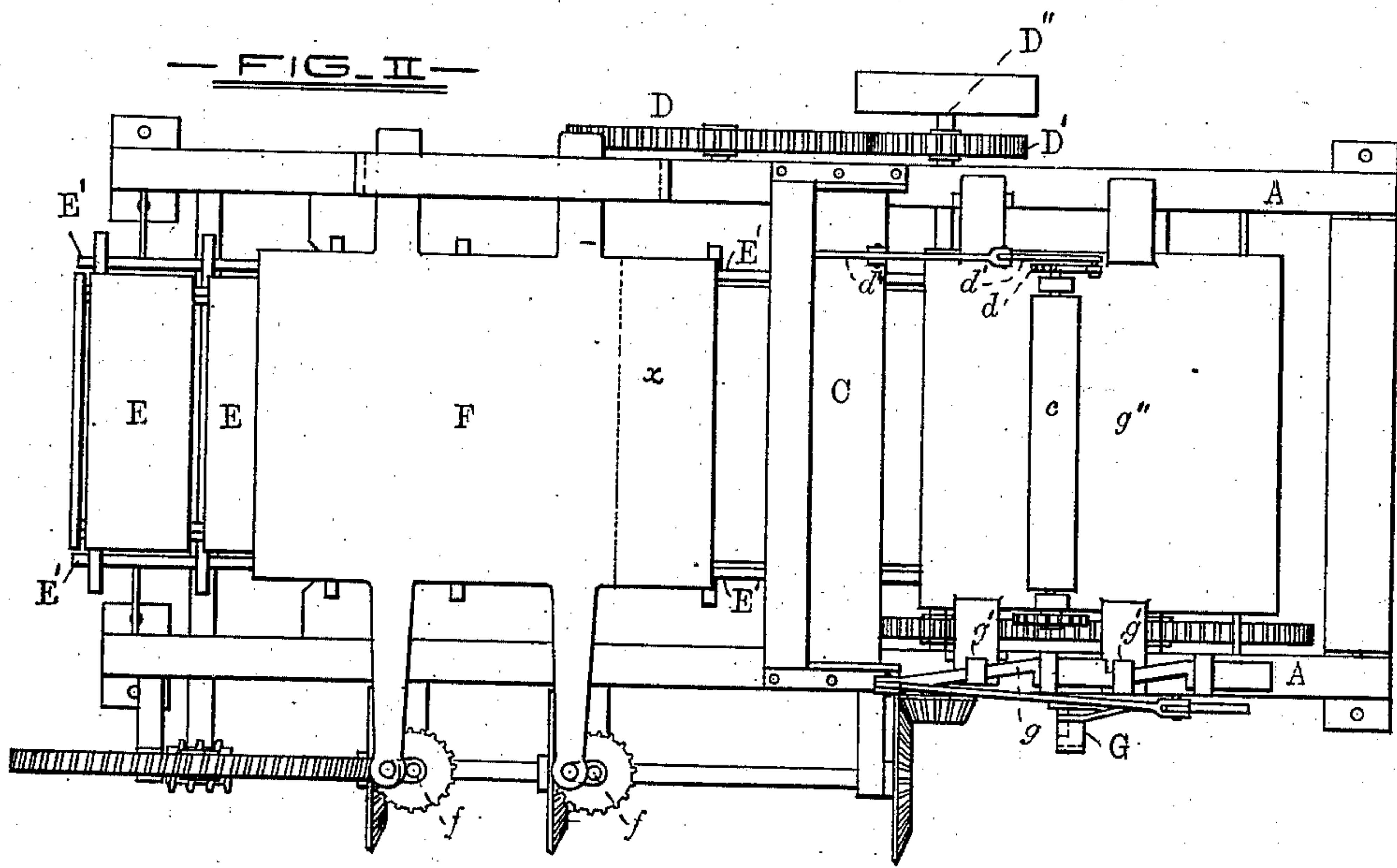
