

(No Model.)

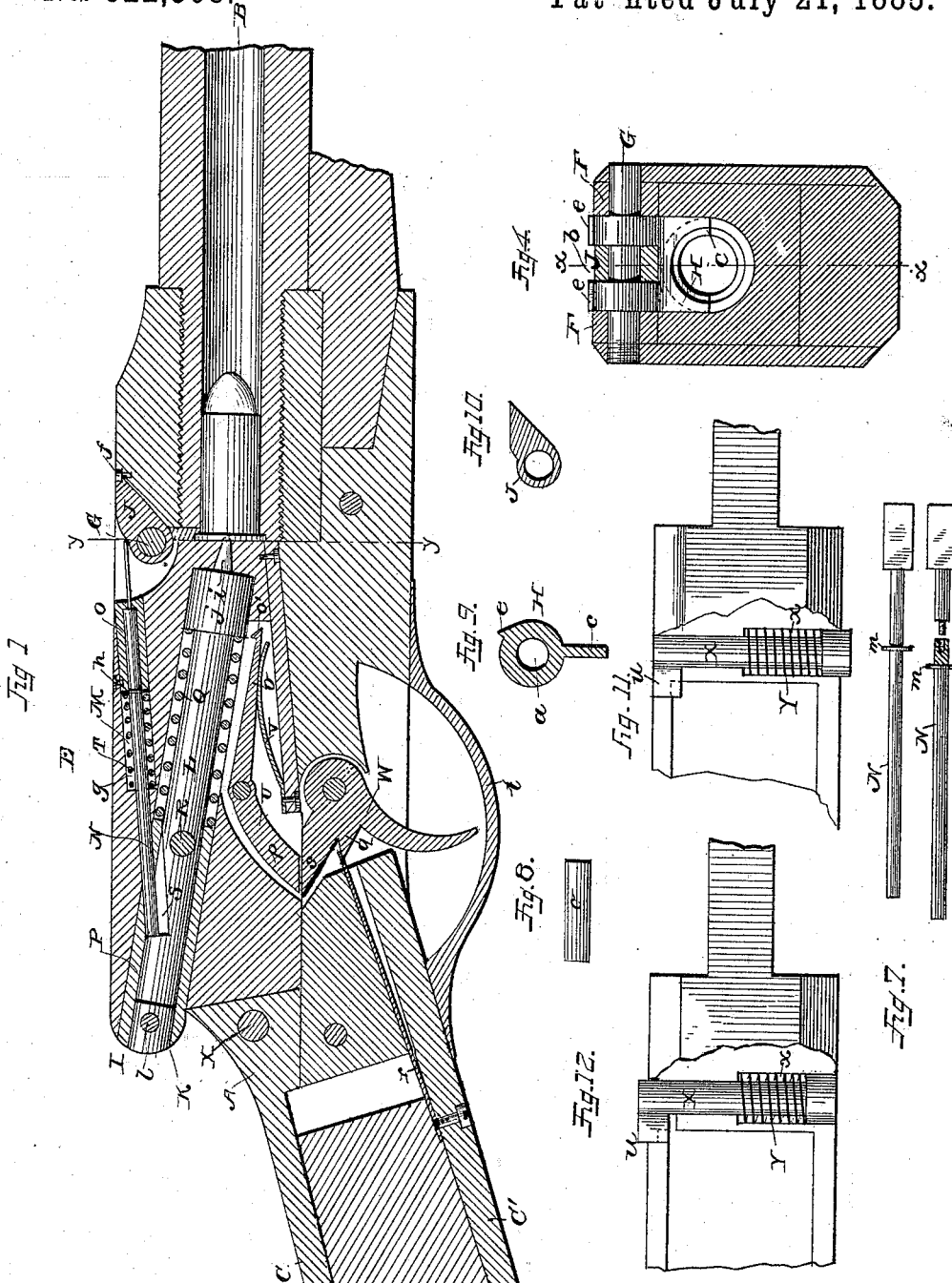
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W. S. TEALL.

BREECH LOADING FIRE ARM.

No. 322,568.

