

Patented Jan. 20, 1885.

Fig. 1.

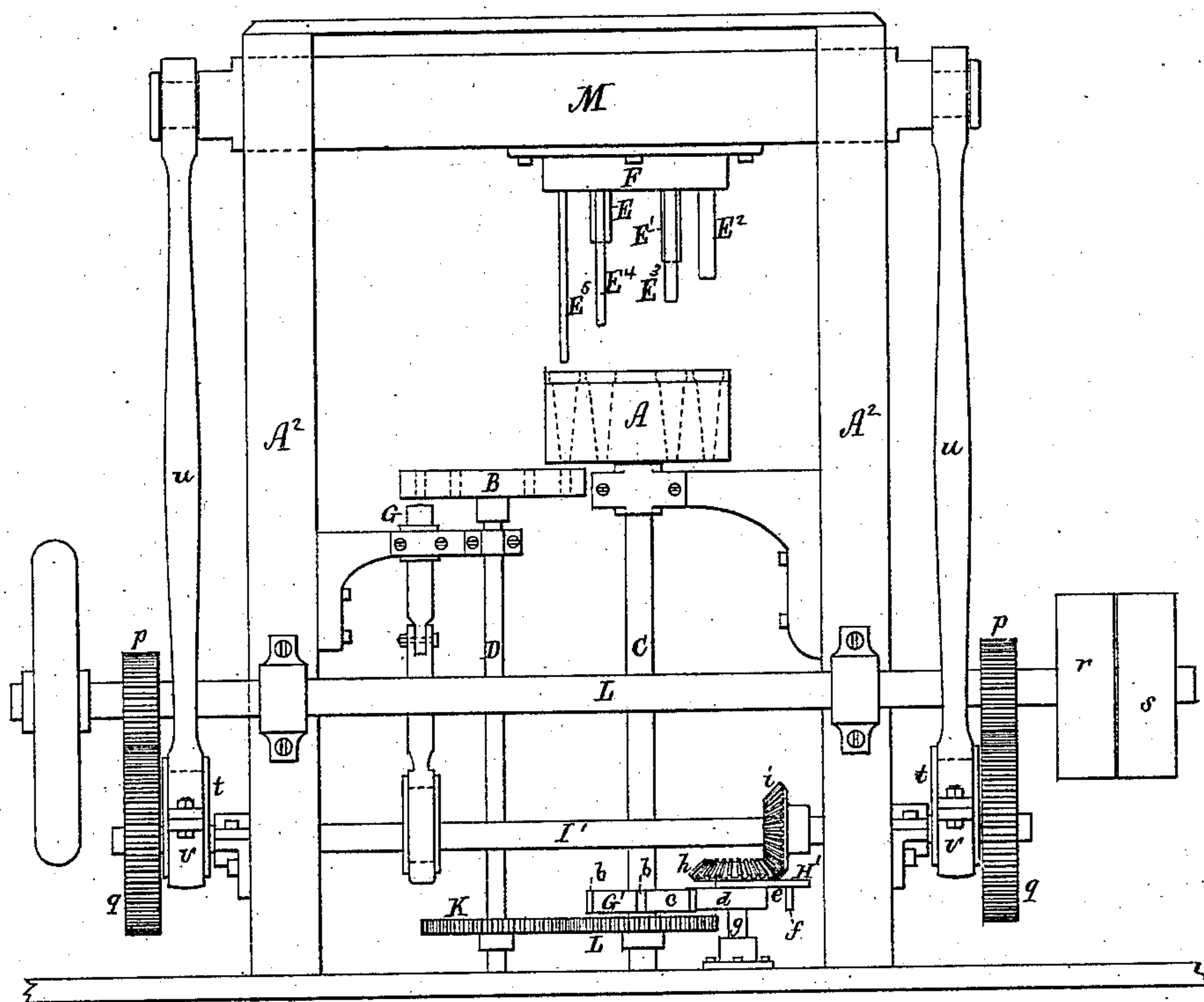


Fig. 6:

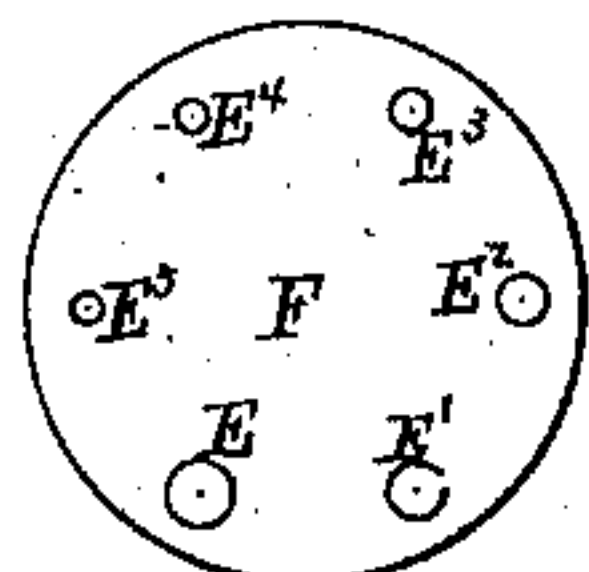


Fig. 2.

