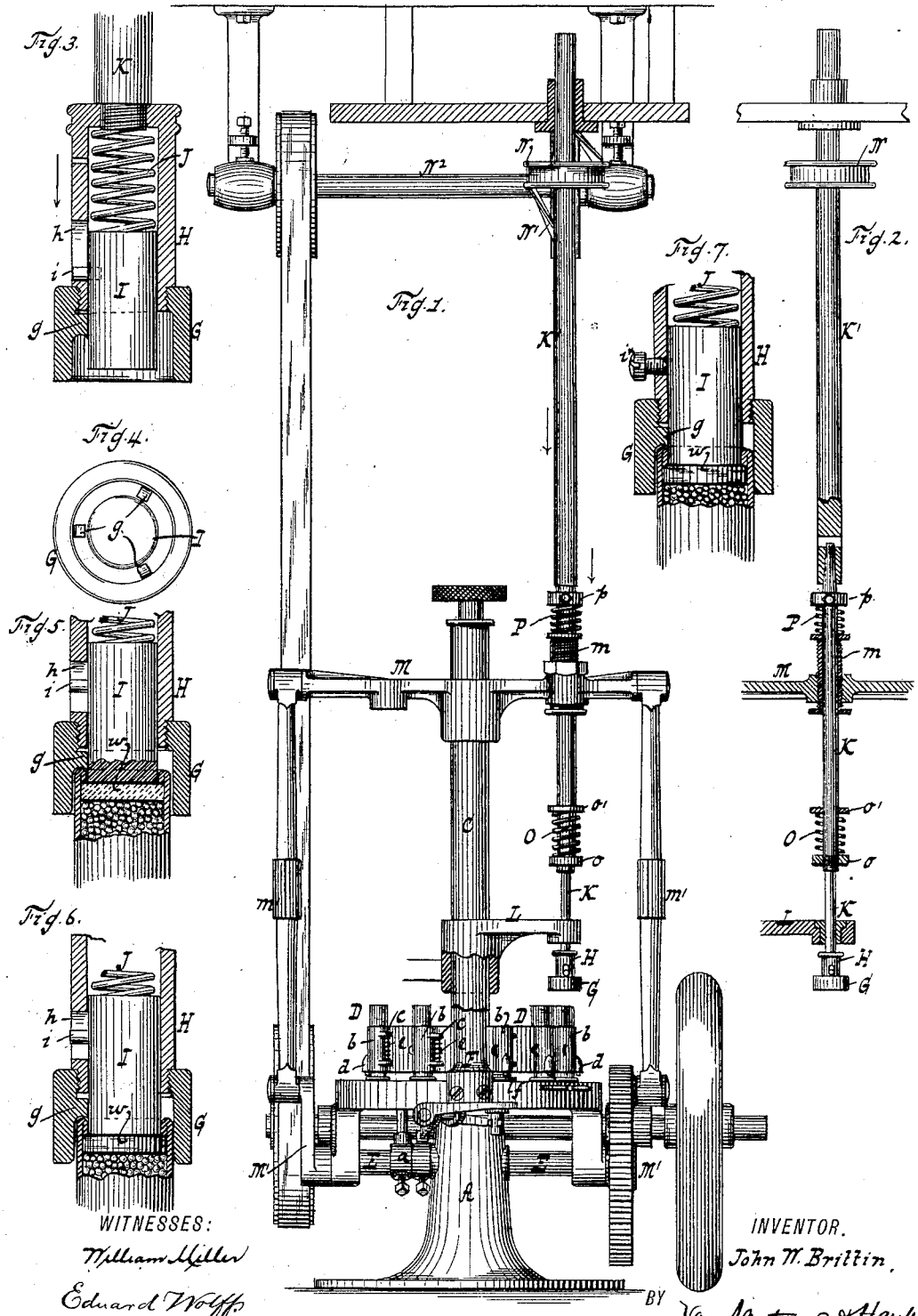
(No Model.)

J. W. BRITTIN.

CARTRIDGE CRIMPER.

No. 379,853. Patented Mar. 20, 1888.



WITNESSES:

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CARTRIDGE-CRIMPER.

SPECIFICATION forming part of Letters Patent No. 379,853, dated March 20, 1888.

Application filed December 15, 1887. Serial No. 257,991. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. BRITTIN, a citizen of the United States, residing at Black Rock, in the county of Fairfield, in the State of Connecticut, have invented new and useful Improvements in Cartridge-Crimpers, of which the following is a specification.

This invention relates to improvements in cartridge-crimpers which are especially adapted for use on cartridge-loading machines, but which can be used on an independent crimping-machine. In the machines of this class in use at the present time the height of charge in the shell, and consequently the position of the wad over the shot, has been found to vary. The crimpers in use with such machines turn over or crimp to a certain fixed depth only, and in view of the varying heights of charges the edge turned over does not always reach to the wad, and consequently the charge is not securely held. In case the charge is higher than it should be the crimped edge is broken and presents a rough and unsightly appearance.

