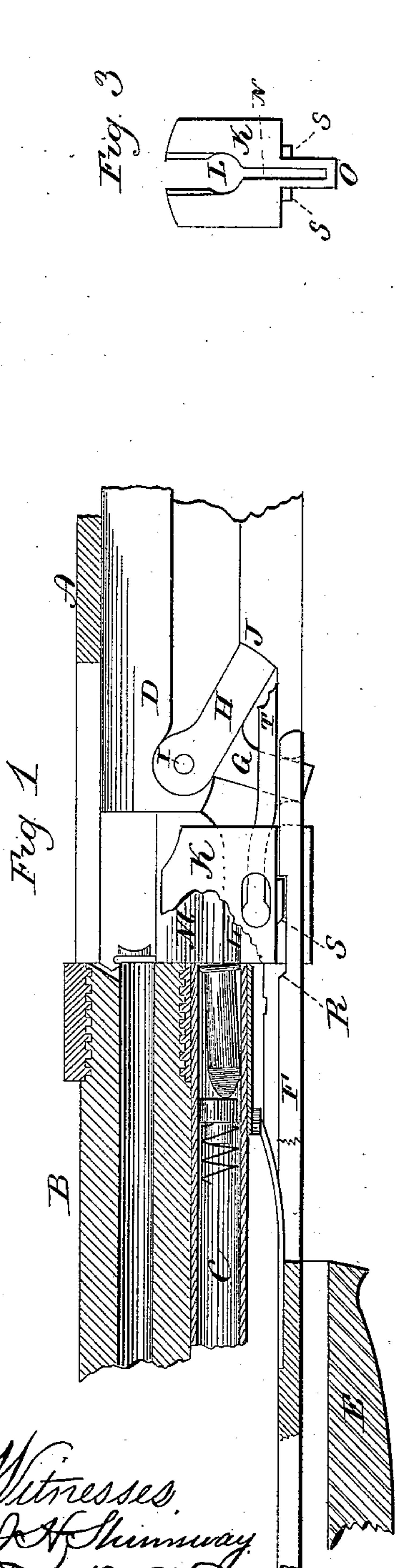


(No Model.)

