(No Model.)

W. E. SIMPSON.

GAS OPERATED GUN.

No. 598,822. Patented Feb. 8, 1898.

Fig. 2.

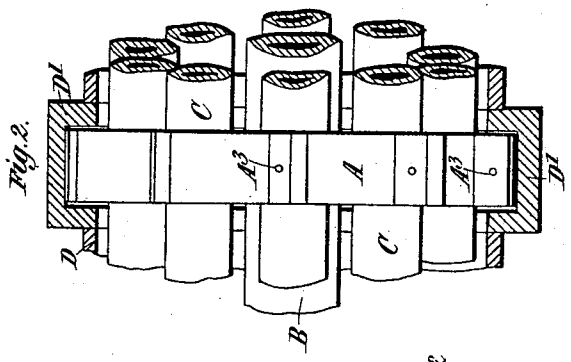


Fig. 1.

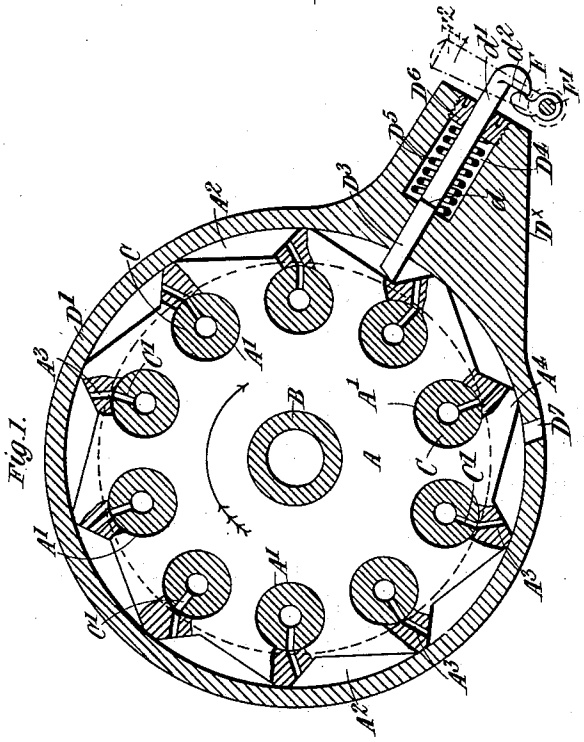
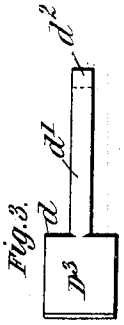


Fig. 3.



Witnesses -

F. B. Keefer

Philip N. Wilder

Inventor

William E. Simpson

By James L. Norris.

Atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM EDMUND SIMPSON, OF MANSFIELD, ENGLAND.

GAS-OPERATED GUN.

SPECIFICATION forming part of Letters Patent No. 598,822, dated February 8, 1898.

Original application filed March 16, 1897, Serial No. 627,891. Divided and this application filed October 4, 1897. Serial No. 654,045. (No model.) Patented in England February 20, 1896, No. 3,887; in France February 22, 1897, No. 264,313, and in Belgium February 23, 1897, No. 126,559.

To all whom it may concern:

Be it known that I, WILLIAM EDMUND SIMPSON, engineer, a subject of the Queen of Great Britain, residing at Albert Works, Mansfield, in the county of Nottingham, England, have invented certain new and useful Improvements in Machine-Guns, of which the following, originally forming part of Serial No. 627,891, filed on or about March 16, 1897, is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in machine-guns of the "Gatling" or revolving-barrel type—that is to say, guns in which a series of barrels and their locks or breech-blocks are arranged to rotate around a central axis, the said locks during their rotation traveling along a stationary-cam path, whereby they are actuated to effect the loading, firing, and extracting operations, (and for which I have obtained foreign patents in Great Britain, No. 3,887, dated February 20, 1896; in France, No. 264,313, dated February 22, 1897, and in Belgium, No. 126,559, dated February 23, 1897.)

Now the object of my invention is to enable a portion of the gas-pressure generated within the barrels by the explosion of the cartridges to be utilized for revolving the barrels, so that after the first shot has been fired the gun will continue working automatically as long as it is supplied with ammunition.

