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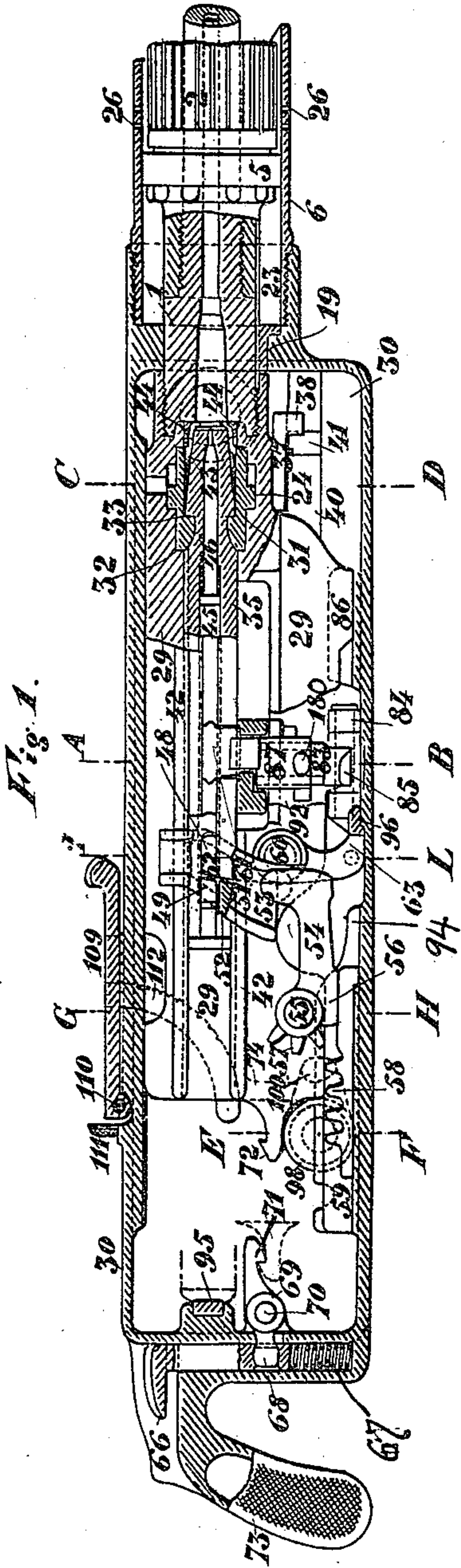
Patented Sept. 10, 1901.

G. PERINO.
MACHINE GUN.

(Application filed Mar. 16, 1901.)

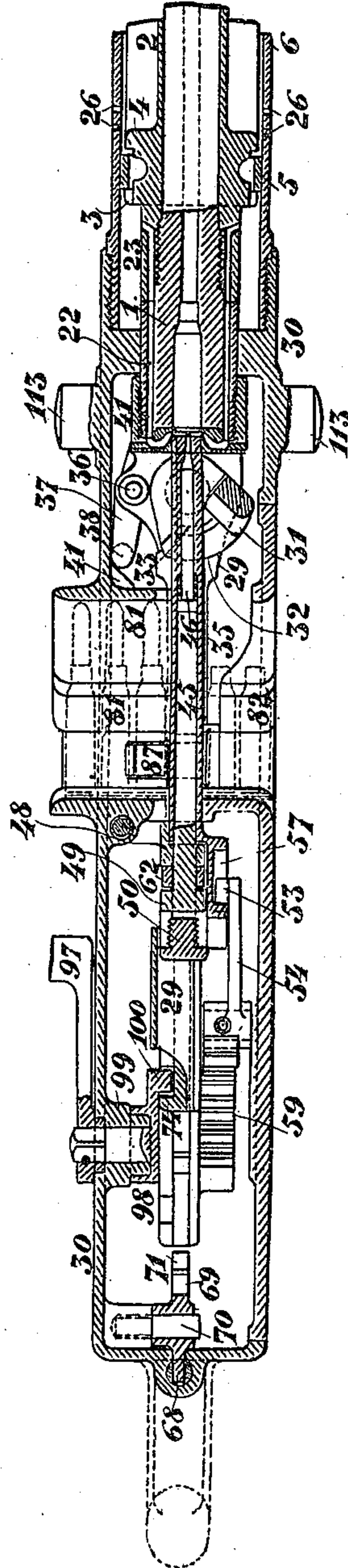
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4 Sheets—Sheet 1.



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Fig. 2.



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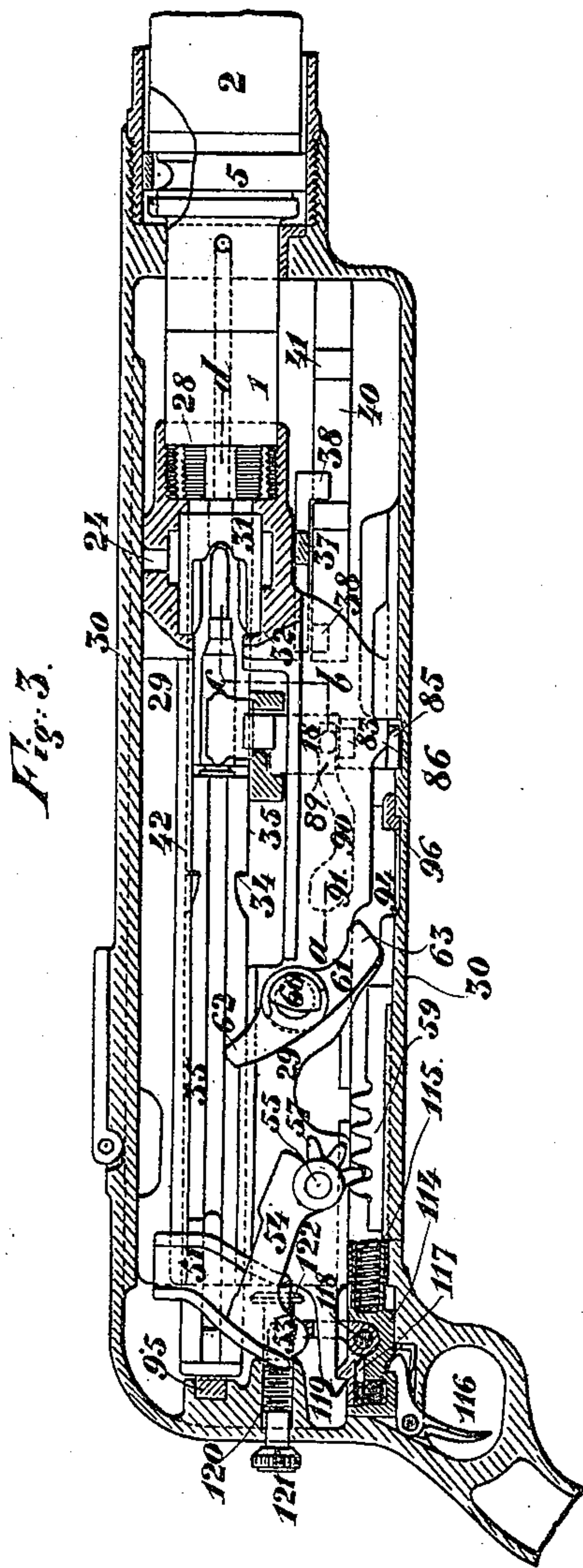


Fig. 5.

