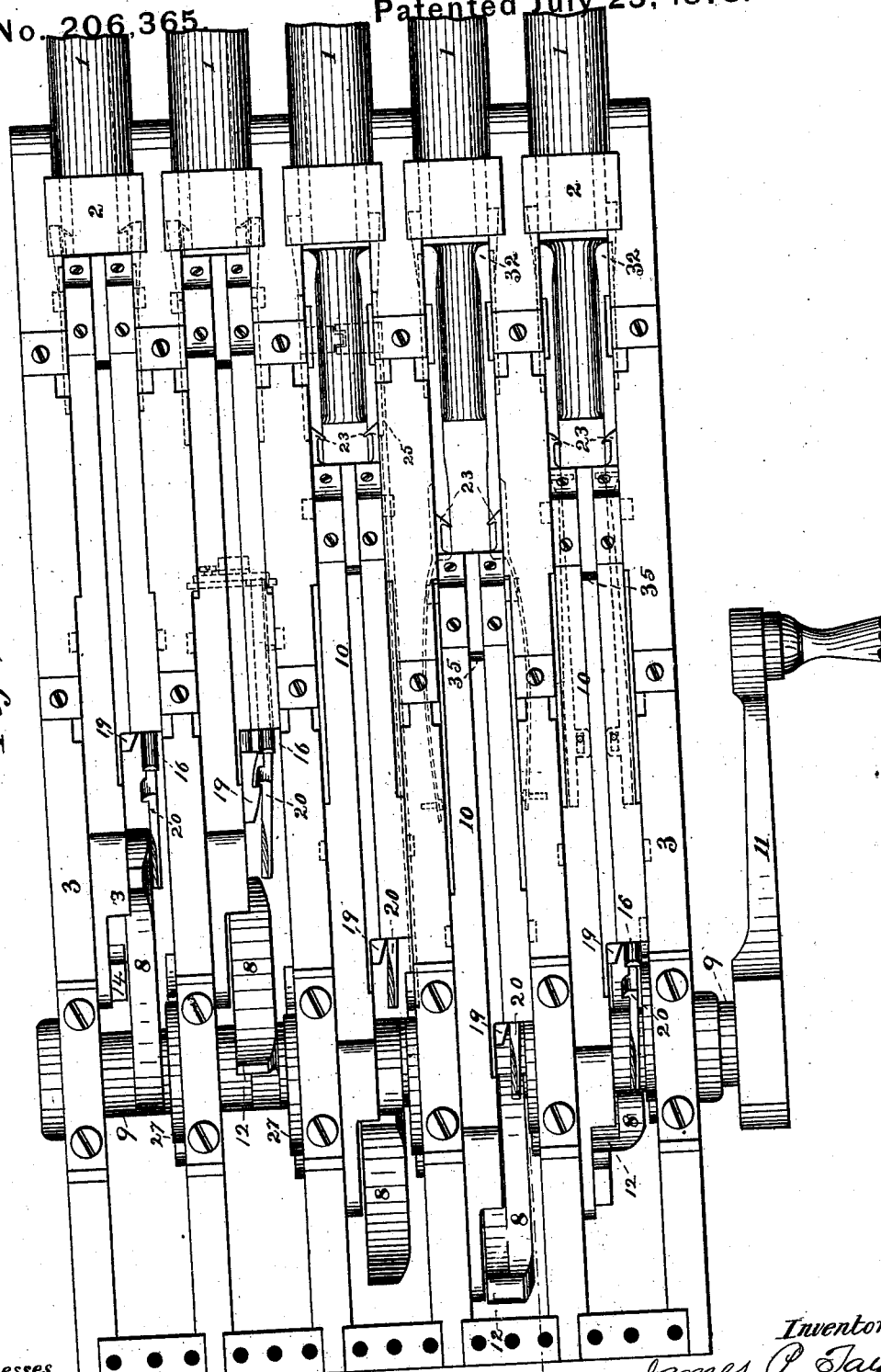


J. P. TAYLOR.
Machine-Gun.

No. 206,365

Patented July 23, 1878.

Fig. 1.



Witnesses.

W. R. Edelbro.
Chas J. Good

Inventor.

James P. Taylor
By *Raymond B. ...*
Attorney

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Fig. 7.

