B. PUTNAM.

MACHINE GUN.

APPLICATION FILED MAY 7, 1917.

1,334,052.

Patented Mar. 16, 1920.

3 SHEETS—SHEET 1.

Fig. 1.

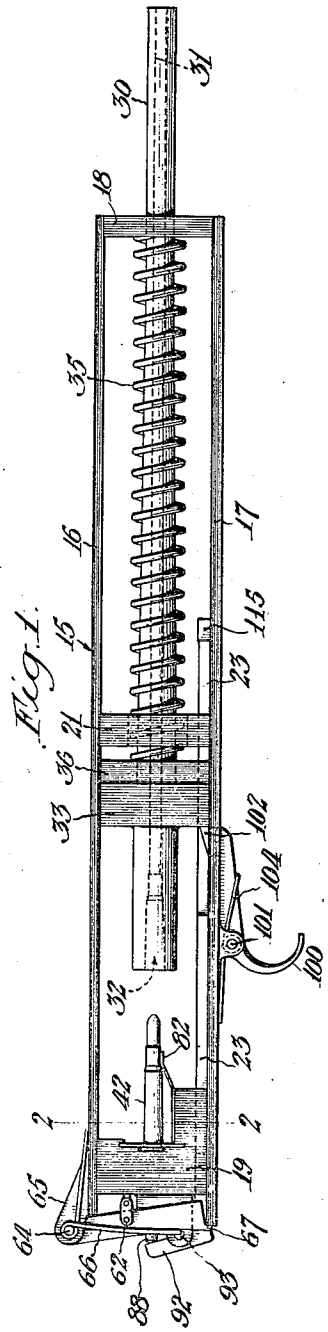


Fig. 10.

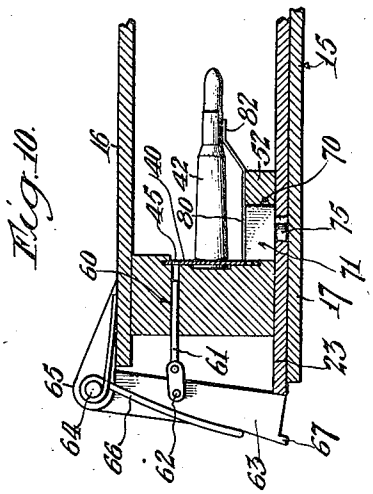
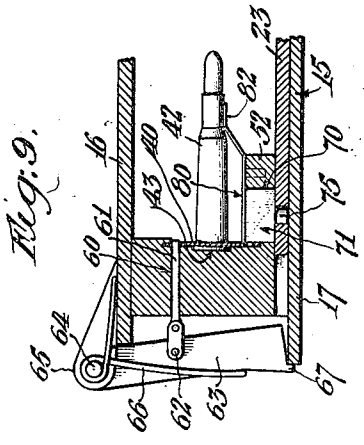


Fig. 9.



Inventor

Burleigh Putnam

by Graham & Harris

Attorneys.

B. PUTNAM.

MACHINE GUN.

APPLICATION FILED MAY 7, 1917.

1,334,052.

Patented Mar. 16, 1920.

3 SHEETS—SHEET 2.

Fig. 2.

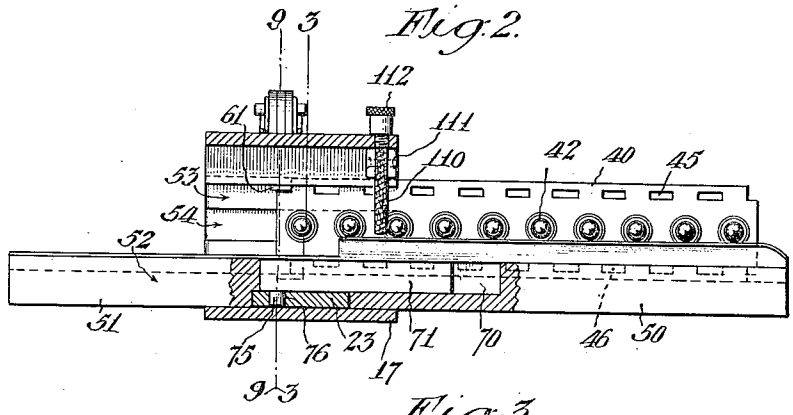


Fig. 3.

