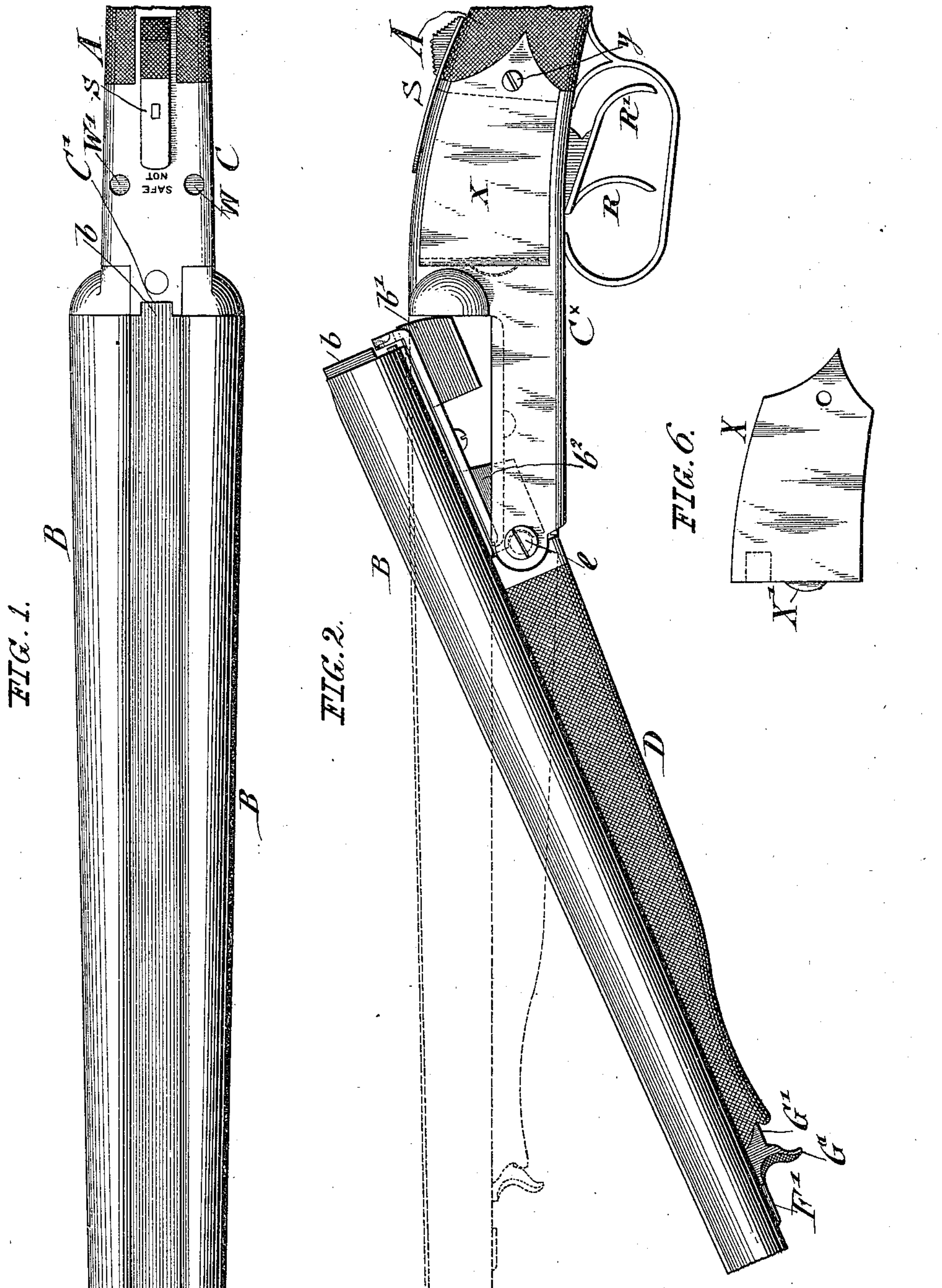
No. 674,284. Patented May 14, 1901.

G. A. SACHS.

BREECH LOADING FIREARM.

(Application filed May 27, 1898. Renewed Oct. 20, 1900.)

(No Model.) 3 Sheets—Sheet 1.