The object of my invention is to provide a crimper which automatically adjusts itself to the height of the charge—that is to say, with respect to the position of the wad—and as a result thereof the charges are all securely held and the crimped edge presents a neat appearance. This self-adjustment of the crimper is effected by means of a follower which is combined with the crimping-head, and by the application of springs or their equivalents to certain of the moving parts, as is fully set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a front view of a part of a cartridge-loading machine which has my improved crimper attached. Fig. 2 is a sectional elevation of the crimper detached. Fig. 3 is a vertical section of detail parts of the crimper, drawn to a larger scale than the preceding figures. Fig. 4 is an end view of Fig. 3. Figs. 5 and 6 are vertical sections illustrating the operation of the crimper. Fig. 7 is similar section illustrating a modification.

Similar letters indicate corresponding parts.

In the drawings, referring at present to Fig. 1, the letter A designates a column which supports the platform B, in which is firmly secured a vertical spindle, C.

D is the shell-carrier, which rests upon the platform and turns loosely upon the spindle C. A step-by-step movement is imparted to the carrier by any mechanism suitable for the purpose—such, for instance, as a dog, *a*, which extends from the main shaft E and engages with a series of cavities in the bottom surface of the carrier. In the circumference of the carrier is a series of semicircular recesses, which correspond in number and position to the number and position of the propelling-cavities. Each of the semicircular recesses in the carrier is provided with a semicircular door, *b*, which swings on a vertical pivot, *c*, and which is provided with a pin, *d*, projecting beneath the bottom edge. The door is normally retained in its closed position by a spiral spring, *e*, wound around its pivot; but as the carrier revolves the pin *d* of each door engages with a stationary cam, *f*, which is firmly fastened to the platform in close proximity to the feeding-tube F, through which the cartridge-shells are fed to the machine. A cartridge-shell dropped into this tube rests on the platform B and is received by the carrier.

All the above-described mechanism, forming part of a cartridge-loading machine of a well-known construction, is here illustrated and described for the purpose of more clearly pointing out the operation of my crimper.

The cartridge-shell, after having been properly charged with powder, shot, and wads, is finally moved by the shell-carrier D to the crimping device, where the edges are turned over and downward to abut upon the top wad.

The crimping device, Figs. 4, 5, 6, and 7, consists of a head, G, which may be in the form of a thimble provided with a number of crimping-pins, *g*, that are formed integral with the latter, the whole being made of steel and properly tempered. If desired, however, the pins can be made removable, or the device constructed in any other suitable manner to fulfill its functions. The pins *g* are best provided with concave rounded surfaces, which engage with and turn over the edges of the shells, Fig. 5. To the upper end of the crimping-head G is attached a tubular shank, H, which contains a cylindrical follower, I,

that is movable therein in the direction of its length and normally projects outward to or near to the lower end of the crimping-head. A pin, *i*, extending laterally from the follower and playing in a slot, *h*, in the shank, limits the motion of the follower in either direction, and when said follower is free to follow its gravity it descends until the pin *i* strikes the lower edge of the slot *h*. A spring, J, interposed between the follower and the head of the shank, Fig. 3, may be applied to depress the follower and to hold the pin against the lower end of the slot. The follower is of a smaller diameter than the inner diameter of the shell, and consequently a space is formed to allow the crimping of the latter, the periphery of the follower and the wall of the head G embracing the shell, and thereby preventing distortion thereof during the crimping operation. The shank H is attached to the end of a spindle, K, Fig. 1, to which a rotary motion and a rising-and-falling motion is imparted by means hereinafter to be described.

It will be readily understood from the foregoing description that by means of the yielding follower I the crimper G is allowed to adapt itself to different depths of crimp. Suppose, for instance, that the shell shown in Fig. 6 is loaded to a normal height and the wad *w* thereof is in the position shown in said figure. As the head G and its attached parts descend or move toward the shell the follower I engages the wad *w* and yields, which allows the crimper-head to continue its downward motion and properly crimp the shell.

On inspection of Fig. 5, which shows a cartridge-shell in which the wad *w* stands higher than that of the shell shown in Fig. 6, it will be observed that the follower does not project so far into the head G—that is to say, it has yielded to a greater extent. If we suppose that the follower I were rigid and set correct for a cartridge, as shown in Fig. 6, it would come into contact with the wad of the cartridge shown in Fig. 5 and hold the crimper-pins *g* above the top edge of the shell. By the use of this yielding follower cartridges can be neatly crimped whether the charges all stand at the same level or not. By means of the spring J the correct action of the follower I is insured; but said spring is not absolutely essential.