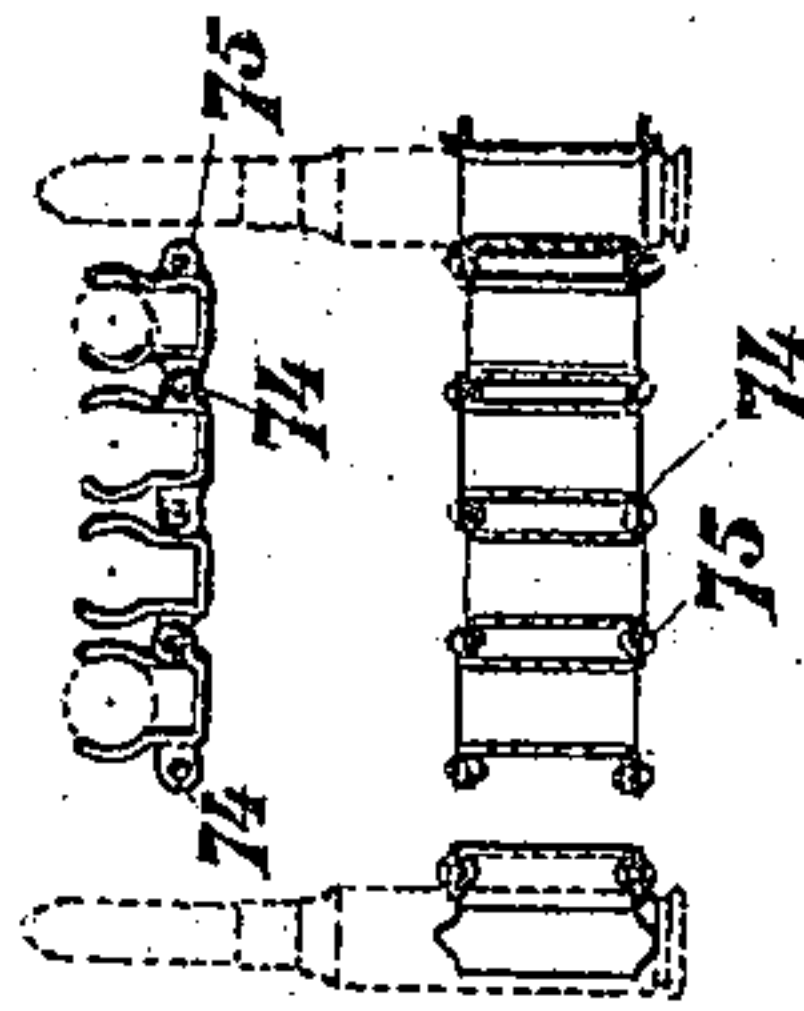
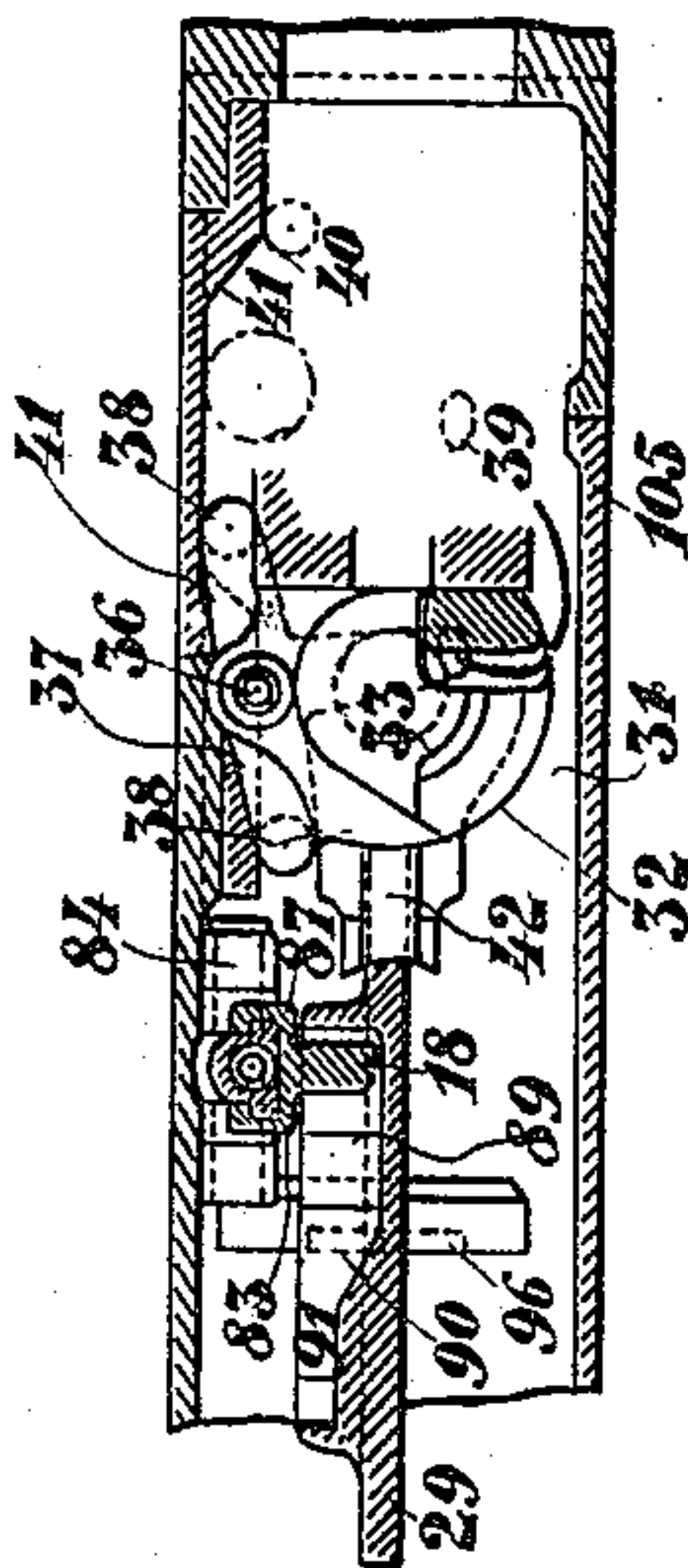


Fig. 4.



