

Feb. 6, 1923.

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R. L. WRIGHT

MACHINE GUN

Filed Aug. 15, 1917

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Fig. 1.

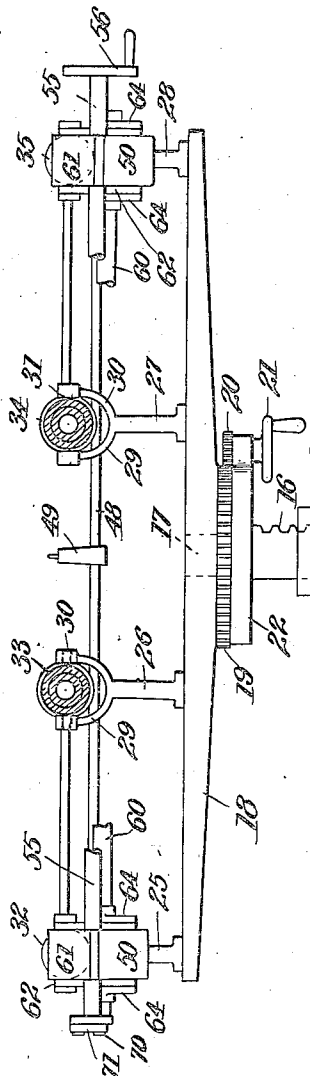
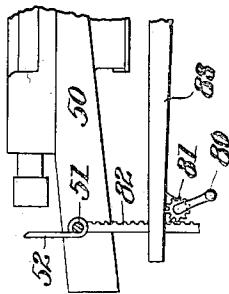
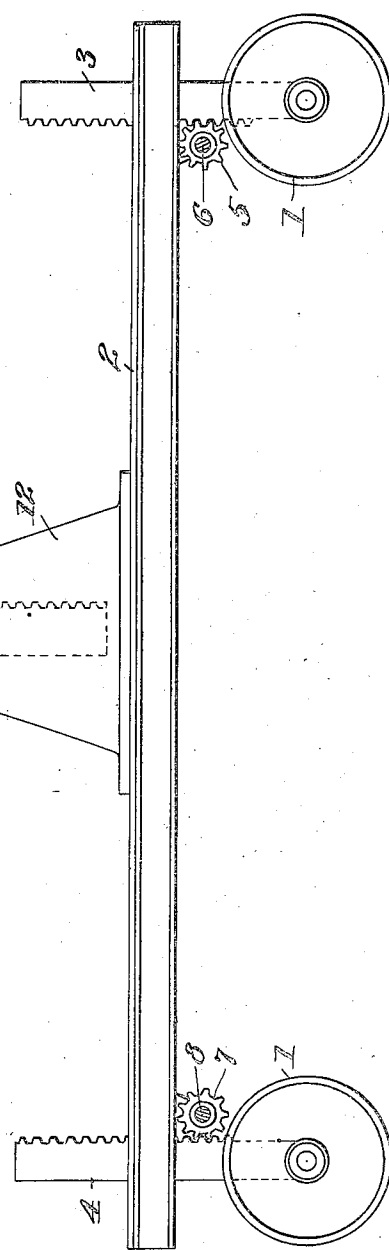


Fig. 2.



