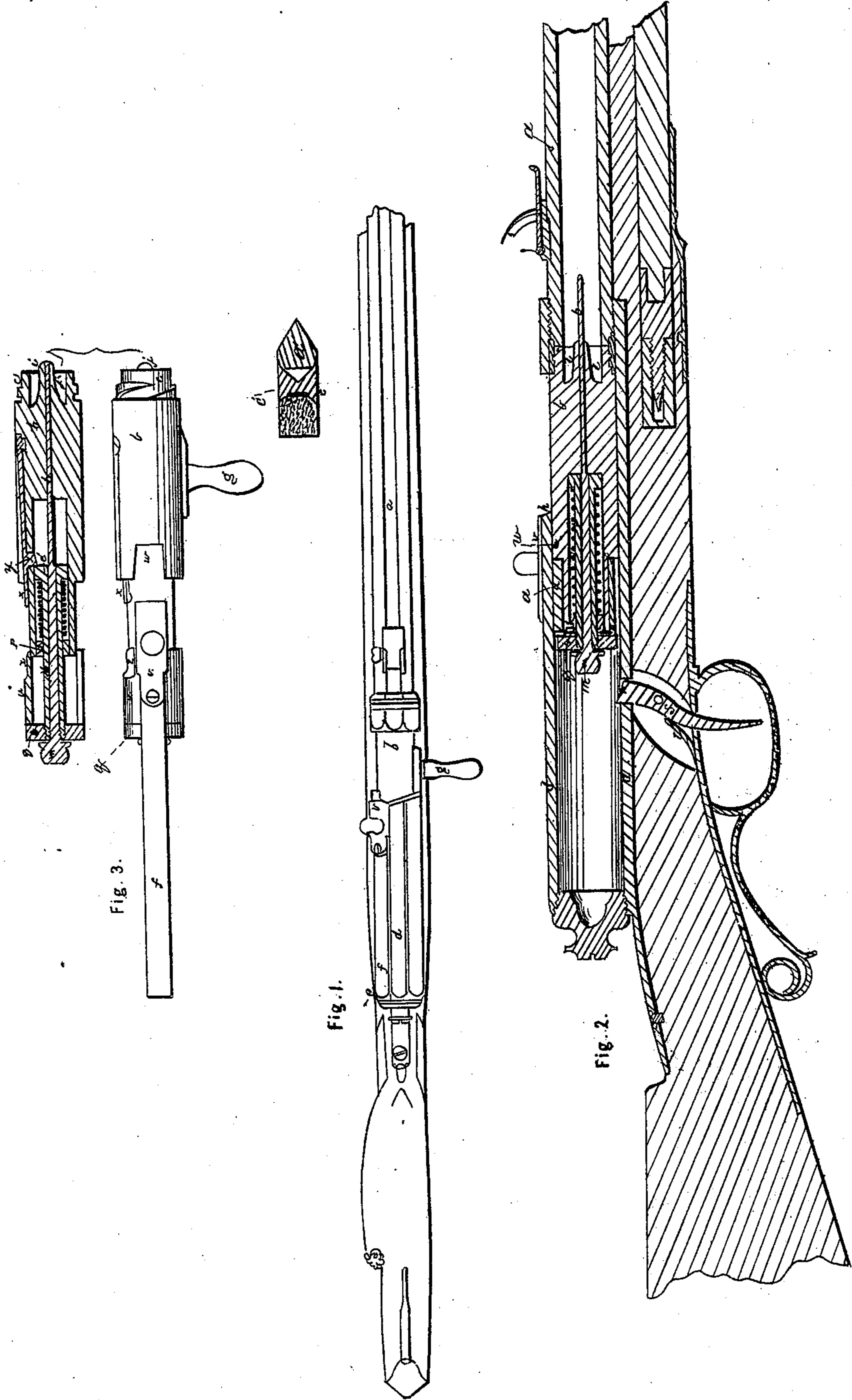


C. HARTUNG.
Breech-Loading Fire-Arm.

No. 6,871.

Patented Nov. 13, 1849.



UNITED STATES PATENT OFFICE.

CHARLES HARTUNG, OF BEICHLINGEN, PRUSSIA, ASSIGNOR TO J. B. KLEIN.

IMPROVED SAFETY SLIDING-BREECH FIRE-ARM.

Specification forming part of Letters Patent No. 6,871, dated November 13, 1849.

To all whom it may concern:

Be it known that I, CHARLES HARTUNG, of Beichlingen, in the Kingdom of Prussia, have invented certain new and useful Improvements in Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my improvements as applied to a rifle; Fig. 2, a longitudinal vertical section thereof; Fig. 3, a representation of the breech separated from the barrel.

The same letters indicate like parts in all the figures.