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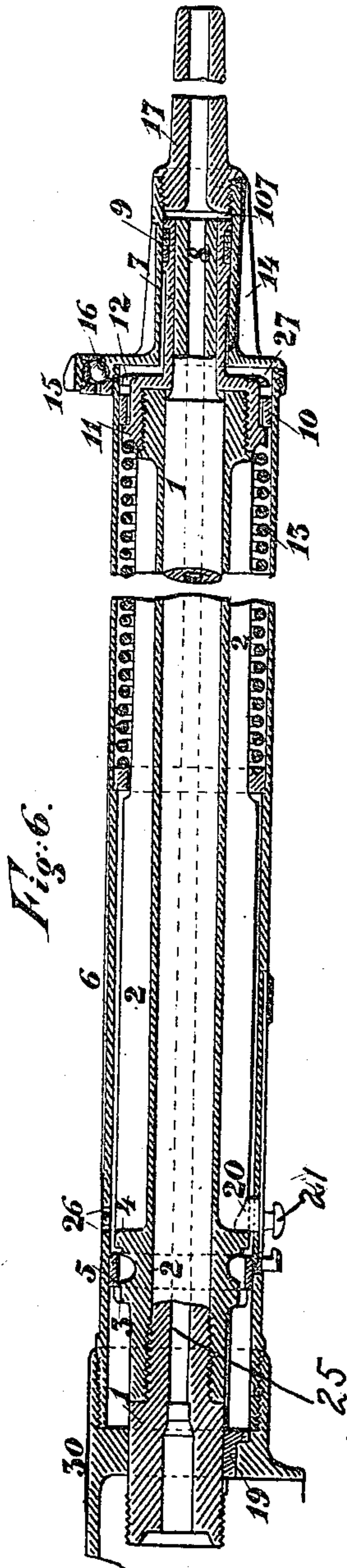


Fig. 6.

Fig. 7.

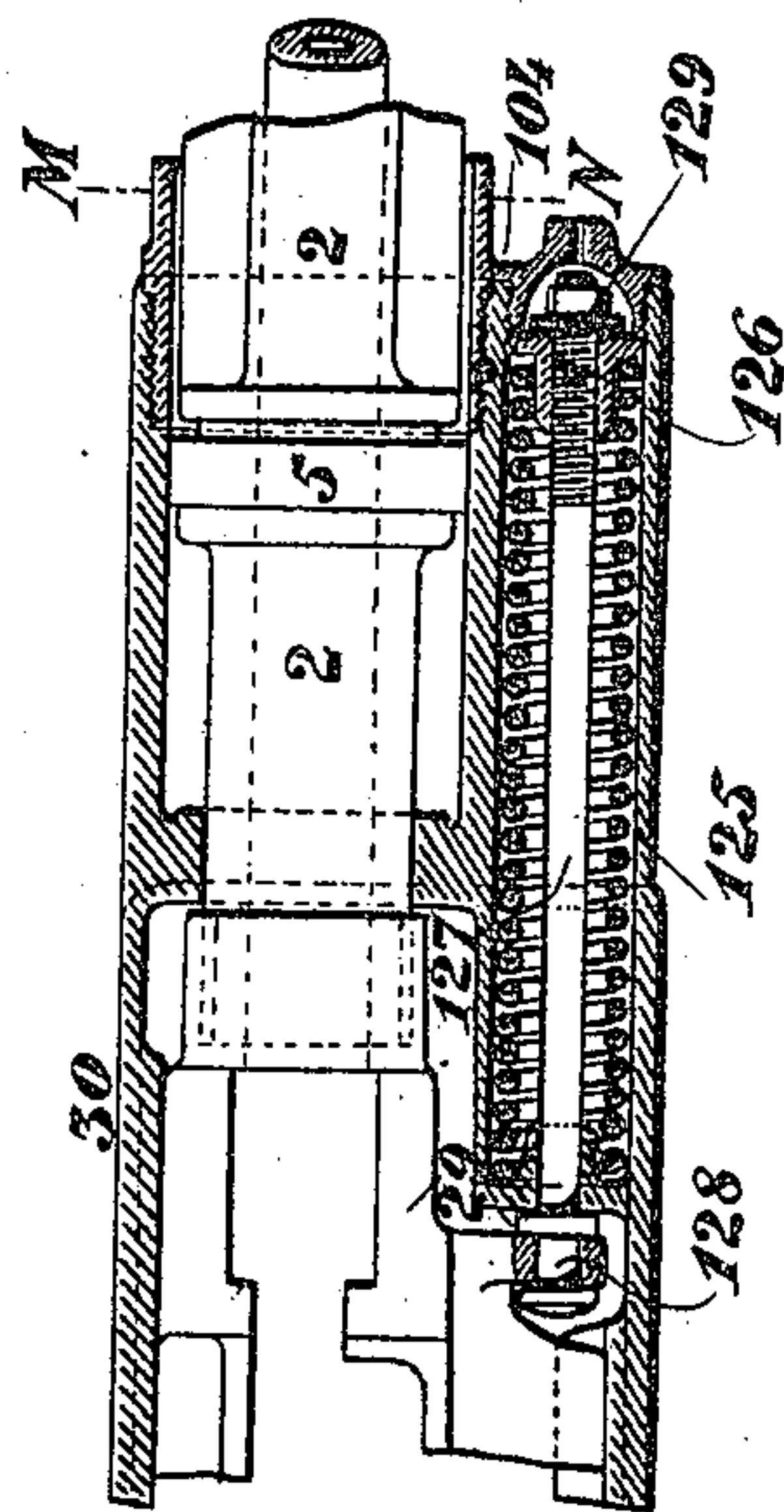
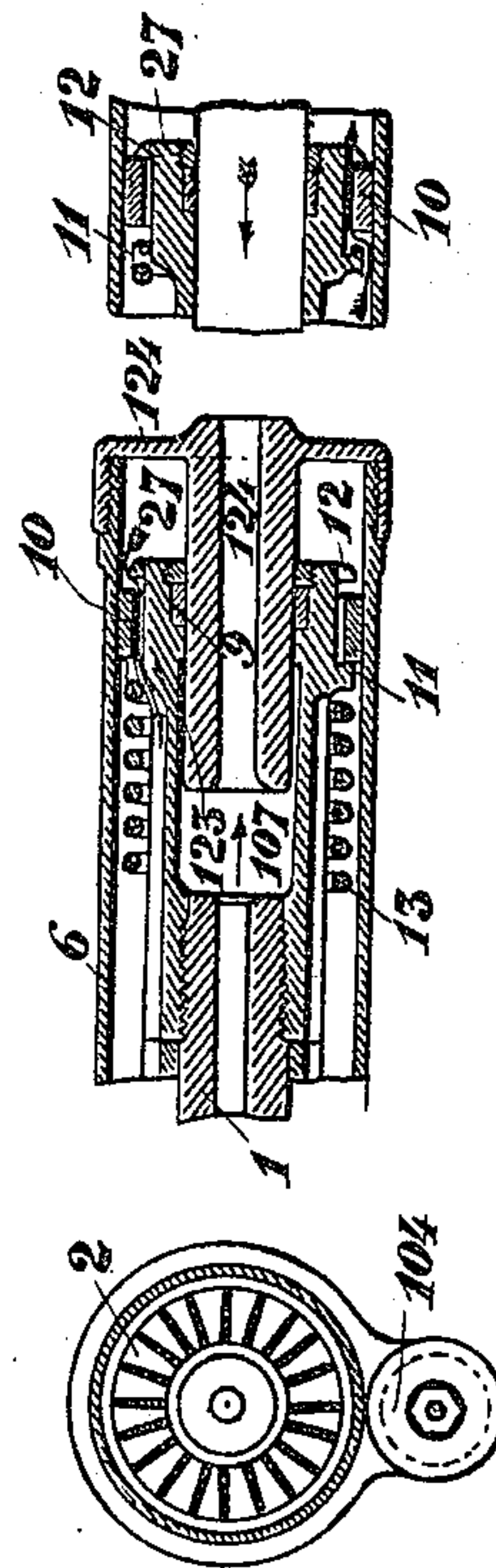


