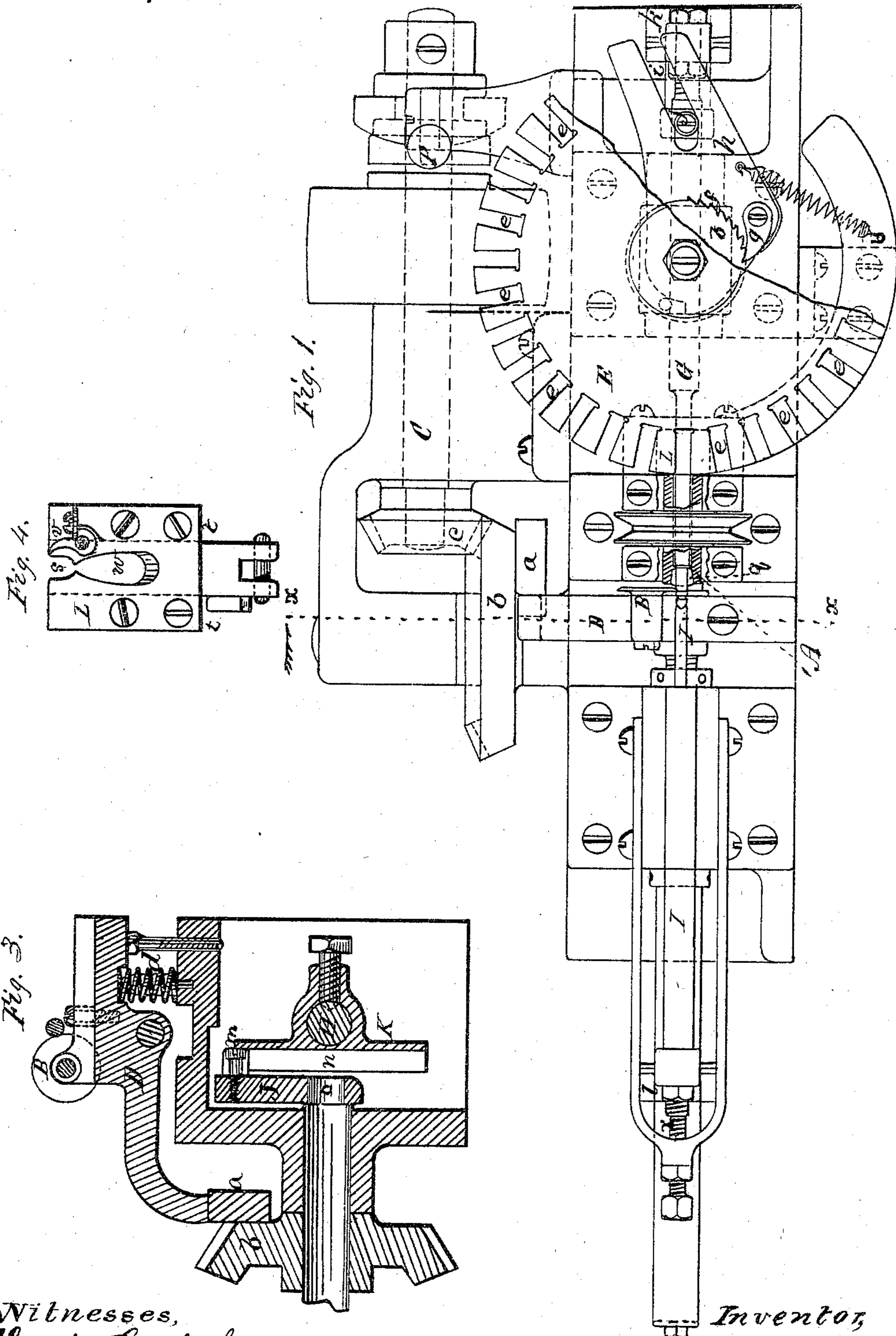


A. C. HOBBS.
Machines for Interlocking Cartridge-Shells with
Bullets.
No. 143,981. Patented Oct. 28, 1873.



Witnesses,
