F. W. ADSIT.

MACHINE GUN.

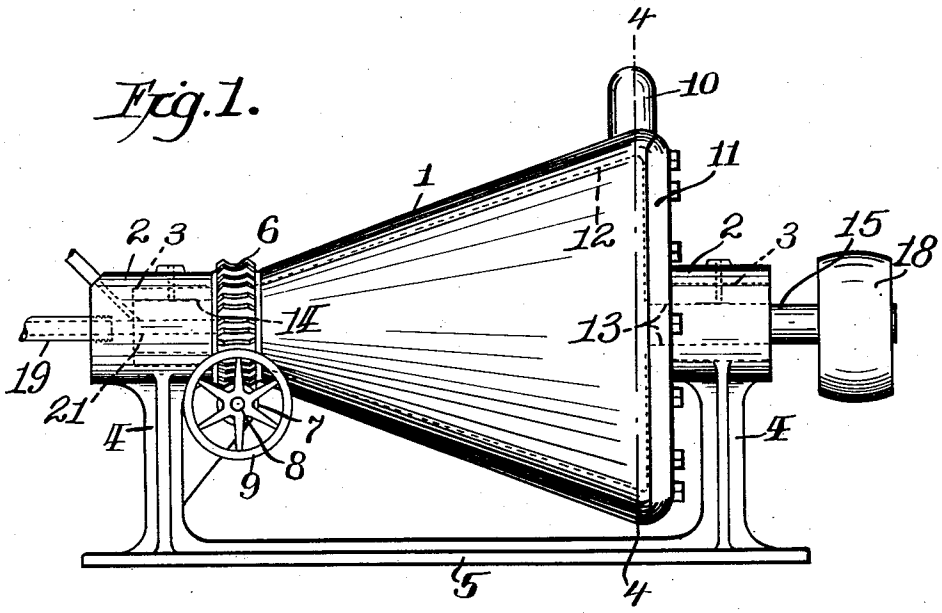
APPLICATION FILED DEC. 4, 1916.

1,313,038.

Patented Aug. 12, 1919.

2 SHEETS—SHEET 1.

Fig. 1.



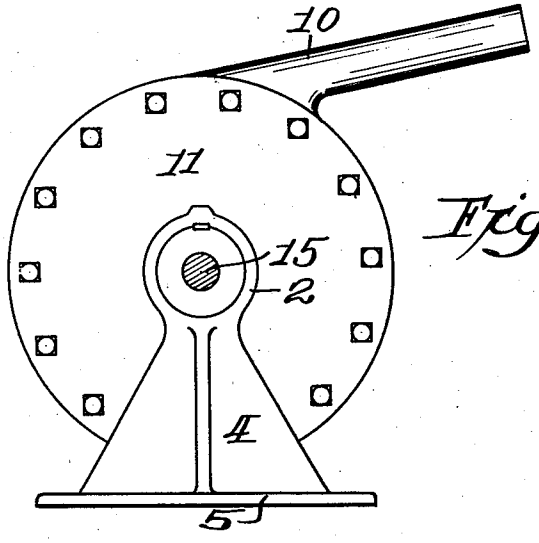


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

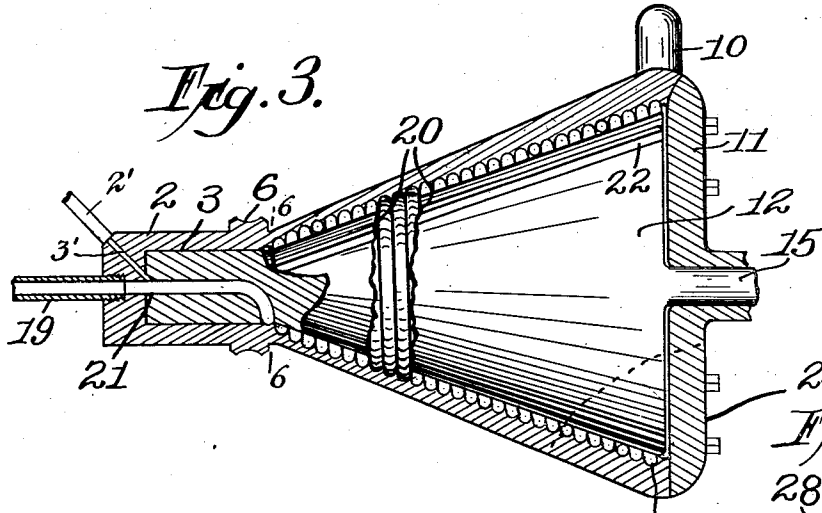


Fig. 7.