Fig. 8.

Fig. 9.

Fig. 10.



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MACHINE GUN.

(Application filed Mar. 16, 1901.)

(No Model.)

4 Sheets—Sheet 4.

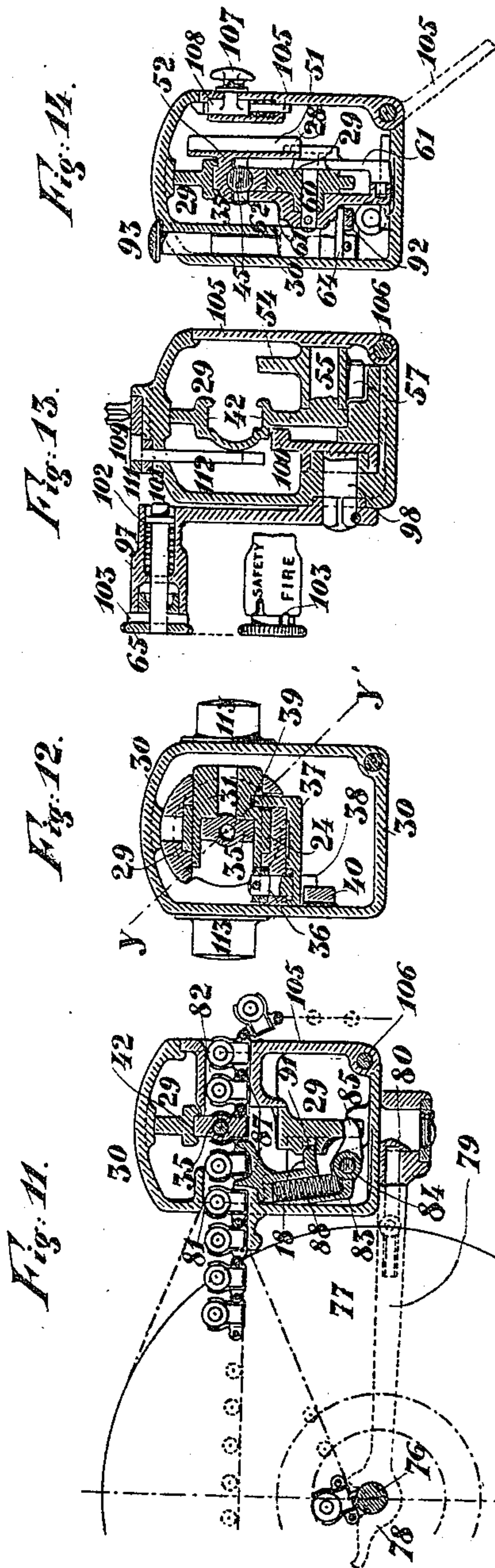
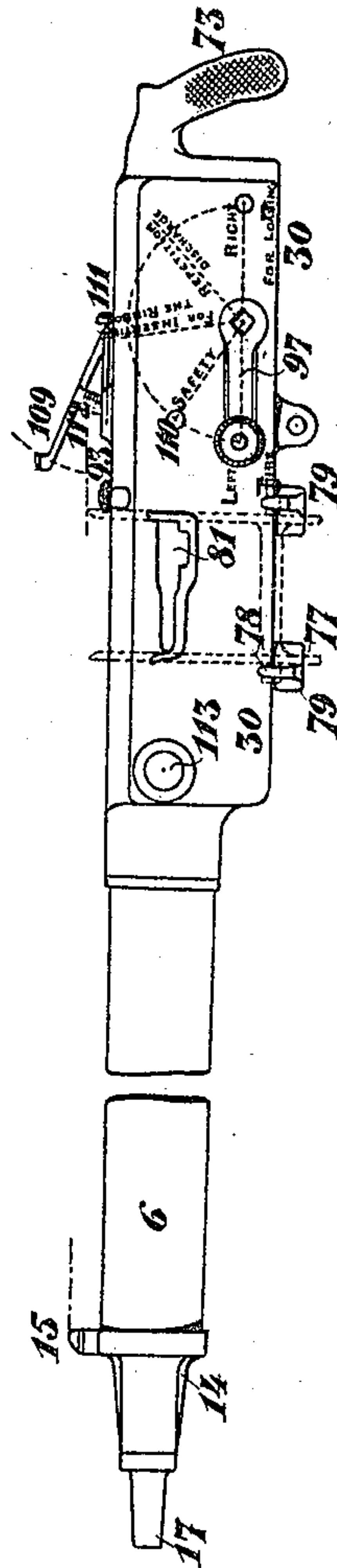


Fig. 15.