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6 sheets-sheet 2

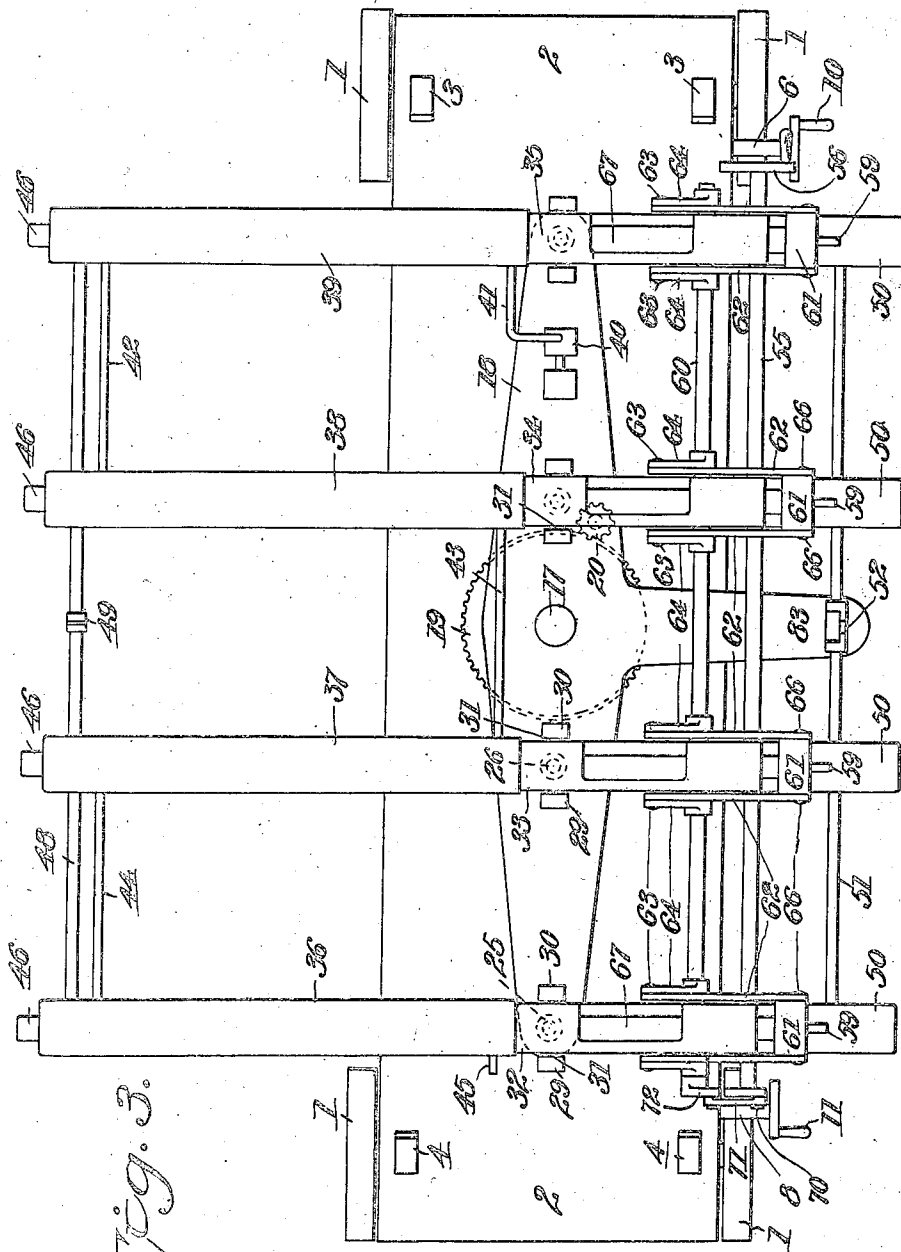


Fig. 3.

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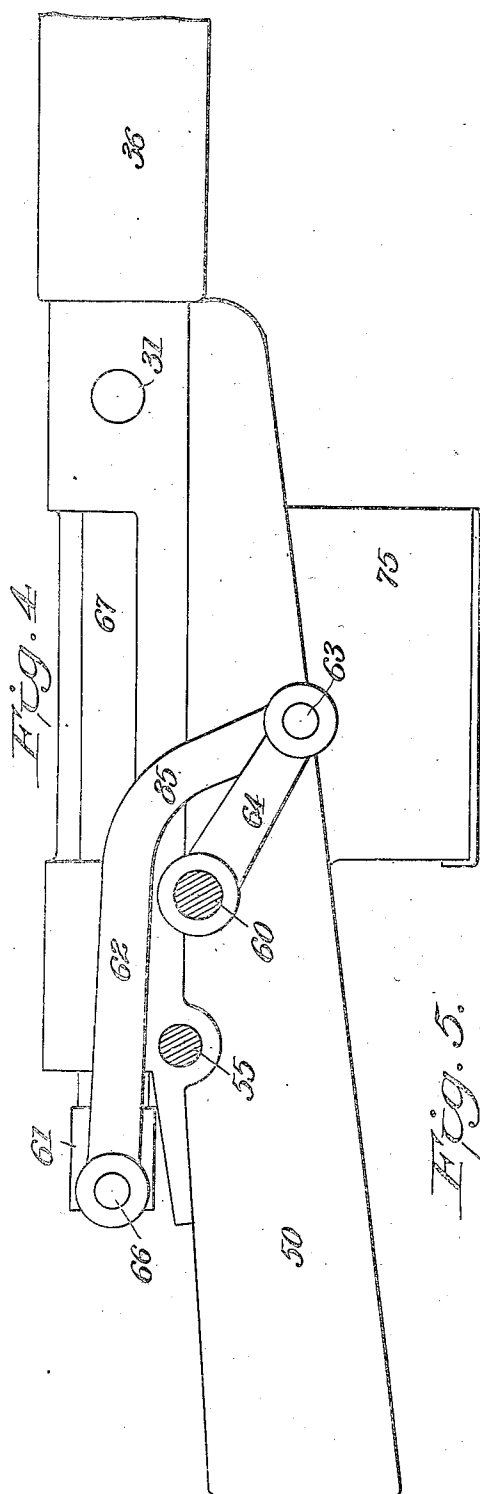
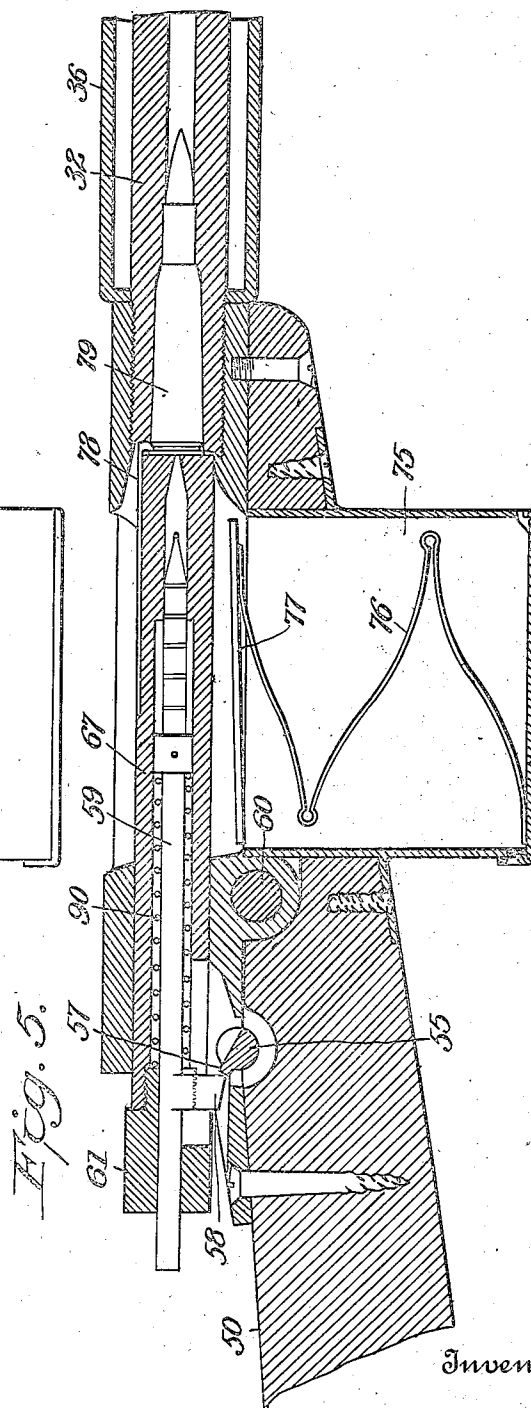
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6 sheets-sheet 3