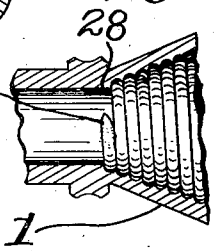


Fig. 4.

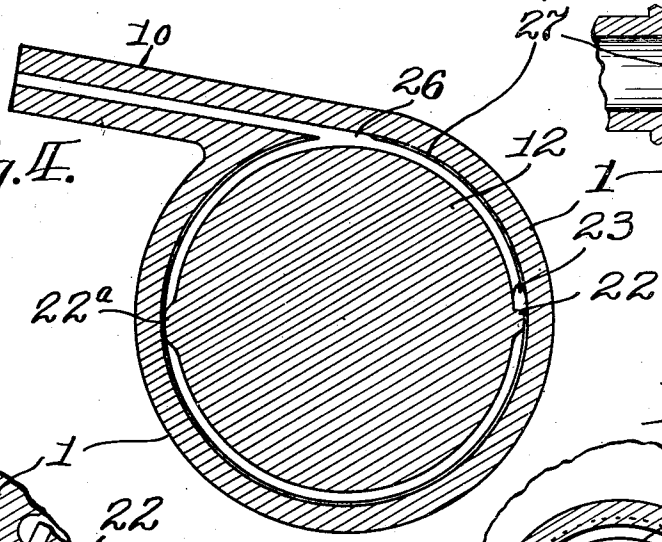


Fig. 6.

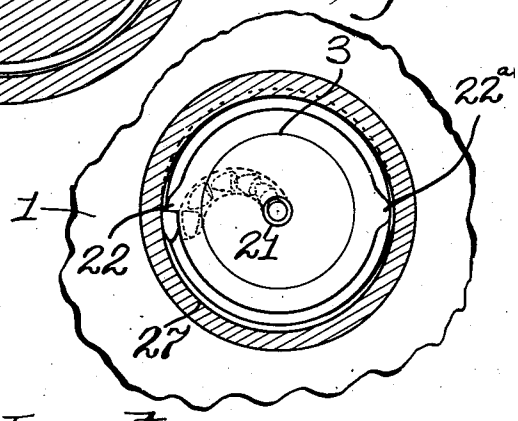
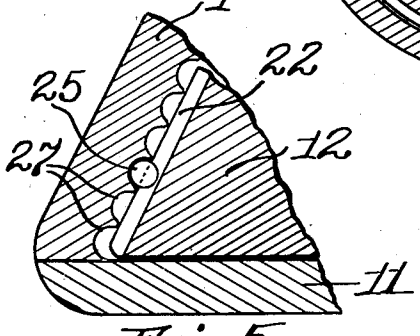


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE-GUN.

1,313,038. Specification of Letters Patent. Patented Aug. 12, 1919.

Application filed December 4, 1916. Serial No. 135,264.

To all whom it may concern:

Be it known that I, FRANK W. ADSIT, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Machine-Guns, of which the following is a specification.

This invention relates to machine guns and particularly to that form of machine gun wherein a supply of bullets or projectiles may be fed continuously to the machine and expelled therefrom by a centrifugal force somewhat in the same manner as shots are fired from modern machine guns.

One object of my invention is to provide means for gradually increasing the speed of the projectile from zero at the time it enters the gun to the muzzle velocity at the time it is expelled.

Another object of my invention is to provide means for feeding the projectiles into the gun continuously in such manner that there will be no possibility of their clogging in the operation.

Another object of my invention is to provide means whereby the projectiles may be picked up by the traveling member of the gun from the magazine at regular intervals.

Another object of my invention is to provide in the casing surrounding the rotating member used for picking up the projectiles from the magazine, means for preventing the clogging of the gun at this point should a projectile not be picked up at the regular time for such act.