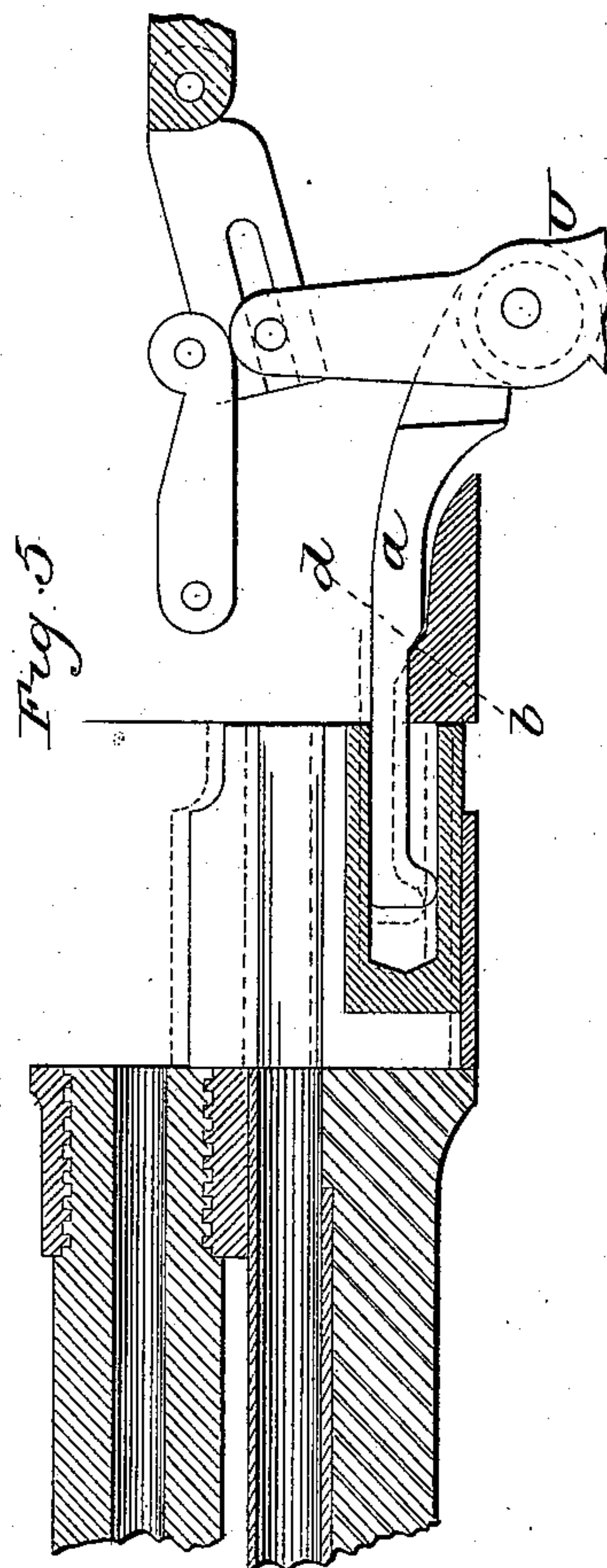
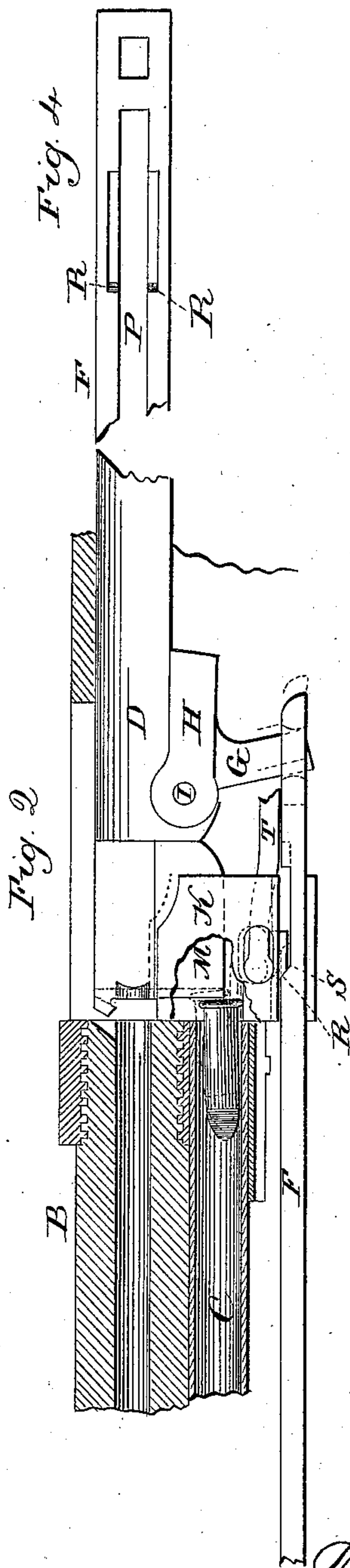
F. F. KNOUS.
MAGAZINE FIRE ARM.

No. 372,153.

Patented Oct. 25, 1887.



Witnesses.
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UNITED STATES PATENT OFFICE.

FRANKLIN F. KNOUS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
COLT'S PATENT FIRE ARMS MANUFACTURING COMPANY, OF SAME
PLACE.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 372,153, dated October 25, 1887.

Application filed August 1, 1887. Serial No. 245,788. (No. model.)

To all whom it may concern:

Be it known that I, FRANKLIN F. KNOUS, of Hartford, in the county of Hartford and State of Connecticut, have invented new Improvements in Magazine Fire-Arms; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a sectional side view of an arm illustrating the invention, showing the parts in the normal or closed condition; Fig. 2, the same view as Fig. 1, showing the parts in the position of the breech-piece having commenced its opening movement; Fig. 3, a front end view of the carrier; Fig. 4, a top view of a portion of the slide. Fig. 5 illustrates the invention as applied to a second class of arms.

This invention relates to an improvement in that class of magazine fire-arms in which the breech-piece is arranged to move longitudinally backward and forward in opening and closing, and in which the magazine is arranged longitudinally beneath the barrel, and having a carrier adapted to receive a cartridge from the magazine and transfer it to a position forward of the front face of the open breech-piece.