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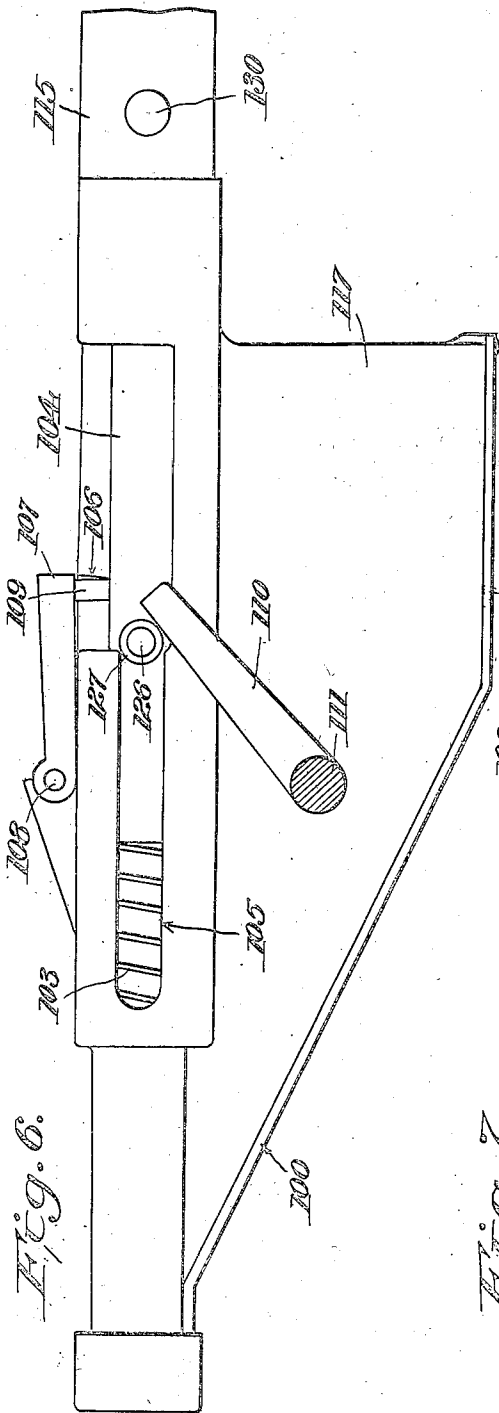
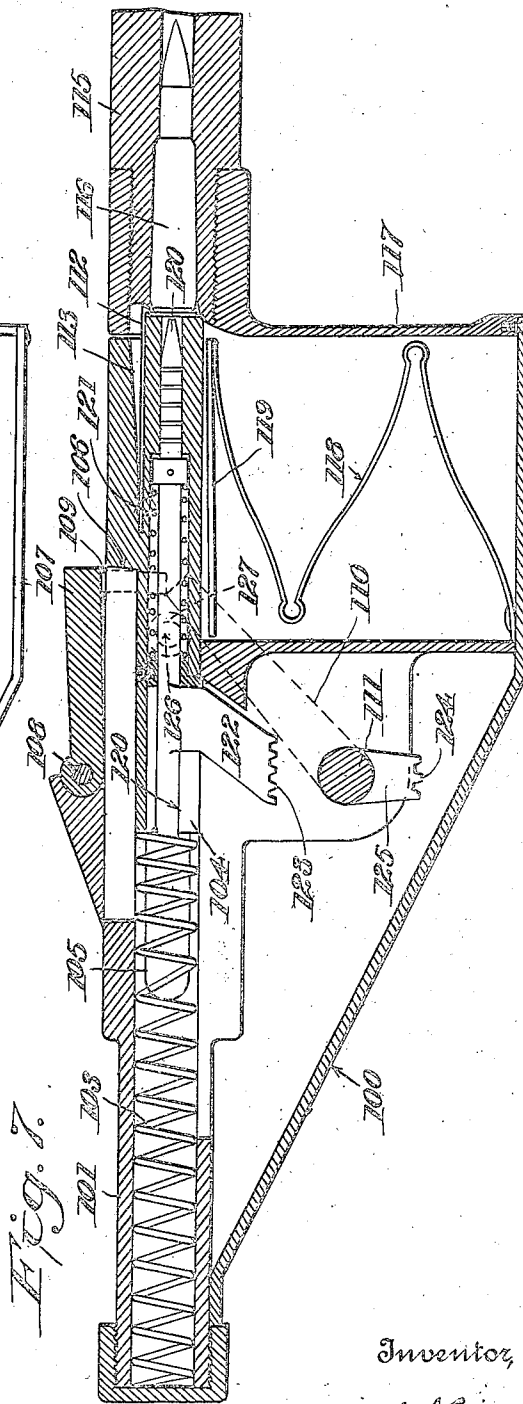
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6 sheets-sheet 4