Patented July 21, 1885.



WITNESSES  
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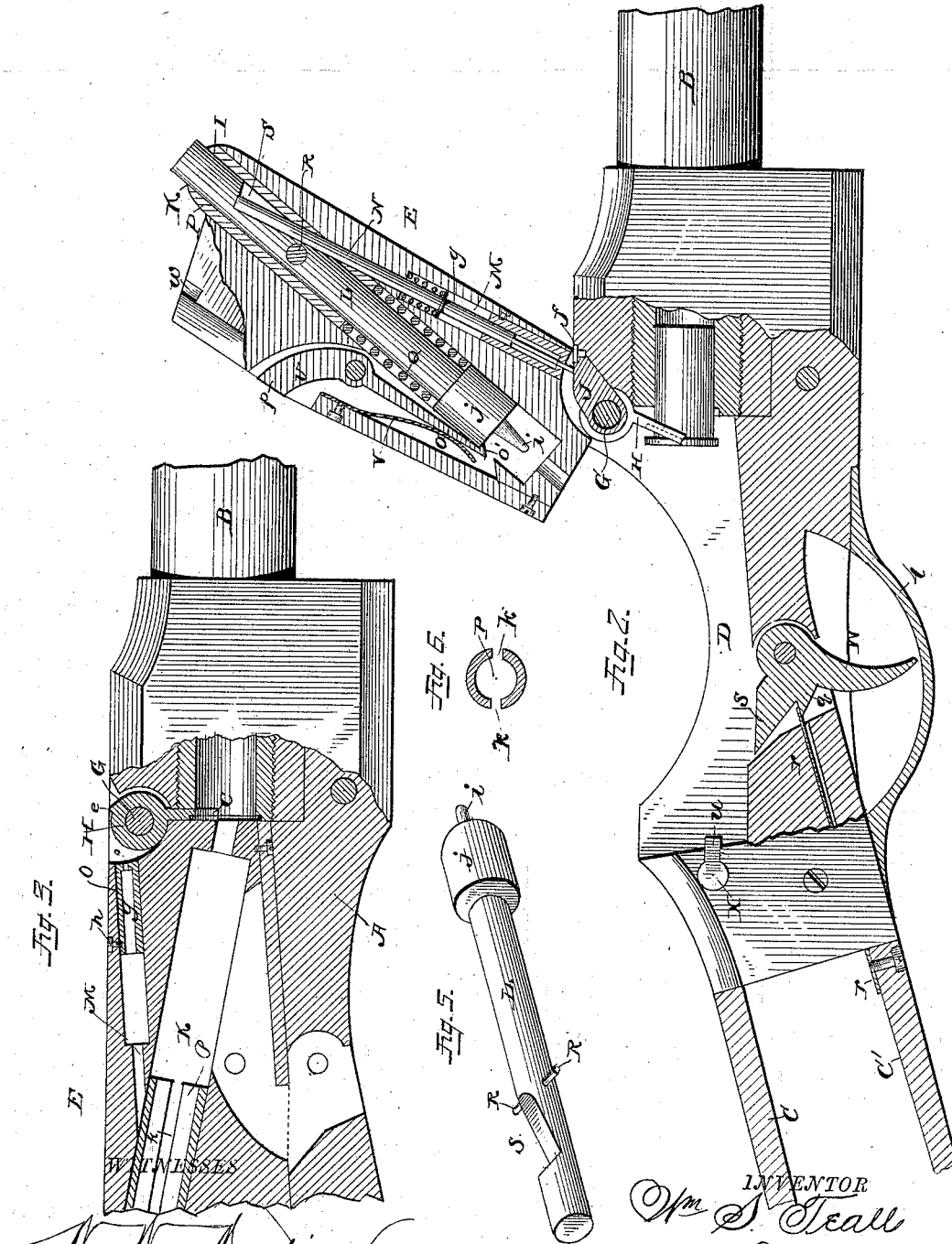
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# UNITED STATES PATENT OFFICE.

WILLIAM S. TEALL, OF LITTLE FALLS, NEW YORK.

## BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 322,568, dated July 21, 1885.

Application filed April 14, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. TEALL, a citizen of the United States, residing at Little Falls, in the county of Herkimer and State of New York, have invented a new and useful Improvement in Breech-Loading Fire-Arms, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to breech-loading fire-arms, and more particularly to that class of the same commonly termed "hammerless guns," which employ a firing-pin to explode the cartridge in lieu of the usual hammer.

The present invention is designed as an improvement on the construction shown and described in Letters Patent No. 308,216, granted to me November 18, 1884.

The object of the present improvement is to improve the construction and arrangement of the various parts so as to remedy the slight defects which have been found to exist in the practical working and manufacture of the gun, enabling the latter to be operated with greater ease and facility, and with less possibility of accident to the operator.

With these ends in view the said invention consists in the novel construction, arrangement, and combination of the several parts and devices, as will be hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a portion of a breech-loading gun with my improvements applied thereto, the stock and barrel being broken off and the breech-block closed down. Fig. 2 is a similar view, the breech-block being thrown up to extract the cartridge, set the firing-pin, and allow the loading of the barrel. Fig. 3 is a vertical section on the line *x x*, Fig. 4, the firing-pin and its push-bar being removed from their respective chambers. Fig. 4 is a transverse section on the line *y y*, Fig. 1. Fig. 5 is a detail perspective view of the firing-pin. Fig. 6 is a transverse sectional view of the slotted bushing, which is located in the rear end of the firing-pin chamber. Fig. 7 is a detail plan and sectional view of the firing-pin push-bar. Fig. 8 is a detail view of the bushing, which is in-

serted in the front end of the chamber for the firing-pin push-bar. Fig. 9 is a detail sectional view of the extractor. Fig. 10 is a detail sectional view of the cam for actuating the firing-pin push-bar. Fig. 11 is a horizontal sectional view showing the locking-bar for holding the breech-block to its place in the normal position. Fig. 12 is a similar view, the locking-bar being thrown out to unlock the breech-block.

Like letters are used to indicate corresponding parts in the several figures.

Referring to the drawings, A designates the frame or breech-piece having the stock-tangs C C' at one end and the barrel B at the other end, and recessed at D, Fig. 2, to receive the breech-block E. The latter has lugs F on each side at the forward end, said lugs being perforated for the passage of the breech-pin G, which has its ends inserted through openings provided in the sides of the breech-piece, one of the ends of the pin being threaded to screw into threads provided in the opening on the corresponding side of the breech-piece, as shown in Fig. 4. By this connection of the breech-block, the latter is pivoted or hinged to the breech-piece, so as to allow vertical movement, the breech-pin being held rigidly in place through the peculiar novel connection, as above described, and prevented from turning when the breech-block is thrown back.

Upon the breech-pin G is mounted the extractor H, Figs. 1, 2, and 9, which comprises a perforated cylindrical or circular portion *a*, bifurcated or slotted at *b*, and the depending finger *c*, which is concave or cut out on the under side to fit around the cap or head of the cartridge. (See Fig. 4.) This extractor turns loosely on the breech-pin, and has each of the bifurcated arms of the portion *a* formed with a transverse rib or projection, *e*, against which the front upper end of the breech-block is adapted to operate to cause the turning of the extractor and the consequent withdrawal of the cartridge, in the manner well known.

J designates an eccentric or cam, disposed within or between the two bifurcated arms of the extractor H, and rigidly held on the breech-pin G by a set-screw, *f*, which passes

through it into the breech-piece A, as shown in Figs. 1 and 2.

