L. M. BOWMAN.

GUN.

APPLICATION FILED SEPT. 30, 1916.

1,241,333.

Patented Sept. 25, 1917.

2 SHEETS—SHEET 1.

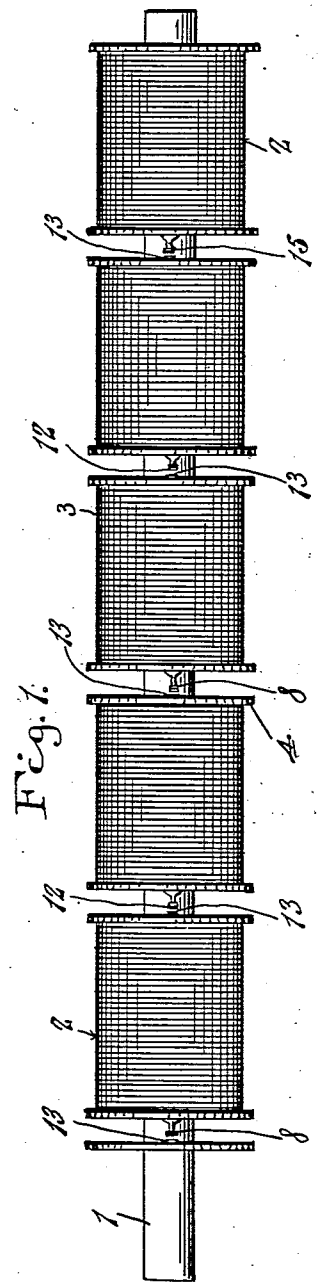


Fig. 1.

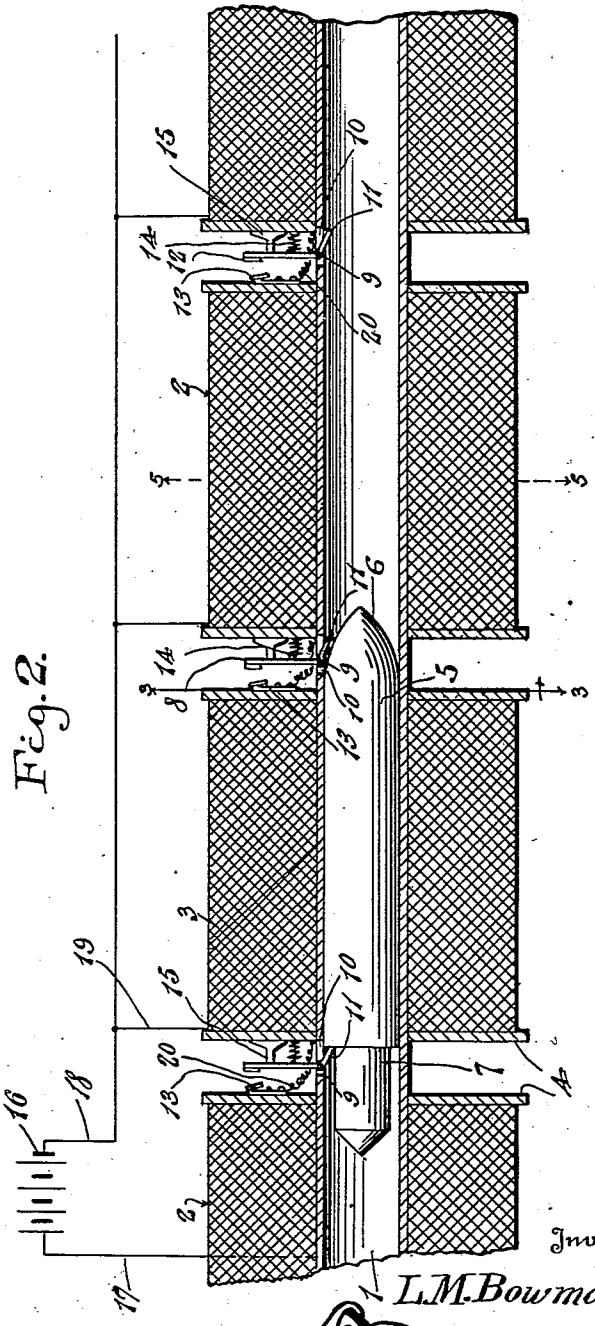


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

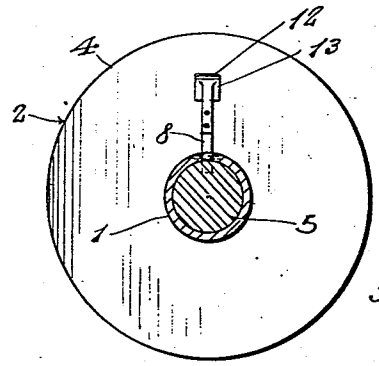


Fig. 4.

