

Witnesses
 Frank A. Brooks
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Inventor
 James W. Wilson
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3 Sheets—Sheet 2.

J. W. WILSON.
Breech Loading Fire Arm.
No. 241,466. Patented May 10, 1881.

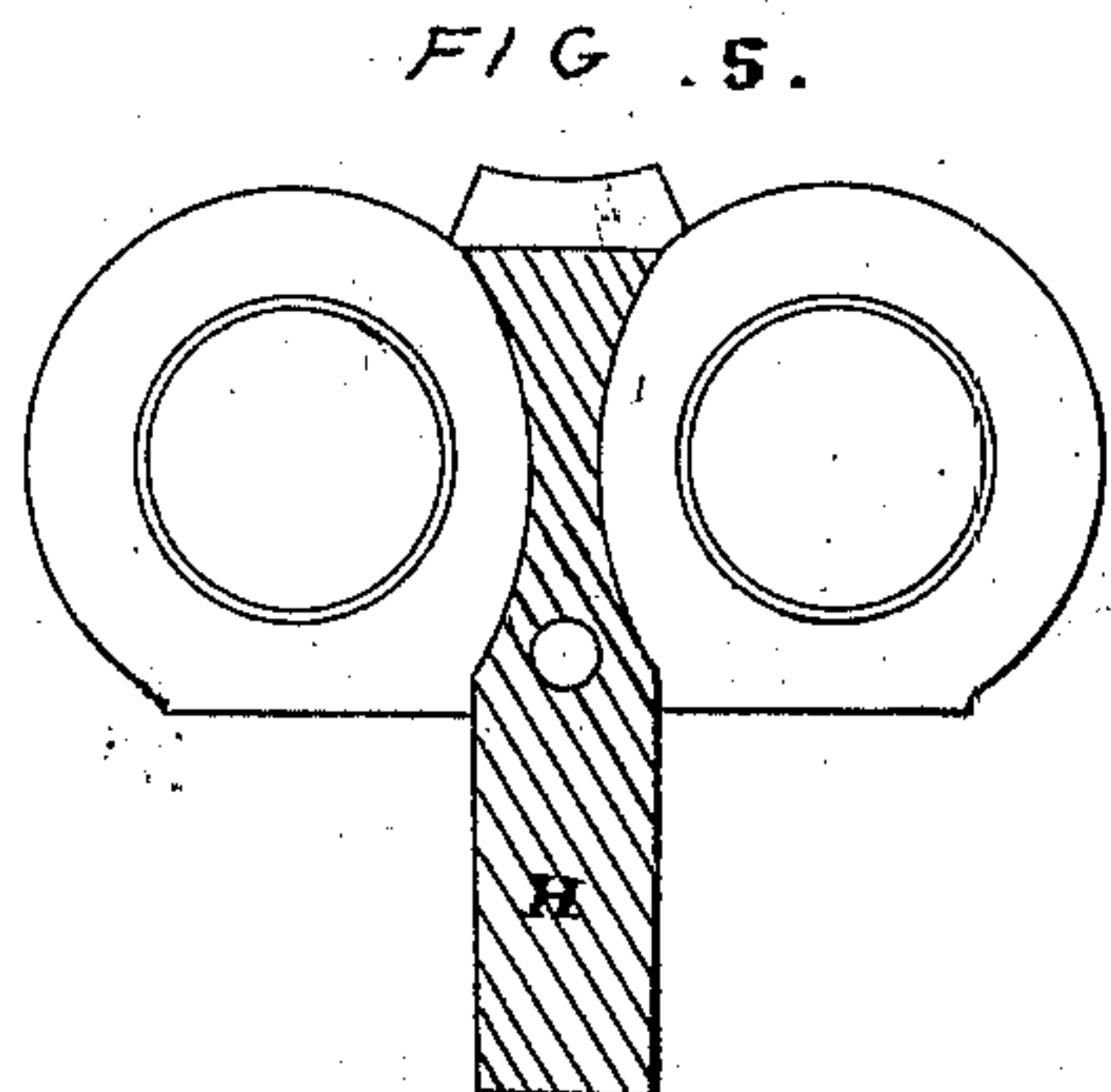
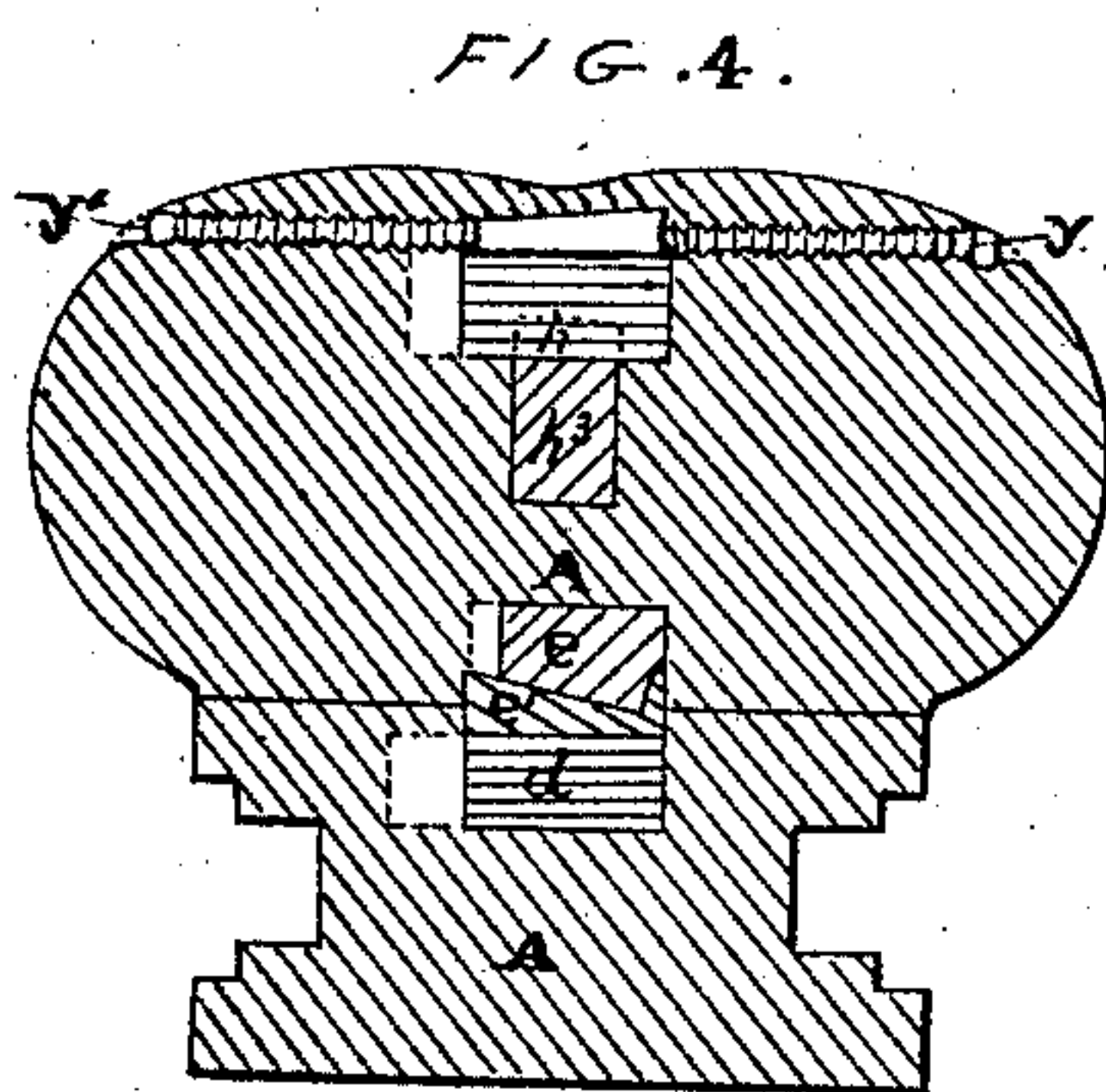
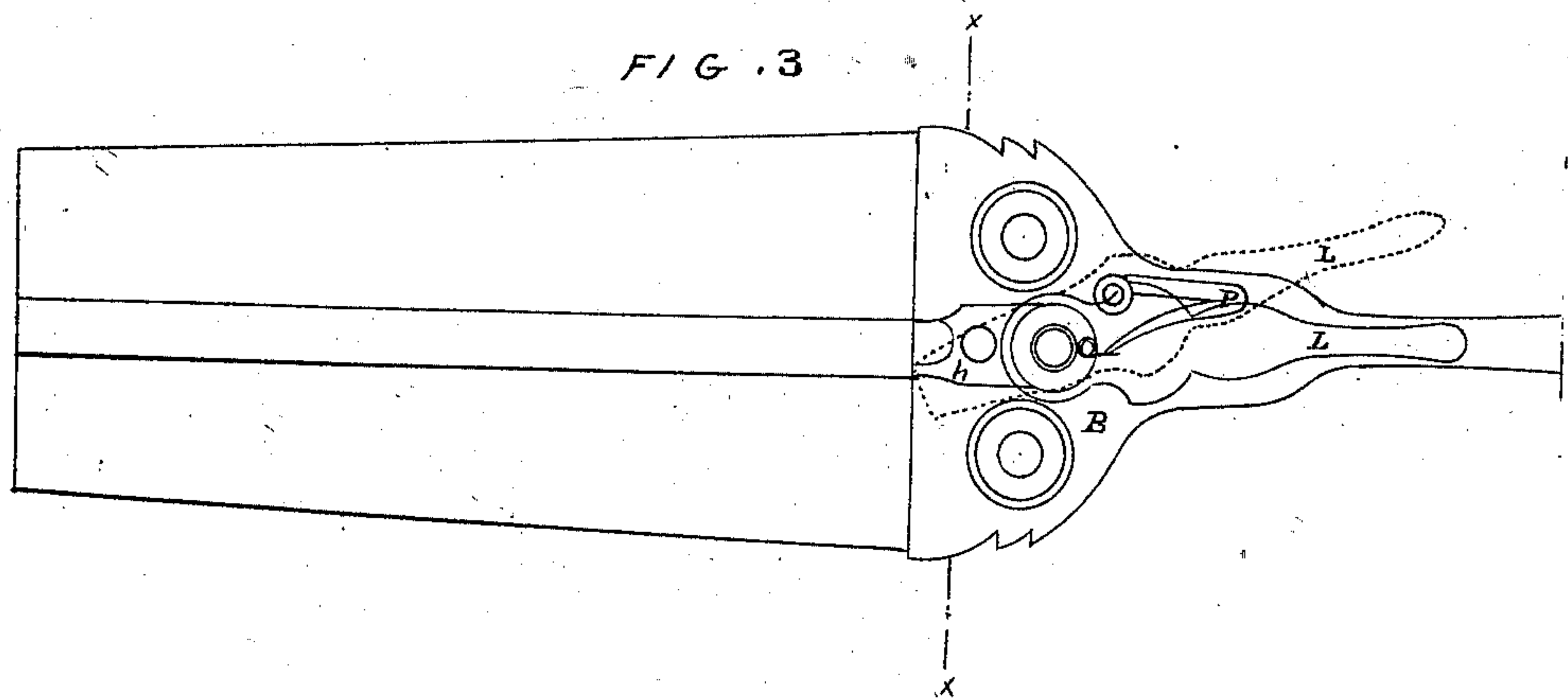


FIG. 6.



