

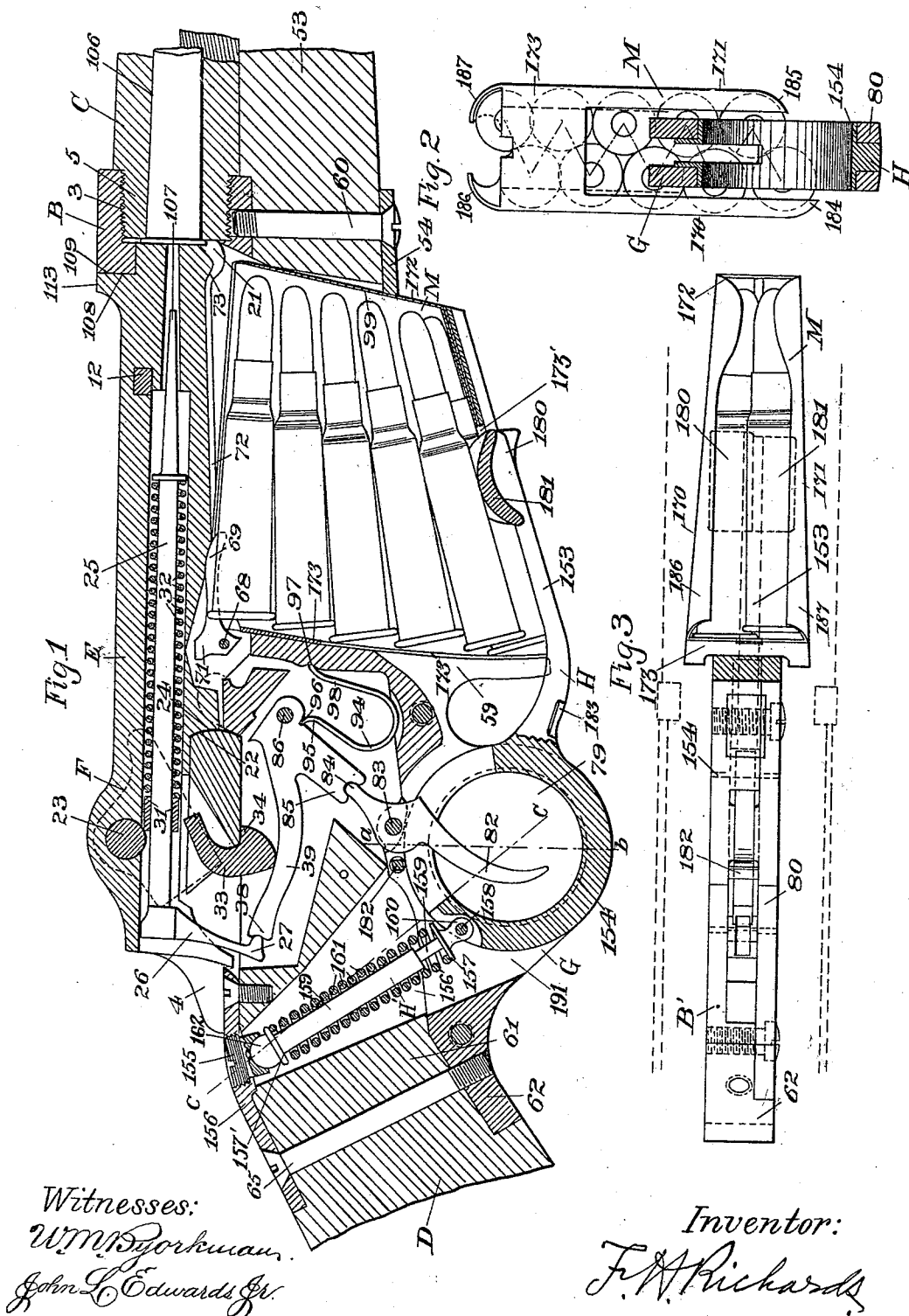
(No Model.)

2 Sheets—Sheet 1.

F. H. RICHARDS.
CARTRIDGE ELEVATING MECHANISM.

No. 515,130.