In the smaller class of arms—such as adapted to use "22" cartridges—it is important that the arm shall be adapted to use various lengths of cartridges, such as found in the market. If the carrier be adapted to receive the longer cartridge, and so that the first cartridge passing onto the carrier may serve as a stop for the next, to prevent its passing so far from the magazine as to interfere with the up-and-down movement of the carrier, then when the shorter cartridges are introduced the spring of the magazine will force the column rearward, take the rear cartridge onto the carrier to the same extent that the longer cartridge will be carried; and this unavoidably brings the second cartridge partly into the carrier and so that it, standing partly in the carrier and partly in the magazine, checks the movement of the carrier, so that the arm constructed for one length of cartridge is adapted

only for that length, and, without some provision to the contrary, could not be used with a different length of cartridge.

The object of my invention is a construction which will be adapted to various lengths of cartridges, and while particularly designed for the use of smaller cartridges is equally applicable to arms which are of larger caliber, where varying lengths of cartridges may be desirable; and the invention consists, principally, in imparting to the carrier a slight upward movement immediately after the head portion of the rearmost cartridge shall have passed into the carrier and before the head of the next cartridge shall have reached the forward end of the carrier, so that the passage between the magazine and carrier will be contracted to a diameter less than the diameter of the head of the cartridge, and so that the carrier itself will stand at the rear end of the magazine as a check for the column of cartridges after the rearmost cartridge shall have passed completely into the carrier.

I do not illustrate the entire mechanism of the arm, as it is unnecessary to the full understanding of the invention.

A represents the receiver, B the barrel attached to the forward end of the receiver, and C the magazine, arranged longitudinally beneath the barrel, both the magazine and barrel opening into the receiver at the rear in the usual manner for this class of magazine-arms.

D is the breech-piece, arranged in the receiver at the rear and so as to move in longitudinal line with the barrel.

As represented in Figs. 1 and 2, the breech-piece is actuated by means of a handle, E, beneath the barrel forward of the receiver, and from which handle a slide, F, extends rearward into engagement with an arm, G, extending from a brace, H, which is hung to the forward end of the breech-piece, as at I, and so as to stand against an abutment, J, in the receiver when the breech-piece is in its closed position—a common construction of arm.

K represents the carrier, which is adapted to move up and down in the receiver at the rear end of the barrel, the carrier being constructed with a longitudinal cartridge-chamber, L, which, when the breech-piece is in its

down position, as seen in Fig. 1, stands in line with the magazine and forms substantially a continuation of the same, and so that when in the down position, if the column of cartridges is permitted to move rearward, the rearmost cartridge will pass into the chamber L of the carrier. From the under side of the breech-piece at its forward end is a downward projection, M, which works through a longitudinal opening, N, in the carrier, the said opening extending from below the cartridge-chamber and upward from it through the carrier, as seen in Fig. 3, and as in this class of arms.

The projection M from the breech-piece, when in the closed position, stands against the rear end of the magazine, and so that the rearmost cartridge abuts against it, as seen in Fig. 1.

The brace H is raised from its abutment J by a rear movement of the handle E, and after the brace has escaped from the abutment J, then the handle acts through the brace to impart a rear movement to the breech-piece, also in the usual manner, and as seen in Fig. 2. As the breech-piece commences its rear movement, the rearmost cartridge follows the projection M from the breech-piece, and so passes into the chamber in the carrier. Soon after the rearmost cartridge has thus commenced its movement into the carrier I impart a slight upward movement to the carrier. The carrier has a projection, O, which extends down through a longitudinal groove, P, in the slide F. (See Figs. 3 and 4.) On each side of the groove P, in the slide F, a cam, R, is provided, and upon the carrier corresponding shoulders, S, are formed, which stand in the path of the cam R, as seen in Fig. 1. When the parts are in the closed position, as seen in Fig. 1, the cams R stand so far forward of the shoulders S as to permit such an extent of rear movement of the slide F as will raise the brace from its abutment and impart to the breech-piece a slight rear movement before the cams R come into contact with the shoulders S, as seen in Fig. 2, and so that the rearmost cartridge will have commenced its movement into the carrier, as indicated in Fig. 2. Then the cams R act upon the shoulders S and cause the carrier to rise to the extent of the said shoulder, as indicated in broken lines, Fig. 2. The extent of movement thus imparted to the carrier raises it only so far as to contract the opening between the magazine and carrier to an extent less than the diameter of the head of the cartridge, but sufficiently greater than the diameter of the body of the cartridge to permit the cartridge to freely continue its rear movement into the carrier, which it does under the force of the magazine-spring acting upon the column of cartridges; but as the head of the next or second cartridge arrives at the rear end of the magazine it finds the opening too small for it to pass into the carrier, the carrier there standing as a stop or check for the column of car-

