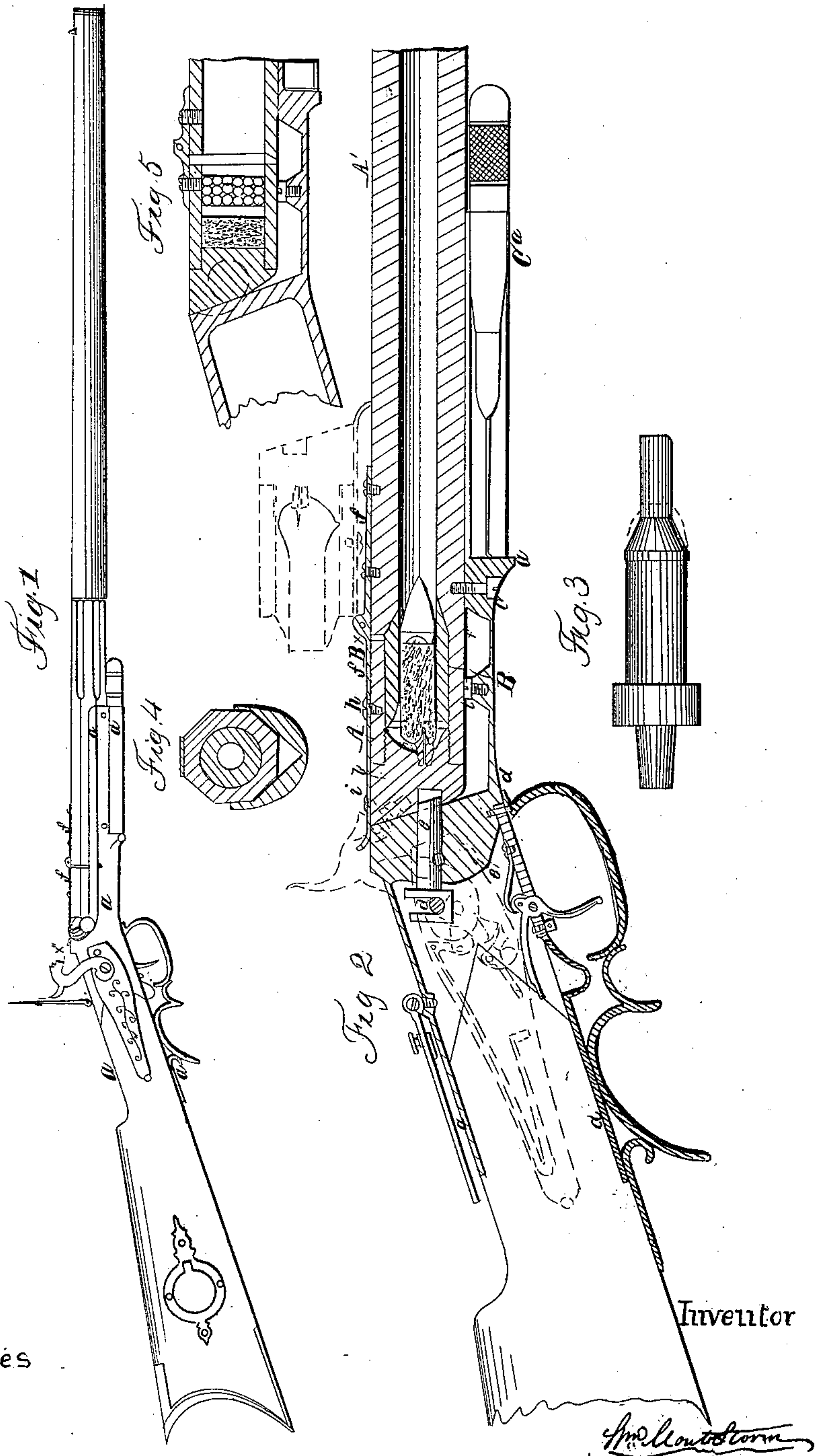


W. M. STORM.  
Breech-Loading Fire-Arm.

No. 15,307.

Patented July 8, 1856.





# UNITED STATES PATENT OFFICE.

WILLIAM MT. STORM, OF NEW YORK, N. Y.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 15,307, dated July 8, 1856.

*To all whom it may concern:*

Be it known that I, WM. MONT STORM, of the city and State of New York, have invented a new and valuable Breech-Loading Fire-Arm, of which this schedule embraces a full and fair specification.