The breech-block is provided at its rear end with a knob or projection, I, which serves the purpose of a thumb-piece in raising the said breech-block. The latter is interiorly recessed from the front end at the point where it comes in contact with the cartridge, rearwardly and in an upwardly inclined direction passing through the knob or thumb-piece I, so as to form a chamber, K, (see Figs. 1, 2, and 4,) for the firing-pin L. The breech-block is also recessed from the point where it comes in contact with the cam or eccentric J rearwardly on a slight downward inclination until it joins with the chamber K, to provide a chamber, M, for the reception of the firing-pin push bar N. (See Figs. 1, 2, and 4.) The chamber M is enlarged at *g*, beginning at the front end and extending back about one-half the length thereof, a bushing or thimble, O, being fitted within the front portion of the enlargement and made fast therein by a small set-screw, *h*, which extends down from the breech-block. The chamber K is made of a uniform diameter throughout, except at the extreme front end, where the point of the firing-pin works through a bushing, P, being fitted within the rear end of the chamber, and extending from the knob or thumb-piece I nearly to the center of said chamber. The firing-pin L is made round so as to fit the chamber K, (see Figs. 1 and 5,) its front end, *i*, coming in contact with the cap of the cartridge, and having an enlargement, *j*, in rear of said end *i*, against which enlargement bears one end of a coiled spring, Q, encircling the main portion of the firing-pin, the other end of said spring bearing against the inner end of the bushing P. Pins R R project outward from opposite sides of the firing-pin and are received in elongated slots *kk*, provided through the bushing P. It will thus be seen that the latter serves to provide a bearing for the spring Q, and also supplies the guiding slots, and thus, should the parts become worn, the said bushing may be detached and a new one replaced in lieu thereof. A screw, *l*, retains the bushing P in its place, so as to allow detachment at will.

The upper face of the firing-pin at the rear end is formed with a downwardly-inclined slot, S, into which the rear end of the firing-pin push-bar N fits. The said push-bar (seen in detail, Fig. 7) is made round, so as to fit the chamber M, in which it works, and has a collar, *m*, at an intermediate point of its length. Said push-bar is made in sections, one being threaded to receive the other, the front end thereof being formed flat or oblong in cross-section, as shown in Figs. 1, 2, and 7,

A coiled spring, T, encircles the push-bar and bears at one end against the collar *m*, and at the other end against the rear wall of the enlargement *g*. As will be seen, this collar *m* works in the enlargement of the chamber M to compress the spring, the latter serving to

normally retain the flat front end of the push-bar N always in contact with the eccentric or cam J. It will also be seen that the bushing or thimble O of the chamber M provides a guide for the firing-pin push-bar, where its front flat end works through onto the cam or eccentric.

U designates the trigger-lever, pivoted at or about its center in a recess of the breech-block, so as to provide two arms, *o p*. The forward end of the arm *o* is provided with an upwardly-extending lug or projection, *o'*, which is arranged to catch the firing-pin at the front end of the enlargement *j*, as seen in Fig. 2, a spring, V, being secured to the breech-block, and having its free end bearing against the arm *o* of the lever, so as to hold it into engagement. The other arm, *p*, of the lever U is curved and set at an angle to the arm *o*, so as to be operated by the trigger W, which is pivoted in a recess of the breech-piece, and formed with a projection, *q*, against which a spring, *r*, bears. An arm, *s*, extends rearwardly from the trigger in an upwardly-inclined direction, and has its end cut off flat, to operate against the corresponding flattened end of the arm *p* of the trigger-lever U. It will be observed that by the operation of the trigger the lever U is disengaged or withdrawn from the firing-pin, to allow the latter to work forward under the action of its spring. A trigger-guard, *t*, is attached to the breech-piece in the usual manner, and for the purpose well known.

X designates a locking-bar arranged transversely within the breech-piece A, in rear of the breech-block, and having one of its ends provided with a nib or projection, *u*, to engage a corresponding recess, *w*, of the breech-block. The other end of the locking-bar is headed, as shown, a spring, Y, being coiled on the bar, and arranged within an enlarged recess, *x*, one end of the spring bearing against the rear wall of the latter, and the other end against the inner face of the head on the locking-bar. (See Figs. 11 and 12.) It will be apparent that when this locking-bar is pressed inward the nib *u* is withdrawn from the recess *w*, to allow the breech-block to swing upward, and when the latter is thrown down the locking-bar automatically yields outward, then springs inward, to cause its nib *u* to engage with the recess *w* and hold the breech-block down in position.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the annexed drawings. Let us suppose that the position of the parts of the gun are as shown in Fig. 1, the cartridge having been exploded, and the breech-block closed down, the cartridge or cap being still within the barrel. The successive actions are as follows: Release the locking-bar X from the recess *w* with the thumb of the left hand, and press the thumb-piece or knob I upward in a forward direction, as seen in Fig. 2, when the front portion of the breech-block, which comes