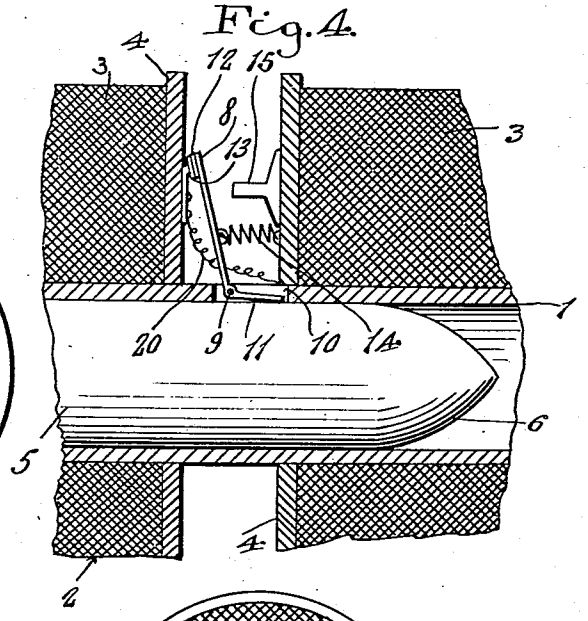


Fig. 5.

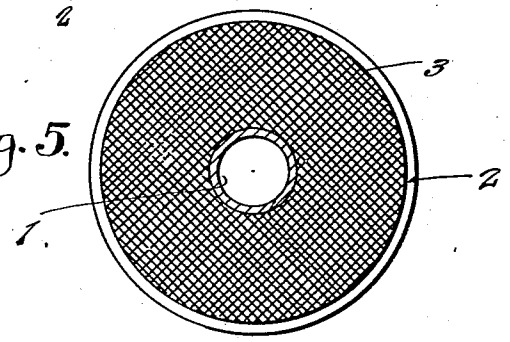
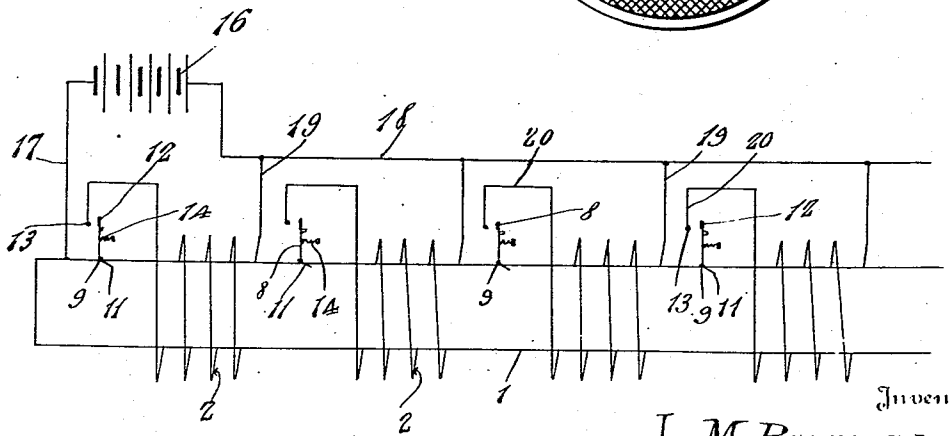


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

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GUN.

1,241,333. Specification of Letters Patent. Patented Sept. 25, 1917.

Application filed September 30, 1916. Serial No. 123,090.

To all whom it may concern:

Be it known that I, LEVI M. BOWMAN, a citizen of the United States, residing at Tulsa, in the county of Tulsa and State of Oklahoma, have invented certain new and useful Improvements in 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 new and useful improvements in guns and the principal object of the invention is to provide a gun for discharging a projectile at a high velocity which gun is operated by electricity.

