the pin (*a*) has traveled the full length of the slot (*x*) in the magazine (A) and rests opposite the end of the slot (*x*) in the side of the hammer next the discharging chamber (C) or forward end of the hammer, the last cap will have been discharged from the magazine. These slots are also so formed that should rain fall in the hammer and run down in the slots it will run out of the same, these sides being properly leveled for that purpose. In the magazine chamber and which in this instance is of cylindrical form, to suit the shape of the caps used: although it may be made of any other suitable shape, either for circular or other shaped caps, is inserted in the magazine (D). This shield consists of a tube secured at one end to a head plate (*d*) and having a slot (*y*) cut in its side in which the pin (*a*) of the plunger (*b*) slides. The plunger for this purpose being first inserted in the shield (D); previous to which however a spiral or other suitably formed spring (*e*) is first secured at one end to the cap piece (*d*) or inserted in the shield so that its other end shall act upon the plunger and force it outward from the shield.

On one side of the slot (*y*) in the shield is cut a small notch (*z*) at the end next the cap-piece into which the pin (*a*) of the plunger is forced when it is desired to charge the magazine or shield with caps, and as represented in Fig. 6; Fig. 7 representing the normal position of the plunger when the pin is disengaged from the notch. When the shield is charged and the plunger and spring still held in its retracted position by the pin (*a*) being engaged with the notch (*z*) it is then gradually inserted, in this condition, into the chamber (A). As the shield advances the pin (*a*) is made to traverse a spiraled or inclined groove (*w*) so cut in the lower side of the chamber (A) as that when the shield has been fully entered, the groove shall have disengaged the pin (*a*) from the notch (*z*); and thus released the spring (*e*); which then acts on the plunger (*b*) and forces the caps up against the guard plate (*f*) arranged in the forward end of the hammer, thereby bringing each cap in succession immediately over the upper end of the slide (E) that forces the caps into the discharging chamber (C) of the hammer, through the channel (*o*) formed between the guard plate and that part of the hammer that forms the front end of the magazine chamber, and as seen in Fig. 3.

In making the plunger it is deemed better to make it of some light material such as hardwood, bone, or ivory or of soft metal, but ivory or bone is preferred, as while they are of sufficient hardness, toughness and strength to retain their shape in continued use, they are still not of a weight sufficient to effect an explosion of the caps during the reaction of the spring on a cap being exploded by the descent of the hammer on the nipple.

In order to retain the magazine or shield (D) securely to the hammer on being inserted in the magazine chamber (A) a spring catch (*g*) is suitably arranged and secured to its side (as shown in Fig. 5) which takes into a notch (*u*) formed in the upper side of the chamber (A). This plan not only renders it easy to be removed and replaced for the purpose of charging it, &c., but also lessens the projection of the head piece beyond the rear end of the hammer which is for many reasons, here unnecessary to be mentioned, a great objection.

In securing the guard plate (*f*) into the front of the hammer it is mdae with a shoulder on one side, against which one side of the head of the slide (*h*) plays, thus forming a depression at it were of a depth sufficient to permit that end of the slide to play only up and down between the guard plate and the inner face of the hammer opposite the front end of the magazine chamber. Thus made it is dovetailed in the hammer (B) as shown in Figs. 1, 2, and 3, and held in place by a screw (*i*), the head of which is so cut as to admit of the guard plate being inserted in the face of the hammer; and on its being inserted and the screw head turned around as shown in Fig. 1, to retain it securely in place.

By making the guard plate removable, it enables the party using the lock thoroughly to clean the chamber (A) should it become foul.

The slide or pusher (E) that forces the caps from the magazine into the discharging chamber (C) is arranged to slide in a groove (*t*) formed on the inside of the arm of the hammer, both it and the hammer being suitably curved (as see Fig. 4) to bring the cap and discharging chamber immediately over the nipple (F) of the gun, the nipple in this instance for the purpose of illustration being represented as forming a part of the lock, while in practice it is attached or secured in the gun chamber.