The spindle K has bearings in an arm, L, projecting from the post C of the machine, and projects upward and through an adjusting-screw, *m*, engaging a nut in an actuator, such as a cross-head, M, which can slide up and down on the post C. The upper end of the spindle is secured in a vertical shaft, K′, having bearings in a journal-box, *k*, in a suitable hanger. On the upper end of said shaft is a pulley, N, which is connected by a belt with a pulley, N′, Fig. 1, on a counter-shaft, N^2, whereby a rotary movement is imparted to said shaft.

A reciprocating motion is imparted to the actuator or cross-head M by suitable means—such, for instance, as illustrated in the drawings, Fig. 1, in which the same is connected by rods *m′ m′* with cranks M′ M′, attached to the ends of the rotary main shaft E. The movement of said actuator or cross-head imparts a rising-and-falling motion to the spindle K and shaft K′, as will be presently explained.

As before stated, the yielding follower I allows the crimping head G to continue its motion after the former has come into contact with the wad; but it is also necessary that this motion of the crimper-head shall be sufficient to adapt the same for varying depths of crimp. In view of this I cause the actuator or cross-head M to engage with a yielding transmitter, O, on the crimper-spindle K—such, for instance, as a spiral spring, Figs. 1 and 2, which encompasses the said spindle and is held at its bottom by a support, *o*, such as a nut which is screwed on the spindle, and on which rests the washer *o′*, which fits the spindle loosely. When the actuator or cross-head M engages this transmitter, the spindle, and consequently the crimper-head G, is moved toward the cartridge-shell, and when the said head engages with the latter the pressure of the cross-head is transmitted through the spring O. It will be observed that by means of this yielding transmitter the crimping-head will descend and accommodate itself to any depth of crimp, and the necessary pressure is obtained by the action of the cross-head on the yielding transmitter. To withdraw the spindle, the adjusting-screw *m* engages with a spring, P, secured to a collar, *p*, on the spindle K. The spring is only used in this case to prevent shock and noise.

By means of the adjusting-screw *m* the spindle K can be set for cartridges of different length, and normally the crimping-head G is held above and clear of the cartridge by the spring P abutting on the adjusting-screw *m*, so as to allow the carrier to rotate. By adjusting the screw *m* so that its distance from the spring O is increased or diminished, the pressure of the crimping-head on the shells can be regulated.

It is evident that my crimping device can be successfully operated independent of any cartridge-loading machine, the charged cartridge being fed by hand into any suitable stationary carrier or receiver located in line with the crimper. If the shells are loaded to a uniform depth, the follower I, after having adjusted itself to said depth, can be secured in position by a set-screw, *i**, as shown in Fig. 7. In this case the pin *i* and the slot *h* are not required.

I do not herein claim in a cartridge-loading machine the vertically-moving crimper-stem and the rotating spindle seated upon its upper end, in combination with the supporting-arm through which the stem passes, a pitman connected with said arm, a crank-wheel to which the opposite end of the pitman is attached, the

collars or supports located in the vertical stem respectively above and below the supporting-arm and the relieving-springs.

I do not claim herein anything shown, described, and claimed in my application filed September 8, 1887, Serial No. 249,148.

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

1. The combination, with the shell-holder D, of a spindle, K, means for raising, lowering, and rotating the spindle, a tube, H, attached at one end to the spindle, a hollow crimping-head, G, having internal crimping devices, and secured to the other end of the tube, and a lengthwise-movable follower, I, located in the tube and adapted to extend through the head, substantially as set forth.

2. The combination of the reciprocating and axially-rotating spindle K, a tube, H, secured at one end thereto, a hollow crimping-head, G, secured to the other end of the tube and having internal crimping devices, a lengthwise-movable follower, I, in the tube and head, and a set-screw, *i**, tapped through the tube to hold the follower in a fixed position, substantially as described.

3. The combination, with a shell-holder, D, of a spindle, C, a cross-head on the spindle, and means for reciprocating the cross-head, of the rising-and-falling and rotating spindle K, the tube H, connected with the spindle, the crimping-head G, connected with the tube, the lengthwise-movable follower in the tube, the stop *o*, fixed on the spindle, the loose washer *o'* on the latter, and the spring O between the stop and the washer, substantially as described.

4. The combination, with the shell-holder D, of a spindle, K, means for rotating the spindle, a cross-head for raising and lowering the spindle, a crimping device secured to the spindle K, a spring, O, secured to the spindle between the cross-head and the crimping device, and a tubular screw, *m*, vertically adjustable in the cross-head, and through which the spindle passes, said screw, by adjustment toward and from the spring, adapting the spindle for cartridges of different lengths, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOHN W. BRITTIN. [L. S.]

Witnesses:
GEORGE M. WAY,
E. F. KASTENHUBER.