Another object of my invention is to provide means for shifting the angle of elevation of the barrel of the gun so as to regulate the range.

Another object of my invention is to provide means for oiling the moving parts of the gun and also to supply a liberal quantity of lubricant for that portion of the gun wherein the projectiles are traveling.

With these and incidental objects in view the invention consists of certain novel features of construction and combination of parts, the essential elements of which are set forth in appended claims and a preferred form of embodiment of which is hereinafter described with reference to the drawings which accompany and form a part of this specification.

Figure 1 is a side elevation of my preferred construction of my machine gun; Fig. 2 is an end view of the same; Fig. 3 is a section taken on a vertical plane through the axis of the gun with the frame parts removed; Fig. 4 is a section taken on the line 4—4, Fig. 2; Fig. 5 is a fragmentary section of the portion included in the dotted line in Fig. 3; Fig. 6 is a section taken on the line 6—6, Fig. 3; and Fig. 7 is a section of the outer casing adjacent to the line 6—6, Fig. 3, taken on a diametrical plane.

In the drawings Fig. 1 discloses a side elevation of my improved machine gun in which 1 is an outside shell or casing, and which in the design I have shown is journaled at 2 in bearings 3 carried by upright legs 4 supported on a base 5.

A worm gear 6, which is integral with the casing 1, meshes with a worm 7 on a shaft 8 so that the elevation of the barrel 10 may be varied by turning the hand-wheel 9.

A head 11 which is firmly bolted to the casing 1 allows the assembly of the rotating driving member 12 inside the casing 1.

The driving member 12 is journaled inside of the supporting journals 2 of the casing 1 at 13 and 14, and at the end 13 has an outwardly extending shaft 15 with a pulley 18 which may be driven by means of a belt by any suitable prime mover.

The other bearing 14 has an opening 21 which registers with the opening in the pipe 19 and the opening in the stationary bearing 3 through which projectiles are fed from any suitable magazine.

The casing 1 has on its inner conical surface a continuous groove cut in screw thread manner and following the increasing diameter of the casing from the point where it begins near the worm gear 6 to the point where it terminates in the opening of the barrel 10.

The projectiles are fed into the opening 21, which has a passage through the pipe 19, Fig. 1, and pass downwardly and outwardly in a spiral as better shown in Fig. 6.

The projectiles passing down into the groove in the outer casing 1 are caught by a shoulder 22, Figs. 4 and 5, on the driving member 12, this shoulder extending the entire length of the conical surface of the driving member, and being counterbalanced by the projection 22^a opposite thereto.

A projectile 23, Fig. 4, is shown driven by the driving shoulder 22 and just about to enter the barrel 10 from which it will be expelled.

Fig. 5 shows the extension of the shoul-

der 22 along the conical surface of the driving member and shows another projectile 25 ahead of the driving member.

It is apparent that projectiles entering at 21 will be carried outwardly, as shown in Fig. 6, with an ever increasing velocity until they register in the groove and will be driven in the groove by the shoulder 22 at a constant number of revolutions per second but around a constantly increasing diameter so that the velocity continues to increase until a point 26 is reached, where the driving shoulder 21 is freed from engagement with the projectiles, and the projectile is expelled from the barrel 10 at the speed attained at that point, it being readily seen that the velocity of the projectile at this point is the same as the peripheral speed of the outside of the driving member at that part of the driving shoulder 22 behind the projectile at the point 26.

An oil pipe 2′, adapted to be connected by any suitable sort of lubricator, communicates through an aperture 3′ with the aperture 21 so that all of the projectiles will be thoroughly lubricated as they pass through the aperture 21.

Fig. 7 shows a portion of the outer casing in section in order to better disclose the construction on the line X X, which prevents the clogging of projectiles at this point.

At the point 27 a spiral groove is started by feeding a milling cutter downwardly and forwardly to gradually establish a groove of a suitable depth, and this groove is cut spirally in the outer casing at the established depth throughout the length of the inner surface terminating at point 26, Fig. 4, where the projectile enters the barrel.

