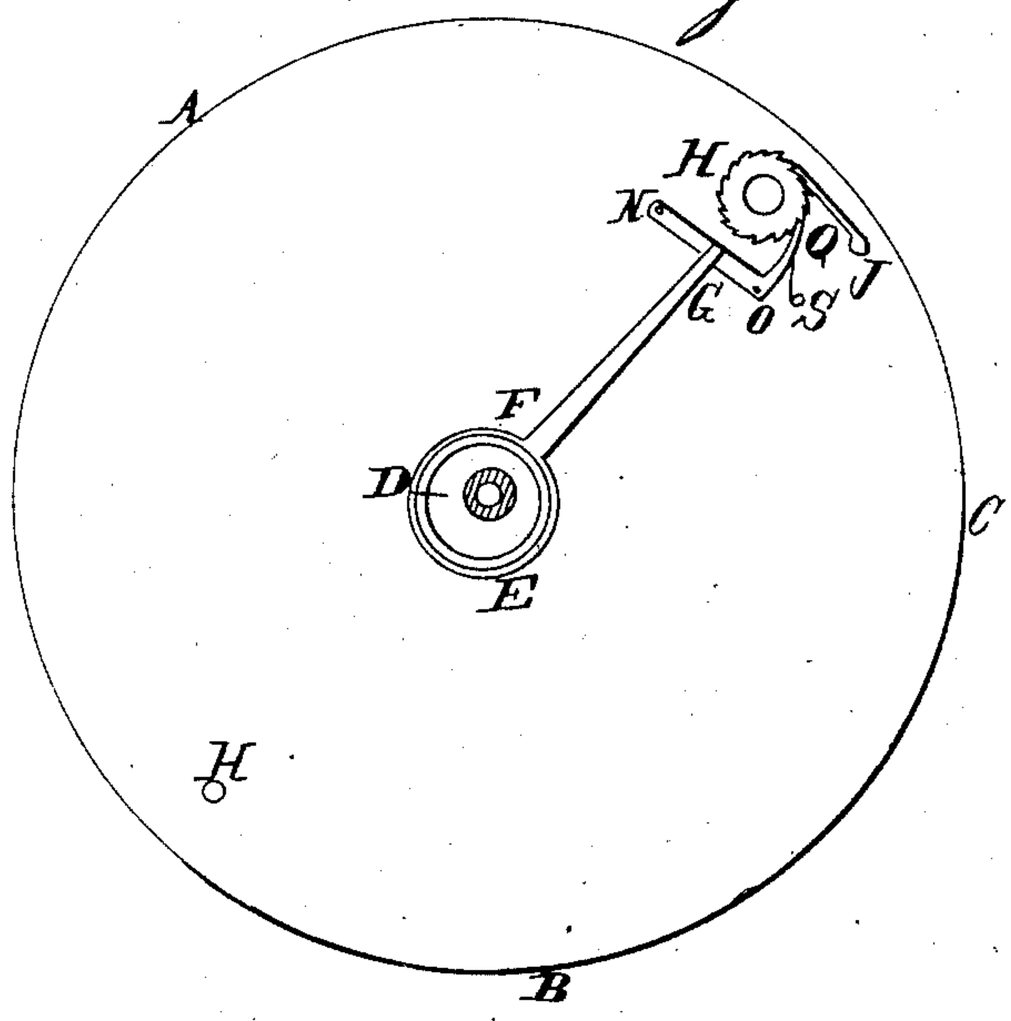
A. POTTS.

Machine Gun.

No. 17,339. Patented May 19, 1857.

Fig:1.