Patented Feb. 20, 1894.



Witnesses:

Wm. Dyckman.
John L. Edwards Jr.

Inventor:

F. H. Richards.

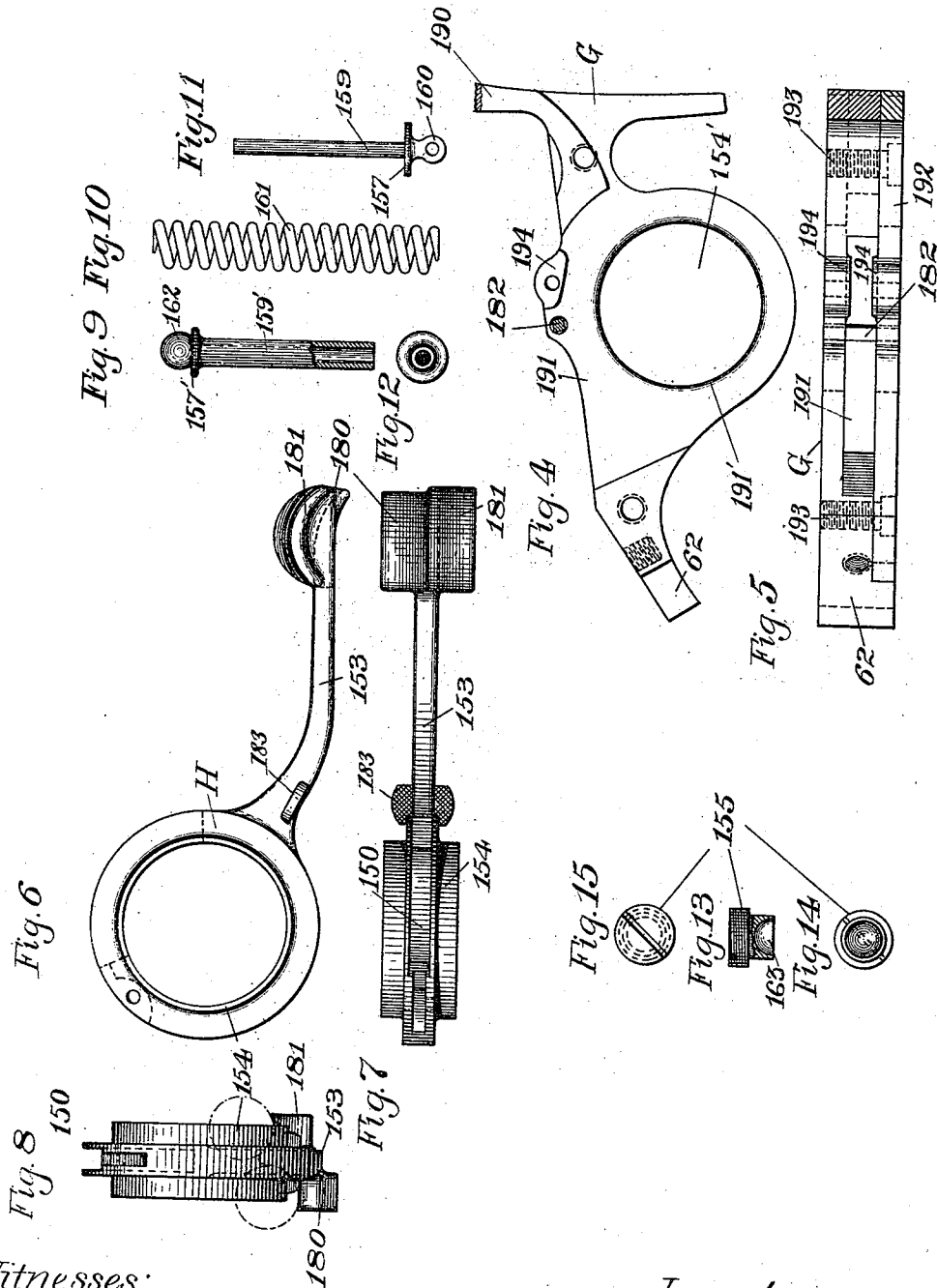
(No Model.)