FIG. 7.

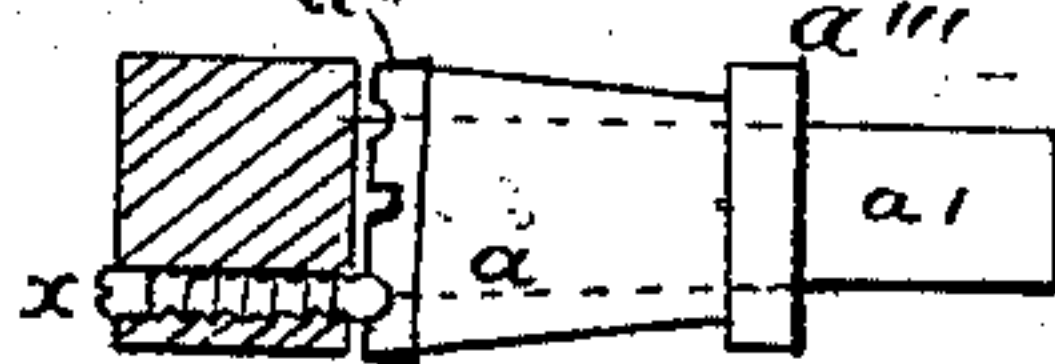


FIG. 8.

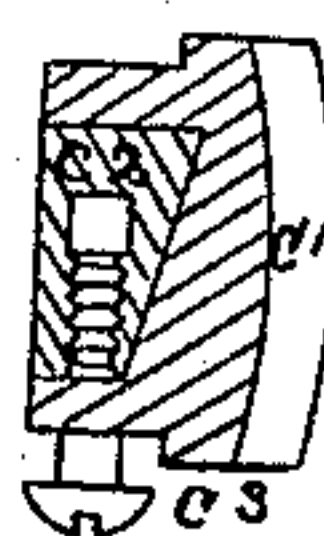
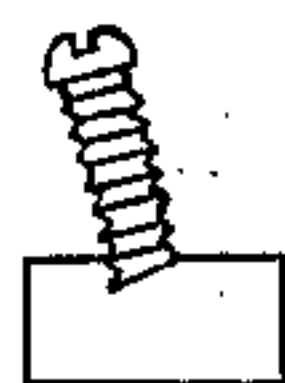


FIG. 9.



FIG. 10.



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Fig. 16.

