

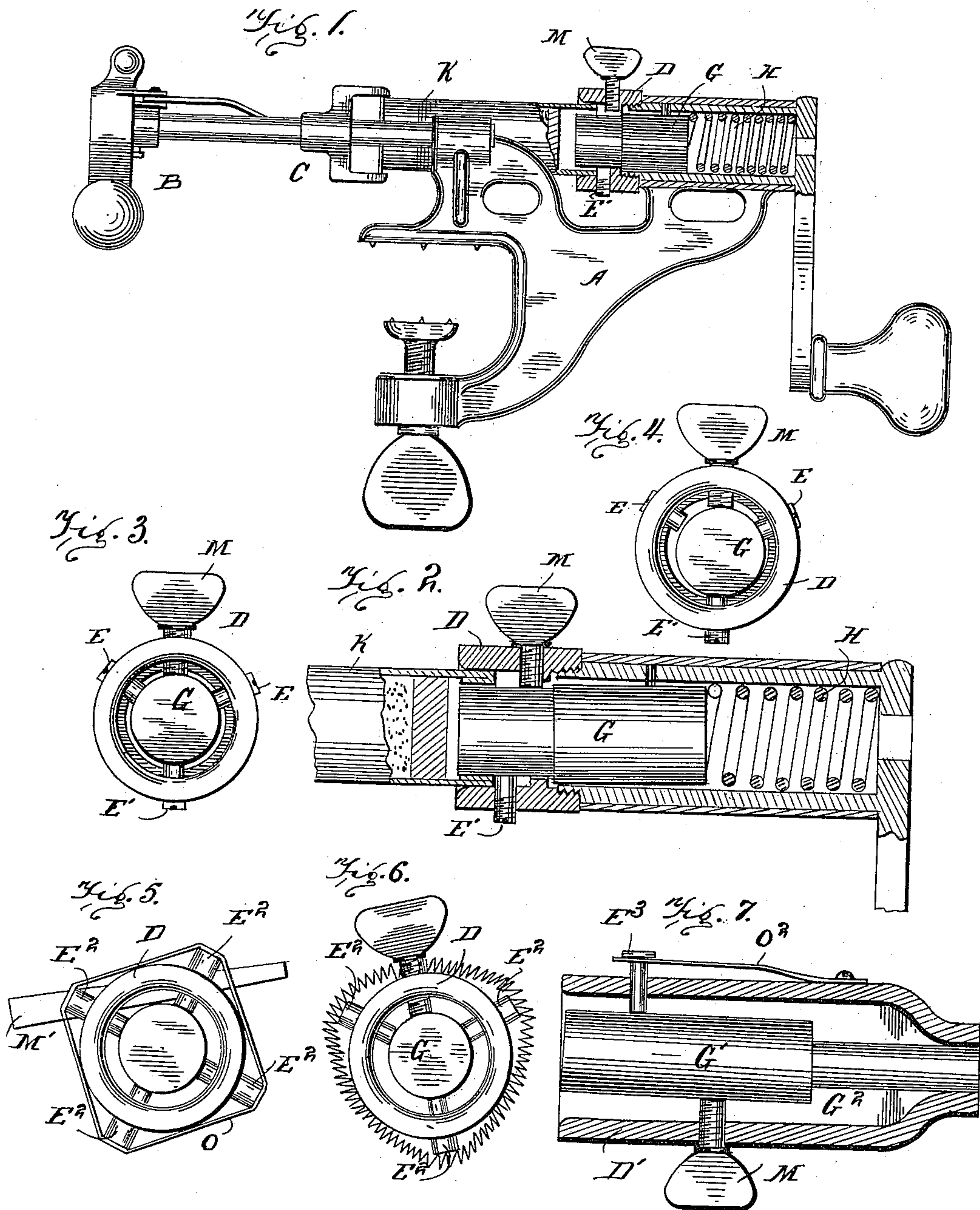
No. 620,330.

Patented Feb. 28, 1899.

S. B. KITCHEL.  
CARTRIDGE IMPLEMENT.

(Application filed Dec. 29, 1898.)

(No Model.)



WITNESSES  
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# UNITED STATES PATENT OFFICE.

SIMON B. KITCHEL, OF COLDWATER, MICHIGAN.

## CARTRIDGE IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 620,330, dated February 28, 1899.

Application filed December 29, 1898. Serial No. 700,619. (No model.)

*To all whom it may concern:*

Be it known that I, SIMON B. KITCHEL, a citizen of the United States, residing at Coldwater, in the county of Branch and State of Michigan, have invented certain new and useful Improvements in Cartridge Implements, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to cartridge implements.

The object of the invention is to improve implements for crimping and compressing the ends of paper shells for shot-cartridges.

