(No Model.)

3 Sheets—Sheet 1.

E. AMODEO-SALVATOR.

MAGAZINE GUN.

No. 350,098. Patented Oct. 5, 1886.

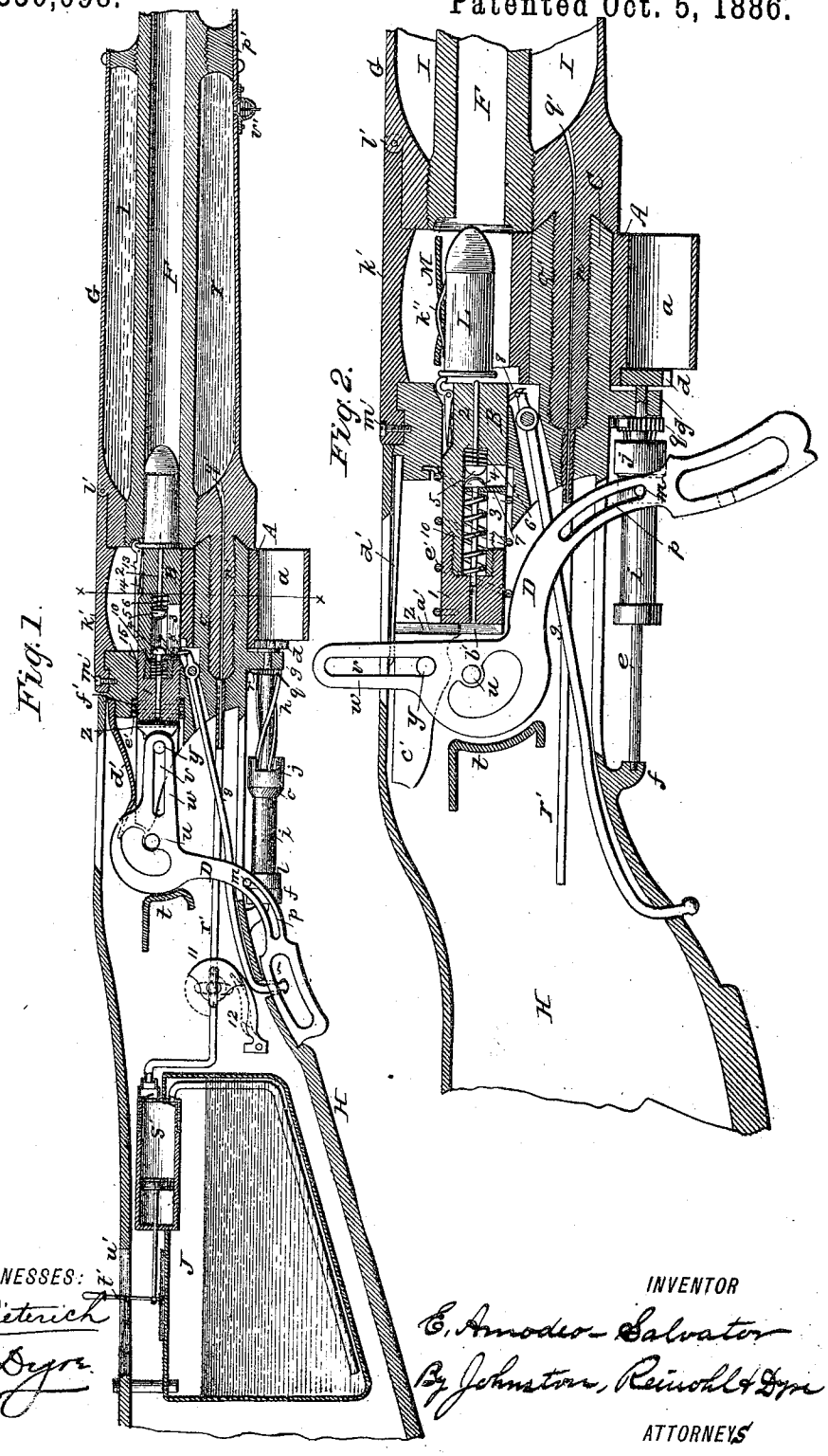


Fig. 1.