WITNESSES:

Bruno von Bültzingslöwen

Geo. W. Jaekel

INVENTOR

Gustav Adolf Sachs

BY

Goepel & Raegener

ATTORNEYS.

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BREECH LOADING FIREARM.

(Application filed May 27, 1898. Renewed Oct. 20, 1900.)

(No Model.) 3 Sheets—Sheet 2.

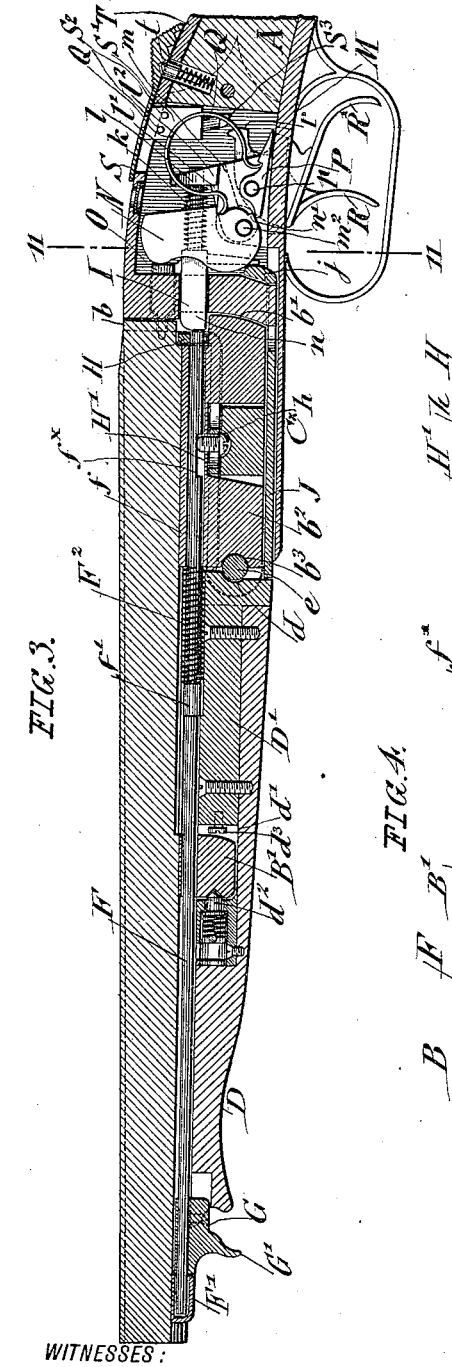

FIG. 3.

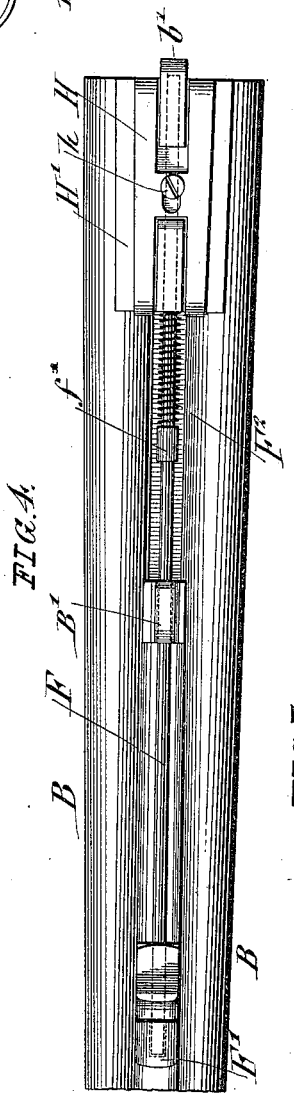

FIG. 4.

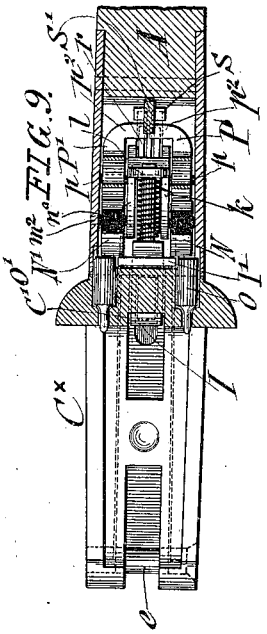

FIG. 9.