In order that my invention may be readily understood, I will proceed to describe the same fully with reference to the accompanying drawings, in which—

Figure 1 is a transverse section of a portion of a gun, showing one arrangement for carrying the said invention into effect; and Fig. 2 is a longitudinal part section corresponding to Fig. 1. Fig. 3 is a detail view of one of the parts employed in this latter arrangement.

A is a disk or wheel mounted upon the central axis or spindle B of the gun, preferably at a short distance from the muzzle, the said disk or wheel A having holes A′, through which the barrels C pass and in which they fit tightly. Around its periphery the disk or wheel A is provided with notches or recesses A^2, one surface of each of which may, as shown, be shorter and more inclined to the circumference of the disk than the other.

In each barrel C, at the portion which fits into the disk or wheel A, is formed a transverse opening C′, extending from the bottom of a groove of the rifling to the outside of the barrel, and in the disk or wheel A is provided, opposite each barrel, an aperture or passage A^3, coinciding with and forming a continuation of this opening C′ in the barrel and terminating in the shorter side of the recess A^2. A continuous port or passage inclined to the outer surface of the disk is thus formed from the interior of each barrel to the outer periphery of the disk or wheel A.

Around the aforesaid disk or wheel A is arranged a stationary ring D′, attached to the casing D of the gun, the said ring D′ having an enlargement $D^\times$, provided with a cavity D^4, in which works the stem d' of an abutment D^3, which bears against the disk A. The outer or confining walls of the recesses A^2 around the periphery of disk A form projections A^4, and the abutment, the shape of which is seen more clearly in Fig. 3, is kept in contact with the disk by means of a spring D^5, which presses upon the shoulders d thereof and surrounds the cylindrical portion or stem d', being retained in the cavity D^4 by a plug D^6, which serves also to guide the said stem d'. Thus the gases escaping through the aperture C′ and A^3 expand between the projections A^4 and the abutment D^3 and rotates the disk A, with the barrels C, in the direction indicated by the arrow, Fig. 1, afterward escaping through an outlet D^7.

Retardation of the speed of rotation is effected by drawing back the abutment D^3, whereby a by-pass is provided for the gases, and the power of the impulses is proportionately reduced. To enable this to be effected with facility, the stem d' of the abutment may be provided with a head or projection d^2, with which a finger F engages. This finger is carried by a shaft F′, extending along the gun and provided at its rear end with a handle F^2, by which the shaft can be turned to cause the said finger to draw back the abutment.

What I claim is—

1. The combination, in a machine-gun, of

revolving barrels, a recessed disk or wheel through which said barrels extend, and ports or passages leading from the barrels to the recesses in the disks, a stationary ring surrounding said disk or wheel and a sliding abutment working in said ring and bearing against said disk or wheel, substantially as described.

2. The combination, in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, a stationary ring surrounding said disk or wheel, a hollow projection on said ring, a sliding abutment working in said projection, a spring fitted in said projection, and acting on said abutment to press it into the recesses of the wheel or disk, and an outlet for the discharge-gases contained in said recesses, substantially as described.

3. The combination, in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, a stationary ring surrounding said disk or wheel, passages for conveying portions of the discharge-gases from the barrel to the recesses, a spring-pressed sliding abutment projecting into said recesses, and means for withdrawing said abutment to reduce the speed of the machine, substantially as described.

4. The combination in a machine-gun of revolving barrels, a recessed disk or wheel through which said barrels extend, a stationary ring surrounding said disk or wheel, passages for conveying portions of the discharge-gases from the barrels to the recesses, a spring-pressed sliding abutment having a stem, a projection on said stem, a finger engaging said projection, a shaft carrying said finger, and a handle or lever for operating said shaft and thereby drawing back the abutment substantially as described.

In testimony whereof I have hereunto set my hand this 28th day of August, 1897.

WILLIAM EDMUND SIMPSON.

Witnesses:
ERNEST HARKER,
FRANK H. SOUTHAM.