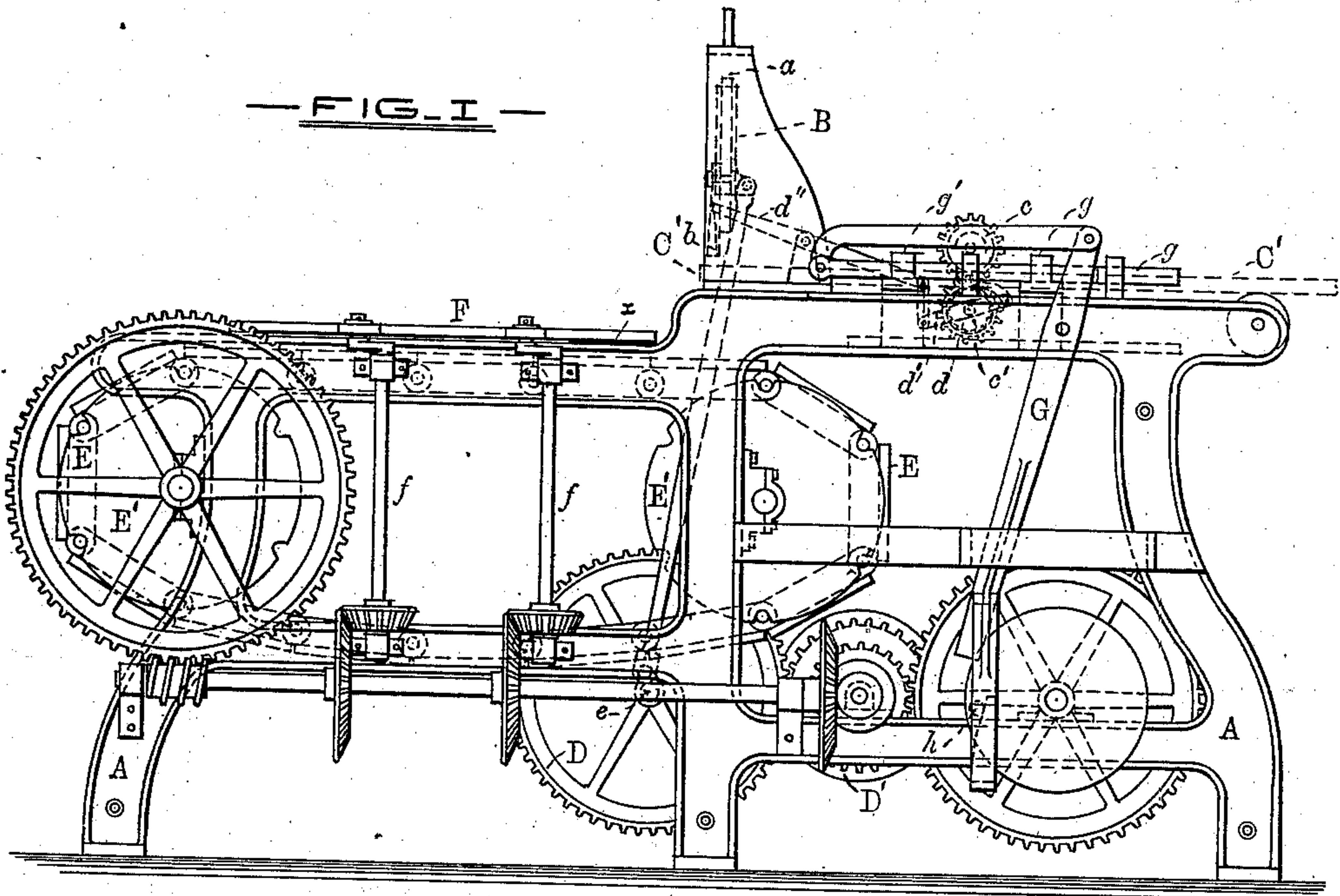