My improvements appertain, properly, to that species of breech-loading fire-arms in which a "loading-chamber" is employed distinct from the rest of the barrel, the joint with the latter being in front of the charge, and movable, so as to be thrown open and out from the line of the bore for the insertion of the charge—as Perry's, for example—and distinguished from the other species of breech-loaders in which the cartridge (loose ammunition not being available in these) is inserted in the open rear of the barrel itself, which is then closed by a piston, cap, or slide—such as Sharps's, for example. The former class have the advantage that they are readily charged with loose powder and ball—an important point in many kinds of service. Both classes, however, have involved, as usually carried out under the various different forms, several practical defects and continual sources of annoyance, inefficiency, and derangement. For instance, in closing the joint whereat the charge is inserted the opposite surfaces, in almost every case, slide or rub over each other more or less with considerable force, which shortly loosens the joint by wear, and by the continual removal (and consequent renewal) of the thin coat of oxidation that forms or of lubrication and preventive that may be applied. This is a source of general complaint in all moist climates and under the exposure of active service. Worse still, however, is the abrading action from rubbing over the fine particles of solid residuum blown into the joint by each discharge, when the least and otherwise comparatively unimportant leak from the first cause has once occurred, and the evil is then rapidly augmented (by the red-hot gases of the explosion forcing through) by what has sometimes been termed "cutting." Again, to bring the opposite surfaces of the joint tight, and so hold it with sufficient firmness to resist without the least yield, the force of the explosion, which tends to force it open in either case, requires either too great a direct force or else the mediation of a lever or its equivalent, that the necessary force applied may be less felt by the operator. Such mechanical ap-

pliance complicates, injures the symmetry of the weapon, and tends to make it cumbrous. Now, I have obviated and removed all of these objections, with others not referred to, by the device and application, as a basing feature, of means by which this otherwise antagonistic force of the explosion is itself made to close the tighter in lieu of opening the charging-joint, while to open the same but a very slight force is required. Thus no lever is necessary, an active force taking the place in either case of any such mechanical appurtenance or passively resistant device. No rub or wear is involved, and the utmost convenience for loading with either cartridge or loose ammunition is afforded, together with the greatest cheapness of construction, elegance, and durability. In the proportions of parts I adapt those of the celebrated Wesson rifle, adding, however, in the loading-chamber at the breech an enlargement or "air-chamber," as in the improved European "needle-gun."

My weapon is best adapted to the use of the much-approved "minie" ball; but the ordinary "round," "acorn," or "picket" will answer.

For detail of construction and operation I will now refer to the drawings connected herewith, in which—

Figure 1 is an external side view, and Fig. 2 a central vertical section on a full-size scale, of that portion embracing all the operating parts of the weapon.

I employ an ordinary lock, metal stock and barrel, such as adopted in the most approved style of the usual American rifle. All this will therefore need no further description.

The stock *a* is cast of strong "malleable" iron in a single piece. *A A'* is the barrel, fitted with an ordinary breech, *b*, with the "hook" of the usual "break-off" cut away and the breech slanted, as seen. The barrel, after being finished off in the usual manner, is close and solidly fitted into the stock, and so fixed by screws, as shown. In lieu of screw *c* a "loop" and "bolt" may be used. A hole is then bored horizontally through the solid breech-plate *d* into the breech, into which is snugly fitted the round sliding bolt *e*, having a slotted bead at its rear end, as seen, into which projects the stud or pin *e'*, which is fixed in and carried by the top of the tumbler of the lock. This bolt will there-



fore be withdrawn from or projected into the breech by the elevation or fall of the hammer. Upon the top flat of the octagonal barrel, and of the same width as said flat, is then screwed the spring-hinge *f*. The relative bearings of the parts now being fixed while the barrel is (being still solid or jointless) in perfect line from breech to muzzle, it is removed from the stock, the breech taken out, and with a tool or cutter of the size and form of Fig. 3 the rear of the barrel is bored or reamed out till the shoulder *x x* of Fig. 3 bears in place of the corresponding shoulder of the breech *b*. A tubular piece of valve metal turned up to the form and size of B is then pushed in with a little oil and fine emery on its forward taper end, and it is there "ground" into its seat air-tight. It is then removed and the barrel cut in twain at the point *x' x'*, and the space left by the metal necessarily removed in the cut is filled by a metal washer flush at the outside with the barrel. The weapon is now finished so far as its breech-loading qualities are concerned, and the parts being replaced together it is ready for use.