in contact with the rib or projection *e* of the extractor H, causes the latter to turn on the breech-pin G, the finger *c* at the lower end of the extractor engaging with the cap of the cartridge, and moving rearwardly to expel the latter from the barrel, in the manner shown. By reason of the hinging of the breech-block at its forward end immediately in rear of the breech-piece by a stud or breech-pin on which the extractor is mounted, the said breech-block will always be in position to operate the extractor and effect the desired end. Also, as the extractor normally fits around the head of the cap or cartridge, immediately on the raising of the breech-block the said extractor will begin to turn, for the purpose stated. Now, as the breech-block is being carried forward and upward from the recess or slot of the breech-piece at the same time as the extractor is operated, the firing-pin push-bar rubs or bears against the cam or eccentric J, and is forced rearwardly by reason of the peculiar shape of the cam. When the limit of the movement is reached, the firing-pin push-bar has forced the firing-pin back through its chamber to the extreme end of the breech-block, to cause the rear end of the firing-pin to project from the latter a slight distance, and thus indicate to the operator beyond a doubt that the pin is set. This feature of the present improvement is considered essential to the successful and practical working of the gun. The trigger-lever U catches around the front end of the enlargement *j* as the firing-pin travels back, to hold the latter from working forward. The cartridge is then placed in the barrel and the breech-block closed down, the spring locking-bar X acting automatically to hold the latter in its place. The trigger W has the flattened end of its arm *s* bearing against the flattened end of the arm *p* of the trigger-lever, and thus by operating said trigger in the usual manner the front end, *o'*, of the arm *o* is withdrawn from the firing-pin, causing the latter to act under the pressure of its spring and work forward to explode the cartridge in the well-known manner. The parts are now in the positions shown in Fig. 1, when the same actions, as above described, may be repeated as often as desired.

It will be seen that the spring encircling the firing-pin push-bar N causes the oblong or flattened front end thereof to be always retained in contact with the cam or eccentric J, so that as the breech-block is thrown up this contact causes the gradual working of the push-bar backward through its chamber and the consequent working of the firing-pin, as hereinbefore described. The pressure of the spring against the trigger-lever causes it to hold the lever set against the firing-pin until released by the action of the trigger.

The improvements herein shown and described over my aforesaid patent have been made for the purpose of remedying several defects in the construction of the gun, as de-

scribed in the patent, which defects were of such a nature as to detract from the serviceability and practicable working of the same. The change made in the trigger and its lever, while not complicating the parts to any appreciable extent, enables the actions to be made surer and more positive, preventing the trigger-lever from being accidentally withdrawn by a heavy jar such as would be caused by the dropping of the gun.

The improved arrangement of the firing-pin and lever-chambers with the thimbles or bushings to take the wear, and the peculiar construction of the firing-pin and its relative location within the chamber, so that the extreme end of the firing-pin projects from the same to indicate when the gun has been set, are features of construction which I deem especially important.

It will be observed that all the parts of the mechanism are concealed within the breech-block and breech-piece, so as to be free from accumulations of matter and protected from injury. The operations of loading, firing, and extracting the cartridge can be performed with ease and facility without detracting from the accuracy of the aim, the manipulations of the gun being fewer and decidedly less complicated than those required to work others of this class of breech-loading guns.

The gun is comparatively light and convenient to handle, and will prove of great utility for the purposes intended.

Having described my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. In a hammerless gun, the breech-piece, in combination with the breech-block, the firing-pin, the trigger-lever pivoted intermediately of its length so as to provide two arms, the rear arm, *p*, of which extends downward and rearward at an angle to the other, and a trigger pivoted in the breech-piece and formed with an inclined arm, *s*, which extends upward and rearward to act against the rear arm of the trigger-lever, the meeting-points of the arms *p s* being made straight or flat, as set forth.