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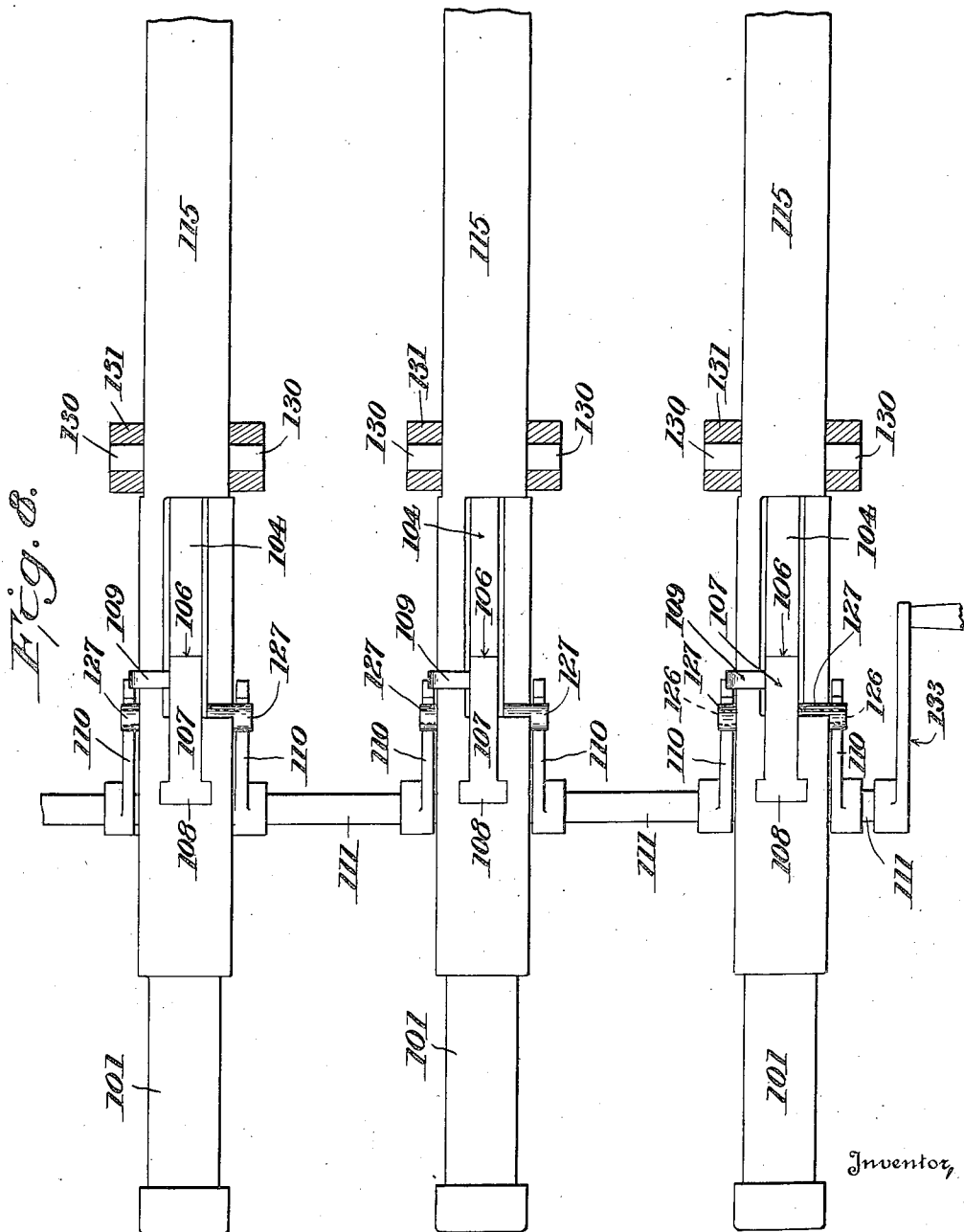
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6 sheets-sheet 5



