C. F. & A. H. PALMIE.

Breech-Loading Fire-Arm.

No. 11,835. Patented Oct. 24, 1854.

Fig. 1

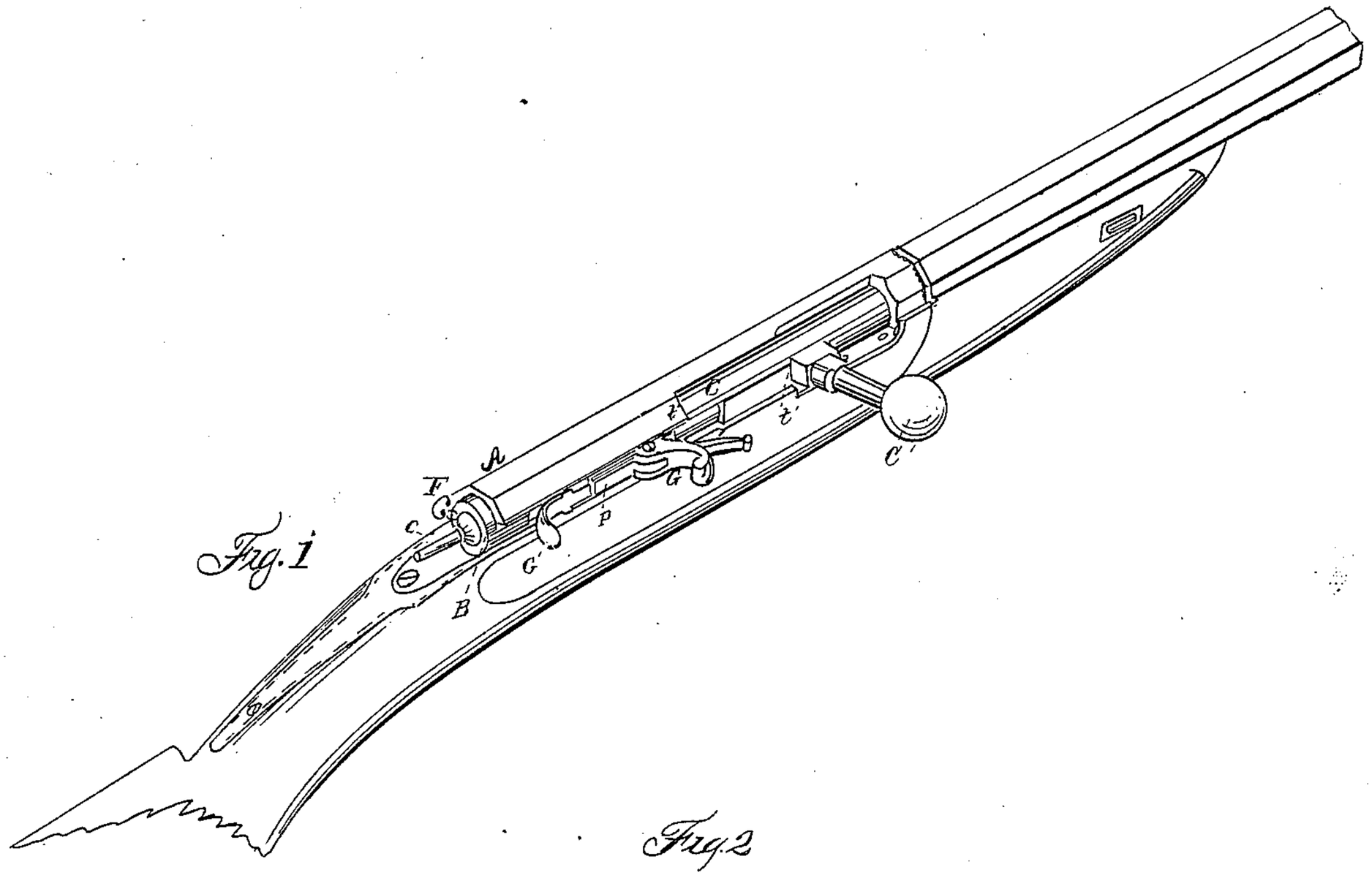