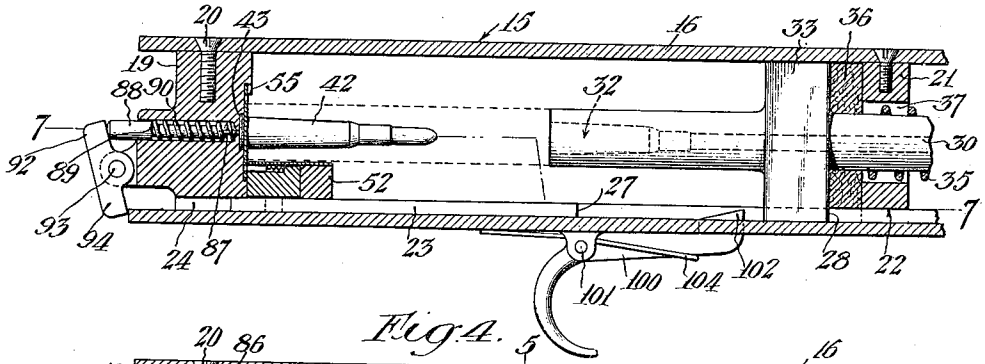


Fig. 4.

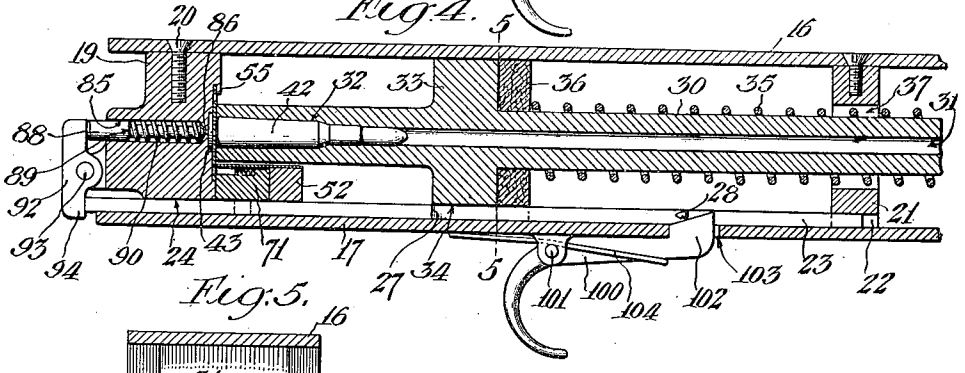
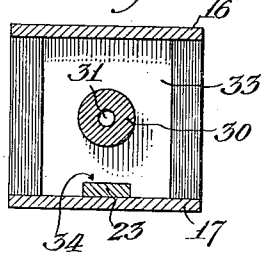


Fig. 5.



Inventor:
Burleigh Putnam
by: Graham & Harris
Attorneys

B. PUTNAM.

MACHINE GUN.

APPLICATION FILED MAY 7, 1917

1,334,052.

Patented Mar. 16, 1920.

3 SHEETS—SHEET 3.

Fig. 6.