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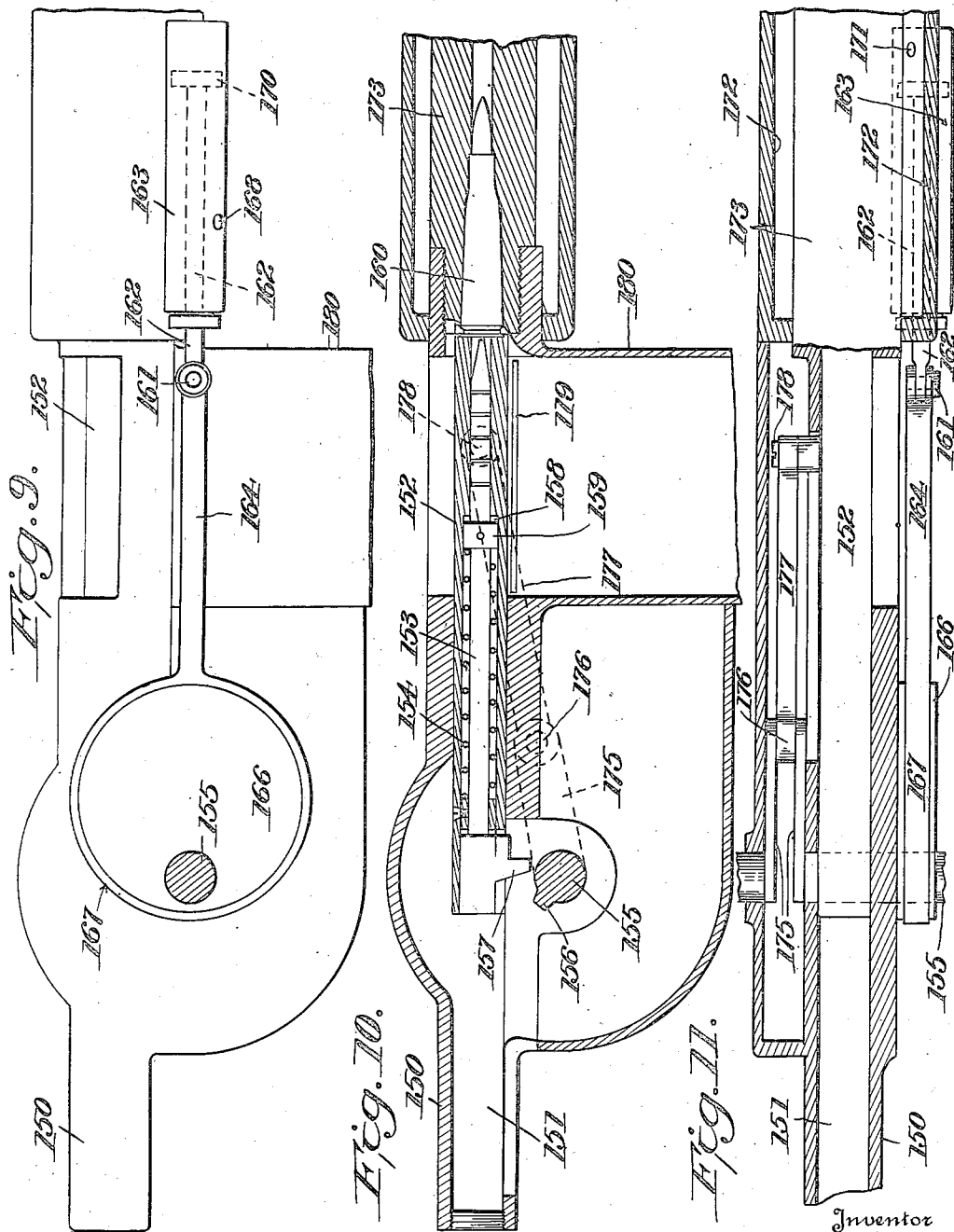
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Filed Aug. 15, 1917

6 sheets-sheet 6



UNITED STATES PATENT OFFICE.

ROBERT LEE WRIGHT, OF LOS ANGELES, CALIFORNIA.

MACHINE GUN.

Application filed August 15, 1917. Serial No. 186,296.

To all whom it may concern:

Be it known that I, ROBERT LEE WRIGHT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Machine 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.

This invention relates to machine guns and has for its object to provide a gun of this nature which will be simple in construction, certain in action, and less expensive to manufacture than those heretofore proposed.

The object of this invention is to provide ways and means to place together and mount all makes of individual machine guns, machine rifles, machine cannons, and all other firearms of all calibers in a way that one man can point, fire and operate a plurality of them both simultaneously and separately.

One of the objects of this invention is to provide ways and means to place individual guns, rifles, cannons and all kinds of firearms together, preferably like men in line of battle in a suitable way so that one man can point, fire and operate any suitable number of individual guns, rifles, cannons and all other firearms above mentioned and fire them both simultaneously and separately at the will of the gun pointer or range finder, thus taking the place of the larger portion of the men now used in firing and operating shoulder rifles, and other machine guns and machine rifles fired and operated by hand.

A further object is to provide suitable ways and means to have my guns, rifles and cannons use enough more of a charge of powder and explosive behind or to fire the same cartridges or shell to outrange ordinary guns, rifles and cannons fired by hand.

A further object is to provide a vehicle that can be raised and lowered in any way to keep the line of guns on a level regardless of the condition of the ground it is traveling over. And means for moving the body of the vehicle very close to the ground or all raised at the will of the gun pointer or range finder.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more

fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings, forming a part of this specification in which like numerals designate like parts in all the views:—

Figure 1 is a side elevational view partly in section of a machine gun made in accordance with this invention;

Figure 2 is a fragmentary detail view illustrating an elevating means for the barrels of the gun;

Figure 3 is a plan view of the parts shown in Figure 1;

Figure 4 is a side elevational view of the breach portion of one of the individual barrels of which the gun is composed;

Figure 5 is a longitudinal sectional view of the parts shown in Figure 4;

Figure 6 is a side elevational view of a portion of the modified form of barrel and firing mechanism made in accordance with this invention;

Figure 7 is a longitudinal sectional view of the parts shown in Figure 6;

Figure 8 is a plan view of a plurality of barrels and firing mechanism joined together of the nature illustrated in Figures 6 and 7.

Figure 9 is a view similar to Figure 6 showing another modification of the invention;

Figure 10 is a sectional view of the parts shown in Figure 9; and

Figure 11 is a transverse sectional view of the parts shown in Figure 10.

1 indicates any suitable wheels or supports on which the gun platform 2 is mounted, and connected to the axles of said wheels are the vertical racks 3 and 4. A pinion 5 mounted on the shaft 6 meshes with the rack 3, and a similar pinion 7 mounted on the shaft 8 meshes with the rack 4. As best shown in Figure 3, the shaft 6 is conveniently operated by the hand wheel 10 and the shaft 8 by the hand wheel 11, so that by turning these said hand wheels the platform 2 may be raised and lowered, and further, it may be raised at one side and lowered at the other so as to bring the barrels of the gun into a horizontal plane notwithstanding the fact that the front or rear wheels may not rest on level ground.