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UNITED STATES PATENT OFFICE.

GIUSEPPE PERINO, OF ROME, ITALY.

MACHINE-GUN.

SPECIFICATION forming part of Letters Patent No. 682,230, dated September 10, 1901.

Application filed March 16, 1901. Serial No. 51,421. (No model.)

To all whom it may concern:

Be it known that I, GIUSEPPE PERINO, mechanical engineer, a subject of the King of Italy, residing at 17 Via Gaeta, Rome, Italy, have invented certain new and useful Improvements in or Relating to Machine-Guns, (for which I have obtained Letters Patent of the Kingdom of Italy, Reg. Att., Vol. 130, No. 194, under application filed on August 20, 1900,) of which the following is a clear and full description.

The automatic action in self-acting field-guns is usually obtained either by using the force of recoil (Maxim) or by making use of the combustion-gases of the charge, (Hotchkiss.) The exclusive use of the force of recoil is attended by the drawback that the gun often hangs fire—*i. e.*, stops working—because such recoil force is insufficient to produce an effect of the magnitude required, while the force which may be derived from the powder-gases remains unemployed. The exclusive use of the force resulting from the explosion of the powder charge is, on the other hand, not satisfactory on account of the unemployed recoil force seriously interfering with the accuracy of the fire—*i. e.*, the steadiness of aim. To this drawback must be added the fact that the powder-gases required for working the automatic action of these guns is taken from the bore of the gun at a point about half-way of its length, which lessens the impulse given to the projectile, whatever may be said to the contrary, and that the outlet, which is placed about half-way between the explosion-chamber and the muzzle, is apt to peel off and wear away the projectile.

The present invention includes the structure and arrangement hereinafter described, and particularly pointed out in the claims, which permits of the two methods promised being combined.

In the annexed drawings, Figure 1 is a vertical longitudinal section of the interior of the machine-gun, the parts being in the position they are assuming in the moment of the discharge. Fig. 2 is a horizontal section. Fig. 3 shows the parts in the end position of their recoil. Fig. 4 is a part of the section of Fig. 3 on line *a b c d*. Fig. 5 represents different views of the cartridge-band. Fig. 6

shows the front part of the gun, comprising the barrel, the cooling device, and the annexed parts. Figs. 7, 8, 9, and 10 show a modification of the gun, Fig. 8 being a section on line M N. Figs. 11, 12, 13, and 14 are transverse sections on the vertical lines A B, C D, E F, G H, and I L of Fig. 1. Fig. 15 is an exterior view of the left-hand side of the gun.

The gun-barrel 1 is surrounded by a jacket of radially or helicoidally arranged longitudinal ribs, Fig. 8, or lateral disks or rings or combinations thereof. Close to the breech end of the gun-barrel in a groove formed by two flanges 3 4 thereon is a piston-ring 5, fitting against the inner side of a tubular casing 6, surrounding both the gun-barrel and its jacket. To the front end of the jacket or barrel is screwed a kind of tubular piston 7, provided with a packing-ring and into which extends the forward end of the gun-barrel 8. Flanges 11 and 12 are provided on the piston between which a ring 10 is confined. The edges of the outer flanges 3 and 12 are provided with notches. A considerable portion of the length of the jacket is surrounded by a strong spiral spring 13, one end of which presses against the inner flange 11 of the piston 7 and the other against a collar abutting against an inwardly-stepped portion of the tubular casing of the gun. The muzzle end of the said casing 6 is closed by a tubular cover 14, on the top of which is arranged the front sight 15 of the gun, underneath which is provided an outwardly-opening valve 16, which allows the air to pass from the interior through suitable orifices to the outside atmosphere. The end of the tubular cover 14 in its turn is provided with an extension or tube 17, the bore of which forms a continuation of the bore of the movably-arranged gun-barrel 1. Any rotatory movement of the barrel relative to the piston is prevented by a key 19 or the like at the breech end, while the forward movement is limited by a stop 20 on the casing. When the cover 14 is removed and the stop 20 is drawn downward by means of a button 21, the barrel, with all the parts belonging to it, can be withdrawn from the casing. The breech end of the barrel 1 is provided with passages 22 22, communicating at one end with a chamber 23, Fig.

2, formed between the barrel and casing and at the other end with the cartridge-chamber.

When the gun is fired, the projectile moves forward, while the gun-barrel, with all the parts appertaining to it—i. e., the movable mass—moves backward. The projectile arriving at the muzzle end of the barrel leaves the movable part and enters the fixed part 17, forming a continuation of the barrel. At this point the gases still compressed in the bore 25, Fig. 6, of the barrel and in the outer chamber press on the piston and surfaces connected with it, and thereby force the whole of the movable mass to recede rapidly a certain distance. By this receding movement the coiled spring 13 is compressed until all the forces causing the recoil of the movable mass are spent, whereupon the spring will drive the parts forward to their initial position. The heat evolved during this phase is rapidly transmitted to the jacket and the surrounding air owing to the ribs on the surface of the jacket. This air is continually driven out and renewed by the action of the rings 5 10 at the front and rear ends of the barrel. The front ring 10 presses during the recoil against the front flange 12, which is notched, and the air which is drawn in the orifices 26 toward the rear of the casing passes through the whole length of the casing and finally enters a chamber 27, formed between the outside of the piston 7 and the inside of its cover 14. On the return movement the ring presses against the inner flange 11, forming a tight joint, and the air, which thus cannot now escape along the casing, opens the valve 16 beneath the front sight and is thus driven out. Simultaneously the rear ring 5, Fig. 2, presses against the rear flange 3, which is notched and permits the air to pass to the chamber 23 around the breech or cartridge-chamber. During the recoil it presses against the front flange 4, forming a tight joint, and the air is driven through the passages 22, communicating with the breech into the interior of the barrel, thereby cooling the latter and driving out the remnants of the combustion-gases and impurities, which might interfere with the accurate working of the breech mechanism.