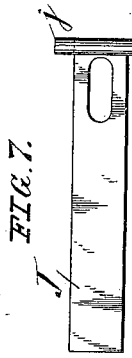

FIG. 7.

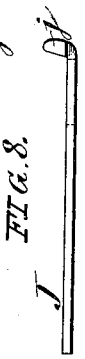

FIG. 8.

WITNESSES:

Bruno von Pultzingslöwen

Geo. H. Graves

INVENTOR

Gustav Adolf Sachs

BY

Church & Wagner

ATTORNEYS.

No. 674,284. Patented May 14, 1901.

G. A. SACHS.

BREECH LOADING FIREARM.

(Application filed May 27, 1898. Renewed Oct. 20, 1900.)

(No Model.) 3 Sheets—Sheet 3.

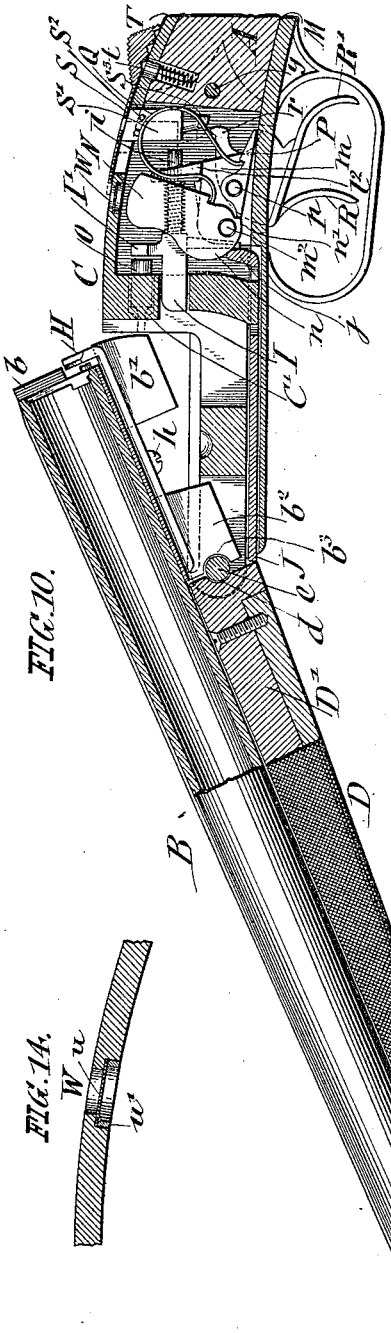

FIG. 10.

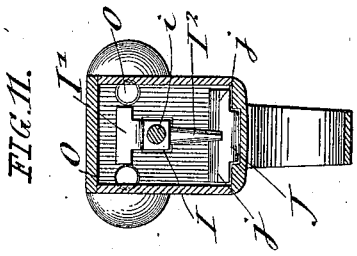

FIG. 11.

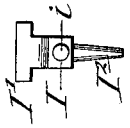

FIG. 13.

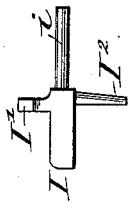

FIG. 12.

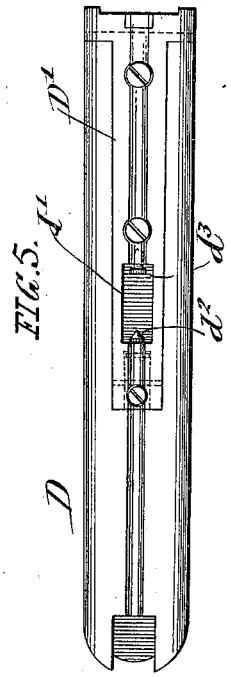

FIG. 5.

FIG. 14.

WITNESSES:

Bruno von Blitzengluwen

Geo. W. Jaeckel

INVENTOR

Gustav Adolf Sachs

BY

Jaquith & Lagemann

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GUSTAV ADOLF SACHS, OF EUGENE, OREGON.

BREECH-LOADING FIREARM.

SPECIFICATION forming part of Letters Patent No. 674,284, dated May 14, 1901.

Application filed May 27, 1898. Renewed October 20, 1900. Serial No. 33,781. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV ADOLF SACHS, a citizen of the Empire of Germany, residing at Eugene, in the county of Lane and State of Oregon, have invented certain new and useful Improvements in Breech-Loading Firearms, of which the following is a specification.

