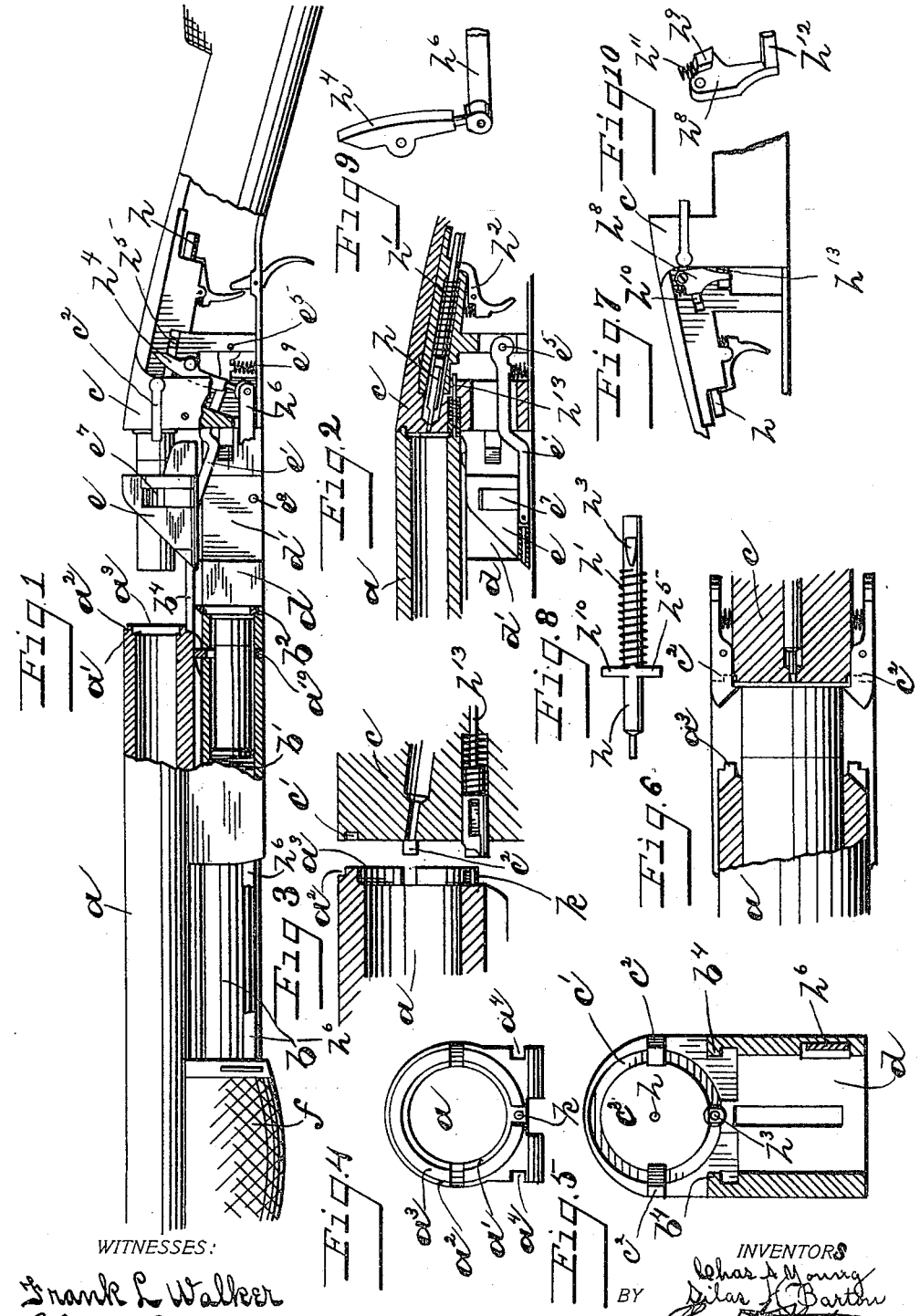
No. 676,809. Patented June 18, 1901.

C. A. YOUNG & S. H. BARTON.

MAGAZINE FIREARM.

(Application filed June 26, 1900.)

(No Model.) 2 Sheets—Sheet 1.