Fig. 2

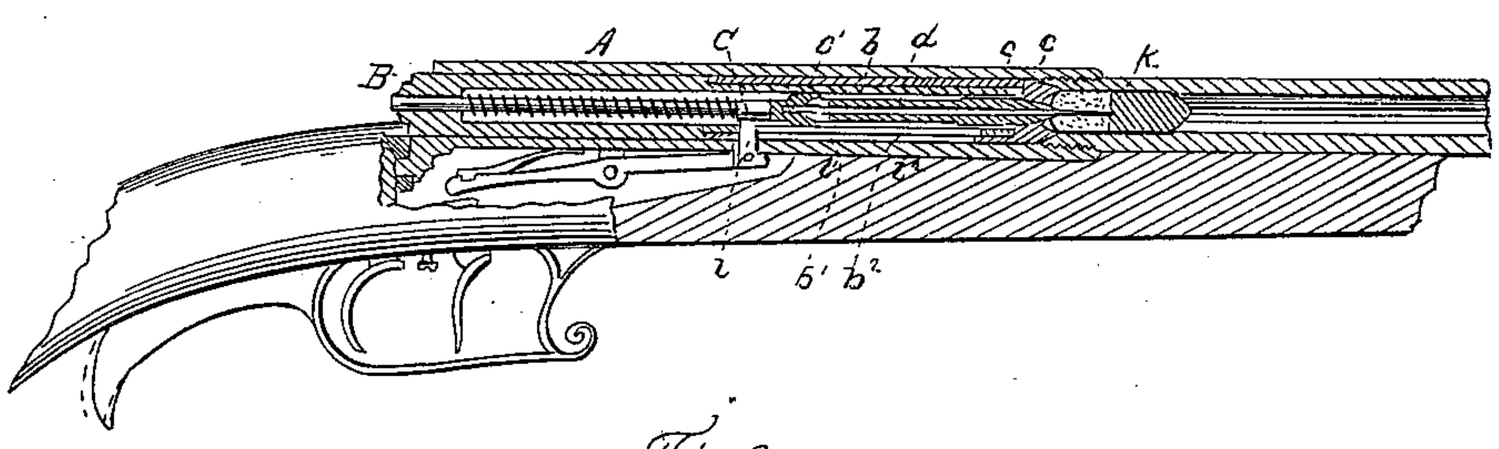


Fig 3

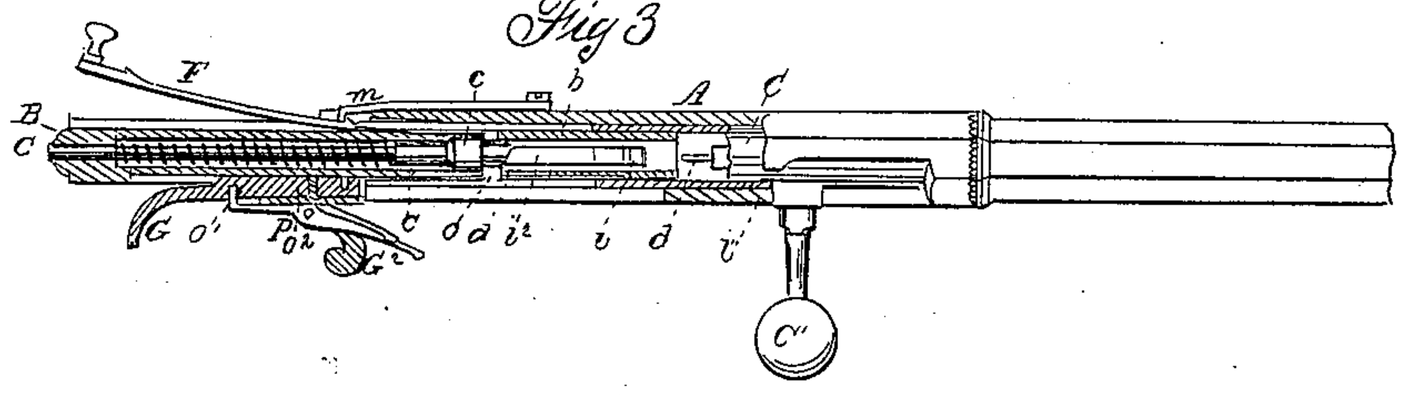
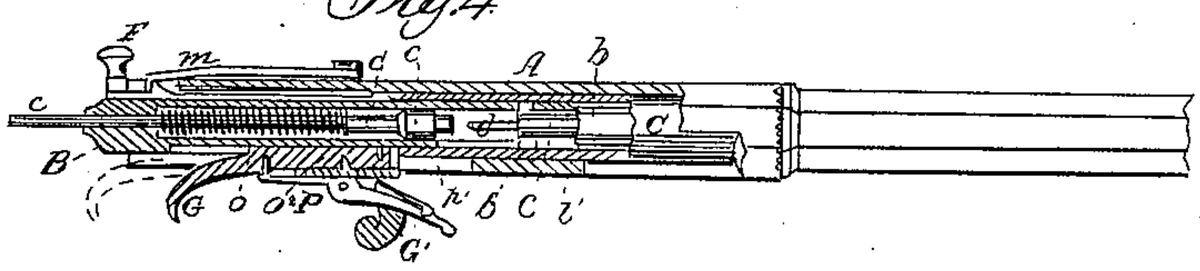