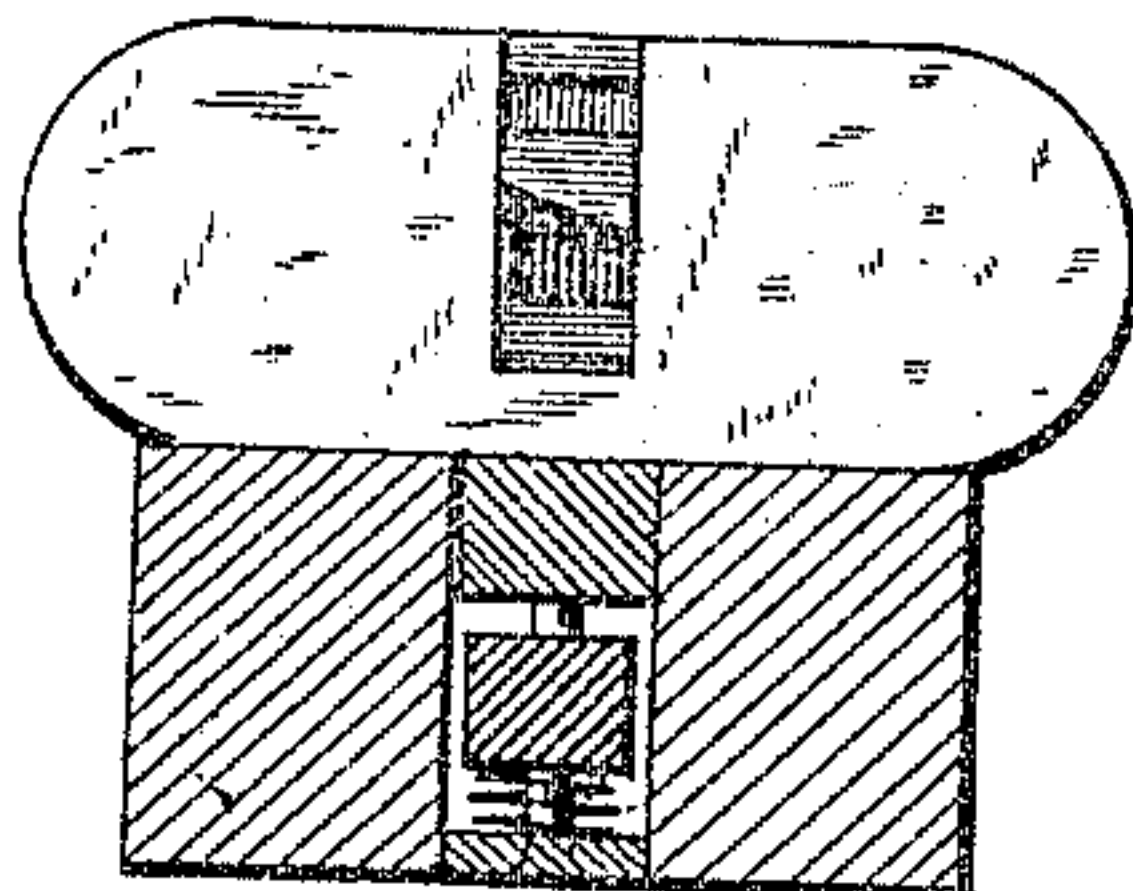


FIG. 11

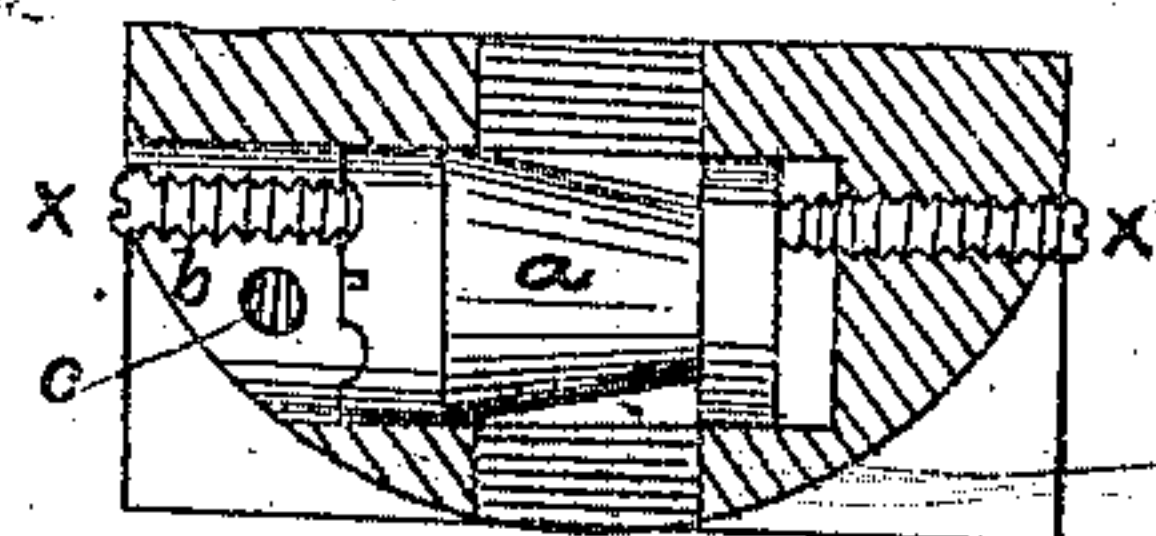
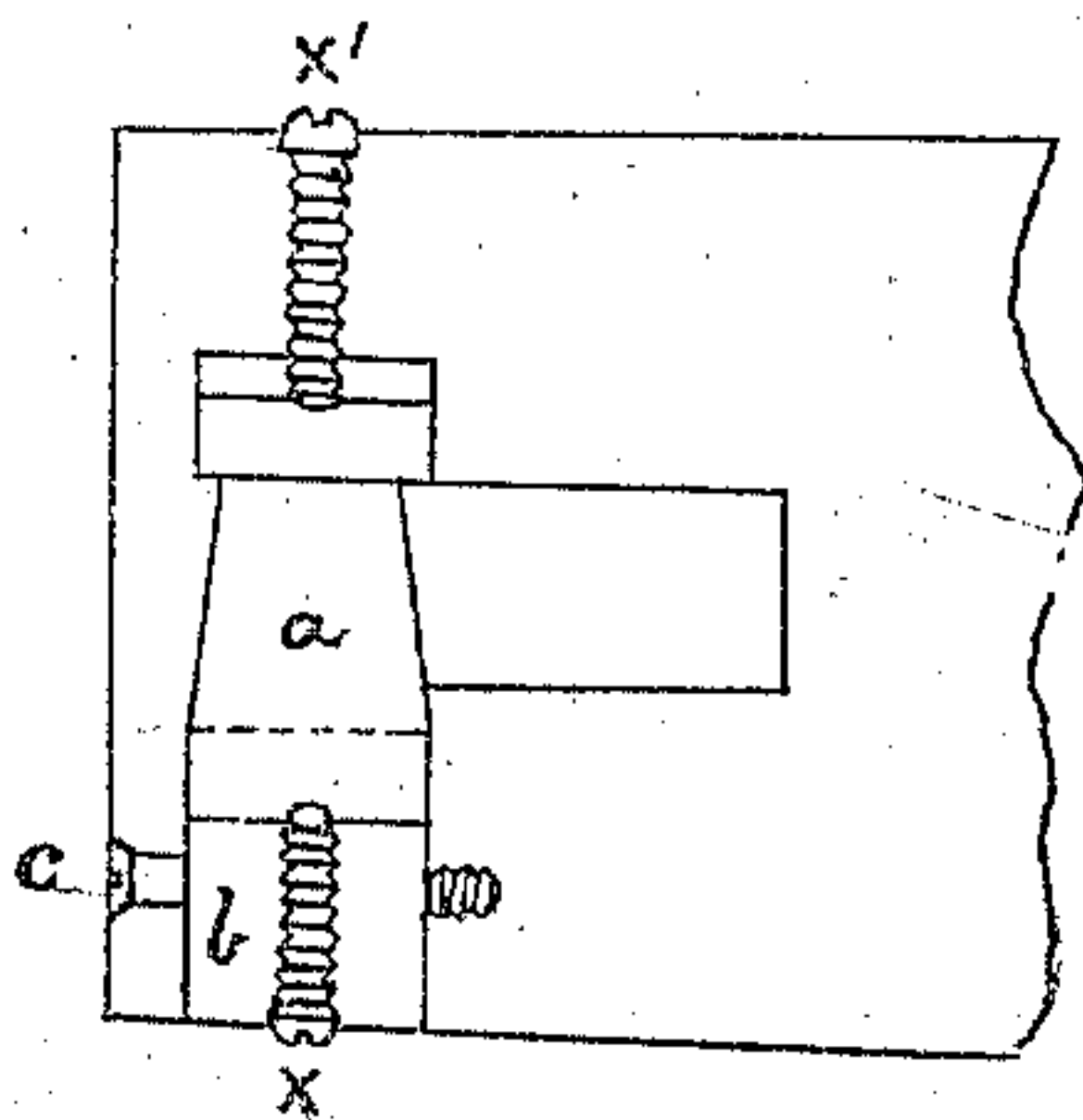