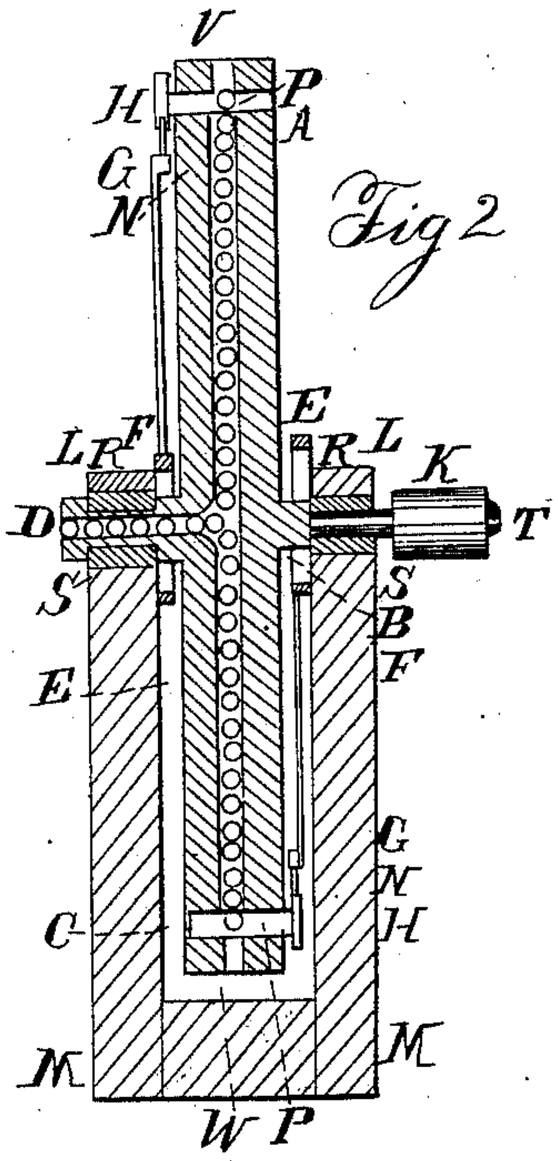


Fig 2

Fig:3.