G. W. McCREARY.
Bullet and Shot Machine.

No. 227,807.

Patented May 18, 1880.



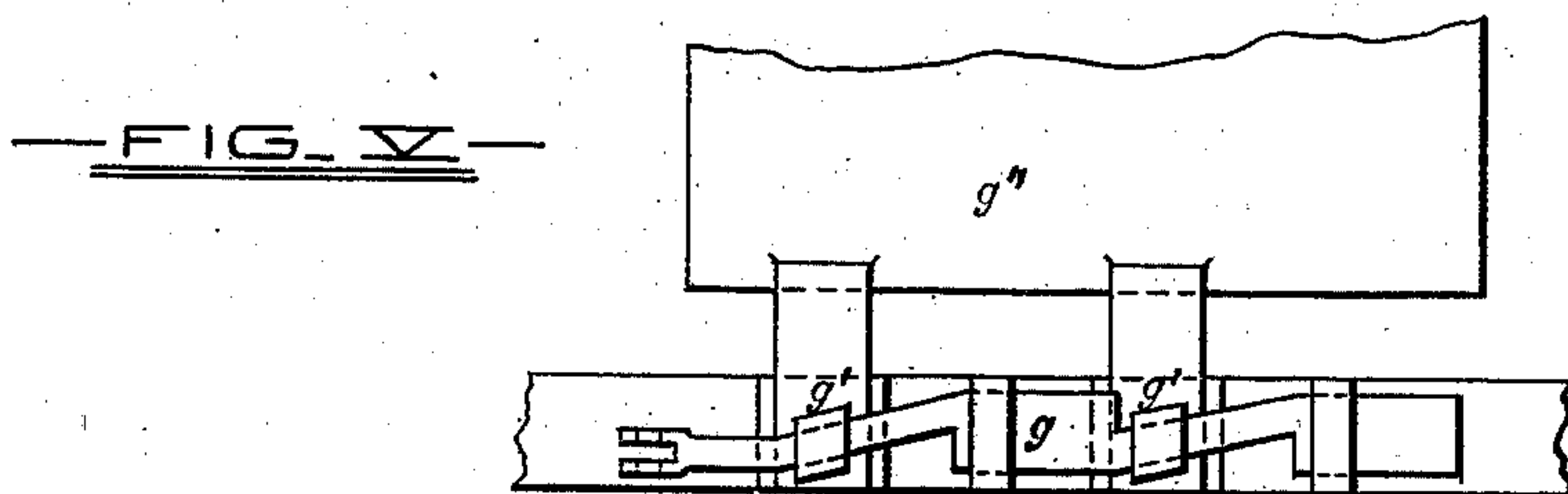
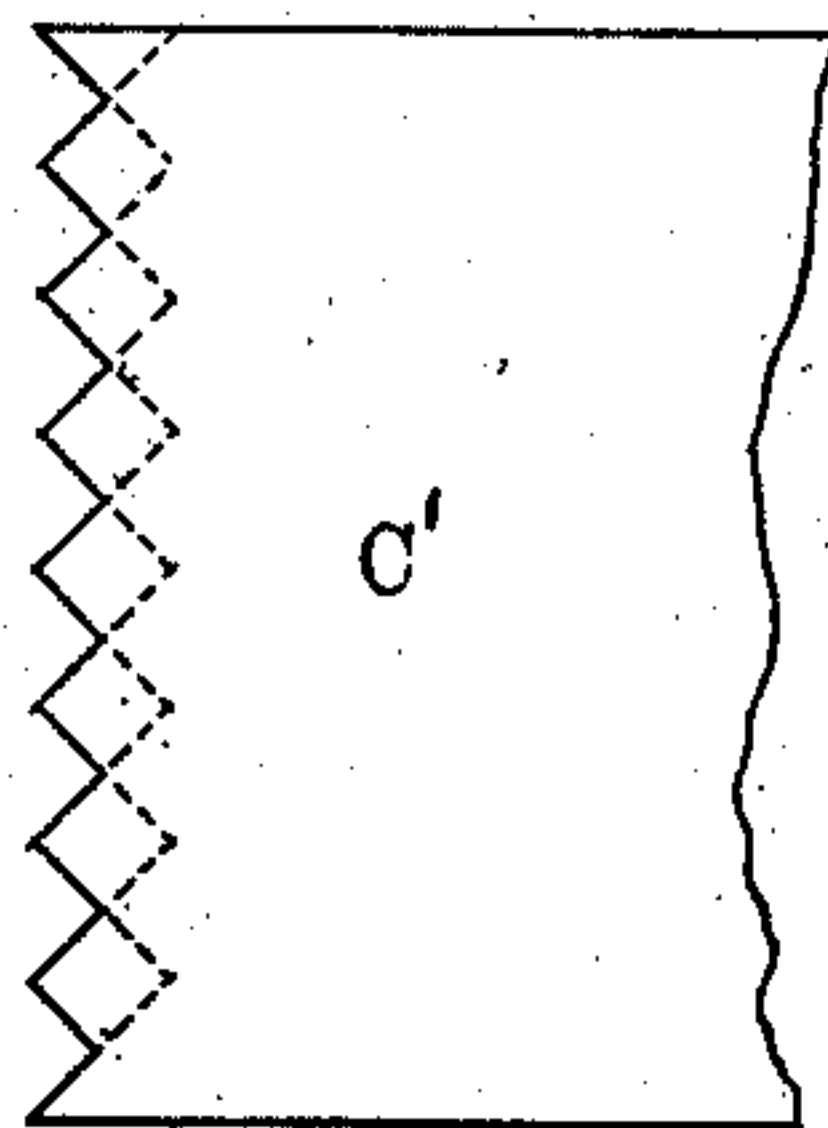