Fig. 2.

WITNESSES:

Fred. J. Dieterich

Wm. E. Dyer

INVENTOR

E. Amodeo-Salvator

By Johnston, Reinoehl & Dyer

ATTORNEYS

(No Model.) 3 Sheets—Sheet 2.

E. AMODEO-SALVATOR.

MAGAZINE GUN.

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Fig. 3.

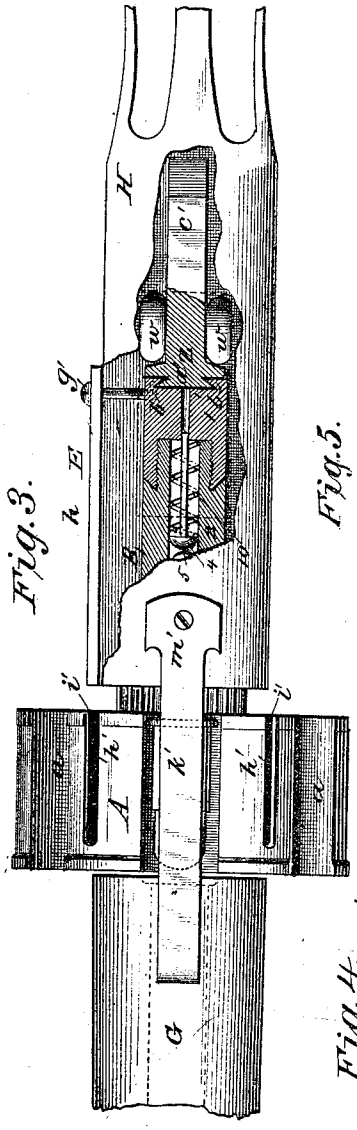


Fig. 5.

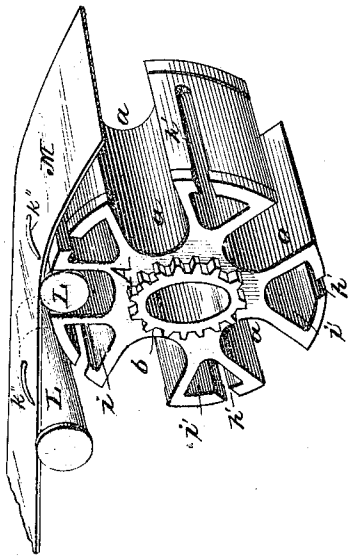
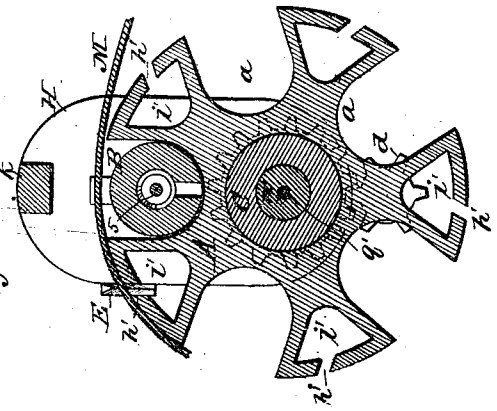


Fig. 4.



WITNESSES:

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E. AMODEO-SALVATOR.

MAGAZINE GUN.

No. 350,098. Patented Oct. 5, 1886.

Fig. 6.