Projectiles fed in through the aperture 21, Figs. 3 and 6, will be positioned as shown in Fig. 6, one behind the other, and this aperture will release a projectile under the influence of centrifugal force at any time it is positioned above the groove cut in the outer casing.

As the aperture terminates in the same plane, taken at right angles to the axis of the gun as the spiral cut is started at 27, a portion of the circumference of a circle in this plane will have a groove in it, while a portion will be a true cylindrical surface without the groove.

Hence if a projectile does not drop out into the groove and follow it outwardly and forwardly, it is merely rotated one or more revolutions in this circle without clogging the gun.

It is seen in Fig. 6 that there is sufficient room allowed between the outlet of the aperture 21 and the outer casing at this diameter for one projectile to lie just outside of the next projectile radially.

In all probability the projectiles will always feed themselves in proper fashion and will never be carried around this circle, but should one projectile, for any reason, fail to assume its proper position behind the driving shoulder, it could not clog the gun and it would fall or be thrown out to its proper position in the next or a subsequent revolution.

While I have described my invention and illustrated it in one particular design, I do not wish it understood that I limit myself to this construction, as it is evident that the application of my invention may be varied in many ways within the scope of the following claims.

Claims:

1. In a machine gun the combination of an outer casing, an inner cone journaled in said outer casing, an aperture in said outer casing for introducing projectiles, and means associated with said inner cone for driving projectiles fed thereto.

2. In a machine gun the combination of an outer casing, a rotating member journaled in said outer casing, an aperture in said outer casing through which projectiles may be introduced into said rotating member, driving means on said rotating member adapted to pick up projectiles fed to said rotating member and carrying them therewith, said outer casing being of general conical shape, and an aperture associated with said outer casing for releasing projectiles when they have attained a maximum velocity.

3. In a machine gun the combination of an outer casing, a rotating member positioned therein, a driving shoulder on said rotating member extending longitudinally thereof, a spiral groove in the inner side of said outer casing progressing axially in increasing diameters and an aperture in said outer casing at a larger diameter of said spiral groove for releasing projectiles therethrough.

4. In a machine gun the combination of an outer casing, a rotating member associated with said casing, a driving member carried by said rotating member, a spiral groove in the interior of said casing, means for introducing projectiles to one end of said spiral groove, an aperture in said casing in said spiral groove for allowing the expulsion of projectiles, and a pocket in the inner end of said means to allow a projectile to be rotated in a plane perpendicular to the axis of the gun.

5. In a machine gun the combination of a casing, the interior of which is substantially cone-shaped, a spiral groove in the interior of said casing beginning at the smaller end and progressing in constantly increasing diameter to the larger end thereof, an aperture at the larger end of said casing, a rotating member in said casing of substantially cone shape, a driving shoulder on said

rotating member, an aperture at the smaller end of said rotating member and at the axis thereof, an opening from said aperture leading spirally toward the large end of said rotating member and the periphery of said rotating member, but ending at the periphery of said rotating member at the smaller end thereof in a pocket forward of said driving member, said pocket being positioned in the plane at right angles to the axis of said rotating member where said spiral groove begins.

6. In a machine gun the combination of a casing, the interior of which is substantially cone-shaped, a spiral groove in the interior of said casing beginning at the smaller end and progressing in constantly increasing diameter to the larger end thereof, an aperture at the larger end of said casing, a rotating member in said casing of substantially cone shape, a driving shoulder on said rotating member, an aperture at the smaller end of said rotating member and at the axis thereof, an opening from said aperture leading spirally toward the large end of said rotating member and the periphery of said rotating member, but ending at the periphery of said rotating member at the smaller end thereof in a pocket forward of said driving member, said pocket being positioned in the plane at right angles to the axis of said rotating member where said spiral groove begins, and means for introducing lubricant to the smaller diameter of said spiral groove.

7. In a machine gun the combination of an outer casing having a releasing aperture therein, an inner rotating member journaled for rotation in said outer casing, means for introducing projectiles into said outer casing, means on said rotating member for driving projectiles introduced into said outer casing, and means for supplying lubricating medium to projectiles as they are fed to the interior of said outer casing.

FRANK W. ADSIT.