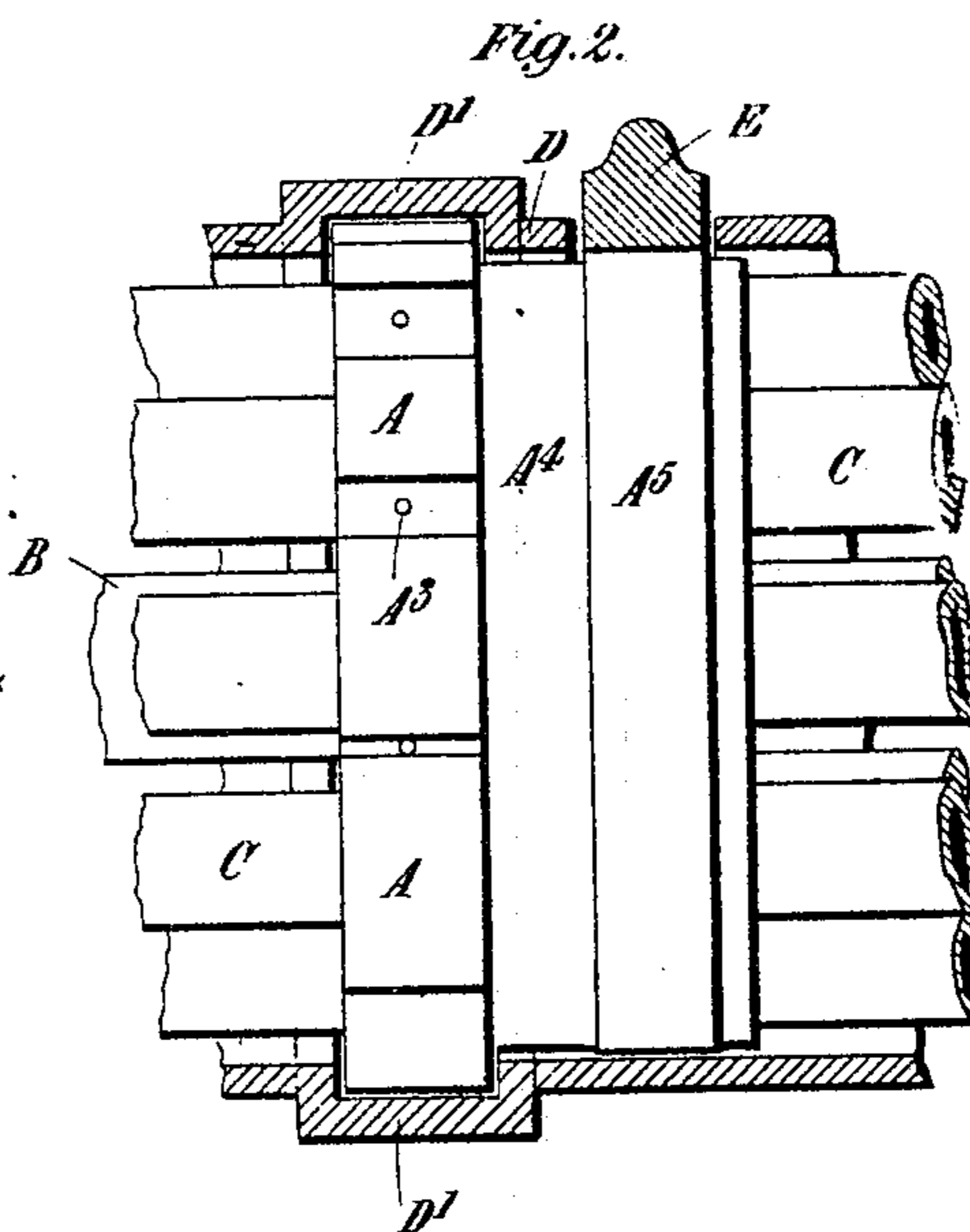
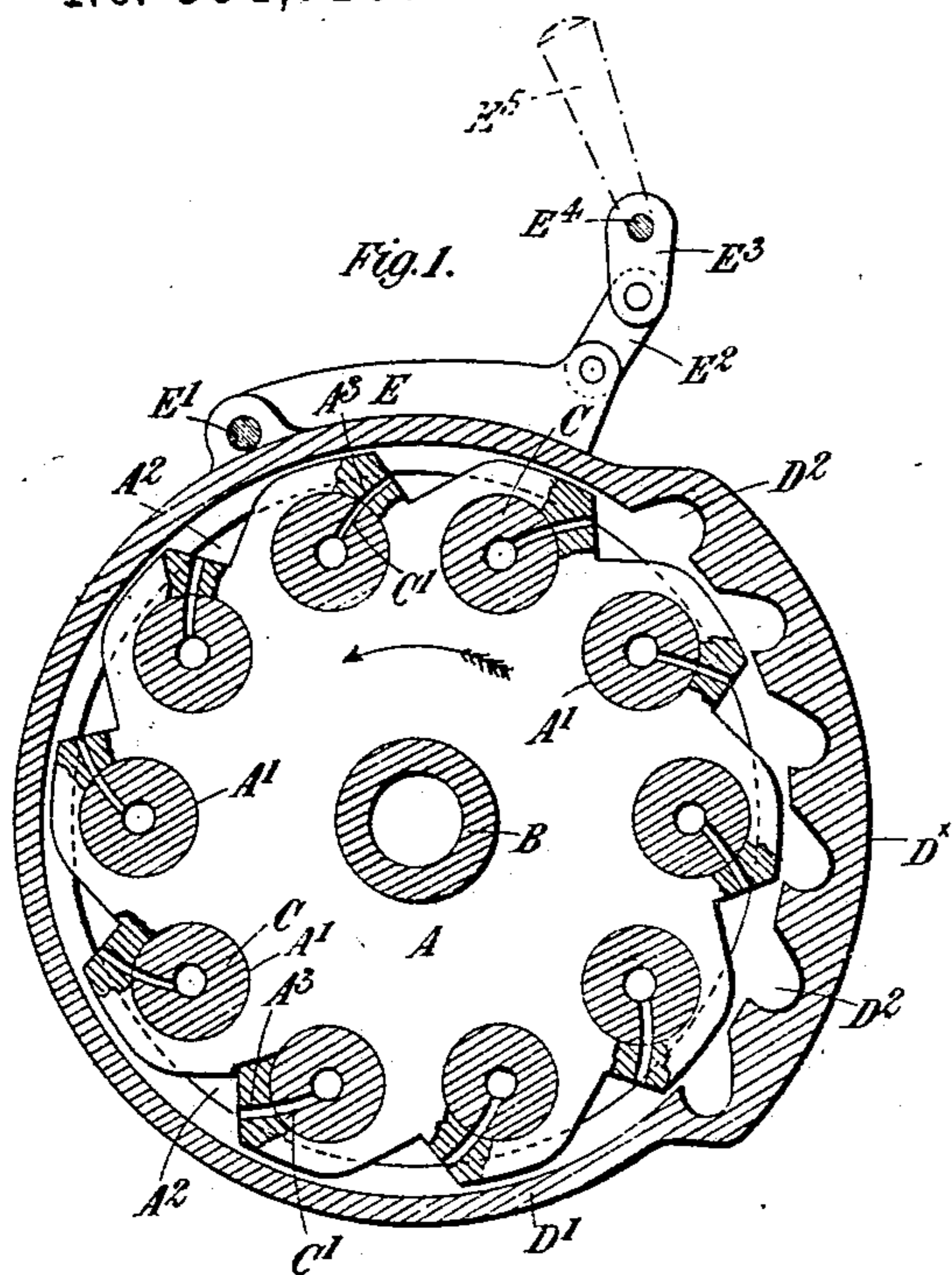