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 By his Attorney
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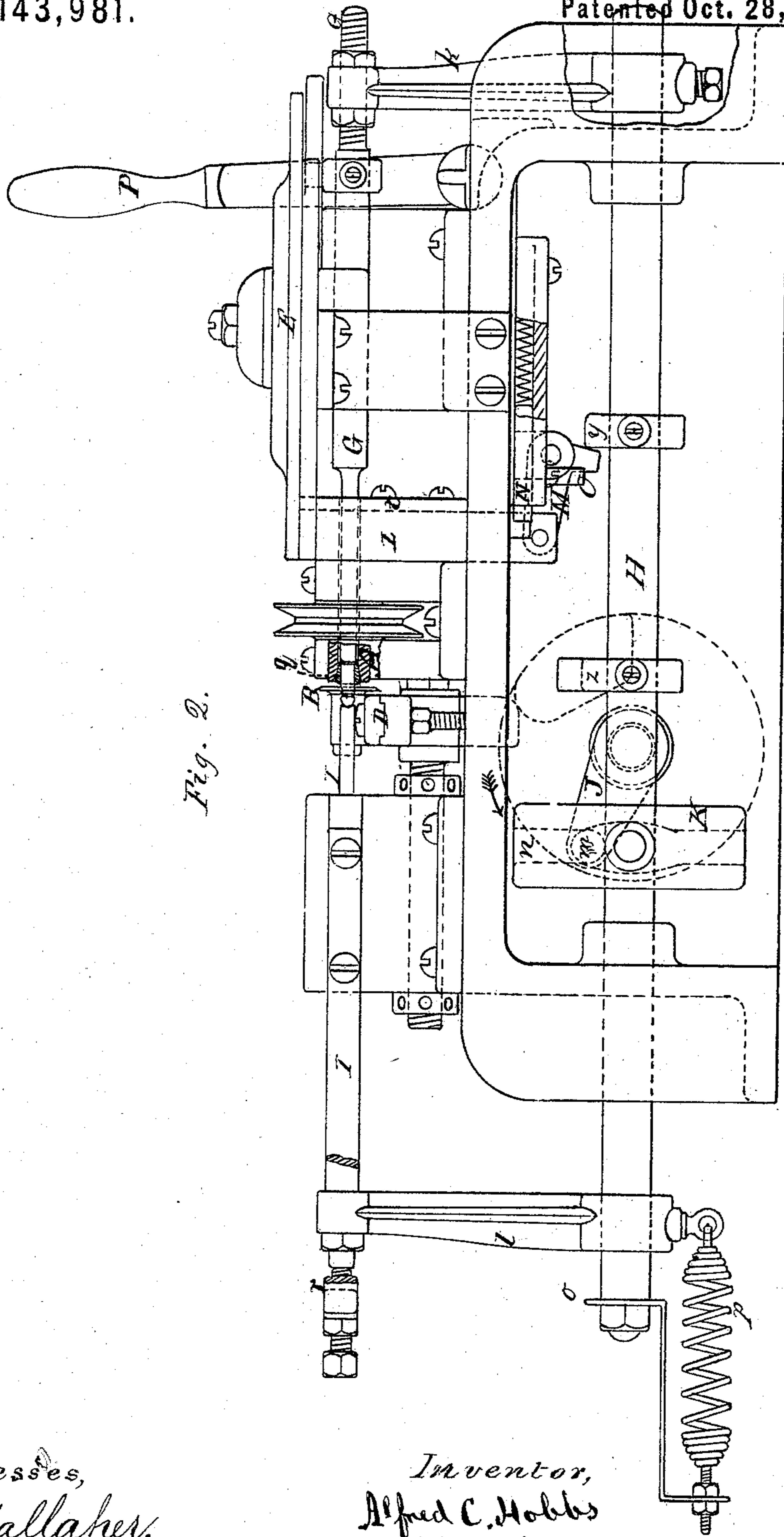


Fig. 2.