FIG. 13

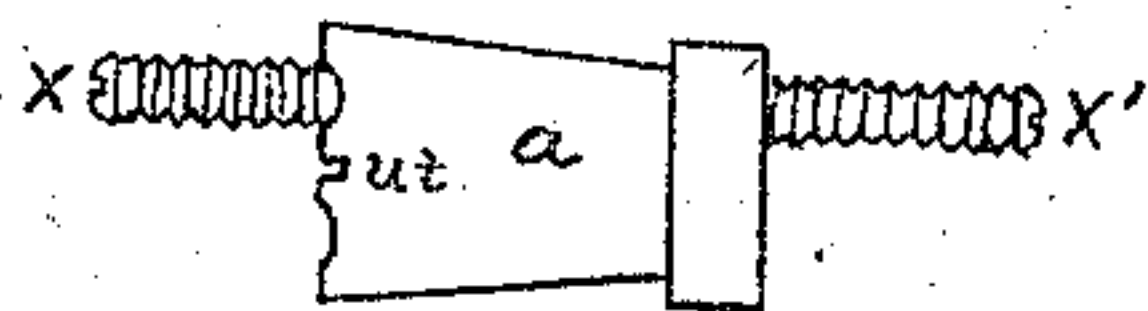


FIG. 14

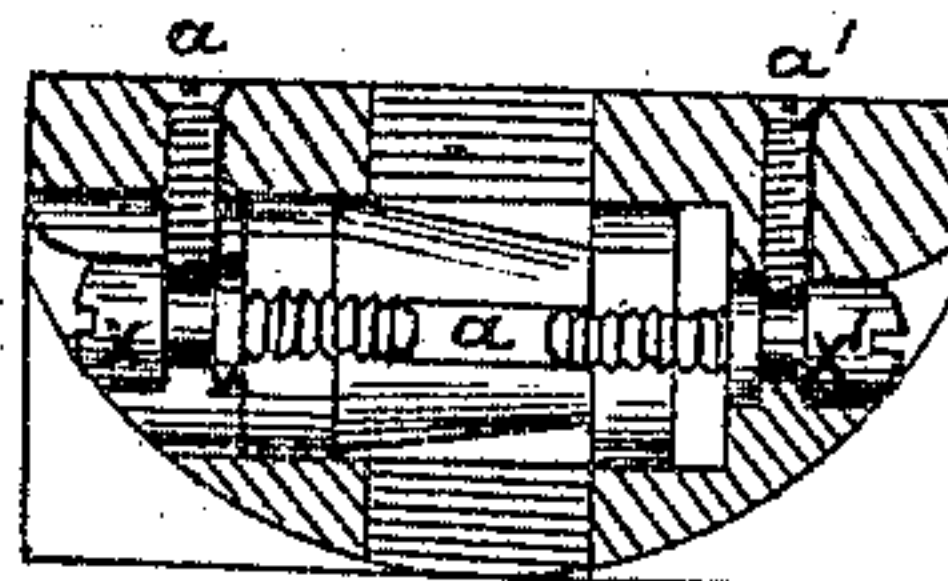
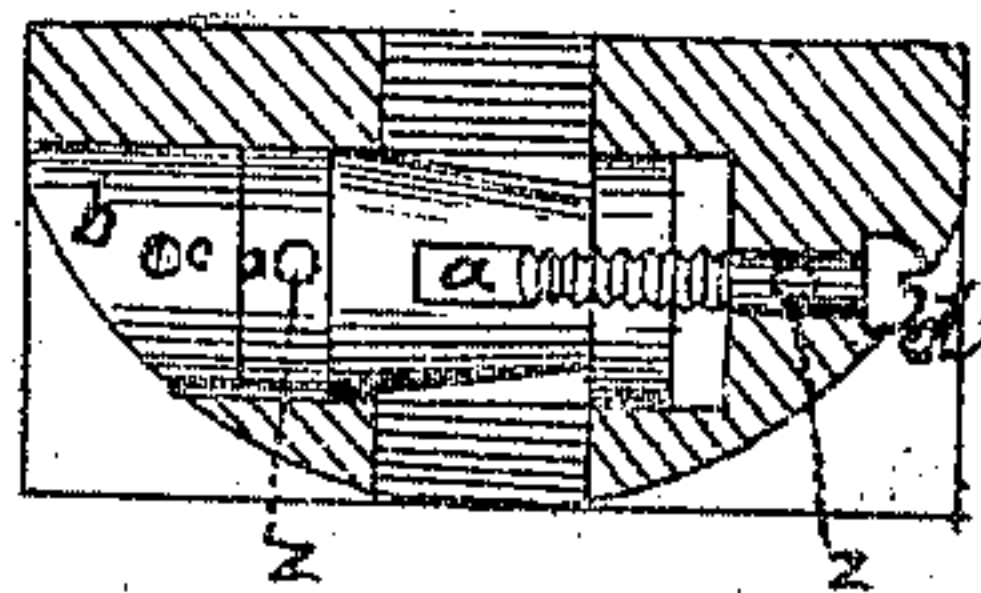