My improvements relate to that class of fire-arms in which the charge is introduced at the breech of the barrel, and there confined by means of a movable breech-pin.

The first part of my invention consists in adapting a sliding and turning breech-pin to a tube back of the barrel and in a line therewith, in which tube it can slide and turn for the purpose of inserting and confining the charge in the barrel.

The second part of my invention consists in fitting the movable turning and sliding breech-pin to the breech of the barrel by means of a screw-thread on the end thereof and in the breech of the barrel.

The third part of my invention consists in making the breech-pin tube with an inclined face to act against a projecting part of the breech-pin to force the breech-pin into the breech of the barrel, and to act as an abutment to resist the force of the discharge.

The fourth part of my invention consists in locking the turning and sliding breech-pin, when inserted in the breech of the barrel, by means of a sliding bar, which prevents the said breech-pin from turning after the gun has been charged, whether this be used in combination with the screw-thread on the end of the breech-pin and the inclined face of the tube, in which the said breech-pin works, or either of them, or the equivalent of either or both of them.

The fifth part of my invention consists in combining with the sliding breech-pin and the

punch by which the load is discharged, or the carrier thereof, which slides in the breech-pin, a spring-catch to hold the punch back during the operation of charging the barrel, and this part of my invention also consists in combining this method of holding back the discharging-punch with the connection of the said punch or its carrier with the trigger, whereby the trigger can only act to liberate the discharging-punch after it has been liberated by the catch of the breech-pin.

The sixth part of my invention consists in combining the sliding bar which locks and unlocks the breech-pin with the catch of the breech-pin which locks and unlocks the discharging-punch, by means of which combination the two operations are effected by the same movement; and the last part of my invention consists in making cartridges with a solid cylinder of papier-maché or other equivalent substance, with a recess at the forward end for the ball, and one at the back to receive the priming, the same being so enveloped as to have the charge of powder back of the priming.

In the accompanying drawings, *a* represents the barrel of the gun enlarged at the breech to receive the end of the breech-pin *b*, which fits therein with a screw-thread, *c*, of such a pitch that about one-third of a turn of the said pin will insert or withdraw it. The body of this breech-pin is of greater diameter than the part which enters the barrel, and cylindrical, and this enlarged part is fitted to slide and turn in a cylindrical tube, *d*, in a line with and back of the barrel, and this tube has a long slot, *e*, made in it along its whole length and parallel with its axis, to which is fitted a projecting piece, *f*, of the breech-pin, by which it (the breech-pin) is guided when inserted from the rear end as well as when moved in and back during the operation of loading, the said breech-pin being operated by a handle, *g*. The forward end, *h*, of the tube *d* is in the form of a segment of a helix, so inclined that when the breech-pin is pushed forward after the cartridge has been inserted, and then turned to the right to secure it into the breech of the barrel, the rear shoulder of the projection *f*, acting on the said inclined end, will aid the thread in forcing in the breech-pin, and during the discharge will aid the screw-thread in

resisting the recoil. In this way the breech-pin will be held firmly during the discharge of the piece.

The forward end of the breech-pin is hollowed out, as at *i*, to form an air-chamber back of the cartridge, so that the air contained therein, when expanded by the inflammation of the charge, may aid in forcing out the ball. In the center of this hollow part there is a projecting piece, *j*, pierced with a central hole, which extends entirely through the breech-pin, to receive and guide a small pointed steel rod or punch, *k*, by which the cartridge is pierced to effect the discharge. The hole in the breech-pin is enlarged from about the middle of its length, and to this enlarged part of the hole is fitted to slide freely but accurately the carrier *l* of the discharging-punch *k*, and the said punch is fitted to the carrier in the following manner: The rod passes entirely through the carrier, and is provided with a head, *m*, at the back, and that part of it which is within the carrier is of greater diameter, for the convenience of the constructor, and the rear end thereof is tapped into the carrier, so that when screwed in place the carrier and punch are one, as, in fact, they may be made of one piece of metal. The forward part, *n*, of alone of the carrier fits the hole in the breech-pin, the rest being of a reduced diameter, to receive a helical spring, *o*, one end of which abuts against the enlarged part *n* and the other against a collar, *p*, fitted to the rear end of the breech-pin, and through which the carrier slides. In this way the tension of the said spring always tends to force the punch forward. The rear end of the carrier is provided with a disk, *q*, which is screwed thereon after the carrier has been passed through the helical spring and the collar *p*. The periphery of the said disk slides freely in the tube *d*, and is for the purpose of catching onto the sear *r* of the trigger *s*, which passes up into the said tube when held forward by its spring *t* at the time the breech-pin is drawn back to insert the charge, and to hold back the carrier and punch while the helical spring is contracted to cock the piece during the operation of forcing in the breech-pin preparatory to the discharge. The pull of the trigger disengages the disk from the sear of the trigger, which permits the tension of the helical spring to force forward the carrier with its punch, which penetrates the cartridge to effect the discharge.