WITNESSES:

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2 Sheets—Sheet 2.

Fig. 14

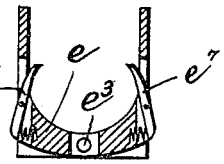


Fig. 15

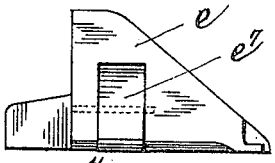


Fig. 16

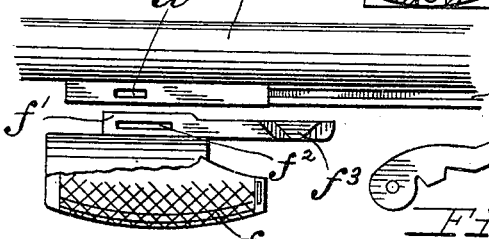


Fig. 17

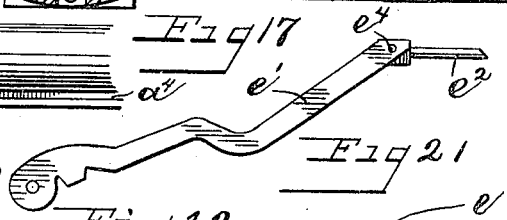


Fig. 21

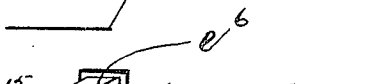


Fig. 12

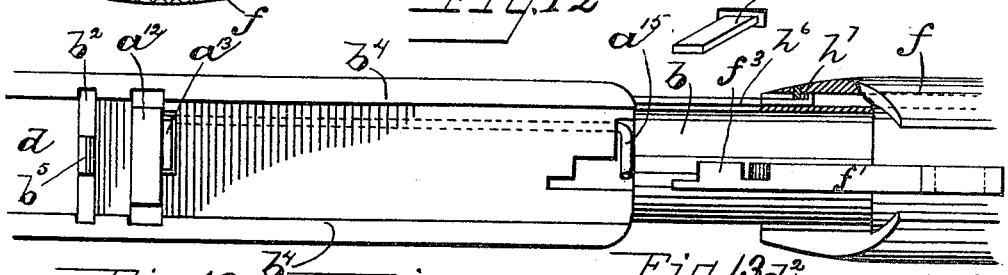


Fig. 18

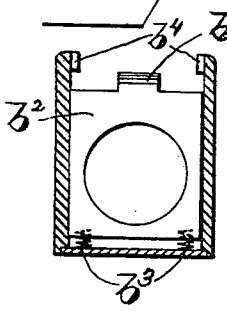


Fig. 19

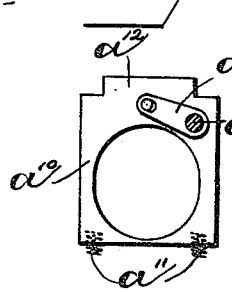


Fig. 13

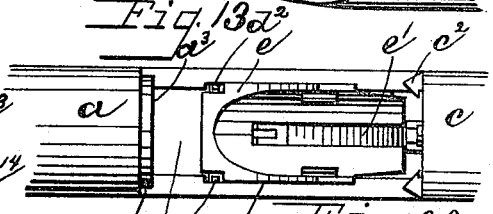


Fig. 20

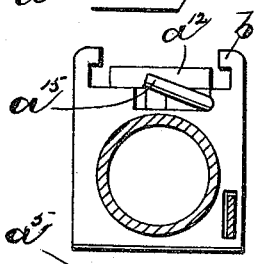
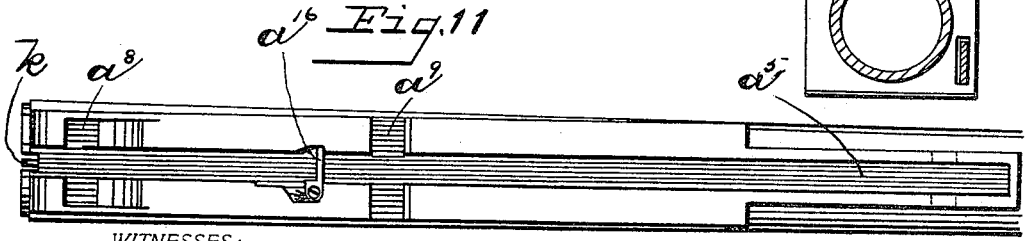


Fig. 11



WITNESSES:

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INVENTORS

Silas H. Barton

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ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES A. YOUNG AND SILAS H. BARTON, OF ENON, OHIO; SAID BARTON ASSIGNOR TO SAID YOUNG.

MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 676,809, dated June 18, 1901.

Application filed June 26, 1900. Serial No. 21,698. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. YOUNG and SILAS H. BARTON, citizens of the United States, residing at Enon, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Repeating Firearms, of which the following is a specification.

Our invention relates to improvements in firearms, and more especially to guns of the repeating class.

The invention consists of certain new and useful constructions of the firing mechanism, the cocking device and safety device for same, the loading mechanism, including the carrier, the magazine and latch for same, the ejector, and means for locking and unlocking the barrel, as hereinafter more fully pointed out and described.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of the operating parts of a gun embodying our invention. Fig. 2 is a horizontal section showing a portion of the firing and loading mechanism. Fig. 3 is a section, on a larger scale, of parts of the same. Figs. 4 and 5 are detail views of the barrel and breech-block, respectively. Fig. 6 is a horizontal section showing the same parts in their relative positions. Figs. 7, 8, 9, and 10 are detail views of portions of the firing mechanism. Figs. 11, 12, and 13 are respectively plan views of the barrel and stock portions, showing some of the features of the loading mechanism. Figs. 14 and 15 are cross-section and side elevation views of the carrier forming part of the loading mechanism. Figs. 16 to 21 are detail views showing parts of the same.

Like parts are represented by similar letters of reference in the several views.

In our improved gun we employ, preferably, a single barrel *a*, which is slidingly mounted upon the stock or fore-arm. Beneath this barrel is a magazine *b*. The barrel *a* is adapted normally to fit against the breech-block *c*, and immediately below and forward of the breech-block *c* and in the rear of the magazine *b* is an open chamber *d*, normally closed at the top by the barrel *a* and normally holding a spring-actuated carrier *e*. The breech end of the barrel is preferably counterbored, as shown at a', to receive the rim of the cartridge. It is preferably turned off at the outer periphery, as shown at a^2, so as to form a narrow projecting ring a^3. The breech-block is correspondingly cut away to form an annular groove c', as shown in Figs. 3 and 5, into which this ring a^3 projects when the parts are in their normal position, the center portion or breech-block pocket c^3 being adapted to stand flush with or slightly beyond the outer projecting parts of the breech-block, so as to fill the breech end of the barrel, while the projecting portion of the barrel fitting in the groove c' makes a tight joint around the barrel and block.

The magazine *b* consists, preferably, of a straight cylinder provided with a spring b', which is adapted to press the shells placed therein rearwardly. It may be of any desired length to accommodate any number of shells or cartridges. It is provided at the end with a spring-pressed catch b^2, which consists of a perforated plate, the perforations being of the same size as the bore of the magazine. It is normally pressed upwardly, however, by the spring b^3, so that the lower part stands above the bottom of the magazine and forms a stop for the shells or cartridges placed therein. (See Fig. 18 for detail.)

As before stated, the barrel *a* is slidingly mounted on the stock or fore-arm, and this is preferably accomplished by having that portion of the fore-arm above the magazine provided with inwardly-projecting ribs b^4, which extend into grooves or ways a^4, formed in the bottom of the barrel. The barrel is adapted to be moved back and forth on these ways by means of a handle or grip *f*. This handle or grip is secured to the barrel, but is adapted to surround the magazine. It is secured to the barrel by means of a tongue or rib f', which fits into a groove a^5, formed in the bottom of the barrel, and it is held in this position by a flat pin e^6, (see Fig. 21,) which extends through the lower portion of the barrel and through this grip or handle, slotted openings a^7 and f^2 being provided in the barrel and grip, respectively, for this purpose. The opening a^7 is made of a size sufficient to receive the flat pin e^6; but the slot f^2 is made of greater length, which gives the grip or han-