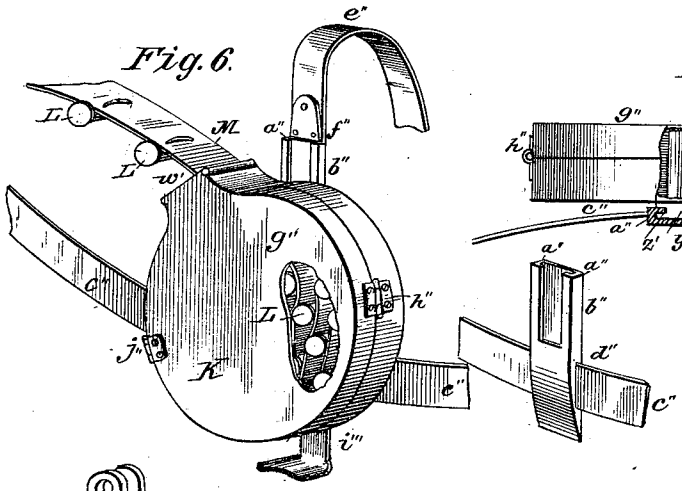


Fig. 7.

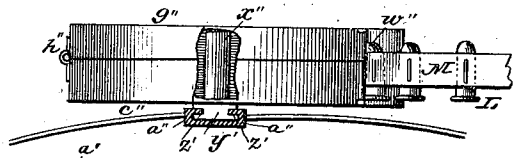


Fig. 8.

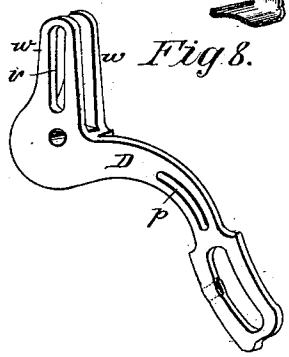


Fig. 9.

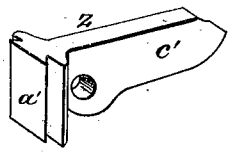
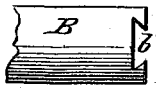


Fig. 9a



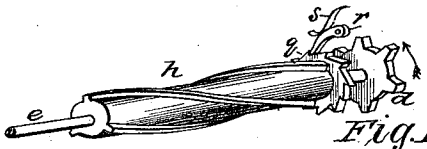


Fig. 10.

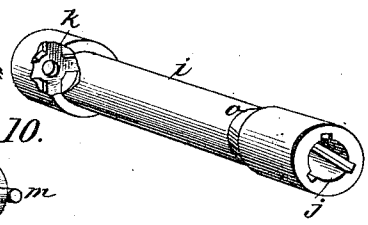
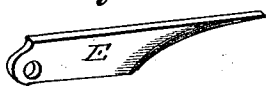


Fig. 11.



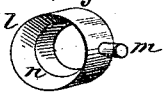


Fig. 12.

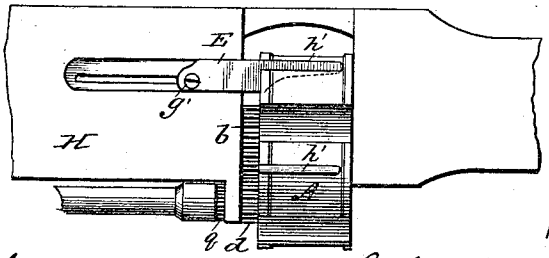
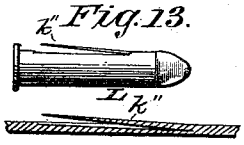


Fig. 13.



WITNESSES:

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INVENTOR

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ATTORNEYS

UNITED STATES PATENT OFFICE.

EMMANUEL AMODEO-SALVATOR, OF THE UNITED STATES NAVY.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 350,098, dated October 5, 1886.

Application filed February 5, 1886. Serial No. 190,893. (No model.)

To all whom it may concern:

Be it known that I, EMMANUEL AMODEO-SALVATOR, of the United States Navy, and a citizen of the Republic of France, have invented certain new and useful Improvements in Magazine-Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of the invention is to produce a fire-arm adapted for very rapid firing, and for being fed directly from a magazine supported on a belt worn by the person using the weapon; and it consists in the constructions hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 represents a sectional view showing the several parts of the gun in position for firing. Fig. 2 is an enlarged section showing the position of the parts with a cartridge in the cylinder ready to be inserted in the barrel of the gun. Fig. 3 is a detail plan view with parts broken away. Fig. 4 is a cross-section of the cartridge-cylinder on the line *x x*, Fig. 1. Fig. 5 is a perspective view of the same, showing the position of the cartridge-carrying ribbon. Figs. 6 and 7 are detail views of the portable magazine. Fig. 8 is a detail view of the operating-lever. Figs. 9 and 9ª are detail views of the vertical sliding block and the breech-block; Fig. 10, a detail view of the mechanism for revolving the cartridge-cylinder. Fig. 11 is a view of the knife for severing the ribbon. Fig. 12 is a side view showing the knife in position in the cartridge-cylinder, and Fig. 13 is a side view of the cartridge.