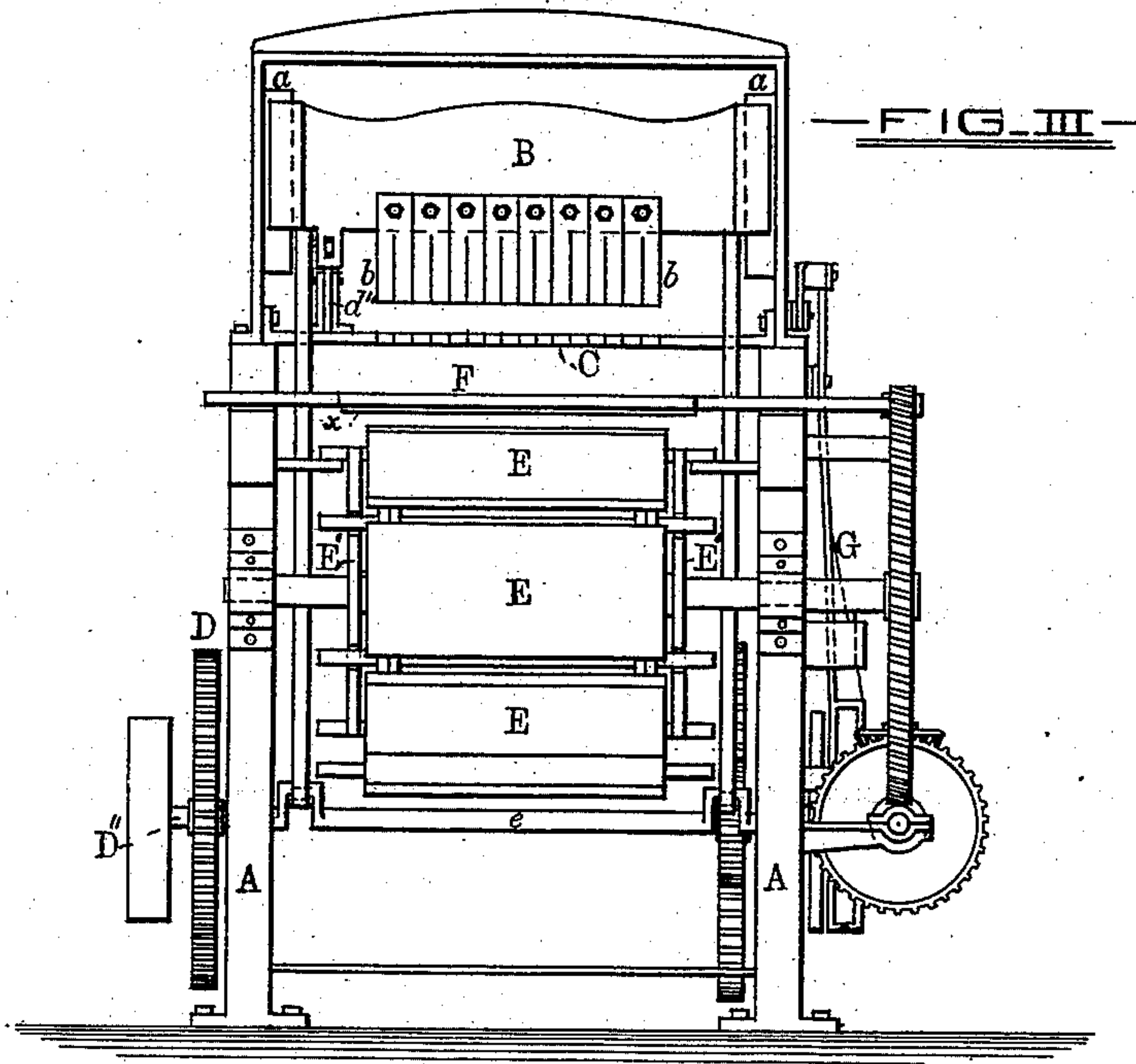
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UNITED STATES PATENT OFFICE.