2 Sheets--Sheet 2.

F. H. RICHARDS.
CARTRIDGE ELEVATING MECHANISM.

No. 515,130.

Patented Feb. 20, 1894.



Witnesses:
Wm. Dyckman.
John L. Edwards Jr.

Inventor:
F. H. Richards.

UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO JAMES PARIS LEE, OF SAME PLACE.

CARTRIDGE-ELEVATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 515,130, dated February 20, 1894.

Application filed December 1, 1893. Serial No. 492,470. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Bolt-Guns, of which the following is a specification.

This invention relates to that class of breech-loading fire-arms known as "bolt-guns," and has special reference to the mechanism for elevating the cartridges in the cartridge-magazine or "packet-case."

The object of this invention is to furnish the gun with improved mechanism for elevating or feeding the cartridges, which shall be simple in construction, automatic and effective in its operation, and which shall also form a suitable guard for the trigger of the gun.

In the drawings accompanying and forming a part of this specification, Figure 1, Sheet 1, illustrates in vertical longitudinal section a "bolt-gun" as provided with my present improvements, the cartridge-magazine being shown as filled with cartridges and the cartridge-lifter in operative engagement therewith. Fig. 2, Sheet 1, is a sectional detail, taken in dotted line *b-b*, Fig. 1, showing the guard block or strap, the cartridge-lifter journaled therein, and the cartridge-packet, in their relative positions, as seen from the left-hand in said Fig. 1. Fig. 3, Sheet 1, is a top view of the cartridge-packet, cartridge-lifter, guard-block or strap, and trigger, a portion of the guard-block being in section. Fig. 4, Sheet 2, is a side view of the guard-block, with its side plate removed. Fig. 5, Sheet 2, is a top view of the guard-block with its side plate attached. Figs. 6, 7 and 8, Sheet 2, are side, top and end views, respectively, of the cartridge-lifter. Figs. 9, 10, 11 and 12 are details of different members of the cartridge-lifter-actuating device. Figs. 13, 14 and 15 are details of the ball-socket bearing for said actuating device.

Similar characters designate like parts in all the figures.

In the drawings, only so much of a "bolt-gun" and its connected mechanisms is shown as is pertinent to a clear understanding of my improvements thereto, and the operation thereof.

My present improvements are adapted to be used in connection with breech-loading fire-arms of various constructions employing a horizontally-reciprocating bolt and a vertically-disposed cartridge-magazine or case; but the improvements are especially applicable to the particular "bolt-gun" herein shown, which is or may be substantially similar to the bolt-gun shown and described in United States Letters Patent No. 506,319, granted to J. P. Lee October 10, 1893.

Referring to the drawings in my present application:—such details and parts therein shown as correspond with parts shown in the application and patent referred to, are generally designated by like characters. Accordingly, the following parts are or may be the same as the parts designated by the same characters in said application and patent, to-wit:—the receiver or gun-frame, designated by B, adapted for carrying a sliding bolt; the horizontally-reciprocating bolt E carried by said receiver and carrying the spring-actuated firing-pin 25; the bolt-locking actuator F; the sear 39 for holding the firing-pin in a retracted position; sear-spring 94; trigger and cartridge-shell ejector: thus it will be seen that the entire gun-mechanism, with the exception of the guard block (herein designated in a general way by G); the cartridge-packet M; the cartridge-lifter, designated in a general way by H, and cartridge-lifter-actuating mechanism, designated in a general way by H', is and may be of the same construction, arrangement and operation as in the patent hereinbefore referred to. In the patent referred to, the receiver is recessed vertically to receive the cartridge-case.