Magazine-guns as heretofore constructed for use as a fire-arm to be held to the shoulder of the person using it have had their magazines formed in the stock or some other part of the gun, which has made them very unwieldy on account of the additional weight added to the arm by the loaded cartridges, and has had the effect of taxing the strength of the user to hold the fire-arm in position for execution.

By my invention the magazine is supported by belts about the body and crossing the shoulder of the person and the fire-arm relieved of all weight of the ammunition save that of the one cartridge in the gun and the few suspended upon the ribbon between the gun and the magazine.

Another impediment to firing a great number of cartridges in rapid succession has been the heating of the barrel to such an extent as to require the firing to be stopped and time allowed for the parts to cool. To overcome this objection I provide a chamber around the barrel of the gun, which is in communication with a reservoir in the stock of the gun containing a cooling-liquid.

In most or nearly all of the fire-arms now in use the sight of the gunner is obstructed by hammers projecting above the upper surface of the gun. To avoid this I locate the hammer within the breech-block and present a smooth and unobstructed surface to the eye of the gunner.

In the drawings, A represents a cartridge-carrying cylinder provided with five chambers, *a*, adapted to receive and hold a cartridge while it is being pushed into the barrel of the gun by the movable breech-block B. The cartridge-cylinder revolves upon an axle, C, which is eccentric to the barrel of the gun, and the inner end of the cylinder is provided with gearing *b*, which engages with a pinion, *d*, the teeth of said gearing being proportioned, one on the pinion to three on the cylinder. The pinion *d* is attached to a shaft, *e*, which has its bearings in supports *f g*, and is provided with a worm-gear, *h*, and a sleeve, *i*, which has a corresponding nut, *j*, formed in one end, and a spider, *k*, in the opposite end, through which the shaft *e* passes.

Upon the sleeve *i* is a sliding collar, *l*, provided with a projecting pin, *m*, and a conical bearing, *n*, which corresponds with the seat *o* on the sleeve *i*, and is operated by the lever D (which is indirectly attached to the breech-block B) by means of a curved slot, *p*, with which the pin *m* engages, and by which the cartridge-cylinder is revolved upon the forward stroke of said lever. To prevent the possibility of the cylinder A revolving in the opposite direction when the lever D is returned to its rear position, as shown in Fig. 1, a ratchet, *q*, and pawl *r* are provided, the pawl

being held in contact with the ratchet by spring *s*. The lever D is bent laterally, as shown in Fig. 8, to prevent interfering with the trigger 9, and the conduit leading from the reservoir is pivoted at *u*, and is provided with a guard, *t*, in the rear thereof and has a slot, *v*, formed in the arms *w w*, which engage with a pin, *y*, projecting on both sides of the sliding block *z*, which has a dovetail projection, *a'*, formed on the end thereof, which engages with a corresponding slot or seat, *b'*, in the end of the breech-block B.

To prevent the breech-block B from being pushed back by the explosion of the cartridge and the lever D from being thrown forward prematurely the pivot *u* is arranged on a higher horizontal plane than the pin *y* and the slots in the arms *w w*, and the arm *c'* of the sliding block *z* is held in position by a spring, *d'*, bearing upon the outer end thereof.

A spring, *e'*, is coiled around one end of the breech-block, and when compressed is contained in a chamber, *f'*, formed in the metal which constitutes the rear wall of the cartridge-chamber, and assists in throwing the lever D forward and extracting the discharged cartridge from the barrel by pressing upon the inner face of the sliding block *z*.