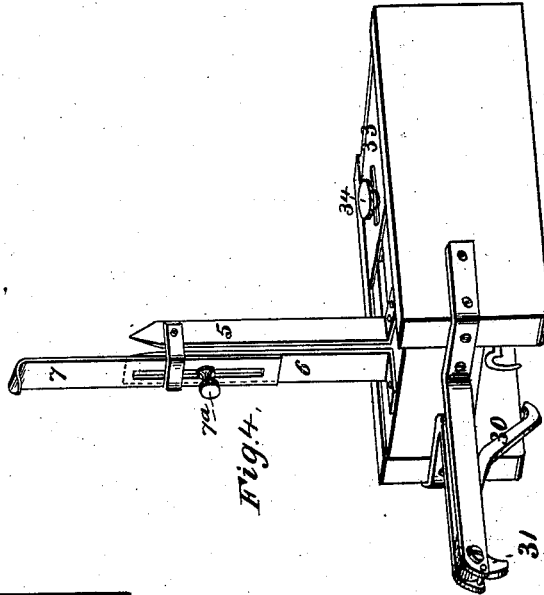
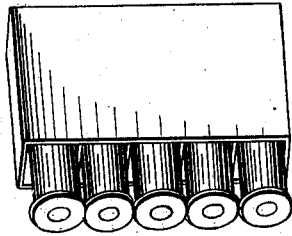


Fig. 4.

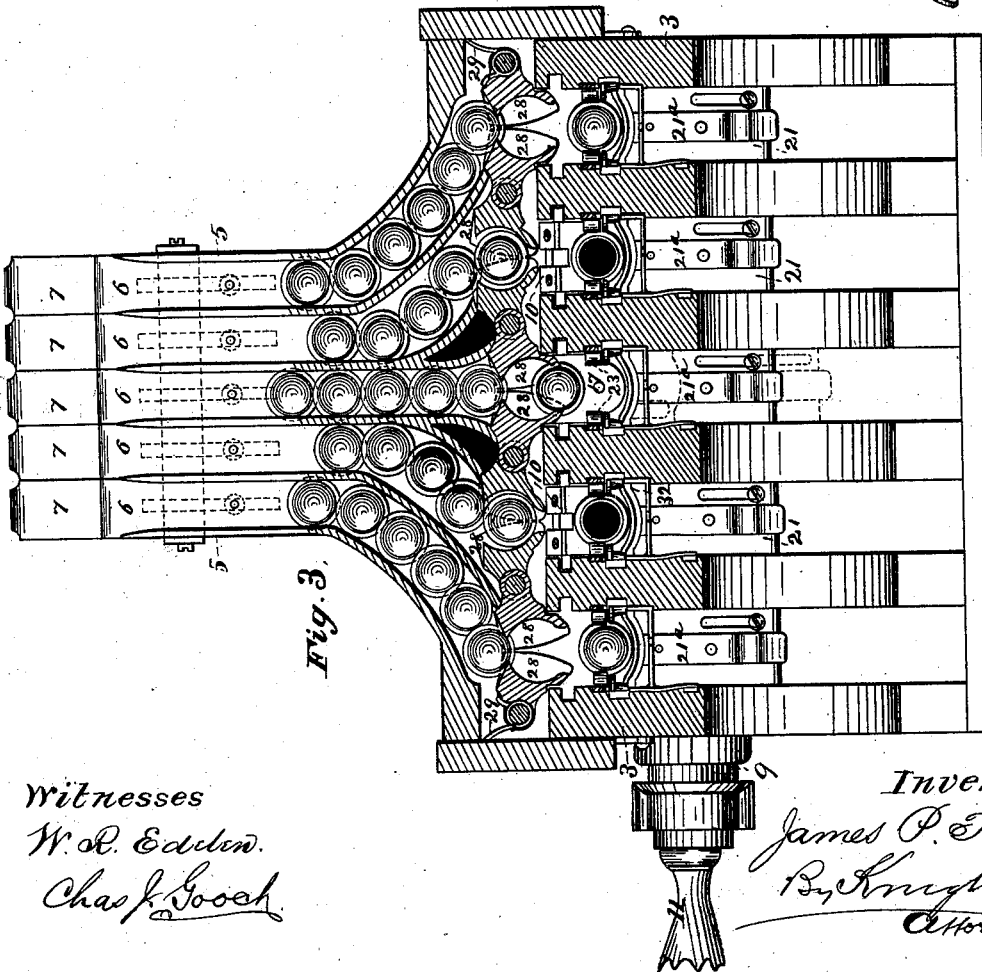


Fig. 3.