At the rear the gun-barrel is connected with a frame 29 by means of a screw-threaded connection 28, the coupling member of the frame 29 being slitted, as shown in Fig. 3. Said frame slides in a casing—say of rectangular shape—30, containing the breech mechanism. In the hollow space of the frame is arranged a bolt-lock 31, Figs. 1, 2, 3, 4, and 12, which bolt-lock is rotatorily arranged on studs or trunnions 24, Fig. 1, which, together with its round head or end 32, presses against corresponding projections on the frame. In the interior it has projecting wings or hooks 33, intended to enter into corresponding recesses 34 in a breech-bolt 35. At the side of the frame 29 and underneath the breech-bolt is mounted on a stud 36 a three-armed lever 37, two arms 38 of which, opposite to each other,

are provided with lugs or extensions directed downward, while the third arm 39 is provided with an upward lug or extension which enters a corresponding opening of the bolt-lock 31. Below the lever is fastened to the gun-casing a plate 40, with two inclined planes 41 41, which are situated opposite the two lugs or extensions 38. The locking device or breech-bolt 35 slides in corresponding grooves 42, Figs. 1, 3, 4, 11, and 13, extending through the whole length of the frame 29. In the head are arranged, besides the recesses 34 referred to, cartridge-extractors 43 43, Fig. 1, held fast in corresponding recesses by stops 44 44. In the interior the firing-spindle 45, Figs. 1, 2, and 14, is mounted, having a reduced point 46, which is surrounded by a spring tending to press the pin back. The rear end is provided with collars or enlargements 48 49, while a plug 50 in the breech-bolt is arranged to limit its movement and prevent it from moving backward and outward too far.

The breech-bolt is provided with a lateral extension near its rear end, which is integral with a vertically-arranged plate 51, having the side edges thereof provided with outwardly-extending flanges, whereby a groove or channel is formed in said plate between said flanges. Into this groove engages a stud 53 of a toothed lever 54, Figs. 1, 2, 3, and 13, mounted on a stud 55 in the frame 29, with which the lever 54 moves. This lever is provided with a heel or abutment surface 56 and teeth 57, which at the proper moment gear with the corresponding teeth 58 of a fixed rack 59, the latter serving also as a support for the lower end of the movable frame. Toward the middle the frame carries a driving-lever 61, Figs. 1, 3, and 14, mounted on a pin, which lever is divided at the top into a fork 62 and provided at the bottom with a projection or heel 63. At the moment of locking the locking-piece, Figs. 1 and 2, the fork 62 enters between the collars 48 49 of the firing-spindle.

The spring-catch device consists of a hooked plate or rod 66, which slides in the rear wall of the casing, Figs. 1 and 2, and is pressed upward by a spiral spring 67. In a recess 68 in said rod enters the shorter arm of a lever 69, pivoted at 70 in the casing, while the longer arm is formed into a catch 71, which engages on the recoil movement of the parts a corresponding tooth 72 on the tailpiece of frame 29. While the gunner moves the handle 73 at the rear to train the gun, he presses with his thumb on the catch device or lets it go, and in this manner he raises and lowers the catch 71.

The cartridges are carried in a metallic clip-band, Fig. 5, each clip consisting of a sheet-metal strip bent upward at right angles, so as to embrace the rear end of the cartridge. At the sides projecting wings 74 are formed on each clip, which by means of rivets 75 75 are connected or hinged together, thereby form-

ing a band of any length required. The band is wound spirally on the spindle 76 of a drum 77, Figs. 11 and 15, which is suspended by means of exterior projections of the spindle on hooks 78 of two supports 79, which are fixed by means of studs 80 underneath the casing of the gun.

The cartridges are charged into the gun by introducing the free end of the chain into a feeding-conduit 81 82, Figs. 2 and 11, where a suitable feeding mechanism presses forward each cartridge in succession so as to correspond with the head of the locking-piece. This mechanism consists of a swinging arm 83, Figs. 1, 3, 4, and 11, mounted on a stud 84 and provided at the bottom with a foot 85, which is lowered when required by a projection 86 on the slide-frame 29, while at the top in suitable guides a fork-shaped chain-guide 87 moves, which guide is pressed from below upward by a spiral spring 88 and provided with arms for the purpose of seizing the several cartridge-clips. A projection 18 extends outward and is continually in gear with a cam-groove 89 90 91 in the side of the frame, Figs. 3, 4, and 11. At the side the slide carries a tooth 92, Figs. 1 and 14, on which rests the foot 64 of a key provided with an upper knob 93, Figs. 14 and 15, by means of which the fork can be lowered from the outside, so as to allow of the chain to be introduced or withdrawn, if after firing cartridges still remain in it. Assuming that the chain has been introduced into the feeding-conduit, the movements taking place in the mechanism at the moment of firing are as follows, Figs. 1 and 2: The breech-bolt is locked and secured by means of the catches 33 of the bolt-lock 31, while the latter is held in position by the projections of the movable frame. In consequence of the recoil movement of the movable mass described above the following movements take place one after the other. The left lug 38 of the pivoted lever 37 strikes the corresponding inclined plane 41 of plate 40. This, however, takes place only after the projectile has left the barrel and causes the lever to swing, the latter opening by means of its third lug 37, the bolt-lock 31 thereby changing its position, Fig. 4, and releasing the breech-bolt. The two-armed lever 61 strikes against the fixed stop 94, Figs. 1 and 3, which raises it and presses its top at 62 against the part 49 of the firing-spindle, thereby forcing first the firing-spindle and then the breech-bolt from the breech of the gun. In this manner the first extraction of the cartridge-shell is effected. The rear part 56 of the toothed lever 54 then strikes against the teeth of the rack 59 and forces the lever to perform a rotatory movement, Fig. 3, and to completely withdraw the breech-bolt and extract the cartridge-shell owing to its knob 53 engaging in the groove 51 of the breech-bolt. Here the breech-bolt strikes the buffer-stop 95, while the frame and barrel still recede a little farther, in consequence of which the heel 86 of