This invention relates to breech-loading firearms, and particularly to certain improvements in the construction shown in my previous patent, No. 495,639, dated April 18, 1893.

The object of the present invention is to generally improve the construction of the gun, so that the stock, the barrels, and the fore-end can be quickly taken apart and assembled, so that the barrels are held from lateral displacement, the locking-bolt conveniently operated for the purpose of opening the breech and the action of the hammers improved, and to further improve the construction of the safety device.

My invention consists of an actuating-rod guided on the barrels for the purpose of moving the locking-bolt back, so that the breech can be opened, said actuating-rod being provided beyond the forward extremity of the fore-end with a push-piece.

The invention further consists of a specially-constructed locking-bolt having at its upper part a T-head, the opposite end of which serves for engaging the upper parts of the hammers and pressing them back from the firing-pins, and the lower part of which is provided with a pin which is engaged by the cocking-slide and is pressed back when the breech is opened, so as to reset the hammers, said projecting pin also through the action of the spring of the locking-bolt pressing the cocking-slide back into normal position.

In the accompanying drawings, Figure 1 is a top view of my improved breech-loading firearm, the butt being broken away. Fig. 2 is a side elevation of the same, the barrels being shown in dotted lines in normal position and in full lines in open position. Fig. 3 is a vertical longitudinal section showing the interior mechanism. Fig. 4 is an under-side plan of the barrels broken off at the muzzle. Fig. 5 is a top view of the fore-end. Fig. 6 is a detail view of one of the side plates of the lock-case. Figs. 7 and 8 are plan and side views, respectively, of the cocking-slide. Fig. 9 is a horizontal section of the standing breech, taken in the plane of the firing-pins. Fig. 10 is a longitudinal section, partly in side elevation, of the firearm, showing the breech open. Fig. 11 is a vertical section on the line 11, Fig. 3, the hammers being removed. Figs. 12 and 13 are respectively side and end views of the locking-bolt, and Fig. 14 is an enlarged detail section through one of the observation-openings of the lock-case.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, particularly to Figs. 2, 3, 4, 9, and 10, A indicates the stock of the gun; B, the double barrels; C, the standing breech; $C^{\times}$, the breech extension, and D the fore-end. The breech of the barrels is provided midway thereof and at its upper and lower parts, respectively, with rearwardly-extending vertically-alined lugs b b', which engage in corresponding recesses C′ in the standing breech. It has been found in practice that there is a tendency to the lateral vibration of the barrels at the breech, and to overcome this objection the breech-lugs b b' are provided, which lugs fit snugly in the said recesses C′, and when the breech is closed they prevent during the firing of the gun the lateral vibration of the barrels, while at the same time they form guides for the barrels in the act of closing the breech. As usual, the lug b^2 is provided with a half-bearing b^3, which engages with the hinge-pin e, so that when the fore-end has been removed the barrels can also be detached. The rear end of the fore-end D is also provided with a half-bearing d, which fits against the opposite side of the hinge-pin e, and when the fore-end is sprung in place acts to hold the barrels in position on the breech extension $C^{\times}$ of the standing breech. The fore-end is constructed in any suitable manner, but is preferably composed of a wooden body, into which is countersunk a casting D′, which is recessed at d', and into which recess projects at one end a spring-actuated pin d^2, which, in connection with the headed pin d^3 at the opposite end of the recess d', holds the fore-end in position against the barrels and against the hinge-pin, when the guide-lug B′ at the under side of the barrels is placed in said recess d', so as to be

engaged by said pins. It is obvious, however, that the fore-end can be constructed in various ways, provided that the same is detachable.