Operation: Lift the hammer to full-cock, and *e* is withdrawn just clear of *b*. While the thumb still rests upon the hammer, the forefinger is hooked under the enlarged head of the usual vent-screw, (generally cut off smooth,) and the charge-chamber is lifted out of its bearings and thrown over upon the top of the barrel in the position shown by the dotted lines, Fig. 2, its muzzle directly facing the operator, and clear of everything for the convenient insertion of the cartridge. The chamber may then be thrown back to its original position, and the trigger may be pulled for discharge. If the chamber was not exactly home to its bearings, the bolt *e* brings it so as the hammer commences to fall, the forward end of *e* being tapered for that purpose. As the explosion takes place, the portion of the charge first ignited being in the rear of the tubular bolt-valve B, where its annular area is exposed for this purpose, together with the friction of the ball, particularly if a minie, spreading out in firm contact with the bore of the tube, forces and holds the bolt-valve firmly forward in its seat and across the joint, locking down the forward end of the chamber and perfectly tightening the joint, while the bolt *e* locks down the rear end of the chamber. To prevent any leak past the rear or side of the tube, it is there edged with a softer metal, which expands with the discharge on the principle of the minie-ball, but at the same time not preventing it (B) from moving bodily forward to press into its seat firmly by the force of the explosion.

*z* is pointed cone for puncturing the cartridge. It is placed eccentric, so as not to come opposite the "tie" on the latter.

When it is preferable to use loose powder and ball, it is very desirable that the mouth of

the charge-chamber should stand vertical while the weapon may lie horizontal, especially as when the hunter is on horseback or lying down concealed, for instance. To afford this advantage it will be seen that my chamber swivels on the screw *h*, while in the rear portion of the spring-leafed hinge *f* is fixed the taper-pointed screw *i*, which, when the chamber lies longitudinal with the barrel, clicks into a corresponding countersink in the breech, as shown, and holds the chamber snugly in that position, while still with a slight exertion it may be turned at a right angle to this when the chamber is thrown up. Although the chamber is bolted in front by the valve B, and in the rear by the bolt operated by the lock, yet to insure that in case of imperfect fitting of the breech to the surface of the "recoil-shield" or breech-plate *d*, which may sometimes occur, that portion of the surface of the breech below the center of the bore is cut away, so that the tendency of the discharge shall be to throw the body of the chamber the more snugly down into the stock, instead of the reverse; but in such case, to the end that it shall not bring too much strain upon the bolting-valve B, I introduce the stud and bearing-screw *i'*. In case of any obstruction such as kernels of loose powder being spilled in the haste of loading and lying in the valve-seat, or in case the ball, &c., is not pushed sufficiently far in when the chamber is thrown back to prevent any solid jam of the valve-face or strain upon the joint of the hinge *f*, the latter is therefore made a spring, and the fixed attaching-screws are placed some distance from the joint. The chamber will thus have an elastic yield up or down vertically in the line of its movement in closing.

In lieu of the conical form of valve-face of the bolting-tube B, its face may have the form shown by the dotted lines projecting farther into the barrel without other change whatever, in which case it has so much bolt that the stud and screw *i'* and the cutting away of the rear of the breech below the center of the bore are both unnecessary; but, *per contra*, the valve-tube B drives so compactly into its seat that unless the latter is perfectly clean it requires a considerable exertion of the forefinger in the manner described to throw out the chamber for charging. I have thoroughly tried both forms, and, all things considered, having no preference, I have shown both.

Fig. 4 is a cross-section through the chamber, showing its bearing in the stock which allows no lateral deviation of the chamber. Beneath the chamber it will be seen that the stock is so formed as to leave a recess. The object is that in case of any kernels of powder being dropped in the act of loading with a loosened or imperfect cartridge it will fall into this recess, and not block under the chamber and keep it from coming down to the horizontal line and firmly upon its proper bearing in rear of the breech, &c.

The hinge *f* being upon the top of the bar-



rel, the end of one of its leaves—say the rear one—may constitute the usual elevating spring “crotch-sight,” screw *i* serving to elevate or lower it.

Any self-acting primer—as Maynard’s, for instance—may be as readily attached to my weapon as to any ordinary rifle.

*x*’ is a little spring-hook for stripping off the shell of the exploded cap as the hammer is lifted.

*C* is an instrument for pricking open the cone, if stopped, or for removing any bit of paper, if necessary, from the exploded cartridge, if any should remain in the chamber, which sometimes, though seldom, occurs.