Resting on the platform 2 is the pedestal

support 12 provided with the crank 13, rigid with the shaft 14, carrying the pinion 15, engaging the rack 16, adapted to move up and down in said support 12, and mounted on the upper end 17 of said rack 16 is the framework or main support 18 of the gun.

Said framework 18 is conveniently provided with the gear 19 meshing with the pinion 20 adapted to be turned by the hand wheel 21 carried by the sleeve or bracket 22 rigid with the rack bar 16 as shown. Mounted on the main support 18 are a plurality of standards or brackets 25, 26, 27 and 28 each preferably of the character shown and provided with the supporting arms 29, 30, serving as bearings for the trunnions 31 with which the individual gun barrels 32, 33, 34 and 35 are provided.

Each of the gun barrels is preferably provided with any suitable cooling means such for example as a water jacket 36, 37, 38 and 39; and I prefer to employ a pump 40 or other means for forcing water or other cooling fluid as through the pipe 41 into the jacket 39, out of said jacket through the pipe 42 into the jacket 38, out of said jacket through the pipe 43 into the jacket 37, and out of said jacket through the pipe 44 and into the jacket 36 whence it may be discharged through the pipe 45.

The muzzles 46 or forward portions of the jackets are suitably connected as by the rod or other means 48, and I conveniently locate a front sight such as 49 on said rod 48. The butts or rear portions 50 of the individual barrels are likewise joined as by the rod 51 and I conveniently locate a rear sight 52 on said rod 51. Connecting all the butts 50 of the individual barrels is the firing rod 55 adapted to be continuously rotated as by the hand wheel 56, (see Figure 3). This said rod 55 is provided with a plurality of lugs 57, one for each of the firing lugs 58 with which the firing pins 59 are provided.

The butts 50 or rear portions of the gun are further connected as by the oscillating rod 60. The cocking heads or rear portions 61 of the breech bolts 67 are provided on each side thereof as at 66 with the links 62 pivoted as at 63 to the crank arms 64, rigid with said oscillating rod 60. Said links 62 are of the curved shape, best shown in Figure 4. Said rod 60 receives its oscillation from the hand wheel or other motive power 56 and rod 55 by means of the crank pin 70 with which said rod 55 is provided, the link 71 joined to said crank pin, and the crank 72 with which said rod 60 is provided and which is joined to said link 71, all as will be clear from Figure 3.

75 represents any suitable magazine, 76 a spring adapted to raise the cartridge supporting member 77, and 78 represents

any suitable extractor, while 79 indicates a cartridge ready to be fired.

The operation of this improved machine gun will be clear from the foregoing but may be briefly summarized as follows:—

The gun consisting of any suitable number of barrels and of any suitable caliber is brought, as by the wheels 1, to the point of firing whereupon the turning of the cranks 10 and 11 will rotate the shafts 6 and 8 and thus elevate or depress the platform 2 in such a manner as to bring the barrels substantially level. The barrels being thus leveled notwithstanding the unevenness of the wheels 1, the turning of the hand wheel 21 will rotate said barrels in azimuth or until they are in line with the target.

The rotation of the crank 80, (see Figure 2), will turn the pinion 81 carried by the extension 83 of the main support 18, and elevate or depress the rack 82 joined to the rod 51 and thus raise or lower all of the butts 50 of the barrels and accordingly bring about the proper elevation of the muzzles 46 of said barrels.

The gun being thus properly sighted, cartridges being in the magazines 75, the turning of the hand wheel 56 will rotate the firing rod 55 which through the connections 70, 71, and 72 will oscillate the breech bolt operating rod 60 and the latter, through the connections 64 and 62, will first retract the individual breech bolts 67 thus permitting a cartridge to be fed into position for loading from each of the magazines 75 whereupon a further movement of said shaft or rod 60 will cause said breech bolt 67 to be brought back into its firing position and thus force a cartridge such as 79 home ready for firing.

As said firing rod 55 continues its rotation its firing lugs 57 will take against the lugs 58 carried by the firing pins 59, slightly retract said firing pins and finally permit said pins to escape whereupon under the action of the firing spring 90 said pins will be forced forward and the cartridges exploded. The rod 60 is given an oscillating motion from the continuous rotating motion of the firing rod 55 by properly proportioning the cranks 72, the connecting links 71 and the driving rotating crank carried by the said rod 55, all as is well known.

The connecting links 62 are curved, as at 85, (see Figure 4), and the parts are so proportioned that the cranks 64 will cause the breech bolts 67 to be driven home before said links 62 come in contact with said oscillating rods 60, as will be readily understood.

The retraction of the breech bolts 67, the loading of the cartridges and the firing of the same will be continued as long as the hand wheel 56 is turned and as long as there

are cartridges in the magazines 75. Said magazines are made of a very considerable capacity so that the firing may be kept up as long as desired, or until the barrels become overheated. When it is desired to sustain continuous firing, any suitable form of magazine may be employed in connection with this gun.

In the modified form of the invention shown in Figs. 6, 7 and 8, 100 illustrates any suitable support or butt portion of the barrels, 101 an extension of the receiving portions of the barrels, 103 any suitable spring enclosed in the receiver 101, and 104 any suitable breech closure or bolt. 105 represents a slot or opening in the receiving casing, and 106 represents an abrupt shoulder against which the locking bolt 107 takes. Said locking bolt is conveniently pivoted as at 108 to the receiver portion of the fire arm and it is provided with the depending lug 109 adapted to be struck by the continuously revolving arm or toe 110 carried by the continuously revolving firing rod or shaft 111, all as will be clear from the following.