GEORGE W. McCREARY, OF BALTIMORE, MARYLAND.

BULLET AND SHOT MACHINE.

SPECIFICATION forming part of Letters Patent No. 227,807, dated May 18, 1880.

Application filed September 1, 1879.

To all whom it may concern:

Be it known that I, GEORGE W. McCREARY, of the city of Baltimore and State of Maryland, have invented certain Improvements in Machines for Making Bullets and Shot, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The invention consists, first, in an improved method of making bullets or shot, consisting in first cutting the material into cubes and afterward rounding the cubes between an upper and lower table, each of said tables having a movement imparted thereto, as hereinafter described, adapting it to assist in the formation of the spheres.

This invention relates, secondly, to a machine for making bullets and shot from cubical pieces of lead or other soft metal.

In the said machine are provided, first, a series of right-angular V-shaped cutters adapted to cut similarly-shaped notches in a sheet of lead or other suitable metal; secondly, suitable feeding mechanism whereby the said sheet is carried intermittently toward the said cutters and moved laterally at each downward stroke of the cutters such a distance as to effect the separation at each cut of a series of square pieces, which pieces, as the said sheet has a thickness equal to the length of the sides of the cutter, are delivered in a cubical form; and, thirdly, a movable table, preferably an endless-moving one, and a plate above the moving table having a horizontal movement around an imaginary center, between which table and plate the cubes are introduced, the action of the table and plate upon the cubes having the effect of changing the said cubes to spherical bodies, as will hereinafter fully appear.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figures 1 and 2 are, respectively, an exterior side elevation of the improved machine and a plan of the same. Fig. 3 is an exterior end view of the said machine. Fig. 4 is a top

view of a portion of a sheet of lead, showing the manner in which it is cut to form the cubes from which the bullets or shot are afterward made. Fig. 5 is a plan view of a portion of the said machine on an enlarged scale.

Similar letters of reference indicate similar parts in all the views.