The breech-block is made in two parts, 1 2, connected by an ordinary screw-thread, and the part 2 is provided with a chamber, 3, within which there is a spring-actuated hammer, 4, and a firing-pin, 5, provided with a spring, 6, which serves as a cushion to the blow of the hammer, and also returns the pin to its normal position after the cartridge has been exploded. An arm, 7, attached to the hammer 4, engages with a pivoted latch, 8, on the front end of the trigger 9, and holds the hammer in position with the spring 10 contracted, ready for use. A cam, 11, bearing upon the spring 12, securely locks the trigger 9 and prevents any accidental discharge of the cartridge. The arm 7 and the latch 8 are held in a locked position at all times when the cartridge is in the barrel of the gun by the spring 12 bearing upon the trigger 9. The projecting end of said trigger extends into the finger-slot of the lever D, for convenience of operating it.

E represents a knife attached to the sliding breech-block B by a bolt, *g'*, and is pushed into the slots *h'* in the walls of the chambers *i*, formed in the cartridge-cylinder A, and cuts off the end of the ribbon from which the cartridge has been removed by the breech-block and forced into the barrel of the gun. The construction of the knife is distinctly shown in Fig. 11, and by reference to Figs. 4 and 5 it will readily be seen that the slots *h'* are cut at an angle to the periphery of the cartridge-cylinder, to accommodate the reciprocating motion of the knife and the position which it sustains to the axis of said cylinder.

Secured to the front end of the breech-block is an extractor, 13, which engages with the flange of the cartridge and is held in contact therewith by a leaf-spring, 14, and is disengaged therefrom upon the back-stroke of the breech-block by striking the wall of the cartridge-chamber or stock of the gun at 15.

The gun is made in three parts—namely, the barrel F, which may be smooth or rifled, the casing G, and the stock H—the several parts being secured together by screw-threads and a plate, *k'*, hinged to the casing G at *l'* and connected to the stock by a screw, *m'*. The casing may extend along the under side of the barrel to the end thereof.

Upon the inner end of the lower side of the casing G is formed a screw-threaded extension, *n'*, which engages with a corresponding screw-threaded socket, *o'*, in the stock H, and the barrel F is supported by a block, *p'*, which forms the outer end walls of a cooling-chamber, I, which communicates with a reservoir, J, in the stock H, containing a suitable cooling-liquid, by means of a passage, *q'*, in the extension *n'*, a conduit, *r'*, and a pump, *s'*, provided with the usual supply or suction pipe and check-valves.

The pump *s'* is operated by a jointed lever, *t'*, which is supported in guideways formed on the reservoir, and projects through the slot *u'* in the upper edge of the stock H, and the cooling-chamber 1 is provided with a relief-valve, *v'*.

By filling the chamber I with liquid from the reservoir J the inner end of the barrel is kept cool, the parts prevented from becoming overheated, and as a consequence a very large number of rounds of cartridges may be fired in rapid succession without danger of premature explosions of the ammunition produced by the overheating of the metal, as frequently occurs in the ordinary magazine-guns, or when they become too hot for use with safety they must be laid aside to cool. After the chamber I has been filled the handle or lever *t'* is folded down into the slot, as shown in dotted lines in Fig. 1.

K represents the cartridge-magazine, which consists of a box having a hinged cover, in which the cartridges, secured to a ribbon and wound in concentric layers about a thimble, (not shown,) are placed around a central shaft, *x'*, and withdrawn through the opening *w'*, taken to the gun, and a cartridge placed in one of the chambers *a* of the revolving cylinder A, after which they are fed to the cylinder automatically by the manipulation of the lever D, as will hereinafter more fully be described.