Witnesses

W. A. Eddow.

Chas. J. Gooch.

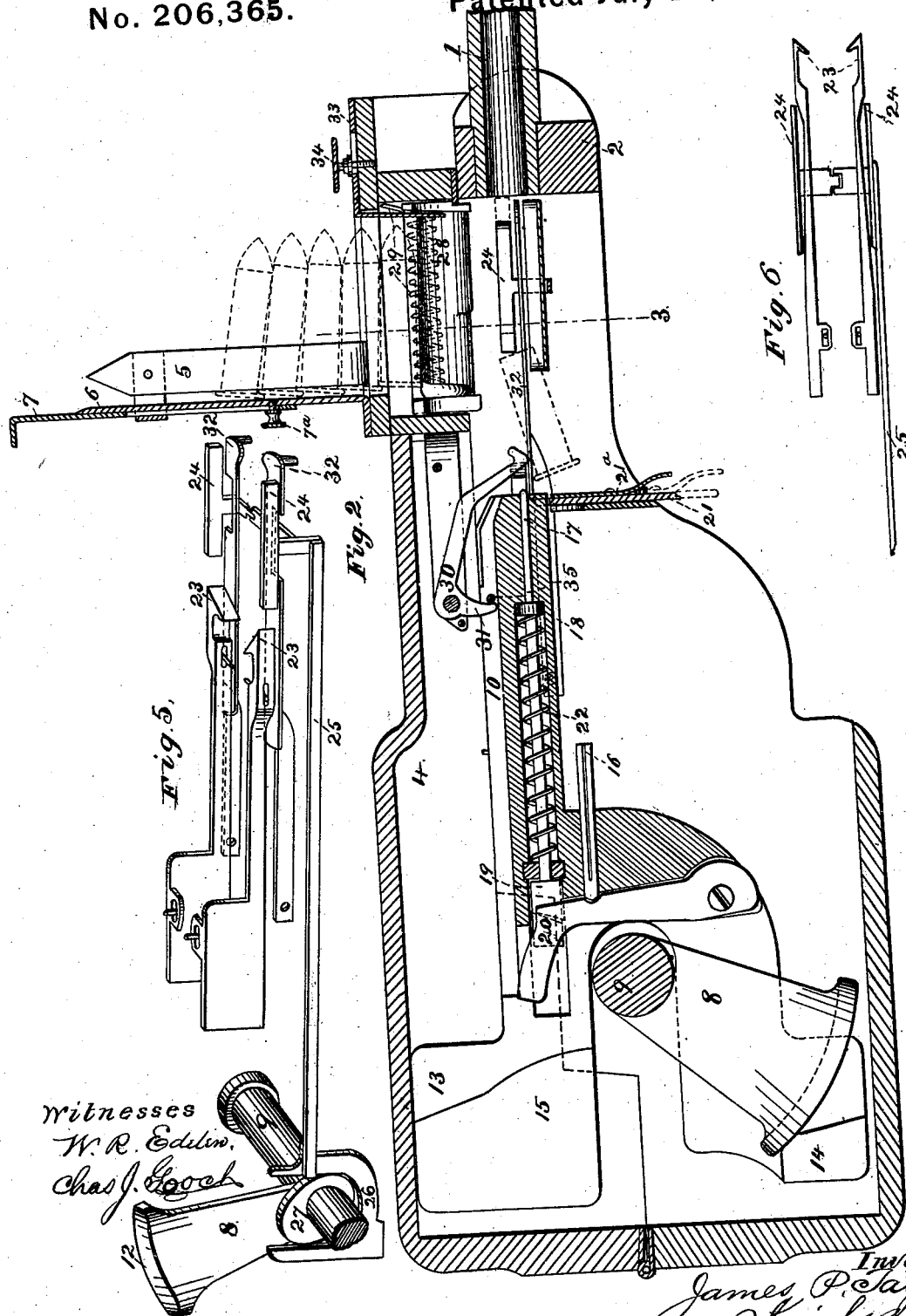
Inventor.