dle a limited movement in its relation to the barrel. This rib or extension f' on the grip is extended rearwardly, as shown in Figs. 12 and 16, and is provided at its outer projecting end with a laterally-projecting cam-face f^3. The groove a^5 in the bottom of the barrel preferably extends from the point where the grip is attached forwardly to the end of the barrel. The barrel is further provided on the bottom with two cross-grooves a^8 and a^9, the rear edges of which are formed square, so as to form holding-shoulders. These are adapted to operate in connection with a lock or latch to hold the barrel in its closed position and to limit its movement in opening and closing. The lock for the barrel consists in a perforated plate a^{10}, which extends downwardly across the magazine and is adapted to be pressed upwardly by the springs a^{11}. The perforation through this plate, as shown in Fig. 19, is elongated, so that it may move up or down without forming any projection into the bore of the magazine, so as to permit the shells or cartridges to pass freely through the same. It has at the top a projection a^{12}, adapted to fit into the cross-grooves a^8 and a^9 and engage with the shoulders on the barrel. This lock-plate a^{10} is loosely connected to an arm a^{13} of a rock-shaft a^{14}. (See Fig. 19 and the dotted lines in Fig. 12.) This rock-shaft extends through a portion of the fore-arm and is provided at its opposite end with an arm a^{15}, which is adapted to contact with the laterally-projecting cam-face f^3 on the grip or handle. The grip and its projecting cam are so placed with reference to the barrel that the cam passes over the arm a^{15} just before the barrel is closed. When the barrel is closed, the arm a^{15} stands forward of the cam-face f^3, with the handle or grip moved to the rear. The springs a^{11} thus move the latch-plate a^{10} until the projection a^{12} thereon engages the cross-groove a^9, and thus firmly locks the barrel against the breech-block. The first outward movement of the handle f, (independent of the barrel,) which is permitted by the slotted opening f^2 working on the pin e^6, will cause the cam-facing f^3 to move over the arm a^{15}, and thus depress the same and through the medium of the rock-shaft depress the lock-plate, and thus free the barrel. A further movement of the handle will then carry the barrel outwardly until the latch-plate engages in the cross-groove a^8 and stops the same. The magazine-catch b^2 is also provided with a small upwardly-extending projection b^5, which is adapted to travel in the groove a^5 in the bottom of the barrel, and there is pivoted in the bottom of the barrel in a suitable recess a cam-latch a^{16}, which is spring-pressed, so as to normally stand across the groove, and is held against movement in one direction by suitable shoulders or projections, but is free to move in the opposite direction, so as to stand flush with the side of the groove. This cam-latch a^{16} is adapted as the barrel is closed to contact with the projection b^5 on the magazine-latch and force the same downwardly, so that the opening in the magazine will be coincident with the perforation of the latch, and thus permit a shell or cartridge therein to be forced by the spring back into the carrier immediately under the breech portion of the barrel. As soon as the cam a^{16}, however, has passed the projection b^5 the latch will immediately be pressed upwardly, so as to catch and retain the next succeeding shell or cartridge. As the barrel is opened the cam-latch a^{16} will be turned out of the way and will not operate the magazine-latch until the barrel is again closed, the spring-latch having, as soon as it has passed the projection b^5, returned to its normal position across the groove a^5 and is ready to engage the magazine-latch.