The cartridge-packet case M used in connection with my present improvements and as herein shown, will preferably consist of a casing comprising the two side-walls 170, 171, and the front and rear walls 172 and 173 respectively, the rear one 173 of which is recessed at 173' to permit the entrance and operation of the cartridge-lifter H. In the preferred form, as shown in the drawings, the cartridge-packet case is constructed for supporting two corresponding and independent columns of cartridges located side by side and in different planes, it being of "stepped"

construction. For this purpose the two side walls of the case are inwardly flanged at their lower ends, as shown at 184 and 185, respectively, the flange 184 being on a lower plane than the one 185. One of the columns of cartridges, shown at the left-hand in Fig. 2, rests upon the lower step or flange 184, while the other column, shown at the right-hand in said figure, rests upon the upper step or flange 185, the step being elevated above said lower step by a distance of about one-half the diameter of a cartridge. In practice, the cartridges are allowed to slightly intermesh, for the purpose of properly steadying one column against and by means of the other. By this arrangement, both columns of cartridges may be fed upwardly in the case by the cartridge-lifting device as hereinafter described, without crowding or jamming therein. As shown in Figs. 2 and 3 of the drawings, both side walls of the packet-case are inwardly flanged to form side lips, 186 and 187, against which the uppermost cartridge of the left and right hand columns of cartridges alternately bear.

The packet-case, in practice, will be so constructed that the side walls will be resilient and bear with sufficient force against the opposite sides of the two columns of cartridges as to hold them against accidental displacement prior to the insertion of said packet in the receiver of the gun, upper flanges 186 and 187 and lower flanges 184 and 185 co-acting with the side walls to accomplish this end. This method of holding the cartridges in the "case" enables the case to be held in the receiver by means of the cartridge-lifter bearing against the lowermost cartridges of the two columns, without the use of the usual catches, and permits the case to drop out of the receiver immediately upon the retraction of the cartridge-lifter.

The packet-case may be conveniently filled either from the top or bottom, as desired, as is fully explained in the application of J. P. Lee hereinbefore referred to.

As a means for elevating the cartridges in the packet-case, I have provided a cartridge-lifter, designated herein in a general way by H, which not only elevates the cartridges in the "case," but holds the said case in place in the receiver of the gun by means of said cartridges. This cartridge-lever consists of a lifting-arm, 153, having an enlarged tubular journal, 154, at its rear end, and having at its opposite end two laterally-projecting cartridge-seats, 180 and 181, for supporting the lowermost cartridges of the two columns of cartridges of the packet, one of the seats, 180, being on a lower plane than the one 181, the relative heights of the seats 180 and 181 corresponding substantially to the relative heights of the two lowermost cartridges of the left and right hand columns of cartridges, respectively, as will be apparent by reference to the drawings, in which the relative heights of the two lowermost cartridges are shown by dotted circles.

It will be understood that where a one-column cartridge-packet is used in connection with the gun, the cartridge-lifting arm will be constructed with but one cartridge-seat.

The tubular journal 154 of the cartridge-lifter is slotted peripherally at its upper side, as shown in Figs. 7 and 8, Sheet 2, to form a recess, 150, through which the trigger 82 extends, as shown in Fig. 1, Sheet 1. This tubular journal is pivotally supported in a corresponding bearing, 154', formed transversely in the guard-block G, which guard-block is mortised vertically and longitudinally, as shown at 191, Figs. 4 and 5, Sheet 2, to receive and permit the movement of the cartridge-lifter between its side-walls. This guard-block, in the preferred form shown in the drawings, is constructed in two pieces, it consisting of the main portion 190 (recessed at its inner face at 191, as shown in Fig. 5, Sheet 2) and a side plate, 192, secured thereto by means of the screws 193 extending through the plate 192 at its either end and screwed into the main part 190, as shown in the figure just referred to. By this construction of cartridge and disposition of the cartridge-lifter, it will be seen that the pivotal bearing therefor is some distance rearward of the cartridge-packet, and that the tubular journal thereof forms a guard for the trigger, which trigger is preferably pivoted between oppositely-disposed projections, 194, formed upon the adjacent faces of the two side pieces of the guard-block, at their upper edges.

As a means for actuating the cartridge-lifter H, to elevate the lifting-arm 153 thereof, I provide an actuating-device, herein designated in a general way by H'. In the preferred form thereof as herein shown, the cartridge-lifter-actuating device consists essentially of a spring, 161, of suitable power. This spring is preferably placed vertically within the gun-frame, as in Fig. 1, it reacting against an abutment (herein shown as a screw, 155) at the upper part of the gun-frame, and taking its bearing against the lug 160 on the rearward side of the cartridge-lifter journal 154, said lug being pivotally supported upon a pin, 158, in a recess formed in the said journal.