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ALFRED C. HOBBS, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR INTERLOCKING CARTRIDGE-SHELLS WITH BULLETS.

Specification forming part of Letters Patent No. **143,981**, dated October 23, 1873; application filed January 15, 1873.

To all whom it may concern:

Be it known that I, ALFRED CHARLES HOBBS, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented an Improved Machine for Crimping Metallic Cartridges; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings making part of this specification—

Figure 1 being a top view of the machine; Fig. 2, a side elevation of the same; Fig. 3, a transverse vertical section in a plane indicated by the line *x x*, Fig. 1; Fig. 4, view of a part detached.

Like letters designate corresponding parts in all of the figures.

The drawings represent the machine in the form in which I have embodied my invention, the operative parts of which are substantially as follows: The cartridges are automatically inserted into a revolving hollow spindle or mandrel, A, and while revolving therewith they are subjected to the contact of a freely-turning crimping wheel or disk, B, the edge of which is pressed against them by a cam, *a*, on the face of a cog-wheel, *b*, that gears into another cog-wheel, *c*, on the driving-shaft C. This cam lifts the end of a pivoted arm or lever, D, on which the crimping-disk is mounted, as shown most clearly in Fig. 3. The lever is depressed, so as to throw the disk out of action, by a counter-spring, *d*, as shown in the same figure.

The cartridges are automatically fed into, and afterward ejected from, the spindle by the following device: A horizontal feed-wheel, E, has a set of notches, *e e*, in its periphery, at uniform distances apart, each of a form to receive the case or body of the cartridges side-wise, so that at the proper place and time the cartridges can drop through the same in a horizontal position. The wheel is placed in such a position as to deliver the cartridges, one by one, in line with the axis of the revolving spindle or mandrel, and has a proper intermittent motion imparted to it. To effect this movement there is a ratchet-wheel, *f*, on its shaft beneath, having as many notches as there are cartridge-receptacles in the feed-wheel; and a pawl, *g*, has a reciprocating movement sufficient to move the ratchet-wheel one notch

at every double vibration, which is produced by the reciprocating movement of a cam plate or arm, *h*, whose motion is concentric with the ratchet-wheel. There is an oblique notch or slot, *i*, in this cam-plate, in which moves a pin or stud, *j*, in a line parallel with the axis of the crimping-spindle A, as indicated in Fig. 1, and thereby gives a lateral movement or vibration to the said cam-plate and to the pawl thereon. The stud *j* projects from a rod or punch, G, which has a reciprocating movement endwise, and forces the cartridges into the spindle or mandrel as fast as they are delivered and dropped from the feed-wheel. The reciprocating motion is communicated to the punch G by means of a reciprocating rod or bar, H, below, from which an adjustable arm, *k*, extends, and is secured to the said punch G, substantially as represented in the drawings. Another arm, *l*, is secured to the other end of the rod H, and is connected with another rod or punch, I, by which the cartridges are driven back out of the spindle or mandrel A after the crimping is completed. Since the punches G and I alternate in their movements, and both require to have intermittent motions, the driving-rod H requires to have imparted to it a movement which will effect those motions. For this purpose a crank, J, is secured to the horizontal shaft of the cog-wheel *b*, and therefore receives motion from the driving-shaft C. The pin *m* of the crank works in the vertical slot or groove *n* of a cross-head, K, attached to the rod H, thus imparting the required reciprocating movement thereto. The arm *l* slides on the rod H, but is ordinarily held to a stop, *o*, at the end of the rod by a spring, *p*, as represented.