tridges. After the cartridge has passed from the magazine, which it does under the continued rear movement of the breech-piece, and when fully delivered into the carrier, the carrier rises in the usual manner to present the cartridge forward of the front face of the breech-piece; then the breech-piece moves forward in the usual manner through the carrier, forcing the cartridge therein into the barrel. In due time the carrier drops into position to receive the next cartridge, the breech-piece serving to prevent the rear movement of the column until it commences its rear movement, as before described, the carrier reaching its complete down position, when, in the forward movement of the slide F, the cam R escapes from the shoulder S.

The transfer movement of the carrier is produced through the carrier-lever T in the usual manner or otherwise, not necessary to be illustrated or described.

Because of giving to the carrier a preliminary movement, whereby it serves as a stop for the column of cartridges after the rearmost cartridge shall have been delivered to the carrier, it is impossible that a second cartridge can commence its movement into the carrier, so as to choke or interfere with the transfer movement of the carrier.

I have thus far illustrated the invention as applied to an arm in which the mechanism is operated by a sliding handle forward of the receiver; but the invention is equally applicable to other operative mechanisms, as may be seen by reference to Fig. 5, in which I illustrate a mechanism such as that employed in the Winchester arm, U being the operating-lever. In this case *a* represents the carrier-lever, which extends into the carrier, and so that under its vibratory movement it imparts a corresponding up-and-down movement to the carrier, the same as in the Winchester arm; but in addition to the usual vibratory movement imparted to the carrier-lever, I give to it a forward movement, which is produced by an eccentric on the hub of the lever U, (indicated in broken lines in Fig. 5,) and so that during the first part of the opening movement of the breech-piece the carrier-lever *a* will be forced forward to some extent, as indicated in broken lines, Fig. 5. The receiver is constructed with an inclined shoulder, *b*, below the lever *a*, and the lever *a* with a corresponding shoulder, *d*, which substantially abut one against the other when the parts are in their normal condition; but upon the first part of the opening movement of the breech-piece the shoulder *d* of the lever rides up the shoulder *b* of the receiver and gives to the lever *a* a slight upward movement, as indicated in broken lines, Fig. 5, and this forward and upward movement of the carrier-lever imparts the same movement to the carrier which I have described as produced by the slide F, and with the same result. Then at the proper time the lever U comes into

positive engagement with the lever *a* to impart the upward transfer movement to the carrier.

5 The illustration which I have given of the application of the invention to two classes of fire-arms will be sufficient to enable others to apply the invention to arms of different classes, it only being essential to the invention that there shall be a preliminary upward movement
10 imparted to the carrier after the rearmost cartridge shall have commenced its movement into the carrier, and before that movement is completed. It will therefore be understood that I do not limit the invention to any specific construction of arm, further than that the
15 arm shall have a magazine substantially parallel with the barrel, with a carrier adapted to transfer the cartridge from the magazine to a position forward of the front face of the breech-piece and adapted to receive the preliminary movement, whereby the said carrier may be made to act as a check or stop for the column of cartridges, and the arm thereby adapted to the use of cartridges of varying
20 lengths.

25 I claim—

1. In a magazine fire-arm in which the magazine is arranged longitudinally parallel to the barrel, with a breech-piece arranged to move
30 longitudinally backward and forward in opening and closing, and a carrier adapted to re-

ceive a cartridge from the magazine and transfer it to a position forward of the front face of the open breech-piece, the combination therewith of a cam between the carrier and the
35 handle, by which the carrier is caused to rise and fall, substantially as described, whereby movement is imparted to the carrier after the rearmost cartridge in the magazine shall have commenced its movement into the carrier and
40 before that movement is completed.

2. In a magazine fire-arm in which the magazine is arranged below the barrel, the barrel and magazine opening into the receiver at the rear, with a longitudinally - reciprocating
45 breech-piece, and a carrier adapted to move up and down for the transfer of a cartridge, the combination therewith of a handle beneath the barrel, forward of the receiver, a slide extending rearward therefrom into connection with
50 the operative mechanism of the arm, the said slide and carrier constructed with corresponding cam-like shoulders, substantially as described, and whereby, as the breech-piece commences its rear movement, the said shoulders
55 impart a preliminary upward movement to the carrier.

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Witnesses:

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