the frame strikes against the projection 85 of the feeding device, Fig. 3, which is thus forced to move the fork 87, Fig. 11, laterally to the right, while the chain is fed forward and a new cartridge during the retraction of the breech-bolt is brought between the teeth of the extractor in the place of the cartridge just fired off, the shell of which now passes, with its clip, toward the right into the muzzle of canal 82. When the frame 29 has reached the end of its recoil movement, the tooth 72 on its rear end when the thumb is not pressing on the trigger or hook device becomes and remains engaged with the corresponding catch 71 of the spring-lever, in consequence of which the frame and barrel remain retracted. If, however, the trigger is still being pressed downward, the back-pressure spring 13 will return the movable mass to its forward position and all the movements described will be repeated, but in their reversed order—namely, the toothed lever 54 will turn in the opposite direction, the knob 53 will drive the breech-bolt forward, thereby driving the firing-pin forward to discharge the next cartridge. In the meanwhile the lateral projection 18, engaging in the groove 89, Figs. 3 and 4, moves on the inclined planes 89 90 and depresses the fork, which it presses toward the left 91, Fig. 11, where it seizes the clip of the following cartridge. At the same time the arm 62 of the lever 61 strikes against the heel 52 of the closing device, Fig. 1, which heel again raises the arm and places itself between the collars 48 49 of the firing-spindle. Having arrived here, the breech-bolt has reached the end of its course as regards the movable frame, and the cartridge is now completely inserted in the barrel. Now the right-hand lug 38 of the lever strikes against the corresponding inclined plane 41, causing the said lever and cylinder to rotate, the breech-bolt is seized, and the breech-piece locked, Figs. 1 and 2. The lower part 63 of the driving-lever 61 now suddenly strikes against the fixed block 96, thereby causing a sudden shock by its upper forked end striking against the collar 48 on the firing-pin, thus driving forward the firing-pin which effects the firing of the cartridge, after which all the movements described above are repeated.

In order to move the movable mass to the end of its backward movement for the purpose of starting firing, of introducing the chain and partly fire off its contents, of withdrawing the chain, of extracting a bad cartridge, of making the mechanism operate without effective work, or of stopping the movement and locking it for reasons of safety, a device is employed which is actuated from the outside and which comprises a crank 97, Figs. 2, 13, and 15, on the nave of which is keyed an eccentric, the shaft 98 of which is rotatorily arranged in a bearing-chamber 99 and which is provided with an eccentric projection 100, which in the course of half a turn

strikes against a shoulder 74, Figs. 1 and 2, projecting from the end of the frame, and thereby causes the frame and barrel to move back to the full extent of its backward course.

5 In the handle of the crank is a pin 101, which is pressed outward by a spring 102, provided with a knob 65. This knob can be fixed by means of a wedge or a pin 103, the ends of which can enter into holes or recesses marked
10 "Fire" and "Safety" in the handle. When placed in the recess or notch marked "Fire," the pin is entirely withdrawn and the crank can pass through the complete half-turn without being interfered with. When, how-
15 ever, it is fixed in the notch marked "Safety," the said pin projects outward and can enter into a hole 110, Fig. 15, in the casing, in which position the knob 100 prevents the completion of the counter-recoil movement of the
20 frame and barrel, in consequence of which the firing of the next cartridge is prevented.

The right side of the casing of the mechanism is provided with an articulated plate 105, Figs. 2, 11, 13, and 14. This plate is
25 provided with a knob 107, provided with a locking-plate 108 within the casing. When the said plate is open, the whole mechanism is exposed, the principal parts of which may then be taken out without the employment
30 of special instruments. In order to be able to remove the movable frame, it is therefore sufficient to turn it to an extent of forty-five degrees, (see line $y y'$, Fig. 12,) after which it can be withdrawn and the parts belonging
35 to it—such as the breech-bolt, the lever, cylinder, and the swinging lever—can be taken out. On the casing is arranged the rear sight 109, articulated at 110, Figs. 1, 13, and
40 15, and provided with a key 111, the forward end of which corresponds with notches in an arched plate 112 of the sight indicating the various elevations. The sight can be ad-
justed by one hand. At the extreme end of the casing and in the direction of the axis of
45 the barrel are two trunnions 113 113, which serve to support the gun on its carriage.

In Fig. 3 a spring mechanism 13 is shown, which permits the regulation at will of the speed of the firing. This spring mechanism
50 consists of a slide 114, which is pressed backward by a coiled spring 115 and held by the trigger 116 as long as the latter is not pulled. On the slide at 118 is pivoted a bell-crank lever 117, adapted to engage and hold the movable
55 frame when the latter reaches the end of its backward course by means of a catch 119. When the trigger 116 is pulled down, the movable mass can return forward, but at the beginning of that movement the pressure of
60 this counteracting-spring 115 must be overcome, the said spring tending to prevent such movement. This impeding or retarding of the movement is in proportion to the duration of the effect of the spring 115. This du-
65 ration is dependent on the position of an adjustable screw-rod 120, the head 122 of which can be moved backward or forward by means

of an outer knob 131, so as to vary the point at which the upper arm of the lever 117 strikes the head, which lever releases the tooth 119
70 by its descent and also liberates the frame from the retarding device.

In those cases where it is a question of utilizing to the utmost the jacket acting as a heat-radiator or cooling device the arrange-
75 ment now to be described, Figs. 7, 8, 9, and 10, will satisfactorily answer the purpose. For this purpose, Fig. 9, not only is the whole gun-barrel covered by the jacket 123, but also the barrel extension 124, the outer or flange
80 part of which not only covers the casing 6, but which also serves as a fixed motor-piston. Here the return-spring 13 may still be arranged around the jacket; but in the case when it is required to provide ribs with the
85 maximum height such spring may be arranged parallel with the gun-barrel and below it, Fig. 7, in which the spring 125 bears at its forward end against a collar 126 and on a central rod connected with the frame 29 at
90 the back 128, and thereby acts to push the whole of the movable mass forward. By removing the end cover 129 it is easy to regulate the tension of the spring according to requirements by means of a nut and lock-nut
95 129. The jacket 123 carries at the end a ring 10, Figs. 9 and 10, the flanges 11 12 of which may be constituted like those described in connection with the first construction, Fig. 6,
100 while the air in the forward end chamber 27 may escape through a corresponding valve 16; but when this is omitted or for any reason is not to act water may be circulated through the jacket for the purpose of more effectively
105 cooling the parts. In this case the inner flange 11 is closed below and open at the top, and vice versa as regards the outer flange 12. During the recoil movement the water in this case flows from the jacket from below into the end chamber 27, Fig. 10, while it is again
110 pressed upward during the return movement, Fig. 9. Such an arrangement will permit the water to flow from above on the gun-barrel even after the level has become very low in
115 consequence of evaporation without the need of constructing or arranging the jacket eccentrically as regards the barrel and will keep wet even that part of the barrel which in consequence of having to train the gun
120 above or below the horizon, thereby causing the water to collect at the lowest point, would otherwise remain dry. In the case where water is to be used as the cooling medium the rear ring 5 would have to be arranged in an
125 analogous manner against the breech. Of course the passages 22 22, Fig. 2, to the cartridge-holder would be omitted in this case.