Fig. 4



UNITED STATES PATENT OFFICE.

GUSTAV F. PALMIÉ AND A. H. PALMIÉ, OF BERLIN, PRUSSIA.

IMPROVEMENT IN FIRE-ARMS.

Specification forming part of Letters Patent No. **11,835**, dated October 24, 1854.

To all whom it may concern:

Be it known that we, GUSTAV FRIEDRICH PALMIÉ and ANTON HERRMANN PALMIÉ, of Berlin, in Prussia, have invented certain new and useful Improvements in Repeating Fire-Arms; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawings, making a part of this specification, in which—

Figure I is a perspective view of the gun having our improvements. Fig. II is a longitudinal vertical section. Figs. III and IV are longitudinal horizontal sections; and similar letters indicate similar parts in all the figures.

Our invention consists in certain improvements in the touch-needle gun: first, in the formation of a valve and valve-seat upon the spring guide-bar and guide for the needle to prevent the possibility of back fire; secondly, in a safety-lock to prevent the possibility of firing by accidental discharge.

All the works lie in a cylinder, which we call the "breech-chamber," and is seen at A in the several figures. To one end the barrel is screwed, as shown. The other end is left entirely open, so that the whole mechanism of the gun may be taken apart and replaced with the utmost facility. Within the breech-chamber are two cylinders having the same external diameter, and divided about in the middle. One cylinder is the spring-chamber, and is seen at B; the other at C. These two cylinders fit together by a draw-tube turned down from the cylinder B, or fitted on, as may be. By this means the cylinders are lengthened out or pushed together to the length of the inner tube, *b*. The cylinder B contains the needle-bar, needle, and spring. The bar is seen at *c* passing through a hole in the back end of B, forming a long bearing. The other end terminates in an enlarged head, hollowed out, as shown at *c'*, Fig. II, being thus fitted to receive an elastic material which forms the valve before mentioned; and here also the touch-needle *d* is fitted in by a screw, as shown. The end of the breech-plug C toward the barrel is turned down and beveled to make a tight joint at its junction with the barrel, in the manner common to this description of fire-arms. At this place also a screw is cut which receives and secures a small tube, which is the needle-guide, as shown at E. The back end of this tube forms the seat of the valve *c'*, as it is only through this there is any possibility of fire or powder being driven backward. On the under side of the breech-plug C there is a slot cut to allow the toe *i* on the discharge-lever, which connects with the trigger, to pass through and engage on the end of the spring-guide *c'* when the spring is cocked. The opening is made a slot, as seen at *i'*, because the breech-plug must be capable of being drawn back and forth in the breech sheath or cylinder A; and for a like reason the tube *b* has a slot also cut at this place, as seen at i^2, Fig. II. On the outside of the breech-plug C there is a knob, C', which is for locking the breech-plug in its place and operating it when a charge is to be put into the barrel. Upon the spring-chamber B there are two fixtures used in operating the gun. One is the locking-spring seen at F, Figs. I, III, IV, and the other is the safety-cock to prevent the lock from going off by accident when the gun is cocked, and is also used to keep the mainspring slightly compressed by preventing its full expansion when a discharge takes place. The locking-spring F, when the cylinder B is in place, lies in a recess or groove cut longitudinally upon B, so that the surface of the spring lies flush with the general outline of said cylinder. The spring has two catches on it. The innermost one prevents the spring-chamber B from being drawn out too far, as shown in Fig. III, while the outermost catch locks the said chamber in place when pushed fully within the breech-chamber, as seen in Fig. IV. The catches take hold of a detent-spring at *m*, Figs. III and IV, screwed to the side of the breech-chamber. By the simple operation of raising this detent to clear the catches, the whole of the internal mechanism may be withdrawn or replaced, the trigger being pulled to withdraw the stud *i* from the slots *i' i²* as the cylinders pass by.