FIG. 15



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES W. WILSON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE
HALF TO ISAAC T. MILLIKEN, OF SAME PLACE.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 241,466, dated May 10, 1881.

Application filed May 20, 1879.

To all whom it may concern:

Be it known that I, JAMES WENTZ WILSON, of the city and county of San Francisco, and State of California, have invented Improvements in the Construction of Breech-Loading Fire-Arms, including devices to take up the wear in the joints, locking devices, and operating parts; and I do hereby declare the following to be a description thereof.

My invention relates to certain improvements in the construction and mechanism of breech-loading double or single barreled guns or rifles, whereby I am enabled to produce a more perfect action of the parts, a stronger and more secure locking of the barrels in place when closed, by means of a compound treble and rotating gripe and positive wedge-fast action, and a quintuple compensating mechanism, whereby all wear of the joints, gripe, or locking mechanism may be easily taken up and compensated, the whole gun being made strong, solid, easily operated, and having little liability to wear, so that it makes a thoroughly satisfactory and perfect action, and is for this reason available for express-rifles, double or single, as well as for double or single barreled shot-guns.

In order to more completely and fully explain my invention, reference is made to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section through working parts of my gun. Fig. 2 is a plan view of the action. Fig. 3 is a plan view of the breech of gun, with the locking device in dotted lines. Fig. 4 is a vertical cross-section through line *x x*, Fig. 3. Fig. 5 is a vertical cross-section through the barrels and hinge-pin lugs. Figs. 6 to 16 are details to be referred to.

The barrels in my gun are secured by a hinge pin or bolt, *a'*, to the action in the manner usual to this class of guns; but my hinge-pin and joint are placed from one-half to three-fourths of an inch farther forward and away from the standing breech than in guns as now made, so as to add to the strength and stability of the gun. The joints present broad bearings to reduce the wear as much as possible; but in order to take up any slight wear which will take place in these parts I employ a series of

chanical elements, which will be more fully explained hereinafter.

To describe this first compensator, I begin with the cotter or key in the fore end, as shown at *o k*, Figs. 1 and 6. The back part of this key is dovetailed in form and slides in a corresponding groove in the fore end of the hinge-strap *O*, which has a boss, 15, formed upon it, projecting downward to the catch-strap of the fore end *V*, and provided with a dovetailed groove to receive the key. A screw, *U*, passing through the catch strap abuts against the lower end of key *o k*, and when turned moves the key toward the barrels, which, pressing against the lug or loop lump on the barrels, moves the fore end with the hinge-strap *O*, so as to force it back against the end of the action, where it works and closes the joint, thus ending all shake or rattle at this point, where guns first show looseness when opened. It must here be noted that this adjustment is made when the fore end is on and in place. The screw for adjusting is on the outside of the gun, easily got at, and operated without taking the gun apart; hence all loose motion could be quickly and accurately taken up. It can be felt by the movement of the screw, and seen by the closing of the joint, when the proper adjustment is made, which is an important point.

In order to compensate for any wear upon the hinge-pin *a'* and the lug *H* upon the barrels, which work together in opening and closing the gun, I place a hollow frustum of a true cone, *a*, upon the hinge-pin proper, *a'*, Fig. 7. This frustum of a true cone has a solid head, *a''*, externally at the base or large end, and an annular solid flange or collar, *a'''*, for a bearing at the small end. This particular form, with the fitting upon the pin, gives greater bearing-surface and strength to resist the strain, besides rendering the adjustment simple, easy, and effective, with the aid of the set-screw *x*, passing through the head of pin *a'* and jam-screw *x'*. (See Figs. 2 and 7 of drawings.) The end of the cone is countersunk at certain points to receive the end of the set-screw *x*, and thus the cone is held in position at any point to which it may be rotated upon the bolt, while the jam-screw *x'* is turned up against the re-

verse end of the cone, so that it cannot move longitudinally upon the bolt to bind the action in closing the gun. A slot, *u t*, is also made across the base end of the cone to receive a screw-driver, by which the cone can be turned when desired, so that new recesses can be presented to receive said screw *x*, thereby presenting a new unworn surface of the cone to the hook in the lug at *S* whenever wear on the parts makes it desirable or advisable.