James P. Taylor
By *Richard B. Knight*
Attorney

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Witnesses
 W. R. Edelen,
 Chas. J. Coock

Inventor.
 James P. Taylor
 By *Richmond*
 Attorneys

UNITED STATES PATENT OFFICE.

JAMES P. TAYLOR, OF ELIZABETHTON, ASSIGNOR OF ONE-HALF HIS RIGHT
TO JOHN BAXTER, OF KNOXVILLE, TENNESSEE.

IMPROVEMENT IN MACHINE-GUNS.

Specification forming part of Letters Patent No. **206,365**, dated July 23, 1878; application filed
November 30, 1877.

To all whom it may concern:

Be it known that I, JAMES PATTON TAYLOR, of Elizabethton, in the county of Carter and State of Tennessee, have invented a certain new and Improved Machine-Gun, of which the following is a specification:

This gun is similar in most of its general features of construction to that described in Letters Patent No. 177,030, granted May 2, 1876, to myself, and John Baxter, as part assignee.

As now improved, the lock-carrier, instead of being made in two parts, is constructed in one piece. The firing devices consist of a spring-pin working longitudinally within the lock-carrier of the sliding lock or follower, and held in its retracted position by a laterally-moving latch, which is thrown from the pin at the proper moment by the pressure of the side of the operating-cam, the latch being made to re-engage with the pin at the rear termination of the stroke by contact with the driving-shaft or with the heel of the cam, and the retraction of the pin being effected in the forward movement of the follower by a rod acting on the latch and coming in contact with a retractible stop, which is withdrawn, when desired, to prevent the cocking and firing operations.

The shell-extractor consists of a pair of spring-jaws, carried by the sliding lock or follower, and secured in their holding-position on the flange of the cartridge-shell by a locking device operating in direct connection with the main driving-shaft. The ejector, to throw the retracted shell from the gun, is mounted upon the hopper. It consists of a crank-lever, the shorter arm of which is acted on by a tappet in the reverse movement of the follower, causing its longer arm to descend and strike the shell a sudden blow. The spring-jaws are used to center the cartridges in the rear of the chamber, and for the further purpose of holding the shells with sufficient resistance against the action of the ejector to cause them to be thrown with force from the gun, thus insuring the clearing of the feeding-chamber of the preceding shell or cartridge before another cartridge can be brought into position in rapid firing.

The front of the hopper is furnished with a sliding plate, to regulate the length of the feed-port to suit cartridges of different lengths or adapt the arm for firing blank cartridges, when required. The hopper is constructed with a pair of vertical bars at a proper distance asunder to receive the body of the cartridge, while its flange is held in a space in the rear of said bars, so that the cartridges may be fed a number at a time from suitable cases, from which the flanged ends of the cartridges project.

To facilitate the feeding operation, the upper ends of the bars are beveled to receive the cartridge-flanges and guide them to their grooves, and the hopper is furnished with a back plate, which may be slid up to serve as a guide to prevent the cartridges being thrown from the case in rapid handling.

In the accompanying drawings I have represented a gun as constructed with five barrels and firing mechanism therefor, operated successively by a single driving-shaft. Five barrels are found to constitute a convenient number in a practical working gun; but my invention is applicable to a machine-gun constructed with one, two, or any desirable number of barrels.

Figure 1 is a top view, showing the rear portions only of the barrels, and omitting the feeding-hopper and the cap or cover of the operating mechanism. Fig. 2 is a vertical longitudinal section on the line 2, Fig. 1, showing the feeding-hopper and the cap or cover in position. Fig. 3 is a transverse section on the line 3, Fig. 2. Fig. 4 is a perspective view of the single feeding-hopper detached. Fig. 5 is a perspective view of portions of the extractor, the locking-jaws, by which they are secured in their holding-position, and the connection by which said jaws are operated from the main shaft. Fig. 6 is a top view of the same parts. Fig. 7 is a perspective view of a case of cartridges adapted for feeding to the machine-gun.

A horizontal range of any desirable number of barrels, 1 1 1, are fixed in a breech-frame, 2 3, which is provided with a cap or cover, 4, to inclose and protect the operating mechanism.