(No Model.)

W. E. SIMPSON.  
GAS OPERATED ORDNANCE.

No. 594,710.

Patented Nov. 30, 1897.



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM EDMUND SIMPSON, OF MANSFIELD, ENGLAND.

## GAS-OPERATED ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 594,710, dated November 30, 1897.

Application filed March 16, 1897. Serial No. 627,891. (No model.)

*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 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.

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.

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<sup>2</sup>, 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<sup>3</sup>, coinciding with and forming a continuation of this opening C' in the barrel and ter-

minating in the shorter side of the recess A<sup>2</sup>. 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<sup>x</sup>, provided internally with one or more cavities or buckets D<sup>2</sup>, so that when a cartridge has been exploded in a barrel and the projectile has passed the opening C' a portion of the gases escapes through the said opening and the passage A<sup>3</sup> and impinges against the cavities or buckets D<sup>2</sup> and expanding therein causes the disk A to rotate in the direction indicated by the arrow, Fig. 1, the disk carrying with it the barrels C, and thus operating the gun automatically.

For the purpose of retarding or controlling the speed of rotation of the barrels a brake-shoe E is employed, and the disk A is provided with a lateral projection A<sup>4</sup>, having a turned rim A<sup>5</sup>, to which said rim the said brake is adapted to be applied. This brake-shoe is pivoted at E' and is operated by a toggle-link E<sup>2</sup>, connected with an arm E<sup>3</sup> on a spindle E<sup>4</sup>, which spindle extends to the rear of the gun, where it is provided with a brake-lever or handle E<sup>5</sup>.

What I claim is—

1. The combination in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, ports or passages leading from the interior of said barrels to the recesses in the wheel or disk, and means for causing the portions of the discharge-gases escaping through said openings or passages to work the gun, substantially as described.

2. The combination, in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, ports or passages leading from the interior of said barrels to the recesses in the wheel or disk, a stationary ring surrounding said disk or wheel, and cavities or buckets in the interior of the ring for the gases flowing through the ports or passages to impinge against, and so cause the barrels to revolve substantially as described.

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

revolving barrels, a recessed disk or wheel through which said barrels extend, means operatively connected with said recessed disk for utilizing a portion of the discharge-gases to revolve the barrels, and a brake to retard the speed of rotation of the barrels, substantially as described.

4. The combination, in a machine-gun, of revolving barrels, a recessed disk or wheel through which said barrels extend, a lateral projection on said disk or wheel having a

turned rim, a brake-shoe arranged to act on said rim, and means for causing rotation of the barrels by the energy of the exhaust-gases, substantially as described. 15

In testimony whereof I have hereunto set my hand this 15th day of February, 1897.

WILLIAM EDMUND SIMPSON

Witnesses:

ALBERT WILLIAM PERKINS,  
FREDERICK WILLIAM SLACK.