The breech bolt or closure 104 is provided with any suitable extractor 112 adapted to operate in the cutaway portion 113 with which said bolt and the rear portion of the barrel 115 are provided. 116 represents any suitable cartridge or fixed ammunition in its firing position in the chamber of the barrel and 117 any suitable magazine secured to the barrel for carrying said ammunition 116. 118 represents any suitable feeding means for feeding the cartridges into position to be picked up by the bolt 104, and 119 any suitable supporting means for the cartridges while being thus fed.

120 represents a firing pin provided with the firing spring 121 and also provided with the extension 122 carrying the rack or gear teeth 123 with which the teeth 124 carried by the revolving lug 125, rigid with the firing shaft 111, is provided.

The said bolt or closure 104 is provided on each side with the extending lugs 126 surrounded by the rollers 127 against which the rotating arms 110 strike, as will be clear from Figure 8 of the drawings. 130 represents any suitable trunnions with which the barrels are provided and 131 any suitable supports for said trunnions so that the barrels may be properly elevated or depressed.

I may provide any suitable elevating mechanism such as that illustrated in Figure 2, as well as any suitable support for the barrels such for example as is illustrated in Figures 1 and 3.

The operation of this modified form of invention shown in Figures 6 to 8 will be clear from the foregoing but may be briefly summarized as follows:—

Upon continuously turning the crank or other motive power 133 a continuous rota-

tion is imparted to the firing shaft 111 which in turn continuously rotates the arms or lugs 110 carried by the said shaft 111, and these said arms 110 taking against the rollers 127 carried by the lugs 126 with which each breech bolt or closure 104 is provided, first retracts each breech bolt against the compression of the spring 103 thus permitting the cartridge supports 119 to raise the cartridges into position to be fed into the chambers of the barrels 115 whereupon said lugs 110 in their continued movement will pass beyond said rollers 127 and permit the springs 103 to return said breech bolts to their firing position illustrated in Figure 7, they in the meantime having picked up each a cartridge and driven it home to its firing position shown. Previously, however, to the retraction of said breech bolts one of the lugs 110 allotted to each barrel 115 strikes against the lug 109 carried by the pivoted locking member 107 and raises said locking member 107 out of engagement with the locking shoulder 106 with which each breech bolt is provided and thus permits said breech bolt to be retracted as described above.

On the other hand, after the lugs 110 have snapped past their respective rollers 127 and after the various breech bolts have been brought back to their firing positions in the manner disclosed above, the several locking members 107 will, through gravity, fall back into their locking positions illustrated in Figure 8, and thus hold the said breech bolts firmly in their firing position. After the bolts have been thus returned to their firing position and locked in place, the lugs or arms 125 bring their teeth 124 into engagement with the teeth 123 carried by the extensions 122 of the firing pins 120 and thus retract the several firing pins 120 against the compressions of their firing springs 121 and a continued rotation of the said lugs 125 will disengage the teeth 124 from the teeth 123 and thus permit the several springs 121 to impel forward their respective firing pins 120 and to thus explode the cartridges 116 that have been fed into the barrels 115.

This automatic loading and firing will continue as long as there are cartridges in the several magazines 117 and as long as the crank 133 is turned. When it is desired to sustain a continuous firing over a long period of time, other well known and suitable forms of magazine may be employed which will furnish a greater number of cartridges.

It will now be clear that in both the preceding forms of the invention I have provided a machine gun composed of any suitable number of barrels, which is capable of being loaded and fired by a continuous motion of a shaft such as 55 or 111, that one man can point, fire and operate this gun

whether it is composed of a single barrel or of a large number of individual barrels, and it is also obvious that any other power than hand power may be substituted. It is further obvious that the gun may be either mounted upon wheels as illustrated, upon any suitable stationary mounting, or upon any well known and suitable disappearing mounting.

It is further obvious that the barrels may be of any suitable caliber. That is to say, by well known and obvious modifications the barrels may be of the United States Army regulation caliber, or they may be of the one inch, two inch, three inch or higher caliber if desired.

Coming now to the still further modified form of the invention shown in Figures 9, 10 and 11, 150 represents the rear portion of the individual gun barrels provided with the hollow space 151 in which reciprocates the breech bolt 152 provided with the firing pin 153 controlled by the firing spring 154 and through the rear portion of said barrels is passed the continuously rotating shaft 155 provided with the lug 156 adapted to intermittently engage the lug 157 on the firing pin 153 and thereby intermittently retract said firing pin and permit the piston 159 carried by the said pin to move forward in the space 158 and to fire the cartridge 160 in the manner well known. Rigid with the shaft 155 is the cam or eccentric 166 surrounded by the strap 167 rigid with the reciprocating rod 164 pivoted as at 161, to the reciprocating pump rod 162 operating in the pump cylinder 163 provided with the air intake 168. Inside the pump cylinder 163 is the piston 170 adapted to force air through the outlet 171, (see Figure 11), and into the cooling jacket 172 surrounding the barrel 173 all as will be clear from the drawings.

Rigid with the shaft 155 is the crank arm 175 joined as at 176 to the link 177, pivoted to the lug 178, carried by the bolt 152.