I reserve to myself the right of applying to my gun all such modifications and improvements which upon practical experience might
130 be necessary, useful, or desirable without, however, going beyond the limitations characterized by the claims.

Having now fully described my said inven-

tion and the manner in which the same is to be operated, I declare that what I claim as my invention, and desire to secure by Letters Patent, is—

5 1. In a machine-gun, in combination, a casing, a barrel having reciprocatory movement, a frame connected thereto adapted to slide in the casing, a breech-bolt having movement with and independently of the frame, a bolt-
10 lock journaled in the frame adapted to interlock with the breech-bolt, said bolt-lock being disposed substantially in the axis of the gun-bore and engaging the breech-bolt on opposite sides thereof and a lever with means for
15 actuating the same for swinging said lock into and out of locking position during the reciprocatory movement of the frame, substantially as described.

2. In a machine-gun, in combination, a casing, a barrel having reciprocatory movement, a frame connected thereto adapted to slide in the casing, a breech-bolt having movement with and independently of the frame, a bolt-
20 lock journaled in the frame adapted to interlock with the breech-bolt on opposite sides thereof, said bolt-lock being disposed substantially in the axis of the bore of the gun and a lever pivoted to said frame, means on the casing for actuating said lever during the
25 movement of the frame and a connection between the lever and bolt-lock for swinging the latter into and out of locking position, substantially as described.

3. In a machine-gun, in combination, a casing, a reciprocatory barrel, a frame connected thereto adapted to slide in the casing, a breech-bolt guided in said frame and moving therewith, means for locking the bolt in place, releasing means, a lever pivoted to said frame
35 below the plane of the breech-bolt, a guide-plate carried by the breech-bolt, a connection between the lever and said plate for controlling the movement of said breech-bolt, a stationary rack and a toothed segment carried
40 by the lever adapted to engage said rack during the reciprocatory movement of the frame, to swing said lever substantially in the line of movement of the frame to give said breech-bolt accelerated movement, substantially as
45 described.

4. The combination with a gun having a reciprocating barrel, a reciprocating frame 29, secured thereto and moving therewith, a breech-bolt guided in the frame, with means
55 for actuating the same, and a cartridge-band comprising a series of carriers adapted to be alined with the axis of the breech-bolt and bore of the barrel whereby the cartridges are placed in the axis of the breech-bolt and
60 barrel, of means for automatically feeding said band and alining the carriers successively as described comprising an oscillating yielding device and means for actuating the same as the frame 29 reciprocates, substantially as described.

5. The combination with a gun having a reciprocating barrel, a reciprocating frame 29

secured thereto and moving therewith, a breech-bolt guided in the frame, with means for actuating the same, and a cartridge-band
70 comprising a series of carriers adapted to be alined with the breech-bolt and bore of the barrel, of means for automatically feeding said band and alining the carriers successively as described comprising a pivoted arm,
75 a fork yieldably carried thereby, a connection between the frame 29 and the fork for simultaneously depressing the same to bring the same out of engagement with the cartridge-band and moving the same into position to engage a new carrier, and engaging
80 parts on said frame and arm for swinging said arm and fork to bring the new carrier engaged by the latter into alinement with the bore of the gun, substantially as described.

6. The combination with a gun having a reciprocating barrel, a reciprocating frame 29 secured thereto and moving therewith, a breech-bolt guided in the frame with means
90 for actuating the same, and a cartridge-band comprising a series of carriers adapted to be alined with the breech-bolt and bore of the barrel, of means for automatically feeding said band and alining the carriers successively as described comprising a pivoted arm,
95 a fork guided therein, a spring interposed between the arm and fork, a projection on the fork coacting with the frame 29 for depressing the fork and swinging the same with
100 the arm to engage a new carrier when the frame 29 is reciprocated in one direction, a toe on said arm and a part on the frame 29 designed to depress said toe to swing said arm and fork back to starting position, substantially as described.

7. The combination with a barrel, a casing, a frame 29 having sliding movement, a breech-bolt, a bolt-lock, a firing-bolt, a lever pivoted to the frame 29 having a part engaging the firing-bolt and a fixed stop arranged
110 in the path of said lever adapted to strike the same at the end of the forward movement of the frame 29 to tilt the lever, whereby a quick forward movement is imparted to the firing-bolt, substantially as described.

8. The combination with a reciprocatory barrel, a frame 29 carried thereby, a breech-bolt, means for locking the same in place, cartridge-feeding mechanism, a firing-bolt
120 having a projection thereon, a lever pivoted to the frame 29 having a forked end straddling said bolt and abutting said projection, and a fixed stop located in the path of the opposite end of the lever, said lever being
125 carried against said stop at the end of the forward movement of frame 29 whereby the lever is tilted and a forward movement imparted to the firing-bolt, substantially as described.

9. In combination in a gun, a reciprocatory barrel, a casing inclosing the barrel providing an air-chamber around the latter, means secured to the barrel near the rear end of the

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chamber to prevent the escape of air past said means as the barrel recoils, means secured to the barrel near the front end of the chamber to prevent the escape of air as the barrel returns, an air-inlet in the casing intermediate of the ends thereof, a discharge from the front end of said chamber, and a discharge leading from the rear end of the chamber to the rear end of the bore in the barrel, substantially as described.

10. In combination in a gun, a barrel having reciprocatory movement, a stationary casing surrounding the same providing an air-chamber about the barrel, a loose ring surrounding the barrel near each end thereof, annular flanges arranged in pairs moving with the barrel, each pair of flanges confining a ring, the outer member of each pair being notched, an air-inlet in the casing, an air-discharge at the front end thereof to the atmosphere, and a discharge-passage leading

from the rear end of the chamber in the casing to the rear end of the bore of the barrel, substantially as described.

11. The combination with a casing, a handle secured thereto, a reciprocating barrel, a frame secured in said casing, said barrel and frame being reciprocated rearward after the firing of a cartridge, means adapted to return the frame and barrel, a latch pivoted to the rear end of the casing adapted to engage the frame to prevent the return thereof, and a device guided in the rear wall of the casing having an operating part adjacent to the handle for releasing said latch, substantially as described.

In witness whereof I have hereunto set my signature in the presence of two witnesses.

GIUSEPPE PERINO.

Witnesses:

A. RAZZI,

G. B. ZANARDO.