Another object of the invention is to provide an electromagnetic gun in which the projectile is drawn through the gun by a series of consecutively energized magnets so that at the time the projectile reaches the mouth of the gun it will be traveling at a high rate of speed.

A further object of the invention is to provide a novel form of circuit breaker and maker by which the electromagnets are successively energized during the passage of the projectile through the core of the gun.

With these and other objects in view the invention consists in the novel combination and arrangement of parts which will be fully set forth in the following specification and accompanying drawings, in which:—

Figure 1 is a side view in elevation of a gun constructed in accordance with this invention.

Fig. 2 is a longitudinal sectional view of Fig. 1.

Fig. 3 is an enlarged transverse sectional view through the gun taken on line 3—3 of Fig. 2.

Fig. 4 is an enlarged fragmentary sectional view through one end of one of the magnets illustrating the detail construction of the contact maker and breaker.

Fig. 5 is a transverse sectional view through the device on line 5—5 of Fig. 2, and

Fig. 6 is a wiring diagram illustrating the method of successively energizing the magnets.

Referring now to the drawings by characters of reference the numeral 1 designates the main shell or barrel of the gun which is preferably formed of brass or a similar non-magnetic metal. This barrel or core is provided at spaced intervals throughout its length with a plurality of magnets 2 which consist of a winding 3 wound between suitable heads 4 of insulating material. These magnets are arranged in sections as shown and each magnet section is of a length substantially equal to the length of the body of the projectile. The body of the projectile is designated by the numeral 5 and provided with the usual pointed end having the cap 6 thereon by means of which the timing of the explosion of the projectile is controlled in the ordinary manner. The rear end of the projectile is provided with a tail 7 and the interior of said projectile may be constructed in any approved manner.

In order to insure the projectile's traveling forwardly in the device and to avoid any possibility of the same stopping or having its speed retarded during its passage through the core, the circuit breaker and maker which will be more fully hereinafter described is provided. This circuit maker and breaker consists of a lever 8 which is pivoted at 9 within a slot 10 in the shell or core 1. There is one of these levers pivoted between each magnet and each lever is provided with an arm 11 which is adapted to be engaged by the projectile during its travel through the core so that the lever will be swung into the dotted line position shown in Fig. 4. A suitable platinum contact point 12 is attached to the free end of the lever 8 and engages a platinum contact point 13 carried on one of the end plates 4 of the magnet previously energized, so that the proper pulling on the projectile is insured. A suitable retractile coil spring 14 is connected to the lever intermediate its ends and to the magnet which is to be energized and this spring tends to pull the lever away from the contact 13 and against the stop 15 which limits its rearward movement. It will thus be seen that as soon as the projectile has passed through the magnet so as to disengage the arm 11 the lever will return to the position shown in Fig. 1 and thereby discontinue the flow of current through the magnet.

Upon reference to the wiring diagram it will be seen that the current flows the power source 16 through the wire 17 to the central core or tube 1. A wire 18 leads from the battery or other power source and has connected thereto a plurality of branch wires 19

which lead to their respective magnet. A wire 20 leads from each of the contacts 13 to a magnet immediately in the front thereof and it will thus be seen that as soon as the lever 8 moves in the dotted line position shown in Fig. 4 the circuit will be completed through the magnet immediately in front of the projectile thereby causing said projectile to move forwardly. As soon, however, as the projectile has passed through the magnet it will be apparent that the lever will return to its original position thereby discontinuing the circuit through the magnet and at the same time energizing the magnet in front thereof by means of the operation of the next lever and in this way it will be seen that the projectile will be drawn through the core until when it finally leaves the same it will be traveling at a high velocity.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that such changes may be made in the combination and arrangement of parts as will fall within the spirit and scope of the appended claim.

What is claimed is:—

A gun comprising a barrel having a plurality of relatively spaced slots, magnets carried by the barrel and positioned between each of the slots, a lever pivoted in each of said slots, contacts secured to the free ends of said levers, contacts carried by the magnets, an electrical source connected to the last named contacts and barrel, stops carried by the magnets, springs connected to the levers and magnets for holding said levers normally in engagement with the stops, and arms formed on the pivoted ends of the levers and adapted to be engaged by a projectile in the barrel to move the contacts into engagement with each other for energizing the magnets.

In testimony whereof I affix my signature in presence of two witnesses.

LEVI M. BOWMAN.

Witnesses:

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