An actuating-rod F is guided through an opening in the lug B′ of the barrels, which opening is axially in line with an opening *f* at the bases of the lugs *b′* b^2, and said opening being in turn axially in line with a guide-socket F′, arranged at the under side of the barrels in front of the fore-end D. These guide-openings should be axially in line, as otherwise the actuating-rod F will not freely move. The operative rear end of the said actuating-rod is held normally in contact with the projecting front end of the locking-bolt by means of a helical spring F^2, engaging at one end against the base of the lug b^2 and at the other end against an abutment or sleeve *f′* on the actuating-rod, between the lug b^2 and the lug B′. The forward end of the actuating-rod F is provided with a push-piece G, having a projecting finger G′, which is curved and preferably knurled, so as to accommodate and furnish a substantial hold for the fingers in pressing back the actuating-rod. In normal position the push-piece G is held against the guide-socket F′. By extending the actuating-rod of the locking-bolt along the under sides of the barrels, between the same and the fore-end, so as to have a push-piece conveniently located in front of the fore-end, the actuating-rod can be easily manipulated by grasping the fore-end in one or the other hand, holding the stock of the gun under the opposite arm, and then naturally pressing back the push-piece, so that the breech can thereby be conveniently and quickly opened for the removal of empty shells and for the insertion of charged shells.

The extractor H is, as usual, provided with a guide-screw *h*, which passes through the base-piece H′; but the inner end of said guide-screw engages in a longitudinal recess $f^\times$ in one side of the actuating-rod F, so that the inner and outer positions of the said actuating-rod are limited. In order to move the actuating-rod when desired, the set-screw *h* of the extractor is loosened, the rod pressed back, and its front end disengaged from the socket F′, and then its front end is turned to one side, so that the rod can be drawn out in forward direction.

The locking-bolt I, as usual, locks the barrels to the standing breech and the extension thereof, its operative end being normally in contact with the rear end of the actuating-rod F, as before stated. The locking-bolt and its parts are shown clearly in detail in Figs. 12 and 13. It is provided at its upper part and inside of the lock-case with a T-head I′, while below the T-head it is provided with a depending pin I^2, the lower extremity of which pin engages the inner end of the cocking-slide J, which, as usual, is guided on the extension $C^\times$ through the standing breech and is normally in engagement with the heel of the fore-end D. The said locking-bolt I is provided at its inner end with a longitudinally-extending stem *i*, around which is coiled an actuating-spring *k*, which is confined between the larger portion of the locking-bolt and a guide-lug *l*, provided with a shank *l′*, which extends between brackets *m m′*, mounted on the trigger-plate M and pivoted on a pin m^2, extending through the brackets. The shank *l′* of the lug *l* is adapted to yield and the laterally-extended shoulders l^2 of said lug are held down upon the upper edges of the brackets *m m′* by means of the locking-bolt spring *k*.

The side extensions of the T-head I′ on the locking-bolt, as shown more clearly in Fig. 9, project slightly past the upper ends of the hammers N N′, which are pivoted on the pin m^2 at the outer sides of the brackets *m m′*. The T-head of the locking-bolt acts both on the hammers and is also intended for utilization with a top action for opening the breech when one is used. By this arrangement of the T-head, the side extensions of which act upon the upper ends of the hammers when the breech is opened, the firing-pins O O′ are enabled to be quickly moved back, so that the points of the same are immediately withdrawn from the exploded nipples of the cartridges, thus forming no obstacle to the immediate opening of the breech when the locking-bolt I has been entirely disengaged from the barrels. Also by this arrangement when the bolt entirely engages with the barrel it will be seen that when the hammers strike the firing-pins they will come to rest against the side extensions on the T-head I′ of the locking-bolt, thus acting in no objectionable manner on the firing-pins. This arrangement also forms a means for preventing the release of the barrels when firing in case the bolt should not have completely engaged them.

The depending pin I^2 on the locking-bolt serves for the purpose of permitting the cocking-slide (shown in detail in Figs. 7 and 8) to retract the bolt, and at the same time, through the action of the spring *k*, the said pin returns the cocking-slide into normal position to be again pressed back by the heel of the fore-end when the breech is opened. The hammers are each curved at their parts *n*, at a point adjacent to the pivot m^2 of the same, and with these curved portions the laterally-extending projections *j* of the cocking-slide J engage, the action of the side projections of the cocking-slide being such that it simulates that of a wedge upon the curved parts *n* of the hammers, so that the hammers are pressed from their lower parts in an upward direction instead of as in my previous patent, in which they are pressed in rearward direction. The action in this connection is that the locking-bolt will, through the medium of its T-head, impart an initial backward movement to the hammers, so as to immediately permit the retraction of the firing-pins