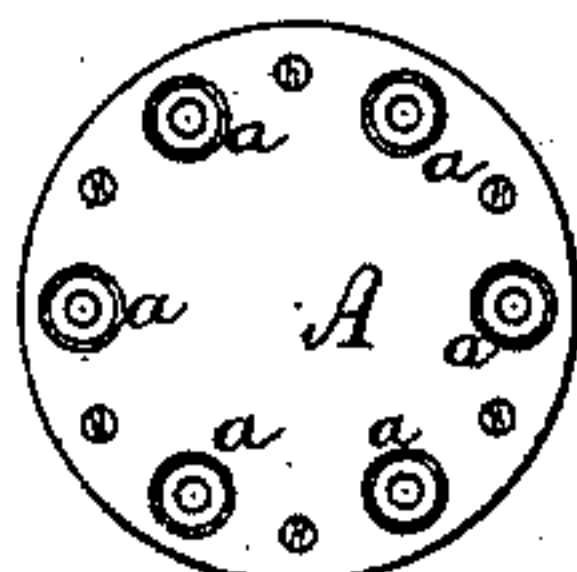


Fig. 7.



Fig. 8.



Fig. 3

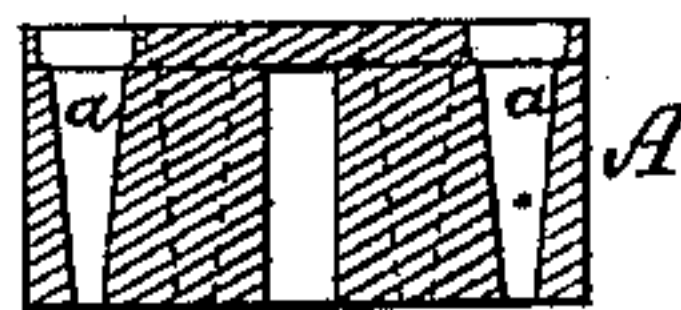


Fig. 4.

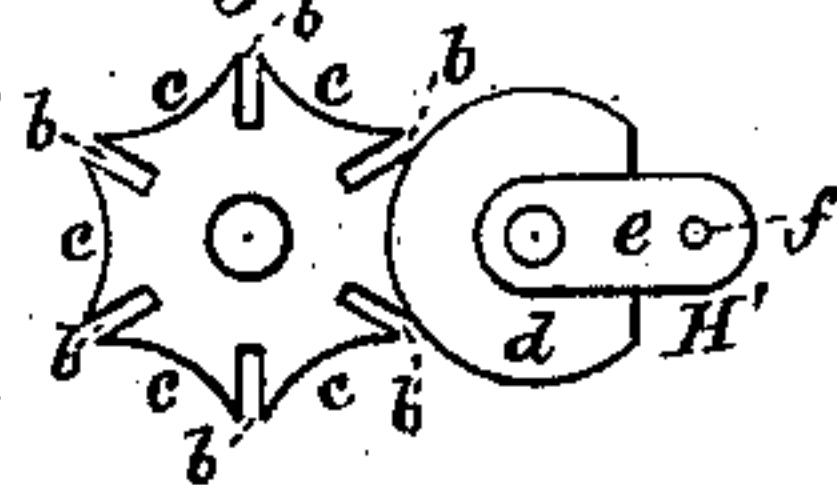
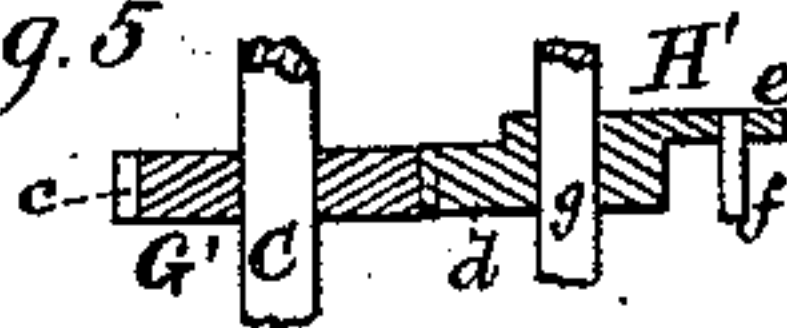


Fig. 5



Witnesses.

S. N. Piper
E. B. Pratt.

Inventor.

Denis Joseph Ring.
by R. H. Eady att'y

UNITED STATES PATENT OFFICE.

DENIS JOSEPH RING, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO JOHN HENRY RING AND CHARLES CALLAHAN, BOTH OF SAME PLACE.

MACHINE FOR MAKING METALLIC SHELLS FOR CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 311,034, dated January 20, 1885.