The magazine is provided with a stud, *y'*, projecting from one side, and having grooves *z'* formed in its sides to engage with the flanges *a''* on the support *b''*, attached to the horizontal belt *c''* at *d''*, and to the vertical belt *e''* at *f''*, and slides freely therein. It is also provided with a foot-piece, *i''*, adapted to rest upon the left leg of the gunner when in a kneeling position, to support the weight of the magazine and allow it to slide freely in the guideway formed in the support *b''*, attached to the belts. To insert the cartridges the cover *g''* of the magazine is swung open on its hinge *h''*, and the

coil of ribbon with the cartridges attached is placed in the box around the central shaft, with one end projecting, as shown in Fig. 6. The box is then closed, and the cover secured by a hasp, *j''*, when it is ready for use.

To secure the cartridges L to the ribbon M they are provided with a spring-prong, *k''*, formed integral therewith and connected near the front end of the cartridge, as shown in Fig. 13. The prong *k''* is inserted through the ribbon from the under side at a right angle to the length thereof and the cartridges placed equidistant, as shown in Figs. 2, 5, 6, and 7, and removed therefrom by the forward motion of the breech-block B as it moves the cartridge from one of the chambers *a* of the cylinder A into the barrel of the gun, and the prong *k''* is returned to the wall of the cartridge, so as to form a smooth surface.

The magazine K is designed to be worn upon the left breast of the person using the firearm, and the cartridge on the end of the ribbon placed in one of the chambers of the cartridge-cylinder, and a continuous supply kept up until all of the cartridges on the ribbon M have been used, when another coil of ribbon and fixed cartridges is placed in the magazine and the firing continued.

The several parts being constructed substantially as described, the operation is as follows: The magazine K having been filled with a coil of ribbon with the cartridges affixed thereto and attached to the left side of the gunner, the lever D is thrown forward and the breech-block B withdrawn from the cartridge-cylinder, the cartridge on the outer end of the ribbon is then placed in one of the chambers *a* of the cartridge-cylinder A, as shown in Fig. 2. The lever D is then returned, the cartridge moved from the cylinder by the advancing breech-block B and seated in the end of the barrel of the gun, with the extractor 13 engaged with the rim or flange on the cartridge, the hammer 4 set, and the spring *e'* around the breech-block compressed in the chamber *f'*. The cam 11 is then moved into the position shown in dotted lines in Fig. 1, and all of the parts assume their relative positions shown in said figure. The trigger 9 is then raised, which releases the arm 7 from the latch 8, and the spring 10 throws the hammer 4 forward, which strikes the firing-pin 5 and explodes the cartridge in the barrel of the gun. The lever D is then thrown forward, and by its movement it first extracts the discharged cartridge and places it in one of the chambers *a* of the cylinder A. By this time the lever D will have carried the collar *l* on the sleeve *i* against the bearing or seat *o*, and the further movement of the lever will cause the nut *j* to engage with the worm-gear *h* and turn the pinion *d* one-third ($\frac{1}{3}$) of a revolution, which will turn the cylinder A one-fifth ($\frac{1}{5}$) of a revolution and carry the discharged cartridge to the right and place a fresh cartridge in the next chamber *a*, ready to be inserted in the barrel of the gun. The return movement of the lever D now pushes the cartridge out of the cylinder A into the barrel, and simultaneously therewith the arm 7 of the hammer 4 engages with the latch 8, compresses the spring 10, and sets the hammer ready for the next firing of a cartridge, and the knife E is moved forward into the slot *h'* and cuts off the end of the ribbon from which the former cartridge had been removed. It will be observed that by the forward motion of the lever D the discharged cartridge is withdrawn from the barrel, placed in the revolving cylinder, moved out of the way, and a fresh cartridge placed in another chamber *a* of the cylinder A in line with the barrel, and the return motion moves the breech-block forward, inserts the cartridge, compresses the spring *e'* around the block, and cuts off the free end of the ribbon.

In the description of the operation, it is to be presumed that previously to commencing work with the gun the cooling-chamber I has been filled with liquid from the reservoir J, and that during the use of the gun the supply of liquid is kept up by the pump as the necessities of the case demand.

In applications Nos. 193,779 and 193,780, filed March 2, which are divisions of this application, I have claimed the cartridge and the cartridge-box.