The safety-cock consists of an external draw-bolt, which is combined with an internal stop to act against the mainspring's guide-rod *c* at the head or enlarged part, which bolt is capable of being locked by a detent-spring, so as to hold the needle-bar or guide-rod back and prevent the expansion of the mainspring should the stud or toe *i* be withdrawn by an

accidental or other movement of the trigger. The gun cannot, therefore, be fired when the said bolt is thus situated.

The draw-bolt is seen at G in Figs. I, III, IV, and consists of a piece of metal formed so as to have a finger-hold by which to operate it, and it slides in a groove cut in the side of the spring-chamber, and is held in place by a guide-box, G′, in which is also situated the detent-spring. The draw-bolt terminates in a thin tail-piece, which passes along the side of the spring-chamber, lying in a recess, so that its surface will lie flush. This tail-piece has on it a stud. (Seen at *o*, Figs. III and IV.) In Fig. III is shown how the stud acts against the end of the guide-bar to hold it. In the back part of the bolt there are two recesses cut to receive the locking end of the detent-spring. These are at *o′* and o^2, Figs. III and IV. At *p* is the detent-spring, consisting of a finger-lever having a set-spring under one end to keep the detent always pressing toward the recess, the detent being shown locked in the recess *o′*.

The operation of the gun is as follows: First, take the gun in the left hand just forward of the lock or at the place where the barrel is screwed on, at which place the whole will be balanced. Let the breech rest against the right side at a convenient height. Then with the right hand grasp the finger-piece G, so that the thumb may be at the same time pressed upon the knob of the spring F. All the parts being supposed in the position shown in Fig. II, press the spring F, so that the first notch will clear the detent *m*. The spring-cylinder B may now be drawn out as far as permitted by the second catch on F, and will then be as shown in Fig. III. As the spring-chamber comes back, the beveled head *c′* of the guide-rod strikes the head of the stud *i* and depresses the lever, so that the head may get by. As soon as it is clear the stud rises and stands in the way of the bar and affords an abutment for compressing the mainspring. Then with the palm of the right hand strike under the handle C′. This will turn the breech-plug C partially around, by which the handle will stand just at the mouth of the slot *t*, Fig. I. Draw the plug back now until the handle strikes the stop in the slot at *t′*. The end of the plug is now so far withdrawn as to leave a clear opening in the breech-chamber just at the junction of the barrel, being a cavity large enough to put in the cartridge, which is accordingly done. Now send home the plug and turn down the handle C′, as before, and as seen in Fig. I, the end of the stop *t″* being beveled, so as to tighten the plug. Then with the thumb against G′, push the cylinder B in again until the back catch in the spring F takes into the detent *m*. As soon as the head *c′* of the guide-bar strikes against the stud *i*, the mainspring begins to be compressed by being held still, while the chamber B goes onto the closed position, when the mainspring assumes that shown in Fig. IV. The pulling of the trigger will now fire the charge by withdrawing the stud *i* and letting the spring drive the touch-needle into the cartridge as in the usual way. To apply the safety-lock and prevent the firing when the mainspring was in the position shown in Fig. IV, raise the detent-spring out of notch *o′*, then draw the bolt G back, and let the detent enter o^2, as seen in the dotted lines, Fig. IV. This movement will bring the stud *o* from the position shown, to another—viz., to *p′*—as seen in dotted lines. Here it is directly in front of the guide-bar, so that when in this position the stud *i*, connecting with the trigger, may be taken away without allowing the spring to expand. The movement of the trigger could not, therefore, fire the charge. When ready to fire, return the bolt back to *o′*.

What we claim as of our own invention, and desire to secure by Letters Patent of the United States, is—

1. The formation of a cushioned valve-seat upon the end of the needle-bar to close the opening through which the needle passes into the charge, and also to prevent concussion of the mainspring, as described.

2. The safety locking-bolt, constructed as set forth, being an independent positive stop to hold the mainspring and prevent the discharge of the gun when desired, in the manner substantially as described.

GUSTAV FRIEDRICH PALMIÉ.
ANTON HERRMANN PALMIÉ.

Witnesses:
JOHANN GEORG FREYSCHMIDT,
HERRMANN HULLEUR.