Up to this point we have described the means for locking and unlocking the barrel, sliding the barrel back and forth, and locking and unlocking the magazine to permit the shells or cartridges to be released and forced out of the same. We will now proceed to describe the carrier and the mechanism for carrying the shell or cartridge into position for loading and also for extracting the shell or cartridge which has been previously loaded. This carrier e is shown in detail in Figs. 14 and 15 and consists of a U-shaped frame mounted on the end of a spring-pressed lever e', the lever being preferably provided with an extended finger e^2, which fits in the round opening e^3 in the bottom of the carrier, so that the carrier is pivoted on the arm. The finger e^2 is also preferably pivoted on the end of the arm e', as shown at e^4, so that a universal connection is established between the spring-actuated lever e' and the U-shaped frame of the carrier. The arm e' extends backwardly through a slotted opening below the breech-block and is pivoted at e^5 immediately under the firing mechanism, a spring e^9, placed within the stock of the gun, being adapted to normally press the arm upwardly. The sides of the carrier are beveled at one end, as shown in Figs. 1 and 15, and are adapted to be engaged by the end of the barrel when closed, which will thus force the carrier downwardly and into the open chamber d behind the magazine. The carrier is preferably provided on each side with small spring-actuated fingers e^7, (see Fig. 14,) the upper ends of which are normally pressed inwardly, so as to engage and hold the shell therein. Each side of the chamber d is provided in the bottom with small pins or projections e^8, which as the carrier moves downwardly engage with the lower ends of the pivoted fingers, and thus force the upper ends outwardly until they stand flush with the sides of the carrier. The sides of this chamber d are also preferably recessed, as shown at d', to receive the sides of the carrier, and small projecting pins d^2 are provided near the top of the chamber to stop and limit the carrier in its upward movement, these pins being adapted to contact with shoulders formed by notching the

sides of the carrier, as shown in Fig. 13. At each side of the breech-block, fitted in suitable recesses therefor, are small spring-actuated extractors c^2, having beveled hook-shaped ends that are adapted to engage and hold the rim of the cartridge or shell, and the projecting portion a^3 of the barrel is notched out on each side, as shown, to receive these spring-actuated extractors, and the construction is such that a shell or cartridge being in the barrel, with the barrel closed, the carrier will as the barrel is opened force the shell or cartridge upwardly to the position shown in Fig. 1, with the rim of the shell or cartridge resting firmly against the breech-block and engaged by the extractors at the side of the breech-block, the shells being held by the spring-pressed fingers e^7, so as to properly enter the barrel as the barrel is closed. As the barrel is moved backwardly the shell or cartridge enters the barrel, after which the pressing of the end of the barrel on the carrier carries it back to its normal position, where the fingers are opened, after which the pivoted cam, engaging with the magazine-latch, releases the same and permits another shell or cartridge to be forced by the magazine-spring into the carrier ready for the next loading.

There remains to be described the firing mechanism. This is of very simple construction and consists of a spring-actuated firing-pin h, the reduced end of which extends through the breech-block in the usual way and is when released forced against the cartridge by the spring h'. When cocked, the firing-pin is held in position by a sear h^2, the end of which engages with the notch h^3 near the rear end of the firing-pin. At one side of the firing-pin there is pivoted a cocking-lever h^4, which is adapted to engage on a projecting arm h^5 on the firing-pin. (See Fig. 8.) This cocking-lever is pivotally connected to a reciprocating rod or bar h^6, which extends through the side portions of the fore-arm and on one side of the open chamber d, as shown in Fig. 5, and is attached to the grip or handle f by a loose or sliding connection, as shown at h^7 in Fig. 12, the construction being such that as the barrel is moved forwardly just before it reaches the limit of its stroke the cocking-lever h^4 is pulled back by the bar h^6 and, contacting with the firing-pin, cocks the gun. On the opposite side of the firing-pin from the cocking-lever h^4 there is what we term a "safety-catch" h^8. This catch is shown in Fig. 7 and in detail in Fig. 10. It is provided on one side with a lateral projection h^9, which is adapted to engage with the arm h^{10} on the firing-pin, (see Fig. 8,) and it is held in engagement therewith by a spring h^{11}. This arm h^8 is also provided with an extended finger h^{12}, which extends laterally in the path of a spring-actuated pin h^{13}, immediately below the breech-block. This pin extends through the breech-block, so as to contact with a projecting pin k in the end of the barrel. The lateral extension h^9 of the safety-latch h^8 is normally pressed into the path of the arm h^{10} on the firing-pin, and thus prevents any forward movement of said firing-pin until the latch has been moved out of the path thereof. The pin h^{13} is normally pressed through the breech-lock, but is engaged and forced backwardly by the barrel as it seats itself into the breech-block, so that the gun cannot be fired until the breech-block has become firmly closed, the seating of the barrel into the breech-block and the locking of the barrel being accomplished just as the safety-catch is removed from the firing-pin. The gun is fired through the agency of the usual trigger.