In the bottom of the groove (*t*) is formed another groove (*s*) of a width and length sufficient to receive the spring stop or tooth (K). This groove is inclined (see Fig. 1) to a depth sufficient to receive the spring-tooth in its normal position as shown in Fig. 9 for a purpose to be hereafter described.

To the side of the pusher or slide (E) is pivoted a spring stop or tooth (K); which projects beyond the lower end of the slide, and rests on a cam (*t*) or half cylinder suitably arranged in the arm of the hammer, to which it is secured by a pin passing through the sides of the hammer and taking

into a groove (*r*) formed on the end of the cylinder, as see Figs. 9 and 10, but so that it will be free to turn a half revolution on its axis. In the side of the lock immediately opposite the spring tooth is cut a hole (*g*) of a size slightly larger than the tooth so as to give to it a slight play, by means of which and the spring tooth being pivoted to the slide the necessary compensation will be given to the slide for the difference between the orbit in which it plays and the orbit in which the hammer plays. But this in a measure may be effected if deemed advisable by hinging the upper end of the slide to its arm.

On the end of the cam (*t*) is formed an arm (*m*) of suitable shape by means of which the cam is operated so that when the slide is in the position shown in black lines in Fig. 4, and placed on the lock, the depressed or halved side of the cam being upward thus allowing the spring to assume its normal position as shown in Fig. 7 the slide will be out of gear and tightly kept in position by means of a groove (*s*) in such manner as to shut off all communication with the magazine chamber, and hence the hammer may be raised and lowered without operating the slide or opening the mouth of the magazine inasmuch as the spring stop or pin (*k*) is retracted or disengaged from its bearing (*g*) in the lock plate and therefore free to travel with the hammer as if it formed a portion of the latter. But by causing the arm (*m*) of the cam (*t*) to perform a half revolution from its position in black lines to its position in red lines Fig. 4 and in black lines Figs. 2 and 3, when the hammer is down on the nipple, the position of affairs is reversed as that motion has caused the raised or full side of the cam to compress the spring (*n*) and force its tooth into the hole or bearing (*g*) in the lock and free it from the groove (S); so that when the hammer is raised and as it moves on an axis independent of and away from the axis (*k*) of the slide, it withdraws the slide from the mouth of the magazine or shield (D) and allows the plunger (*b*) and spring (*e*) to force a cap against the inner side of the guard plate (*f*) immediately over the upper end of the slide; so that as the hammer is depressed and consequently moved toward the axis of the slide (E) it causes the latter to force the cap thus arranged over its head into the discharging chamber (C) where it is held by centripetal force until discharged by the descent of the hammer upon the nipple.

By turning the arm (*t*) of the cam back again to its former position, so as to turn the depressed side of the cam toward the spring (*n*) thereby allowing the spring to assume its normal position, the slide will be thrown out of gear, &c., as before; when the hammer can be operated without disclosing the mouth of the magazine or forcing a cap into the discharging chamber; so that the hammer if desired can at any time be used in connection with the common percussion cap.

In order that the slide when fixed for operating may be kept in gear, a spring (*p*) is secured to the front side of the arm of the hammer which takes into a notch (*v*) cut on the inner face of the arm of the cam, and if deemed necessary another may be arranged to keep it out of gear; or the spring catch may be secured to the inner face of the arm (*m*) as shown in red lines in Fig. 9 in which event suitable indentations may be formed on the front side of the hammer to retain it in either position. Or instead of the devices for throwing the slide in and out of gear being arranged in the arm of the hammer they may be suitably constructed and arranged in the side of the lock plate, or other equivalent devices may be substituted for these and combined with the slide (E) as arranged and operated without altering the principle of my invention.

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

The combination of mechanical devices substantially as herein described with the slide (E); by means of which the latter can be either kept rigidly in position over the mouth of the magazine chamber, thus intercepting all communication with the latter; or be thrown in gear with the lock plate so that by cocking the hammer it will be operated in such manner as to force a cap from the magazine chamber into the discharge chamber of the hammer, on the descent of the latter upon the nipple for the purposes set forth.

In testimony whereof, I hereunto set my hand to this specification.

FRANCIS H. BELL.

Witnesses:
W. LERKE,
E. MUSSLE.