In the operation of this device, supposing the crank J starts at its extreme right-hand position, and the rod H, moving the punches G I, is at the extremity of its right-hand stroke, a cartridge being brought into position in line with the axis of the spindle or mandrel A by the feed-wheel E, the punch G, in moving to the left, drives it into the said spindle till its flange is pressed against the serrated or roughened end of a bush, *q*, in the spindle, which is just large enough to admit the body of the cartridge therein. The pressure of the cartridge-flange by the punch G against the spin-

dle-bush couples the cartridge to the spindle, and causes it to revolve therewith, while the crimping-wheel is brought against it. At the same time the counter-punch I, which recedes before the cartridge till the latter becomes coupled to the spindle, is finally left in the exact position to receive the pointed end of the cartridge-bullet in its hollowed end, so as to act as a bearing therefor, and keep the cartridge perfectly centered. When the punch I reaches that position its other end strikes an adjustable stop, *r*, on the frame of the machine, and is held firmly in that position; but as this punch in receding to the left moves somewhat in advance of the cartridge, the punch G has to follow up its feeding-in movement after the punch I stops, the sliding movement of the arm *l* on the rod H and the yielding of the spring *p* allowing such further movement of the said rod, as indicated in Fig. 1. The slot or groove *n* of the cross-head K is curved, or shaped so that as the crank-pin *m* passes along that part the punches G I are held motionless for a short time while the crimping is going on. As soon as the crimping of the cartridge takes place the rod H again moves to the right, thereby causing the punch G to recede, and the punch I to drive the cartridge back out of the spindle A, ready for the reception of another cartridge.

In order that the cartridges may be accurately brought into line with the spindle A as they are dropped from the feed-wheel E, they are caught upon a receiver or holder, L, Fig. 4, of peculiar construction and operation. It has a notch or recess, *s*, as shown, in its upper surface, to receive each cartridge in turn as it drops from the feed-wheel in line vertically with, but somewhat higher than, the spindle. The holder then is automatically lowered in its vertical ways *t t* till the cartridge is brought into exact axial line with the spindle, ready to be driven therein by the punch G. A finger, *v*, at one side of the notch *s* of the holder, is caused to turn down partially upon the cartridge as the holder descends, this pressing down of the finger being produced by the cam action of the stationary way of the holder upon the finger, the object of which is to hold the cartridge in its place. After the cartridge is driven into the spindle the holder L again is caused to ascend until a hole or opening, *w*, below the notch *s* is brought centrally in line with the spindle, so that when the cartridge is driven out of the spindle by the punch I it

passes out through the said hole in the holder, which is flaring, whereby the cartridge freely passes out and drops at once from the same, leaving the machine free for operating on the succeeding cartridge. The intermittent up-and-down movement of the holder L is produced by means of tappets *y* and *z*, secured on the rod H so as to strike an angle-lever, M, connected with the holder, and pivoted to the frame in a proper position, as represented in Fig. 1. The tappet *y* raises the holder when the rod H moves to the left, and the tappet *z* causes the holder to descend by striking the said angle-lever when the rod H moves to the right. There is a spring catch-bolt, N, so arranged as to catch into a notch in the side of the holder automatically as the latter ascends to its highest position; and this catch is withdrawn by the tappet *z*, which strikes a pivoted lever, O, connected with it, a little before it strikes the bent lifting-lever M. The driving-shaft C is brought into action by means of a suitable clutch or its equivalent, actuated by a lever, P. The revolving motion of the spindle A is received from any source of revolving power by means of a band passing around a pulley on the said spindle, as shown, or otherwise.

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

1. The combination of the revolving hollow spindle or mandrel A, crimping wheel or disk B, and reciprocating punches G I, arranged and operating substantially as and for the purpose herein specified.

2. The feed-wheel E, constructed as described, and operated by the ratchet-wheel *f*, pawl *g*, cam plate or arm *h*, and movable pin or stud *j*, substantially as herein specified.

3. The arm *l*, having a sliding movement on the driving-rod H, in combination with the stops *o* and *r* and spring *p*, substantially as and for the purpose herein specified.

4. The receiver or holder L, constructed and operating substantially as described, in combination with the feed-wheel E and punch G, substantially as and for the purpose herein specified.

5. The combination of the tappets *y* and *z* on the reciprocating rod H, the angle-lever M, catch-bolt N, and vibratory lever O, substantially as and for the purpose herein specified.

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Witnesses:

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