One of the most serious difficulties encountered in this class of guns is the tremendous strain which is brought to bear upon the hinge-pin and point of the lug by the dropping down of the barrels when the gun is opened, and this is the prime cause of so many guns becoming loose and shaky after but short use. To remedy this I employ the check-hook *b*, which engages with the relief-bar *b'*. This check-hook is formed upon the rear of the hinge-pin lug *H*, and when the barrels drop down it is arrested by the relief-bar, and all strain is taken off the hinge-joint. This relief-bar extends across the gun and has the buttons *m m*, Fig. 2, upon each side, so that with the thumb and finger the bar may be drawn back and disengaged from the check-hook when it is desired to dismount the barrels. The springs *n n* hold the bar to its proper position, or return it after it has been retracted, thus securing a novel, and at the same time a most substantial, stop or check to the falling barrels, besides affording the most ready and convenient method for easily and quickly mounting or dismounting the barrels.

A novel and one of the best features of my gun is the gripe and compensator shown in the bridge of the action. This is formed, as shown at *c'*, in an arc of a circle, the convex face of which is angular or of a dull *V* form in cross-section. The face of the lug *H'*, which fits over this curved angular face *c'* when the gun is closed, corresponds with it in shape, and as it passes down quite through the body of the action it provides a broad deep surface to steady and hold the barrels in place, and when they are locked in place it will be seen that the curve of the arc will also act as a lock to prevent their being moved vertically, and at the same time the *V* form of the faces prevents all lateral motion. The convex section of this arc is a movable block, *C*, soundly embedded in the body of the action, except the face, the form of which is above described, and which works against the lug *H'* upon the barrels, while the rear or back part of said block is in the form of an inclined plane with projecting tangs, which, with the ends of said block, enter the action longitudinally, and thereby hold the block firmly in place. I have fitted another inclined-plane piece, *C²*, which is rectangular in form, except on the sloping side, against and behind the sloping back of the first-named block within the body of the action. These two inclined-plane faces work against each other by means of adjusting-screws. In order to compensate for any wear which may take place at this point

I employ a screw, *C³*, which enters this last-named inclined plane *C²* from the outside of the action, where it can be got at and worked while the barrels and parts are all in position, and it will thus be seen that by turning this screw in at any time the inclined plane *C²* will be drawn down, which movement will force the other piece on the inclined-plane block *C* out and against the lug or lump upon the barrels, and their working faces will thus be brought to a perfect fit. The ease with which it can be got at and worked, and its effectiveness in the performance of its functions, makes it a valuable improvement. The form of these faces is also such as to give one-fourth more wearing-surface than if flat, and this portion of the device, serving at once as a guide to the barrels when moving, and a lock when closed, gives such steadiness, vertically and laterally, and solidity to all parts that it may be applied to double and single barreled express-rifles, in which it is important that the steadiness of aim should not be deranged by any vibration of the piece when discharged.

In addition to this device I employ two others, which I term "clamp-locks;" these are formed as follows:

K is a square bolt passing vertically up through an extension, 2, of the breech behind the standing breech, and on which are fitted sleeves *d''* and *h'*, carrying the upper and lower locking-clamps, *h* and *d*. The lower end of sleeve *d''* rests on a screw, 22, by which means it may be lowered when the plates *c e'* are to be set up, and the sleeve *h'* is supported by screw *f²*, which passes through lever *L* into the sleeve. These locking-clamps project toward the front and engage with lugs upon the barrels of the gun, as will hereinafter be described. The bolt *K* extends through an extension of the action, up through the tang of the break-off behind the breech-block, and has the lever *L*, by which the locks are operated, secured to the upper end.

The lower lock, *d*, is fitted to pass over a hook, *d'*, formed in the rear of the lug *H'*, while the upper lock passes over and engages with the extended hooked lug *h³*. These hooked lugs are triangular in shape on their upper surfaces, and the clamp-locks have a recess in their lower faces of the same shape. It will thus be seen that this form gives not only a more perfect lock, but also a greater wearing-surface to the parts, and also unlimited binding power, as compared with the old Lefauchaux and all other subsequent devices for holding and locking the barrels to the breech, especially the retracting bolt-locks now in use. The form of the hook-breech of the muzzle-loader is here employed, the efficiency of which is well known.

I have employed, for the purpose of compensating all wear in the lower clamp-lock, *d*, two quadrangular plates or blocks having inclined-plane faces, which work against each other, and they are embedded within a recess formed in the rear of the standing breech, and are held

in position by the sleeve d'' of the lower clamp-lock, d . The manner of working is shown in Fig. 9, where the upper plate, e , operates upon the lower plate, e' , and thus vertically adjusts the clamp or lock d . This upper plate, e , is actuated by the screw e^2 , which enters from the outside of the breech, and by it the most minute and solid adjustment may be obtained.

The adjustment of the upper clamp-lock, h , is likewise made by means of the cotter or key, which works transversely across the standing breech and over the lock, and is operated by the set-screws y and jam-screw y' . (See Fig. 4.)

The hooked or triangular form allows the clamp-locks to be adjusted by the compensators, so as to slightly impinge upon the upper faces of the hook d' on lug H' , and the hook-lug h^3 , and these two elements will always insure the barrels of the gun being tightly and solidly closed and held down upon the face of the breech and back against the standing breech.