The trunnions on which the breech and barrels are supported for elevation or range are

not here shown. They may be applied as represented in my previous patent, before referred to, or in any suitable manner.

The cartridges are introduced through hoppers constructed of parallel vertical bars 5 5, beveled at top, as shown in Fig. 2, and having, at a suitable distance behind them to accommodate the cartridge-flanges, a vertical back-plate 6, furnished with vertically-sliding extension-plates 7, which may be fixed in their elevated position by set-screws 7^a, so that they may each form a wall, against which the butts of the cartridges bear in the act of inserting them into the hopper from their cases.

A suitable case for packing cartridges and feeding them to a machine-gun is represented in Fig. 7.

8 8 8 are a series of cams, one for each barrel, arranged spirally around the driving-shaft 9, and operating to advance and retract the sliding locks or followers 10 between suitable guides prepared for them in the breech-frame 2 3.

The rotation of the driving-shaft 9 may be effected by a crank, 11, or other suitable means.

The cams 8 are so arranged on the shaft 9 as to actuate the sliding locks or followers 10 in regular succession, so as to discharge all of the barrels at each rotation of the shaft, and no two at the same moment.

The cams 8 approximate in form to sectors of, say, thirty degrees, more or less, and are constructed with laterally-projecting shoulders or flanges 12, which engage with corresponding lugs or flanges 13 14 on the lock-carriers 15, to which the sliding locks or followers 10 are secured.

The lock-carriers 15 are bifurcated, so that their rear extremities pass to the rear of the shaft as far as the rotation of the cams requires. This construction admits of imparting to the lock-carrier a stroke equal to or nearly double the radius of the driving-cam, as described in my previous patent, the lugs 13 receiving the impact and pressure of the cams during the forward movement, and the lugs 14 during the retractile movement.

The concentric peripheries of the cams cause them to hold the lock-carriers and sliding locks or followers stationary at the forward termination of the stroke while the discharge is effected, and at the rear termination of the stroke while the empty shell is ejected from the gun.

Each sliding lock or follower carries a firing-pin, 17, attached to a slide, 18, which works within the lock-carrier 15, and is formed with a laterally-projecting lug, 19, with which engages a latch, 20, pivoted at its lower end, and made sufficiently elastic to admit of its being deflected laterally to release the lug 19.

16 is a rod sliding within the lock-carrier, and grooved longitudinally on one side, so as to work over a guiding-pin, which limits its forward movement.

21 is a vertically-sliding stop, held in position, as illustrated in Fig. 2, by a spring-catch, 21^a, and serving to receive the impact of the

forward end of the sliding rod 16 at each forward stroke of the lock-carrier, so as to press back the latch 20, carrying with it the firing-pin 17 in readiness for the firing action, which is effected by the contact of the side of the revolving cam with a projecting end of the latch 20, throwing the latter off from the lug 19, and thus releasing the firing-pin.

22 is the spring by which the firing-pin is driven forward when released.

By retracting the spring-catch 21^a the stop 21 may be drawn down, as illustrated in dotted lines in Figs. 2 and 3, so that it will offer no resistance to the sliding rod 16 when it is desired to suspend the operation of the firing mechanism.

At each backward stroke of the lock-carrier the lug 19 of the firing-pin slips past the laterally-sliding latch 20, so as to be caught thereby, the backward movement of the latch being stopped at this point by contact with the shaft 9.

The cartridge-extractor consists of a pair of jaws, 23, fitted on each side of the sliding lock or follower, and having limited longitudinal play thereon. These jaws slip over the flange of the cartridge when the sliding lock or follower comes in contact therewith, and pass with it into the breech-chamber, passing between a pair of cheek-plates, 24, which are carried by a rod, 25, attached to a yoke, 26, actuated by a cam, 27, on the driving-shaft 9, in such a manner that when the jaws 23 are required to hold the cartridge-flange firmly, for the purpose of withdrawing it from the gun, the cheek-plates 24 will advance on both sides of the jaws, so as to hold them firmly to their work.