In the said drawings, A is the frame or stand of the machine. B is a cross-head, adapted to have a vertical sliding movement upon suitable guides *a*, secured to a part of the frame A. This cross-head carries a series of cutters, *b*, having a V-shaped cutting-edge, which in their vertical movement pass in close proximity to a plate, C, having indentations of a shape similar to that of the cutters aforesaid. The sheet of lead from which the bullets or shot are to be cut, and which is represented in Figs. 1 and 4, and designated by C', is fed over the plate C to the cutters *b* by means of a pair of feed-rollers, (represented by *c c'*), which receive an intermittent rotary movement through the medium of a ratchet-wheel, *d*, and the levers *d' d''*, the one *d''* being attached to the cross-head B. The feed-rollers, in addition to the intermittent rotary movement before alluded to, have also a lateral one (effected by devices hereinafter described) equal to one-half the width of one cutter, in order that at each downward movement of the cutters after the initial movement, which merely notches the sheet, a number of cubes may be cut from the edge of the sheet. To give the cubes a perfect form the cutting-edges of the cutter must be at a right angle to each other, and the length of each side of the cutters must be the same as the thickness of the sheet from which the bullets or shot are to be made.

The cross-head receives its vertical movement from a crank-shaft, *e*, provided with a gear-wheel, D, driven by a pinion, D', on the driving-shaft D''.

The cubes when cut from the lead sheet drop upon an endless table, E, formed of plates jointed together, which passes around heads E', and are carried under a plate, F, which is vibrated in a horizontal plane or given a movement around an imaginary center to compress the corners of the cubes and change them into spheres, which are then discharged at the other

end of the table as completed bullets or shot, ready to be placed in the polishing-machine.

The table has a continuous movement, derived from the driving-shaft through a system of gearing.

I find it desirable to face the under side of the vibratory plate, at its end next to the cutters, with rubber or some other yielding and elastic material, *x*, to increase the friction on the cubes at the commencement of the rounding process; and I suspend the said plate by any suitable means, to allow for the different-sized shot.

The vibratory or circular motion of the plate *F* is obtained from upright shafts *f*, provided with cranks or eccentrics *f'*, which connect with lugs on the said plate, the said shafts being actuated by a system of gearing from the driving-shaft *D''*. The preferred means of securing the lateral motion of the feed-rollers is by a bar, *g*, having inclined surfaces, which slide in boxes *g'* on the plate *g''*, to which the supports for the said rollers are secured, operated by a vibrating lever, *G*, the lower end of which comes in contact with a pin, *h*, on a wheel receiving its movement through the medium of gearing from the driving-shaft.

From the foregoing it will be understood that the bullet-making operation is a continuous one, the cubes being cut from the end of a sheet of metal, dropped onto a table, upon which they are rounded by the action of a vibrating plate, and conducted in a finished condition to any receptacle placed at the end of the machine to receive them.

I do not limit myself to the exact system of gearing herein shown to effect the different movements described, as it may be changed in various ways without altering the result or

affecting materially the vital operations of the machine.

I claim as my invention—

1. The within-described method of making bullets and shot, consisting, first, in cutting the material into cubes and afterward rounding the latter between a plate vibrating or revolving in a horizontal plane around an imaginary center and a moving table, substantially as specified.

2. In a bullet or shot making machine, a series of V-shaped cutters and an upper and a lower moving table, between which cubes of sheet metal delivered from the cutters are rounded, combined with a system of feed-rollers adapted to intermittently move a sheet of lead or other soft metal thereto, and provided with a lateral movement whereby, at each downward movement of the cutters, square pieces are removed from the sheet of metal, substantially as herein specified.

3. In a machine for making bullets or shot, a system of reciprocating V-shaped cutters and suitable feed mechanism for feeding the sheet-lead thereto, combined with a movable table and vibratory plate, between which the cubes of lead cut from the said lead sheet are introduced and rounded, substantially as herein set forth.

4. The plate *F*, having a portion of its under surface provided with a covering of some flexible material, combined with the movable table *E*, substantially as and for the purposes herein specified.

GEORGE W. McCREARY.

Witnesses:

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JNO. T. MADDOX.