The operation of this second modification of the invention is as follows:—The firing shaft 155 is continuously turned as by a crank illustrated in the previous figures whereupon the eccentric 166 is rotated and the pump piston rod 162 is reciprocated thus sucking air into the pump cylinder 163 through the intake 168 and forcing air out of the orifice 171 into the cooling jacket 172 and thus cooling the barrels. The various barrels may each be provided with a separate pump or they may be conveniently connected together as illustrated in Figure 3 by pipes there shown so that the air is circulated from barrel to barrel as the shaft 155 revolves. The turning of the shaft further reciprocates the breech bolt 152 by means of the crank pin 176 and the connecting link 177 as will be clear from the drawings. The parts are so timed and proportioned that

when the link 177 and the crank 175 are on a dead center as is illustrated in Figure 10, the breech will be closed, and the lug 156 carried by the shaft 155 will have tripped the firing pin lug 157 and exploded the cartridge.

A further rotation of the shaft 155 will retract the breech bolt 152 and permit a new cartridge to be fed from the magazine casing 180 by means not shown in Figure 10, but which means will in all respects be the same as those illustrated in Figure 7. A cartridge being thus fed into the path of the bolt 152 the return of the bolt through a continuous rotation of the shaft 155 will force said cartridge home into the firing position illustrated whereupon firing will take place in the manner disclosed in connection with the previous figures.

By the term machine gun, gun, and fire arms, etc., found in the specification and claims, I mean any device capable of firing a cartridge, or ammunition such for example as a pistol, rifle, automatic rapid firing gun or cannon of larger caliber.

Of course it is understood that the various barrels are joined together in all the forms of the invention by rods or other means such as is illustrated in Figure 3.

It is obvious that those skilled in the art may vary the details of the construction as well as the arrangement of parts without departing from the spirit of the invention and therefore, I do not wish to be limited to the above disclosure except as may be required by the claims.

What I claim is:—

1. A machine gun, a barrel, a sliding breech block, a transverse shaft, a crank on the shaft at one side of the breech block, a link pivotally connected at one end to the breech block and at its other end to the crank, a firing pin slidable in the breech block a lug projecting from the firing pin, a spring for urging the firing pin forward and a lug on the shaft, the lug and crank being arranged at such an angular relation that the said lug will trip the first mentioned lug and retract the firing pin at the moment when the breech block has been moved forward to its forward most position.

2. A machine gun, a barrel, a sliding breech block therein, a transverse shaft, a crank formed on the shaft at one side of the barrel, a disc eccentrically mounted on the shaft at the other side of the barrel, a link pivoted at one end to the breech block and at the other to the crank, a pump cylinder mounted on the barrel at the side of the disc and in horizontal alignment with the shaft center, a piston and rod therein, an eccentric strap surrounding the disc, a pitman connecting the strap with the piston rod, a spring-pressed firing pin slidable in

the breech block, and engaging lugs formed on the pin and shaft, whereby the breech block, firing pin and piston may be actuated at each revolution of the shaft to discharge a projectile from the barrel and simultaneously cool the barrel.

3. A plurality of machine guns pivoted intermediate their ends for oscillation in a vertical plane, rods connecting their front and rear ends to ensure their movement in unison, sights mounted on both rods, and means engaging one rod to adjust the guns, a level position being indicated when the sights are in horizontal alignment.

4. A plurality of machine guns pivoted intermediate their ends for oscillation in a vertical plane, rods connecting their front and rear ends to ensure their movement in unison, sights mounted on both rods, a rack bar pivoted to one rod, a pinion engaging the rack and a crank for rotating the pinion to adjust the guns simultaneously, a level position of the guns being indicated when the sights are in horizontal alignment.

5. A gun mounting including a relatively long supporting plate, a plurality of pairs of bearings mounted thereon, a gun mounted between each pair of bearings, a transverse extension formed on the plate centrally thereof, a rod connecting the ends of said guns, a rack bar slidable in the extension and pivoted to the rod and a pinion meshing with the rack and operable to adjust the guns simultaneously.

6. A gun mounting including a pedestal, a rack bar mounted therein for vertical movement, a plate mounted on the bar, a pinion journaled in the plate, a frame rotatably mounted on the bar, a gear carried by said frame in meshing engagement with the pinion, a second pinion meshing with the rack bar, means to rotate both pinions to elevate the frame and to rotate the same, and a plurality of machine guns mounted

on the frame and additional means to move the guns in unison.

7. A gun mounting comprising a platform, a rack bar mounted at each corner for transverse movement, a ground wheel carried by each bar, a pair of shafts one at each end of the platform, a pair of pinions carried by each shaft to mesh with an adjacent rack bar, cranks to rotate the shafts to elevate or lower either end of the platform, and a gun mounting located on the platform and additional means to move the gun.

8. In a device of the character described with vertical rack bars and axles on said rack bars, wheels on said axles, a platform with pinions meshing with each rack bar and shaft and a crank on the pinions to raise and lower the platform by movement of the pinions meshing with the rack bar, and a gun pedestal mounted on said platform, a rack bar with a turn-table thereon mounted on the gun pedestal, a pinion meshing with the rack bar, a crank on the pinion shaft, to elevate and lower the rack bar by movement of the pinion, teeth encircling the turn-table, a pinion mounted on the rack bar meshing with the teeth on the turn-table, a crank wheel on the pinion shaft to rotate the turntable upon movement of the pinion, a plate mounted on the turntable and also a rack bar mounted on the turntable, a pinion meshing with the rack bar, a crank on the pinion shaft to elevate and lower the rack bar upon movement of the pinion, a plurality of machine guns mounted on the plate, the rack bar secured to a rod on the guns, and means to adjust the vehicle to the terrain to bring the guns on a horizontal plane and point, fire and operate a plurality of guns.

In testimony whereof I affix my signature.

ROBERT LEE WRIGHT.