Application filed April 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, DENIS JOSEPH RING, of Lowell, in the county of Middlesex, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Machinery for Making Metallic Shells for Cartridges of Fire-Arms; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a front elevation of a machine embodying my invention, the nature of which is defined in the claim hereinafter presented. Fig. 2 is a top view, and Fig. 3 a transverse section, of the main rotary die-carrier of such machine. Fig. 4 is a top view, and Fig. 5 a transverse section, of the radially-notched wheel and its actuator for intermittently revolving the shaft of the main die-carrier. Fig. 6 is an end or bottom view of the series of punches as arranged at equal distances apart in a circle in their carrier. Fig. 7 is a vertical section, and Fig. 8 an end view, of a cartridge-shell as made by the machine.

In this machine, instead of a single main die-carrier and a series of auxiliary die-carriers and a series of punches and mechanism for actuating them, as represented in the United Patent No. 286,151, I have not only a single main die-carrier and a single auxiliary die-carrier having in each a series of tapering holes or dies arranged at equal distances apart in a circle, but a series of punches arranged at equal distances apart in a circle and directly over the main die-carrier, the punches being generally in number corresponding to that of the dies of the main die-carrier, but variable in their lengths and diameters, and provided with mechanism for moving them simultaneously relatively to the main die-carrier or into and out of such, my improvement saving the necessity of having more than one auxiliary die-carrier and mechanism for operating it.

In the drawings the primary or main rotary die-carrier is shown at A, and the auxiliary die-carrier at B, the first part being mounted on a vertical shaft, C, and the second on another such shaft, D. The main die-carrier is situated above and laps on the auxiliary die-carrier, so that the dies or holes of the former

may be brought successively directly over those of the latter as the two die-carriers may be revolved. Furthermore, directly over the several holes or dies of the main carrier is a series of punches, $E E' E''$, &c., they being arranged at equal distances apart in a circle and projected downward from a carrier or block, F, fixed to a bar, M. These punches vary in their lengths and diameters; but the dies in the main die-carrier are alike in form, and taper more or less from their upper to their lower ends. The first punch, E, is simply with its die to punch from a strip of metal a disk, and form it concavo-convex or cup-shaped. After the cupped blank has been carried around under the second punch, such blank by such punch and the die will be contracted and extended into the form of a cylindrical cup or an approximation thereto. It will be in like manner reduced by the succeeding punches and dies until by the last of the series of punches it will be driven out of the main die-carrier into one of the dies of the auxiliary die-carrier. To this latter die-carrier there is to be suitably adapted mechanisms for trimming and heading the cup-shaped blanks and expelling them from the carrier. These mechanisms constitute no part of my present improvement, the header being shown at G.

The two shafts C and D are connected by gears K and L, and there is fixed to the shaft C a radially-notched wheel, G', to engage with an actuator, H'. The said wheel G' has six radial notches, b , arranged in it peripherally, as shown, and at equal distances apart, the wheel periphery between each two notches being recessed, as shown at c , to the arc of a circle whose diameter corresponds to that of a circular segment, d , constituting part of the actuator H', and arranged, as shown, on a level with the notched wheel G'. Besides this segment, the actuator is provided with an arm, e , to extend over the wheel G', and carry a pin or stud, f , to project downward into one of the radial slots b of the wheel. The actuator is fixed on a short vertical shaft, g , that is provided with a bevel-gear, h , which engages with a bevel-gear, i , arranged on a horizontal shaft, I'. (See Fig. 1.) The actuator during each revolution will, by means of the pin f and

notch *b*, partially revolve the wheel *G'*, and next will hold it in position while the segment of the actuator may be turning in a recess, *c*.

Above the shaft *I'* is the driving-shaft *L*, 5 that engages with the said shaft *I'* by means of four gears, *p p q q*, arranged as represented. Such shaft *L* has upon it a fast pulley, *r*, and a loose pulley, *s*, about the former of which a belt from a suitable motor is to run, in order 10 to cause the shaft to revolve. Eccentrics *t* on the shaft *I'* connect with the bar *M* by means of their collars *v* and connecting-rods *u*, such bar being suitably guided so as to be capable of moving vertically in the frame *A*² of the 15 machine.

In practice the main die-carrier may have near it mechanism for feeding to it the strip of metal as occasion may require.

In the operation of the machine all the 20 punches descend at once into the main die-carrier, each of whose dies, during each intermittent revolution of it, will be brought under

the punches in succession, whereby each blank will be successively contracted and elongated, and finally forced into the auxiliary die-carrier to be carried around by it and subjected 25 to the action of the mechanisms for trimming and heading the blank and expelling it from the machine.

I claim—

In a machine for making cartridge-shells 30 as described, the combination of the main die-carrier and auxiliary die-carrier, provided with the mechanism for operating them, and having dies arranged substantially as described, with the series of punches of different 35 lengths and diameters arranged in a circle corresponding with the dies in the main die-carrier, and having the mechanism for operating them, essentially as represented.

DENIS JOSEPH RING.

Witnesses:

R. H. EDDY,
E. B. PRATT.