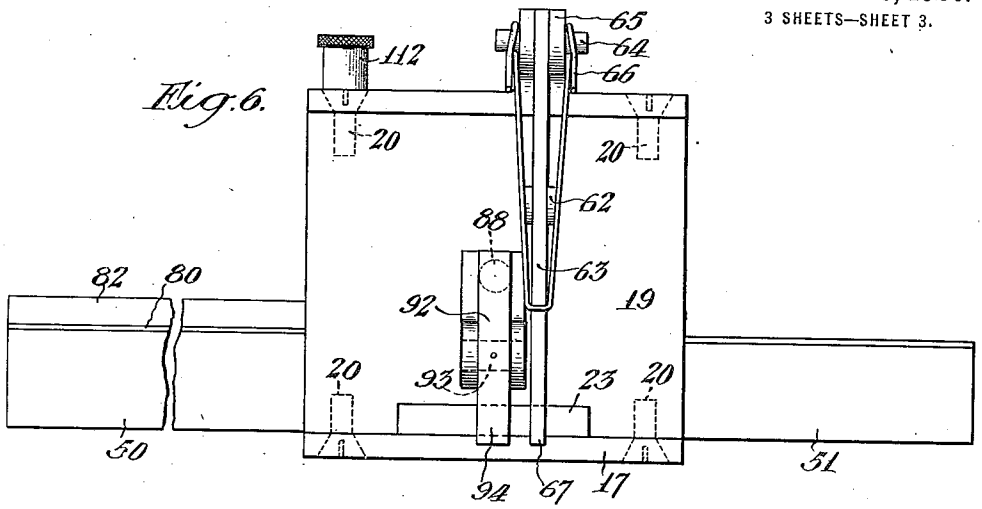


Fig. 8.

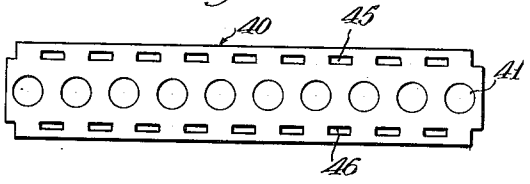


Fig. 7.

Inventor

Burleigh Putnam

by: Graham & Harris

Attorneys.

UNITED STATES PATENT OFFICE.

BURLEIGH PUTNAM, OF PASADENA, CALIFORNIA, ASSIGNOR TO JOHN T. THOMPSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

MACHINE-GUN.

1,334,052. Specification of Letters Patent. Patented Mar. 16, 1920.

Application filed May 7, 1917. Serial No. 167,123.

To all whom it may concern:

Be it known that I, BURLEIGH PUTNAM, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented a new and useful Machine-Gun, of which the following is a specification.

My invention relates to guns, being more particularly a gun which automatically fires a number of cartridges. In common forms of machine guns a number of cartridges are fed into the gun on a belt or clip, the cartridges being individually removed from the belt or clip and introduced into the barrel of the gun, after which the breech is closed, the cartridge fired, the breech opened, and the empty shell extracted. These operations require a considerable number of parts having a great number of movements to handle the cartridge, whereas in the gun herein described a number of cartridges are fed into the gun on a carrier and successively firing the cartridges without removing the cartridges from the carrier. To do this I use a stationary breech block, across the face of which the cartridges are passed, and a movable barrel which reciprocates to successively receive the cartridges and fire the same.

The barrel has two movements, a rearward or loading and firing movement, and a forward or unloading movement. The rearward movement is caused by a coiled spring which elastically moves the barrel rearwardly, the open breech of the barrel moving over and receiving the cartridge to be fired. When the cartridge is fired, the gas pressure, due to the explosion of the cartridge, moves the barrel forwardly, thereby uncovering the fired shell and operating the carrier to bring the next loaded cartridge into firing position.

The object of the invention herein claimed is to provide improved means for lubricating cartridges and more particularly for lubricating cartridges as they are being fed into firing position in a gun of the character referred to.

Other objects and advantages will appear hereinafter from the following specification:

Referring to the drawings, which are for illustrative purposes only:

Figure 1 is a side elevation of a gun embodying a form of my invention;

Fig. 2 is an enlarged sectional view on line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view on line 3—3 of Fig. 2, showing the barrel in its forward position;

Fig. 4 is a sectional view, similar to Fig. 3, showing the barrel in firing position;

Fig. 5 is a cross sectional view on line 5—5 of Fig. 4;

Fig. 6 is an enlarged rear view of the gun;

Fig. 7 is an enlarged sectional plan view of the gun on line 7—7 of Fig. 3;

Fig. 8 is a side elevation of the clip used for holding the cartridges;

Fig. 9 is a vertical sectional view on line 9—9 of Fig. 2, showing the locking means for the clip in locked position; and

Fig. 10 is a view similar to Fig. 9, showing the locking means in open position.