In Fig. 5 the cartridge-extractors are shown in an intermediate position, which they reach shortly after the commencement of their forward motion. They then pass forward between the cheek-plates 24 24, and around the flange, after which the cheek-plates are moved forward to the oblique shoulders, where they are firmly held, so that when the jaws are retracted they are pressed tightly between the plates, thus effectually preventing the escape of the cartridge-shell from the jaws. The cheek-plates afterward receive a backward motion, so that the spring-jaws may be free to pass over the flange at their next forward movement. The forward position of the jaws, which they occupy in retracting the shell in readiness for its ejection, is represented in Fig. 6. The cartridges are delivered successively from the hopper to the loading-chamber by a pair of oscillating valves, 28, furnished with springs 29, causing them to open downward, and closing their upper parts sufficiently to prevent the entrance of a cartridge.

At each forward movement of the sliding lock or follower, which drives the last cartridge forward from the loading-chamber into the firing-chamber, the contact of the sliding lock or follower with the oscillating valves closes them below and opens them above to receive a new cartridge, which is, in turn, dropped into the

loading-chamber, when the follower is retracted, so as to release the valves.

The ejector, by which the shells are expelled from the gun after they are extracted from the gun by the retracting-follower, consists of a lever of peculiar shape, constructed with a long horizontal arm, 30, and a short vertical arm, 31, the latter of which projects into a groove in the top of the sliding follower, and receives the impact of a pin or tappet, 35, just before the follower reaches the rear termination of its stroke, so as to impart a sudden downward movement to the horizontal arm 30 and strike the shell with a sharp blow, throwing it quickly from the gun. This effect is assisted by the spring-guides 32 32, between which the cartridge-shell rests and which are pressed together by their elasticity, affording sufficient resistance to the ejection of the cartridge to cause it to be thrown out with a more rapid motion. The spring-guides 32 also serve to center the cartridge in the loading-chamber in line with the axis of the firing-chamber, in readiness to be inserted therein, and secure it against slipping and falling out when the gun is elevated. They serve also as guides for the extractors and the check-plates which hold the same.

33 is a horizontal sliding plate, adapted to vary the length of the hopper-throat, so as to adapt it for cartridges of different length or for blank cartridges, when required. This plate is held in any position to which it is adjusted by a clamp-screw, 34.

The operation of the gun is as follows: A case of cartridges, such as represented in Fig. 7, or a number of such ranges of cartridges combined together, with a vertical range for each barrel, are inserted by placing their backs against the guides and drawing them down between the vertical bars 5 5, when the case is withdrawn, leaving the lower cartridges resting on the upper faces of the valves 28, while they rest in their normal position (shown in Fig. 3) at the center and at the outsides. As each plunger comes forward it throws the valves upward to the position shown over the second and fourth barrels in Fig. 3, causing a cartridge to drop between the valves. The recession of the follower then permits the valves

to be again thrown down by their springs 29, causing the cartridge to drop into the feeding-trough, in readiness to be carried forward into the firing-chamber by the next forward motion of the follower. This done, the follower rests while the firing-pin is released and effects the discharge in the manner already explained. The next recession of the follower withdraws the empty shell from the firing-chamber, and it is ejected by the lever 30 31, acted upon by the tappet 35, as illustrated in Fig. 2.

Having thus described my invention, the following is what I claim as new and desire to secure by Letters Patent:

1. The lock carriers or followers 10, constructed as herein shown and described, and carrying the firing-pins and the devices for retracting and releasing the same, as explained.

2. The combination of the spring firing-pin, the latch, the sliding rod, and the stop with the cam adapted to retract said latch and cause the discharge of the piece, as explained.

3. The combination, with the firing-pin, the sliding rod, and latch, of a retractible stop, to prevent the operation of the firing mechanism, when desired.

4. A machine-gun provided with cartridge-extractors 23 and a locking device, 24, moved relatively to the said extractors by an independent connection with the main shaft, substantially as set forth.

5. The spring guiding-jaws 32 32, in combination with the firing-chamber and extractor and with an ejector, 30 31, for knocking the shell or cartridge out from between said jaws, as explained.

6. The plate 33, projecting down within the hopper-throat to serve as a guide for the points of the cartridges, and adjustable by means of a set-screw, 34, to suit cartridges of different lengths.

7. The combination, with the guide-plates 5 and back plate 6, of the extension-plate 7, to serve as a guide in introducing the cartridges, as explained.

JAMES P. TAYLOR.

Witnesses:

OCTAVIUS KNIGHT,
WALTER ALLEN.