O O′, while when the locking-bolt has been pushed back as far as possible the backward motion of the hammers is taken up by and continued by the cocking-slide action on the lower curved portions of said hammers, so that eventually the shoulders n' of the hammers are engaged by the operative ends of the sears P P′, which are pivoted at p at opposite sides of the brackets $m\,m'$. The sears and hammers are under the tension of suitable C-shaped springs Q, which engage the proper abutments or shoulders on said hammers and sears, so that the tendency of said springs is to engage the sears with the hammers. The sears are, as usual, provided with tails p^2, which extend toward each other and are engaged by the ends r of the triggers R R′, which pass through the trigger-plate M, as usual, and are pivoted between the brackets $m\,m'$.

The safety device consists of a suitable slide S, provided with a suitably serrated or knurled head, guided by means of the shank S′ upon the tang T, which fastens the lock-case and standing breech with its extension to the stock. As in my former patent, the safety-slide is held in three positions, indicating "unsafe," "safe," and "unsafe," respectively, by means of a spring-actuated and pointed pin t, which engages with three corresponding recesses in the under side of the said slide. The shank S′ of the safety-slide passes through a longitudinal slot in the tang T and is provided at the under side of the tang with laterally-projecting pins S^2, which are two in number at each side of said shank and which hold the slide down against the tang and guide the same positively in its to-and-fro movement. The position of the shank S′ on the safety-slide relatively to the pin i of the locking-bolt is that when the locking-bolt has been fully drawn back it acts on the shank so as to move the safety-slide to safety. The T-headed projections S^3 at the lower end of the shank S′ engage in the customary manner over the upper ends of the triggers, so as to prevent them from being pulled when the safety-slide is set at "safety."

At the top of the lock-case, at both sides of the safety-slide S, are observation-openings W W′, corresponding with the two barrels and which are closed, preferably, by thin disks of mica, so that nothing can enter the lock-case. An enlarged detail of the observation-opening is shown in Fig. 14, in which it will be seen that the mica disks u are held in the enlarged lower parts of the observation-openings by means of suitable washers u', inserted in said enlarged parts. The outer ends of the hammers are, as shown more clearly in Fig. 9, partially colored—say in red at n^0—the relative positions of which colored surfaces of the hammers are such as that when the hammers are drawn back said colored indicators will be seen through the observation-openings, while when the barrels have been discharged and the hammers thrown forward they will clear the observation-openings and cannot be seen. In this way the colored indicators on the hammers will indicate that the same are set when discerned through the observation-openings, and when the hammers are not set the absence of the indicators will indicate that the barrels have been discharged. The sides of the lock-case are closed in any suitable manner, as by means of plates X, (shown in detail in Fig. 6,) which are provided at one end with tongues X′, inserted in corresponding recesses in the standing breech C, while through the other ends of the said plates a suitable screw-bolt y is passed, whereby the side plates are held in position.

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

1. In a breech-loading firearm, the combination with the standing breech and the locking-bolt, of the hinged barrels, and an actuating-rod guided along the under sides of the barrels and engaging at its rear end with said locking-bolt, substantially as set forth.

2. In a breech-loading firearm, the combination of a standing breech and a locking-bolt, of the hinged barrels, the fore-end, and an actuating-rod guided between the barrels and the fore-end, engaging at its rear extremity with the locking-bolt, and projecting beyond the fore-end at its forward extremity, substantially as set forth.

3. In a breech-loading firearm, the combination with a standing breech and the locking-bolt, of the barrels hinged to the standing breech, an actuating-rod guided longitudinally of the barrels and provided at its front end with a push-piece and at its rear end being adapted to engage said locking-bolt, substantially as set forth.

4. In a breech-loading firearm, the combination of the standing breech and locking-bolt, of the barrels hinged to the standing breech, the fore-end, a socket-piece arranged on the under side of the barrels in front of the fore-end, and a bolt-actuating rod, provided with a push-piece, and guided at its forward extremity into said socket-piece, substantially as set forth.

5. In a breech-loading firearm, the combination with the locking-bolt guided in the standing breech and provided with a depending pin, of the cocking-slide also guided in the standing breech and engaging the said pin at its inner end, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GUSTAV ADOLF SACHS.

Witnesses:
JOSEPH KOCH,
JNO. F. LYONS.