In the form shown, 15 designates a frame consisting of a top member 16, a lower member 17, a front wall 18, and a rear wall 19, the rear wall 19, constituting a breech block which is fixed in the frame in any suitable manner, as by screws 20.

21 designates a bridge or impact member secured in the frame intermediate its length, the bottom portion of the bridge being slotted, as indicated at 22, to receive a cam plate 23 slidably mounted on the lower member 17 of the frame. The rear end of the cam plate 23 extends through a slot 24 formed in the lower portion of the breech block 19, being freely slidable therethrough for the purpose hereinafter described. 25 designates a reduced or neck portion of the plate 23, thereby forming shoulders 27 at the rear of the same, and terminating at its forward end in shoulders 28.

Slidably mounted in the wall 18 is a gun barrel 30 having a bore 31 terminating in the rear end of the barrel in a cartridge chamber 32. Formed on the barrel 30 is a thrust block 33 which is slidably mounted between the upper member 16 and the lower member 17, being provided with a slot 34 which slidably engages the neck 25 of the cam plate 23.

35 designates a coiled spring, the outer end of which engages the inner face of the wall 18, and the inner end of which engages a leather buffer 36 arranged against the outer face of the thrust block 33, the spring

35 extending through an opening 37 formed in the bridge 21.

40 designates a clip or carrier for holding the cartridges, and in the form shown is provided with a series of openings 41 arranged in horizontal arrangement, which openings 41 are of proper diameter to receive the body of the cartridge 42. The cartridges are placed in the respective openings 41 in the clip, with the head 43 of the cartridge against the rear face of the clip, the openings 41 being of such diameter that when the cartridges are inserted therein, in the position above described, the cartridges fit tightly therein and project outwardly from the face of the clip. Arranged above and below the openings 41 in the clip 40 are two rows of holes 45 and 46, respectively, the holes 45 being adapted to receive a detent or locking device hereinafter described, and the lower holes 46 being arranged to receive a feeding device hereinafter described.

Formed in the breech block 19, and extending approximately at right angles to the axis of the gun, are two extensions 50 and 51 which together form a table 52 across which the clips with the cartridges are fed to the gun. The face of the breech block 19 is provided with a longitudinal recess 53 forming a guide for the clips as they pass through the gun, the central portion of the guide being provided with a groove 54 to accommodate the heads 43 of the cartridges. For the purpose of preventing lateral movement of the clips, while passing through the guide 53, a lip or flange 55 is formed at the upper edge of the guide extending downwardly over the upper edge of the clip, and the lower portion of the guide 53 extends below the face of the table 52. The breech block 19 is provided with a perforation 60 extending therethrough in which is slidably mounted a detent pin 61, the rear end of which is pivotally connected at 62 to an arm 63 pivotally mounted on a pin 64, the pin 64 being supported in ears 65 formed or secured to the upper wall 16 of the gun. The detent pin 61, as shown in Fig. 9 extends into one of the holes 45 in the upper portion of the clip and is elastically held in such position by means of a spring 66, such elastic forward movement being limited by an abutment 67 formed on the lower end of the arm 63, which abutment engages the rear end of the lower wall 17. The pin 61 is moved out of engagement with the clip by the rear end of the cam plate 23, as shown in Fig. 10, when the cam plate moves rearwardly, as hereinafter described. The table 52 is provided with a pocket or recess 70, as shown in Fig. 7, in which is slidably mounted a feed bar 71, the feed bar 71 having mounted therein a plurality of dogs 72, each dog being pivotally mounted on pins 73 mounted on the feed bar and elastically held by means of springs 74 into engagement with the clip 40 by extending into the holes 46 in the clip. The feed bar is moved back and forth to feed the clips through the gun by the following mechanism.