The rear end of the breech-pin for a short distance is reduced in diameter, and is fitted to slide freely but accurately in a ring, *u*, fitted to slide in the tube *d*, the said ring being placed therefore forward of the disk of the carrier. This ring is attached to a bar, *v*, which fits in the slot of the tube, and which, when the breech-pin is forced home, and it (the bar) pushed forward, covers up the said slot. The forward end of this bar *v* is fitted to enter a recess, *w*, in the breech-pin, so that when the breech-pin has been forced forward into the

barrel and the bar pushed forward in place it locks the breech-pin to prevent it from turning; hence the breech-pin during the discharge is prevented from moving back by the screw and the forward inclined face of the tube *d*, and prevented from turning by the forward end of the bar, which lies in the recess described, and therefore it cannot by any possibility yield to the force of the discharge.

There is a spring, *x*, fitted to a recess in the breech-pin, which spring has a projecting catch, *y*, which passes through a hole to the inside of the breech-pin, so as to drop in forward of the carrier when it is drawn back, and there hold the carrier during the operation of loading, to prevent any accident by the touch of the trigger; but as it is necessary that the carrier and its punch should be entirely under the control of the trigger when the piece is in readiness for a discharge, the parts are so arranged that by the act of locking the breech-pin by pushing forward the bar the carrier is relieved. For this purpose a part of the ring attached to the bar is formed with a curved or inclined face, as at *z*, to lift up the spring *x* and draw up the catch, so that in pushing forward the bar to lock the breech the curved or inclined face *z* of the ring acts on and lifts up the spring, with its projecting catch, out of the way of the carrier, and thereby leaves it under the control of the trigger, the sear of which holds onto the disk of the carrier, in readiness to be liberated when the discharge is to be effected. The rear end of the tube *d* is closed up with a cap-screw.

The cartridge is formed with a pointed ball, *a'*, the rear end of which is beveled and fitted to a recess in the forward end of a cylinder, *b'*, made of papier-maché or other suitable substance, and fitted to the bore of the barrel. The rear end of this cylinder is cup-formed, and in the bottom of the cup is put the priming, which may consist of any of the compounds which ignite by being struck by a pointed instrument. The compound which I use for this purpose consists of chloride of potash, one and one-half ounce; antimony, one ounce; sulphur, one-fourth ounce, and gum-arabic and water in sufficient quantities to mix the compound and make it of the requisite consistency. This compound, however, is no part of my invention, and it is only given here to aid the making of my improved cartridge. The cylinder and ball are then wrapped with paper *c'*, the charge of powder inserted in the paper back of the priming, and the paper closed up, which completes it for use.

The manner of using my improved gun is as follows, viz: The bar is drawn back until the carrier passes back of the spring-catch *y*, and its disk back of the sear of the trigger. The breech-pin is then turned to the left and moved back, which leaves the breech of the barrel open for the insertion of a cartridge, which fits in freely, the breech of the barrel being enlarged for that purpose, as it is important that

the cartridge should present sufficient resistance to the punch for effecting the discharge. The breech-pin is pushed forward and screwed into place, and then locked by pushing forward the bar, which at the same time lifts up the spring-catch to liberate the carrier and allow its disk to rest against the trigger. In that condition the pull of the trigger will liberate the punch, which is forced forward by the tension of the helical or main spring, and passes through the charge of powder and ignites the priming in front thereof. This discharge forces out the cylinder of the cartridge, and with it the ball, which, in its passage through the barrel, is guided by the cylinder. The force of the discharge is increased by the expansion of the air contained in the chamber of the breech-pin back of the cartridge.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The method of locking the breech-pin, when inserted, to prevent it from turning, by means of the sliding bar, substantially as described, and this I also claim in combination

with both or either of the methods of securing the breech-pin by the screw-thread and the inclined face of the breech-pin tube, substantially as described.

2. Combining with the sliding breech-pin and the discharging-punch which slides therein, or the carrier thereof, the spring-catch for holding the punch back during the operation of loading, substantially in the manner and for the purpose specified; and I also claim this method of holding the discharging-punch, in combination with the connection of the punch, or the carrier thereof, with the trigger, substantially in the manner and for the purpose specified.

3. The combination of the sliding bar, which locks and unlocks the breech-pin, with the catch of the breech-pin, which holds and liberates the discharging-punch, substantially in the manner and for the purpose specified.

C. HARTUNG.

Witnesses:

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WM. BISHOP.