A brief description of the complete operation of the gun is as follows: The gun is opened and the magazine filled with a number of shells or cartridges. If desired, a shell may be placed in the carrier and one in the barrel, the carrier with the shell or cartridge therein being pressed down, so as to permit the barrel to be closed. The barrel being closed and the gun fired, the outward movement of the handle will unlock the barrel, and a further movement of the handle will carry the barrel forward. The shell or cartridge being engaged by the extractor c^2 will be extracted from the barrel and held with the end against the breech-block. As soon as the barrel is opened sufficiently the spring-actuated arm e' will force the carrier e upwardly, and the loaded shell or cartridge therein will contact with the empty shell or cartridge and force the same vertically along the breech-block until released by the extractors c^2. As the barrel is now closed, the shell or cartridge runs into the barrel, with the rim engaged in the extractors c^2, the carrier will be pressed down, the fingers therein opened, the magazine-latch operated to permit another shell or cartridge to be forced into the barrel, and the gun is ready for another operation. Whenever the barrel is opened, the gun is cocked; but so long as the barrel remains open the firing-pin will be held by the safety-catch so that the gun cannot be fired.

In the drawings we have illustrated a shot-gun; but it is obvious that the constructions shown and described are equally applicable for use with a rifle.

Having thus described our invention, we claim—

1. The combination with the breech and fore-arm, the sliding barrel in the arm, the spring-actuated lever, the pivoted finger on said lever, the carrier pivotally mounted on said finger and adapted to be forced into an open chamber below said barrel by the closing of the barrel, substantially as specified.

2. The combination with the spring-actuated carrier and the sliding barrel, the recessed chamber under said barrel, the magazine in front of said chamber, a spring-pressed

catch for said magazine, and a spring-actuated cam-latch adapted to operate said catch by the movement of said barrel, substantially as specified.

3. The combination with the sliding barrel, the spring-actuated carrier and the magazine as described, of a handle or grip for moving said barrel, a connection between said handle and said barrel which permits a limited movement between the parts, a lock for said barrel, a lock-operating mechanism, including a rock-shaft independent of said handle but operated thereby, whereby the barrel is unlocked at the first movement of said handle or grip, substantially as specified.

4. The combination with the sliding barrel and the vertically-moving carrier arranged in a chamber in front of and below the breech-block, a firing-pin, a connection from said barrel to the firing-pin whereby the firing-pin is cocked as the barrel is opened, and a safety-latch normally standing in the path of said firing-pin, and means for moving said safety-latch as the barrel is closed, substantially as specified.

5. The combination with the gun-stock, the sliding barrel and the breech-block, a chamber in front of and below said breech-block and the carrier in said chamber, a connection from said sliding barrel to the firing mechanism whereby the gun is cocked when the barrel is opened, and a safety-lever adapted to prevent the operation of the firing mechanism, and means for disengaging said safety-lever as the barrel is closed, substantially as specified.

6. The combination with the sliding barrel, the spring-actuated latch to engage and lock the same, a handle for operating said barrel, said handle being attached to said barrel so as to permit a limited movement of said handle, and a connection, including a rock-shaft, from said handle to said barrel-lock whereby the lock is disengaged by the limited independent movement of the handle in relation to said barrel, substantially as specified.

7. The combination with the sliding barrel, the magazine, the vertically-moving carrier, a magazine-latch having an upwardly-extending projection, and a groove in the barrel in which said latch travels, and a spring-actuated cam-trip adapted to engage said magazine-latch and move the same when the barrel is moved in one direction only, substantially as specified.

8. The combination with the sliding barrel, the vertically-moving carrier, of a spring-actuated arm having a pivoted finger upon which the carrier is pivotally mounted, substantially as specified.

9. In combination with the sliding barrel, the chambered opening, a carrier in said opening, spring-catches in said carrier, a spring-actuated arm attached to said carrier, a projection in said opening for engaging said spring-catches so as to release said spring-fingers, substantially as specified.

In testimony whereof we have hereunto set our hands this 23d day of June, A. D. 1900.

CHARLES A. YOUNG.
SILAS H. BARTON.

Witnesses:
CHAS. I. WELCH,
EDMOND J. OGDEN.