75 designates a pin secured to the feed bar 71 which extends downwardly into a cam slot 76 formed in the head 26 of the cam plate 23, the cam slot having a straight portion 77 at its forward end and a straight portion 78 at its rear end, which portions are connected by means of an inclined portion 79. The movement of the cam plate, as hereinafter described, causes the feed bar 71 to reciprocate transversely of the gun in the pocket 70. For the purpose of supporting the forward end of the cartridges, as the same are fed through the gun, a plate 80 is provided secured in any suitable manner to the upper face of the table 52, the plate at its forward end being bent upwardly to form a leaf or support 82.

85 designates a bore in the breech block 19 in the same axis as the bore 31 of the gun barrel, the forward end of the bore 85 terminating in an aperture 86 in which the head 87 of the firing pin is slidingly mounted. The body portion 88 of the firing pin is shouldered, as indicated at 89, forming an abutment for a coiled spring 90 which elastically presses the firing pin rearwardly out of contact and out of the line of travel of the heads 43 of the cartridges. The firing pin is moved forward to fire the respective cartridges by means of a rock arm 92 pivotally mounted on a pin 93, which pin is mounted upon the breech block 19. The lower end 94 of the rock arm 92 extends into the path of the rear end or head 26 of the cam plate 23 and is operated by such cam plate, as hereinafter described, to fire the cartridges by moving the firing pin forward.

In the present form I have shown a simple arrangement of trigger mechanism which consists of a trigger 100 pivotally mounted at 101 to the under side of the lower wall 17, the head 102 of the trigger extending upwardly through an opening 103 in the wall 17 into the path of the thrust block 33, so that the thrust block may be held in forward position by means of the head 102, the head 102 being elastically held in the path of the thrust block by means of a spring member 104.

According to the object of the invention herein claimed I associate with the means hereinbefore described for feeding a cartridge holder through the gun so as successively to present cartridges to the firing chamber, means for lubricating the cartridges before they enter the firing chamber, the lubricating means preferably com-

prising a wick or other lubricant-carrying body disposed adjacent the path of the holder or clip so as to contact with the cartridges before they enter the firing chamber together with a lubricant reservoir communicating with the wick or the like.

Thus in the drawings 110 designates a wick supported between ears 111 on the frame of the gun, as indicated in Fig. 2, an oil cup 112 being provided for feeding oil to the wick. The wick is so arranged as to lie in the path of the cartridges as they are fed into firing position, the object being to lubricate the exterior of the cartridges, thereby reducing the friction of the cartridges in the barrel and facilitating the operation of the movement of the barrel with relation to the cartridges.

It is to be understood that while I have shown and described my invention as mounted within an open frame, I do not limit myself to such construction, it being understood that the frame may be made in various forms and that the manner of mounting the barrel in the frame may be accomplished in various ways without departing from the spirit of my invention.

The gun is operated in the following manner:

Setting the barrel in the position shown in Fig. 1 may be done by pushing forward on the thrust block and the barrel so moved in case of misfire, but it is understood that various constructions may be made for accomplishing this result without departing from the spirit of my invention. Assuming that a clip has been placed in the gun, the first cartridge in the clip being directly behind the barrel, and in the axial line of the barrel, the barrel moved forward against the action of the spring 35 into the position shown in Fig. 1, with the trigger in engagement with the thrust block, the operation of firing is commenced by pulling the trigger and releasing the barrel. The barrel when so released moves rearwardly until the rear end of the barrel strikes the cartridge clip, as shown in Fig. 4. As the barrel moves rearwardly, the thrust block 33 strikes the shoulders 27 on the cam plate 23. As such plate 23 is in engagement with the pin 75 on the feed bar 71, the feed bar is moved in the direction of the arrow shown in Fig. 7 to engage the holes 46 in the clip for moving or feeding the clip upon the outward movement of the barrel. As the cam plate 23 approaches the end of its rearward stroke it engages the rock arm 92, moving such arm from the position shown in Fig. 3 to the position shown in Fig. 4, driving the firing pin 40 forward and firing the cartridge. The cam plate 23 on its rearward movement also performs the function of unlocking the clip, so that the clip is ready to be moved to the next firing position by the feed bar 71 as soon as the barrel has moved forward beyond the end of the cartridge fired, as hereinafter described. This is accomplished by the arm 63 being moved outwardly from the position shown in Fig. 9 to the position shown in Fig. 10 through the action of the end of the cam plate 23 striking the arm 63, thereby moving the detent pin 61 out of the holes 45 in the clip in which the same may be engaged, as illustrated in Fig. 9.