I have anticipated that fowling-pieces might be made breech-loading on my plan; but as there is not sufficient thickness of metal outside the bore to introduce the tube *B* or a conical valve-joint, I would make the washer *x*’ of a soft metal or some equivalent; and the descent to its place of the loading-chamber, owing to the inclined plane of the breech, (there being always sufficient play at the hinge,) would wedge the chamber forward and compress tightly upon such washer, thus closing the joint, and the chamber being so wedged, the hammer would lock it down sufficiently without the bolt *e* being used. The hinge *f* might then also be short and without spring. This arrangement is shown by Fig. 5.

Any ordinary rifle or pistol may be readily altered to my plan, like Fig. 2, it being only necessary to strengthen the stock (if of wood) between the barrel and breech, embracing the loading-chamber with a metal lining. My plan, perhaps, would apply advantageously to cannon, with simply such modifications of form as would be entailed by the difference of form between these and hand-arms.

Having now fully described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. The arrangement of a portion of the barrel at the rear sufficient to contain the charge to swing by a hinge upon the exterior (as quite distinct from oscillating upon trunnions) out from the line of the bore for the most convenient insertion of the charge, in combination with the stationary wedging incline at the rear with which it is made to correspond, and which receives the recoil, all as shown.

2. In combination with the so-hinged chamber, the long tapering valve-face projecting across the joint so far as by itself to bolt the chamber into the barrel to such an extent that no lateral force or blow can displace it from the exact line of the bore, or (as would be the case with an “obtuse angle” of valve-face) wedge the face of the valve laterally against its seat, while at the same time the taper of said valve-face shall be such in relation to the joint of the hinge that it shall swing out of and into its seat without slide upon the latter, for the reasons given.

3. Making such valve-face upon the end of

a loose tube of some hard unplastic metal projecting or extending back into the loading-chamber, of which it constitutes an essential and permanent part, and of such strength and thickness that it shall effectually resist any change of size or form by the force of the explosion or expansion thereby outwardly against the interior of the chamber, by which its freedom to drive bodily forward, as designed in the manner of a puppet-valve, into its seat by the force of the explosion to close the joint would be prevented, said tube being formed open to the full size of its bore at both ends, and thereat slightly exceeding in bore the bore of the gun, for reasons rendered clear and as is essential.

4. Extending the rear of the so-constructed tube so far back into the chamber, and no farther, that the annular edge of its open rear shall terminate opposite to or slightly in front of the point of first ignition of the cartridge, so that while its end at this point terminates and fits closely against the cylindrical sides of the chamber to prevent the explosion from passing between them, the edge of its end or the annular surface facing rearward being left purposely exposed to the forward force of the explosion, the tube will be forced ahead to close the joint between the chamber and barrel at the earliest instant of discharge, to the end that if the ball should be a loose fit in the tube and at the same time not a minie, and thus permitted escape of gas past it before it reached and tightened in the creases, the gas should not be left free to pass through the valve-joint, causing cutting, as explained.

5. Tapering the forward end of said bolt beneath, so that if the chamber is not quite home to its place when the trigger is pulled the bolt will bring it so before the hammer reaches the cap.

6. Connecting said bolt with the “tumbler” by the slotted head embracing the headless stud or screw in the tumbler, so that, there being no actual attachment of the bolt and the lock, the latter may be removed in the ordinary way without regard to the former.

7. Cutting away the recoil-bearing below the center of the bore, to insure that the explosion shall tend to throw the chamber the more tightly down into the stock, in lieu of any chance tendency upward out of its seat.

8. The fixed unyielding stud and bearing-screw for receiving the force of this downward action, that it may not be exerted upon the under side of the valve-face.

9. Forming the recess in the stock beneath the chamber to receive any powder spilled in loading with a broken or leaky cartridge, so that it shall not block under the chamber and prevent it coming down to a horizontal line and in contact with its bearings.

10. The arrangement of the hinge of the chamber upon the top of the latter, in lieu of elsewhere, whereby the chamber is thrown over in the most elevated and unobstructed position for the insertion of the cartridge,



while the barrel will then bear the weight of the chamber when open, and not the joint of the hinge, and the stock need not be cut away and weakened, as would be the case if the chamber swung laterally, and at the same time the hinge can then constitute the crotch-sight.

11. Making said hinge a spring and so arranged as to yield, as described, in case of any obstruction lying or adhering in the valve-face.

12. Swiveling the chamber so that when open it may be turned with its mouth vertical for convenient loading with loose ammunition while the weapon lies horizontal, &c., as explained.

WM. MONT STORM.

Witnesses:

JAS. W. HALE,  
GEO. M. BOWEN.