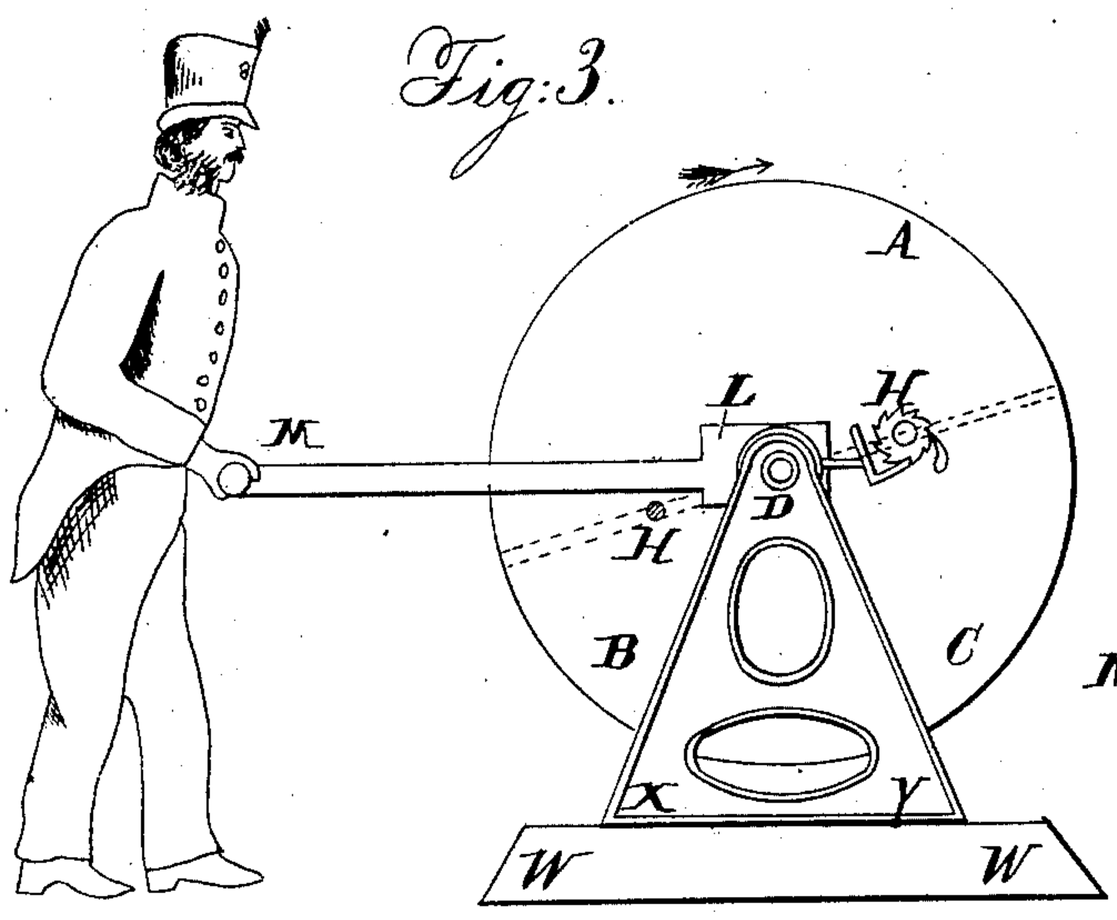
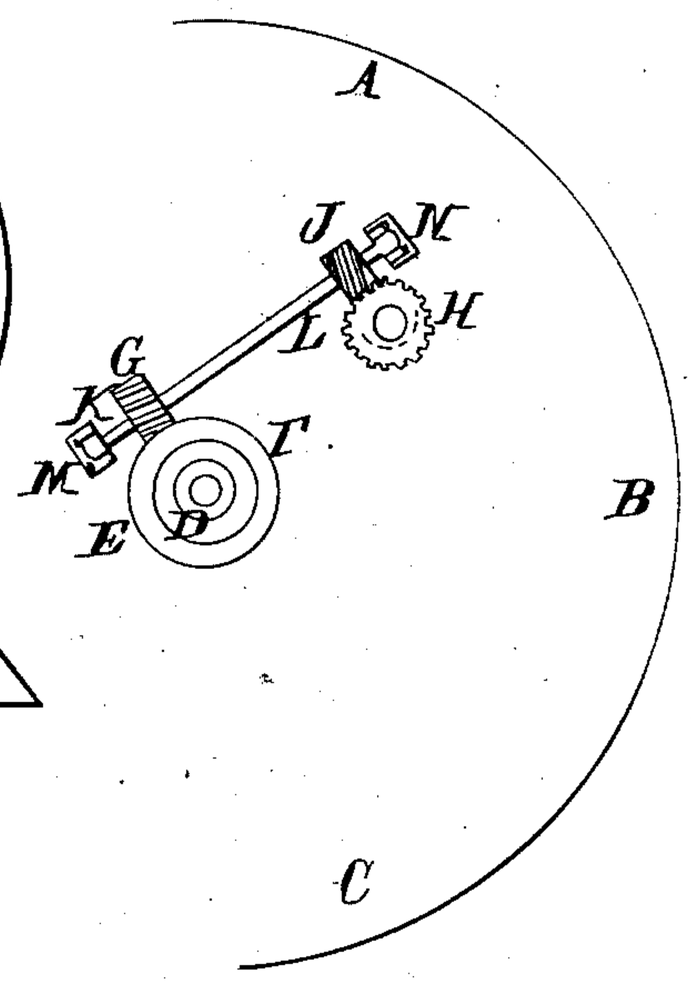


Fig:4.



UNITED STATES PATENT OFFICE.

ALBERT POTTS, OF PHILADELPHIA, PENNSYLVANIA.

CENTRIFUGAL BATTERY.

Specification forming part of Letters Patent No. **17,339**, dated May 19, 1857.

To all whom it may concern:

Be it known that I, ALBERT POTTS, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful machine for projecting or throwing with accuracy to a considerable distance bullets, balls, or other ponderable bodies; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is an elevation or side view of the machine divested of its supporting-frame in order the better to exhibit the working parts thereof, and Fig. 2 is a transverse section taken through the middle of the shaft or axle and the barrel or opening for the passage of the balls, &c., to be thrown therefrom.

A B C represents a cast-iron wheel, having its axle D T supported and turning in the brasses R S, as shown in Fig. 2.

L M is a stout frame, within which the wheel is to revolve. On the end of the axle T is placed a pulley, K, whereby motion is given to the wheel from any suitable power. The wheel A B C has a hollow chamber, channel, or barrel running diametrically through the middle of its thickness, as V W, Fig. 2. The end of the axle D B is also made hollow, to correspond and connect therewith.

H A and C H in Fig. 2 is a cylindrical plug or axle passing through the wheel A B C near its circumference, and fitted to turn freely therein. The center of these plugs should be, as near as practicable, coincident with the center of the hollow or barrel in the wheel. On one end of said plugs is fitted the small ratchet-wheel H. (Seen in both figures.) The diameter of these plugs or axles is somewhat greater than that of the channel or barrel in the wheel. In each of these axles recesses are to be formed, as shown at P P. The eccentrics E F are fastened on the frame L M.