Upon the firing of a cartridge, as just described, the explosion of the charge in the cartridge, and the friction of the bullet passing through the bore of the barrel, cause the barrel to move forwardly against the action of the spring 35, which it is free to do due to the fact that the breech block 19 is fixed to the frame of the gun, the clip 40 being against the face of the breech block, the rear end of the barrel being against the face of the clip, and the head of the cartridge being rigidly supported against the breech block. After the barrel has moved forwardly, so that the rear end of the barrel is beyond the end of the cartridge fired, the thrust block 33 strikes the shoulders 28 on the cam plate 23 and moves the cam plate outwardly or forwardly. This forward movement of the cam plate 23 permits the coiled spring 90 on the firing pin to move the firing pin rearwardly out of engagement with the head of the cartridge fired, and as soon as the firing pin has been so removed, the cam slot 76 in the cam plate 23 being in engagement with the pin 75 on the feed bar 71 moves the feed bar inwardly so that the next unfired cartridge in the clip is brought into position in alinement or in the axis of the bore of the barrel in position to be fired upon the return of the barrel. Immediately upon the first movement of the clip in feeding, the detent pin 61 is released by the cam plate and forced into the holes 45 by the spring 66 as the clip advances, engaging the forward side of the holes and arresting the movement of the clip as the firing position is reached. Just before entering the barrel each cartridge comes in contact with the wick 110 and is lubricated thereby. Should the trigger remain depressed, the barrel will move forwardly until the leather buffer 36 strikes the bridge or impact member 21, and will be immediately returned rearwardly by the action of the spring 35, such rearward movement continuing until the barrel receives the next cartridge to be fired in the manner above described, which operation or reciprocating movement of the barrel will continue as long as the trigger is depressed and cartridges remain unfired.

If, however, it is desired to fire a single cartridge, the trigger may be released imme-

diately after being depressed, in which case the thrust block 33, after moving forward to the limit of its motion, and starting back, would be engaged by the trigger and held in the original position, as shown in Fig. 1.

What I claim is:

1. A gun comprising means for feeding a cartridge holder therethrough so as successively to present cartridges to the firing chamber, and means associated with said means for lubricating the cartridges before they enter the firing chamber.

2. A gun comprising means for feeding a cartridge clip therethrough so as successively to present cartridges to the firing chamber, and means disposed adjacent the path of said clip for lubricating the cartridges while being advanced by the clip.

3. A gun comprising means for feeding an elongate cartridge clip transversely therethrough with the cartridge disposed transversely of the clip so as successively to present the cartridges to the firing chamber, and means disposed adjacent the path of said clip for lubricating the cartridges before they enter the firing chamber.

4. A gun comprising means for feeding a cartridge holder therethrough so as successively to present cartridges to the firing chamber, and a lubricant carrying body disposed adjacent the path of the cartridges in transit to the firing chamber so as to wipe over the cartridges and apply lubricant thereto.

5. A gun comprising means for feeding cartridges to the firing chamber, and an elongate lubricating device having one of its longitudinal ends projecting into the path of the cartridges in transit to the firing chamber so as to apply lubricant to the cartridges, said device being flexible so as to wipe over the cartridges.

6. A gun comprising means for feeding cartridges to the firing chamber, and an elongate wick having its lower end arranged to depend into the path of the cartridges in transit to the firing chamber for applying lubricant thereto.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 24th day of April, 1917.

BURLEIGH PUTNAM.