Having thus fully described my invention, what I claim is—

1. In a magazine-gun, a cartridge-cylinder journaled eccentrically to the barrel and provided with gear on one end, in combination with a pinion, a shaft having a worm formed thereon, a movable sleeve mounted upon said shaft and engaging therewith, and an operating-lever, substantially as described.

2. In a magazine-gun, a cartridge-cylinder having a series of longitudinal cartridge-chambers and a series of intermediate chambers, and slots formed in the walls of said chambers, in combination with a knife attached to the breech-block and reciprocating in said slot, substantially as described.

3. In a magazine-gun, a cylinder having a series of open chambers formed therein to receive cartridges and provided with gearing on one end, in combination with a pinion meshing with said gear, a reciprocating sleeve engaging with a shaft having a worm formed thereon, a movable block to carry the cartridge from the cylinder to the barrel of the gun, and a lever for operating said block and revolving the cylinder, substantially as described.

4. In combination with a longitudinally-reciprocating breech-block having a vertical slot in its rear end, a sliding block engaging in such slot and an operating-lever having a slip-connection with such block, whereby the block may be withdrawn and returned, substantially as described.

5. A breech-block having a slot in its rear end, in combination with a sliding block having a head engaging with said slot, an arm

thereon, a spring attached to the frame and bearing upon the arm, and a slotted lever connected to said block, substantially as described.

6. A breech-block having a slot in its rear end, a sliding block engaging with said slot and provided with projecting pins, and a lever having slots in which said pins slide, and pivoted to the breech-frame above the horizontal plane of the center of the pins and the slots when the breech-block is in its forward position, all combined substantially as described.

7. A reciprocating breech-block having a slot in its rear end and a vertically-reciprocating block engaging with said slot and provided with projecting pins, in combination with a lever having slots in which said pins slide, and pivoted to the breech-frame above the horizontal plane of the center of the pins and the slots when the breech-block is in its forward position, and a fixed bearing in the frame in line with the thrust of the breech-block, against which the rear face of the lever bears and forms a supplementary brace for the block, substantially as described.

8. In a fire-arm, the combination of a reciprocating breech-block having a cartridge-extractor at its forward end, a spring surrounding the block and bearing against a fixed abutment in the frame at its forward end, and at its rear end upon a support on the block, and an operating-lever, whereby both the spring and the lever co-operate in withdrawing the block and extracting the shell, substantially as described.

9. In a magazine-gun, a cartridge-cylinder having gear formed on one end, in combination with a pinion meshing therewith, its shaft supporting a worm-gear, a sleeve reciprocating on said gear, a collar thereon, and an operating-lever connected to the collar, substantially as described.

10. In a magazine-gun, a revolving cartridge-cylinder and a reciprocating breech-block, in combination with a lever connected to said block, said lever having a slip-connection with a converting-motion gear, which operates to turn the aforesaid cylinder only on the forward throw of said lever, substantially as set forth.

11. In a magazine-gun, a revolving cartridge-cylinder and a reciprocating breech-block having an operating-lever connected thereto, in combination with a reciprocating and revolving sleeve having a thread formed therein, and provided with an external bearing-surface, a threaded shaft, and a movable collar connected to the operating-lever, substantially as described.

12. A fire-arm composed of a barrel, a casing surrounding the barrel and secured together by screw-threads, a stock having a screw-threaded socket engaging with a corresponding extension on the casing, and a hinged plate attached to the casing and secured to the stock, substantially as described.

13. A magazine fire-arm provided with a cooling-chamber surrounding the rear portion of the barrel, in combination with a reservoir and suitable pipe-connections, both entirely inclosed by the stock, substantially as described.

14. A magazine fire-arm provided with a cooling-chamber surrounding the rear portion of the barrel and a relief-valve in the wall of said chamber, in combination with a reservoir, a pump, and a suitable pipe-connection, all inclosed within the stock, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EMMANUEL AMODEO-SALVATOR.

Witnesses:
RICHARD SANDERS,
ROBINSON WHITE.