F G is the eccentric-rod. N O is a short lever connected with the eccentric-rod at G by means of a pin or bolt. This lever has its center of motion on the pin or bolt at N, by which it is held to the wheel, and on its opposite end is pinned to the short bar O Q, to act on the teeth of the ratchet-wheel H.

S, Fig. 1, is a spring pressing against the bar O Q, to hold the end Q thereof in contact with the teeth of the ratchet-wheel.

J is a pawl.

The operation of the machine is as follows: Motion being communicated to the pulley K by means of a belt from any suitable power, so as to give a rapid rotary motion to said pulley, and consequently to the wheel A B C, the bullets, balls, or other ponderable bodies are then to be inserted into the hollow axle at D, and thence passing into the chamber or barrel V W, Fig. 2, the rapid rotary motion of the wheel is imparted to them, creating a centrifugal force, urging them through the barrel and projecting them therefrom with a force equivalent to the velocity with which the wheel is driven.

In order to regulate the emission of the bodies from the barrel at the proper time, it will be understood that the said bodies can only be discharged as they are passed out by the axles H A and H C, Fig. 2. For this purpose, therefore, these axles are made to turn around in the following manner: The eccentrics E F being fastened to the frame, hence as the wheel revolves the eccentric-rod, acting upon the lever N O, causes the bar O Q to urge forward one tooth of the ratchet-wheel H at each and every revolution of the wheel A B C. Consequently, if there are thirty teeth in the ratchet-wheel, it will require thirty revolutions of the large wheel A B C to produce a complete revolution of the ratchet-wheel and its corresponding axle. The recess formed in each of the axles or plugs are so constructed as to receive only one bullet or ball at a time, which enter the same when the entire opening thereof is presented toward the center of the big wheel, as shown at H C in Fig. 2, and are let fly therefrom when said axle or plug has made half a revolution, as shown at H A in said figure.

Another arrangement of gearing for producing the same effect as above described is shown in Fig. 4. In this E F represent a metallic ring, to be fastened on the frame in lieu of the eccentric aforesaid. This ring is placed concentrically with the axis of the big wheel A B C, and has threads of a screw cut around its exterior circumference or edge. The worm-

wheel G, fastened on the rod K L, is placed in contact with the threads of the screw on the edge of the ring E F. Another worm, J, is attached to the rod K L, and plays in contact with the teeth of the wheel H, which carries the plug or axle, as above described, for regulating the discharge of the bullets or balls.

M and N are the bearings of the rod K L.

It will be understood that as the large wheel A B C revolves the worm-wheel G is carried around in contact with the screw on E F, and each revolution moves the wheel G one tooth, so the worm J, carried on the other end of the rod K L, moves the wheel H one tooth every time the worm J and wheel G, to which it is connected, as shown, makes one revolution. This arrangement I consider preferable to the other, inasmuch as it works without noise, and holds all the parts steady during the operation.

Fig. 3 represents the manner in which the machine may be set up for operation, and also the manner in which the range of the balls may be accurately regulated. The eccentric or screw-ring E F, as already described, is fastened to the frame L M, which may be supposed similar to the frame shown in Fig. 2. The standards D X Y are made to receive and support the axle of the large wheel A B C, one of them being put on at D and the other between the frame and pulley K, as represented in Fig. 2. The proper angle at which it is desired to project the balls must be obtained by the adjustment of the gearing between the fixed screw E F and the plug or axle carried by the wheel H, so that the balls can liberate themselves from the recess at the angle required. Hence, if the range thus obtained is not sufficiently accurate, a greater degree of precision may be obtained by either raising or lowering the frame L M, as the case may require.

The position of the plug or axle H A and H C, Fig. 2, may be anywhere in the line of the barrel between the center of the wheel A B C and its circumference. However, the nearer it is to its center the less will be the concussion of the balls in said barrel. It will be readily perceived that these balls can be projected, as above described, either cold or red hot.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, substantially as above described, and for the purposes hereinabove specified.

ALBERT POTTS.

Witnesses:
CHARLES POTTS,
JOHN APPLE.