2. In a hammerless gun, the combination, with the breech-piece, of the hinged breech-block, the firing-pin, the trigger-lever for retaining the latter in its set position, comprising the arms *o p*, the former having the nib or projection *o'*, and the spring bearing against the arm, and the other arm, *p*, being set at an angle to the arm *o* and cut off straight at the end, and the trigger pivoted in the breech-piece, a spring bearing against the trigger, and an upwardly-inclined extending arm, *s*, provided on the latter and having its end fitting against the flattened end of the arm *p*, for the purpose set forth.

3. In a hammerless gun, the combination, with the breech-piece, of the hinged breech-block, the latter being connected to the former by the breech-pin, an extractor mounted loosely on the said pin, and comprising the bifurcated or slot-

ted upper portion, and the depending recessed  
finger portion, the bifurcated arms of the up-  
per portion having a transverse rib or projec-  
tion, the cam or eccentric also mounted on the  
5 breech-pin and held rigidly thereon by being  
secured to the breech-piece, the firing-pin or  
push-bar to set said pin, said push-bar being  
operated by contact with the eccentric or cam,  
and a trigger for retaining and releasing the  
10 firing-pin, as and for the purpose set forth.

4. In a hammerless gun, the combination,  
with the breech-piece, of the hinged breech-  
block, the intersecting chambers K M, formed  
therein, one above the other, a thimble or  
15 bushing, P, fitted in the rear end of the cham-  
ber K, and a corresponding thimble or bush-  
ing, O, arranged in the front end of the cham-  
ber M, a firing-pin working in the chamber  
K, and a push-bar working in the chamber M  
20 and held in engagement with the rear end of  
the firing-pin, as set forth.

5. In a hammerless gun, the combination,  
with the breech-piece, of the hinged breech-  
block, the firing-pin working in the latter, the  
25 trigger, a chamber provided in the breech-  
block, the push-bar working in this chamber  
and having its rear end held in engagement  
with the rear end of the firing-pin, and a  
thimble or bushing provided at the front end  
30 of the chamber, as and for the purpose set  
forth.

6. In a hammerless gun, the combination,  
with the breech-piece, of the hinged breech-  
block, the firing-pin working in the latter, the  
35 trigger, a chamber provided in the breech-  
block, and having a thimble or bushing fitted  
at its front or outer end, and the push-bar for  
the firing-pin working in this chamber, the  
front end of said push-bar being made flat or  
40 oblong in cross-section, as set forth.

7. In a hammerless gun, the breech-piece,  
in combination with the hinged breech-block,  
an inclined chamber provided in the same, the  
rear upper end of the chamber being open, a  
45 firing-pin working in the chamber, and a push-  
bar for setting the firing-pin, the latter being  
pushed back through the chamber, and hav-  
ing its rear end extended a short distance  
through and beyond the open end thereof, so  
50 as to indicate to the operator when the gun is  
properly set, as set forth.

8. In a hammerless gun, the breech-piece,  
in combination with the breech-block, a cham-  
ber provided in the latter, and having its rear  
upper end open, a thimble or bushing located  
55 at the open end of the chamber, a firing-pin  
working in the chamber, a push-bar for set-  
ting the firing-pin, the latter being pushed  
back through its chamber, and having its rear  
end extended a short distance beyond the open  
60 end thereof, so as to indicate to the operator  
when the gun is properly set, as set forth.

9. In a hammerless gun, the combination,  
with the breech-piece, of the hinged breech-  
block, an inclined chamber provided in the  
65 same, and having its rear upper end open, as  
described, a thimble or bushing located at the  
open end of the chamber, slots in the walls  
of the thimble or bushing, a firing-pin work-  
ing in the chamber and having pins or studs  
70 to work in the slots, and a push-bar for the  
firing-pin, as set forth.

In testimony that I claim the foregoing as  
my own I have hereto affixed my signature  
in presence of two witnesses.

WILLIAM S. TEALL.

Witnesses:

ALONZO H. GREENE,  
EDWARD J. COFFIN.