By means of the spring P , which acts upon the lever L , a self-closing or snap-action is provided; but if the spring should be omitted, or if it should become broken at any time, there would be no hinderance in working the gun, as the lever could be simply closed by means of the thumb.

g is a lock-bolt, which is actuated by a light spring, r , and when the lever is moved to one side to release the lock and allow the barrels to drop down this bolt shoots up past the edge of the lower locking-clamp, d , and thus holds both the locking-clamps back out of the way until the gun is closed. When the barrels are brought down into the firing position the bottom of the lug H' strikes a projection upon the bolt g and forces it down out of the way, and the spring P throws the locking-clamps into action. By this arrangement the locks and hinge-joint are relieved of all friction and wear from the pressure of the spring of the snap-action, as it cannot act to lock the barrels until just as they are quite down and the gun is closed ready for firing.

The lugs H H' are of solid steel, extending up between the barrels, and having the projecting lug h^3 for the upper lock formed as a part of the same. The peculiar angular or dovetailed shape of these lugs, and the corresponding recesses in the locks, gives not only a greatly-increased surface to resist strain and wear, but it insures a positive and instant action at the moment of firing, which tends to draw the ends of the barrels and standing breech more firmly and solidly together at the instant of discharge.

My axle or hinge-pin, while it shows some features similar to others now in existence, is quite different in its form and operation. The conical pin, with the split nut and the semi-cone, are each simply moved forward, the latter without rotation, and act as wedges rather than cones; but my cone is complete, and is not only capable of moving forward, but has the important advantage of being rotated so as to pre-

sent a new surface for wear until the whole circumference has been used, instead of being always confined to one surface. Besides, a duplicate cone of larger size can be mounted upon the pin without extra cost or trouble when the first may be worn out, which is not the case with the solid pin; hence the greater advantage. This is a very important feature in connection with the simplicity and facility for adjusting in my invention, for the reason, if a shoulder be formed upon the cone in wear, as will most likely be the case, then the new unworn surface can be turned to the lug upon the barrels, or a new and slightly larger cone be inserted, as in this improvement, and the adjustment made perfect from the exact and solid fitting of the whole surface of the parts.

In the forward and back adjustment I have the cone under complete control by the use of the temper-screw x , by which it is moved forward, and the set or jam screw x' , which holds it where desired and may serve to back it out, the adjustment thus being much more minute and perfect than when only one screw is used; besides, in the devices here employed for adjusting the cone there is no need nor possibility, as in the other cases, of changing the exterior semicircular surface of the action to its disadvantage, unsightly appearance, or inconvenience of the user by moving from its place and finished position the exterior head of the axle-pin in presenting a sharp corner or wedge on the lower part of the circle of the body of the action.

In the construction of my clamp-locks I employ a square bolt, passing vertically down and entirely through the rear portion of the action, and in combination with it a novel construction of cams or clamp-locks for locking, and compensators for adjusting and taking up the wear, which are very simple, effective, and easily got at when necessary. In fact, the novelty and improvements in my compensating mechanism and combinations consist in the fact that the adjustments can be made in every instance and at every point when the barrels are closed and in place, thereby securing absolutely perfect compensation for wear and the nicest possible adjustment, from the fact that there is no taking the gun to pieces and guessing at the proper amount of movement of the parts necessary to accomplish the object sought, as in other devices employed by other inventors and makers. The relief-bar, moving back and forward in its slot and provided with the springs by which it is held to its place, offers a complete and ready method of dismounting the barrels, while at the same time perfectly protecting the hinge or joint from undue strain.

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

1. The fore-end strap O , provided with boss O'' , and the loop-strap O' , in combination with the intervening wedge o k and screw U , abutting against the end of the wedge and pass-

4
ing through the catch-strap V, so that its head is accessible from the outside of the gun, substantially as and for the purpose described.

2. The locking-lug H', having a concave face, 5 C''', provided longitudinally with an angular or dull V-groove, in combination with the bridge of the frame, having a convex angular face, O', corresponding to and fitting into the face C''' when the gun is closed, for the purpose specified. 10

3. The bridge of the frame W, inclosing and in combination with the movable block O, having a curved angular face, the wedge O'', arranged between said bridge and the block, and 15 the screw O'', passing from the outside of the frame and engaging with the wedge, all constructed, arranged, and operated as set forth.

4. The check-hook b' and the relief-bar b', 20 with its springs n n, in combination with the hinge-pin, lug, and joint of the gun, substantially as and for the purpose described.

5. The lug b'', having its upper surface formed by two converging planes, as shown, in combination with the correspondingly-shaped lock-

ing-arm h upon the vertical shaft K, whereby 25 a combined lock and holding gripe is provided, substantially as set forth.

6. The arm or plate d, operated by vertical bolt K and lever L, and formed to engage with and fit the hook d', in combination with the in- 30 clined planes e e', fitted to be moved transversely above the arm d, and adjusted by the screws e'' and z from the exterior of the gun, substantially as herein described.

7. The hook-lock h, operated by the bolt K 35 and lever L, and having the converging inclined faces fitted to engage the corresponding lug h''' on the barrel, in combination with the transversely-moving inclined plane or key and adjusting-screws y y', said screws being oper- 40 ated from the outside, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand.

JAMES W. WILSON,

Witnesses:

FRANK A. BROOKS,
S. H. NOURSE.