As a convenient means of supporting the cartridge-lifter-actuating spring 161, I have provided two telescoping members, 159 and 159', the one 159 being pivotally supported upon the pin 158, as before stated, and the one 159' being pivotally connected with the screw 155 through the medium of a ball, 162, at its upper end entering a socket, 163, formed in the inner end of said screw, both of said members having flanges, 157 and 157', respectively, at opposite ends, against which the end of the springs abut.

The breech-piece D of the gun is vertically recessed, as at 156', in the rear of the pivotal point of the trigger, to receive and permit the movements of the cartridge-lifter-actuating device H'.

To permit the cartridge-lifter-actuating mechanism to be readily assembled and secured in position within the gun-frame, the rear end, 156, of the receiver is vertically bored and screw-threaded to receive the screw-threaded end of the bearing-screw 155; this bore communicates with the recess 156' of the breech-piece, and is of sufficient diameter to permit the insertion through it of the different parts of the actuating-device H'. In assembling the parts of said actuator, the telescopic member 159 will be first pivotally secured to the journal 154 as shown in Fig. 1, after which the spring 161 will be slipped over the stem of said member 159 through the opening in the rear end 156 of the receiver; the tubular member 159' is then passed through said hole and extended into the spring and over the member 159; after which the screw 155 is screwed into the hole in the rear end of the receiver, with its socket in engagement with the ball of the member 159', the parts being then in operative position. By this construction and arrangement of cartridge-lifter-actuating mechanism, the parts thereof may be quickly assembled and disassembled without disturbing the cartridge-lifter or other of the mechanisms of the gun.

In practice, the cartridge-lifter will be so constructed, and the spring 161 so disposed with relation thereto, that the pivotal or bearing point 158 of the spring will, when the cartridge-lifter is retracted to its full open position, be carried past the dead-center line (shown at *c, c* in Fig. 1), whereby said lifter will stay in its open position until closed. When closed, the action of the spring will force the cartridge-seats 180, 181 against and feed the columns of cartridges upward in the packet-case. A stop-pin, 182, will preferably be provided to limit the retractive movement of the cartridge-lifter.

For convenience in opening or retracting the cartridge-lifter, thumb-pieces, 183, are formed upon either side of the arm 153 of said cartridge-lifter, in suitable position to be engaged by either the thumb of the right or left hand of the gunner.

Having thus described my invention, I claim—

1. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-receiving space, of the combined trigger-guard and annular journal-bearing, the cartridge-lifter journaled in said bearing, and means for actuating the cartridge-lifter, substantially as described and for the purpose set forth.

2. In a gun, the combination with the gun-frame having a vertical cartridge-receiving space, of the vertically and longitudinally recessed guard having a transverse annular bearing, the cartridge-lifter having the enlarged axially-recessed journal supported in said bearing, and means for actuating the cartridge-lifter, substantially as described.

3. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-receiving space, of the longitudinally-recessed guard-block having the transverse cartridge-lifter bearing, the cartridge-lifter having the peripherally-recessed cylindrical journal supported in said bearing, the spring-trigger pivoted above and extended into the space within said journal, and a cartridge-lifter actuator, substantially as and for the purpose set forth.

4. In a gun of the class specified, the combination with the frame having a vertical cartridge-receiving space, of the longitudinally and vertically recessed guard-block having the transverse annular bearing therein, the cartridge-lifter having the enlarged peripherally-recessed ring-shaped journal supported in said bearing and adapted to receive and guard the trigger, the trigger pivoted between the walls of the guard-block and extending into the space within the ring-shaped journal, and a cartridge-lifter actuator consisting of a push-spring connected with said cartridge-lifter in the rear of its axis, substantially as described and for the purpose set forth.

5. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-receiving space or magazine, of a combined trigger-guard and cartridge-elevator consisting of a vertically-recessed cartridge-lifter bearing, a vertically-recessed ring-shaped journal supported in said bearing and having an outwardly-extending arm adapted to engage and elevate the cartridges, and a spring interposed between said journal and frame of the gun and adapted for elevating the cartridge-lifter arm, substantially as described and for the purpose set forth.

6. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-receiving space, of a vertically-recessed cartridge-lifter bearing located in the rear of the cartridge-receiving space, the vertically-recessed ring-shaped cartridge-lifter journal revolubly supported in said bearing and having the forwardly-projecting cartridge-elevating arm extended into the cartridge-receiving space and adapted for lifting the cartridges therein, the trigger 82 pivoted above and extended into the space within the ring-shaped journal, and a push-spring bearing at one end against the rear side of said journal and at its other end against the gun-frame, substantially as described and for the purpose set forth.

7. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-magazine or space adapted to support two rows of cartridges side by side at different heights, of a vertically-recessed cartridge-lifter support having a transverse annular bearing, a cartridge-lifter consisting of the vertically-recessed ring-shaped journal 154 supported in said bearing and having the forwardly-projecting cartridge-elevating arm 153, with the two cartridge-seats 180 and 181

located at different planes, at its end, the trigger 82 pivoted above and extended into the space within the ring-shaped journal, and means for elevating the forward end of the arm 153 to feed the cartridges to the firing-chamber of the gun, substantially as described.

8. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-receiving space, of the cartridge-lifter support consisting of the vertically and longitudinally recessed part 190 and the side plate 192 removably secured together and having the transverse bearing 191' formed there-through, the cartridge-lifter interposed between the two parts of the cartridge-lifter support and having the vertically-recessed ring-shaped journal supported in the bearing 191', and having the outwardly-projecting cartridge-lifter arm 153 adapted to extend into the cartridge-receiving space, a trigger pivoted above and projecting into the space within the ring-shaped journal, and means, substantially as described, for actuating said cartridge-lifter, substantially as described and for the purpose set forth.

9. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-receiving space in advance of the trigger, and having a vertical recess, 156', in the rear of said trigger, of a cartridge-lifter arm having a vertically-recessed ring-shaped journal pivotally supported intermediate to the cartridge-receiving space and the vertical recess 156', a trigger pivoted above and extending into the space within said ring-shaped journal, and a cartridge-lifter actuator located in the recess 156' and engaging the actuator-journal in the rear of its axis, substantially as described.

10. In a gun of the class specified, the combination with the gun-frame having a vertical cartridge-receiving recess, of a vertically-recessed ring-shaped revolvably-supported

trigger-guard having a projecting cartridge-lifting arm, a trigger pivoted above and extended into the space within said trigger-guard member, and an actuating device for said member, consisting of a spring carried by a telescopic support pivotally connected at one end to the rear face of said trigger-guard member and at the opposite end thereof to a removable bearing secured to the frame, substantially as described and for the purpose set forth.

11. In a gun of the class specified, the combination with the gun-frame having the vertical cartridge-receiving space, and having the vertical recess 156', of the vertically-recessed ring-shaped trigger-guard 154 revolvably supported in the rear of the cartridge-receiver and having the cartridge-lifting arm 153, the trigger 82 projecting into the space within said member, and the cartridge-lifting arm actuator located in the recess 156' and consisting of the spring 161, the two telescopic supporting members 159 and 159', respectively, the one 159 being pivoted to the trigger-guard member 154, substantially as described, and the one 159' having a ball and socket bearing against a screw fitted in the upper end of the recess 156', all constructed substantially as described and for the purpose set forth.

12. In a gun of the class specified, the combination with a gun-frame having a vertical cartridge-receiver, of a trigger-guard having an annular journal-bearing, a cartridge-lifter journaled at its rear end in said bearing and having, at its forward end, cartridge-seats located in different planes and a spring-device located at the rear end of said cartridge-lifter for actuating the same, substantially as described and for the purpose set forth.

FRANCIS H. RICHARDS.

Witnesses:

FRED. J. DOLE,
JOHN L. EDWARDS.