In my Patent No. 615,282, of December 6, 1898, I describe and claim an implement for crimping paper cartridge-shells and compressing the crimped ends of such cartridges by means of an expanding mandrel. In my present invention a similar result is reached by substituting an eccentric mandrel for an expanding mandrel. The present invention is cheaper to construct and in some respects easier to use.

Figure 1 is a partial elevation and partial section of a cartridge-crimping implement and cartridge, showing a mechanism for forcing the mandrel to eccentric position for ironing down or compressing the crimped cartridge. Fig. 2 is a longitudinal section of the cylinder or annulus and mandrel, showing relation of same to a cartridge in the act of compressing or ironing down the crimped end. Fig. 3 is an end view of the cylinder and mandrel of Fig. 2, with mandrel concentric to cylinder or annulus. Fig. 4 is a similar view with mandrel eccentric. Figs. 5 and 6 are end views of modifications of cylinder and mandrel, and Fig. 7 is a longitudinal section of a modification of cylinder and mandrel.

Paper-cased shot-cartridges are generally crimped or turned in at the outer end by causing a moving piece having small bearing or crimping surfaces to bear against the end of the shell, and by rotating either the shell or the crimping-surfaces the crimping is made progressive. These crimping-surfaces are very often made in the form of pins.

A represents the frame of a cartridge-crimper, B the lever, and C the clamp by which a cartridge K may be held and pressed toward the crimping-cylinder. D represents

a hollow cylinder provided with suitable means for rotation. E indicates a crimping-pin in the cylinder; G, a mandrel within the cylinder pressed outward by a spring H and not quite filling ring D. All these elements are well known in this class of implements. The only novel features found in Fig. 1 are the adjustable character of pin E and mandrel G.

The implement is to be used in usual manner in crimping or turning in the end of the cartridge-shell. When this has been effected, the pin E', which screws into the ring D, is drawn out a little and a set-screw M is turned in, forcing the mandrel G a little to one side of the center of the ring and into firm contact with the crimp of the shell. (See Figs. 2 and 4.) Now by rotating ring D relatively to the cartridge the mandrel, which bears on the crimp between itself and the ring, irons down or compresses the crimp.

In my patent referred to the surface which offers resistance to the expansion of the mandrel and which causes the compression of the crimp is on the inside of the crimp itself. In the present invention the resisting-surface is the outer surface of the shell directly opposite the bearing-point of the mandrel.

To neatly crimp the cartridges, it is desirable that the inner ends of crimping-pins E' come close to mandrel G. For the purpose of moving the mandrel to eccentric position it is necessary that at least one of the pins, as E', should be movable, and in Figs. 1 to 4 the adjustment of pins and of the mandrel to eccentric position is effected by set-screws. Such mechanism is effective, but somewhat slow of application.

In the modifications Figs. 5 to 7 I show crimping-pins E<sup>2</sup> as automatically self-adjusting by means of springs. In Fig. 5, O denotes an elastic band, which tends to press all the pins E<sup>2</sup> inward against mandrel G, yet one or more of the pins may be pressed out by any pressing mechanism which forces the mandrel to eccentric position, whether the same be a set-screw M or a wedge M' or other mechanism. So a spiral spring O', bearing on all the pins E<sup>2</sup>, will accomplish the same result, or separate flat springs O<sup>2</sup>, as in Fig. 7, might be used to press the pins of crimping-pieces toward the mandrel. In any case



it is preferable to make one or more of the crimping-surfaces automatically self-retiring when the mandrel G is forced to eccentric position in the ring D.

5 The mandrel may be supported on an elastic stem, as indicated at G' G<sup>2</sup>, Fig. 7. The elasticity of the stem will normally center the mandrel G' in ring D', but will permit the adjusting device to force the mandrel out of  
10 center, pin E<sup>3</sup> yielding for the purpose.

As will be seen, I do not limit myself to the number or position of the crimping devices, or to the mechanism for making them yielding or self-adjusting, or to the mechanism for  
15 making the mandrel G eccentrically adjustable relatively to ring D.

The operation of ironing down or compressing the crimped cartridges is fully described in my patent referred to and is substantially  
20 the same with the present invention, the lateral or eccentric adjustment of the entire mandrel with relation to the inclosing ring effecting substantially the same result reached by the expansion of some part of an expanding  
25 mandrel, as described in the patent.

Whether a screw, wedge, or other mechanism be used for pressing mandrel G against the crimp such mechanism should be powerful and positive in its operation, as the amount  
30 of compression required is considerable. The compressing or ironing down of the crimp should not be attempted until the crimping or turning in of the end of the shell has been completed.

35 What I claim is—

1. In a cartridge implement a crimping-ring provided with a movable crimping-pin, a mandrel normally central in the ring, and means for retiring said crimping-pin, and  
40 means for adjusting the mandrel to eccentric position in the ring, whereby the cartridge-

crimp can be compressed between the mandrel and the ring, all combined substantially as described.

2. In a cartridge implement, a crimping- 45 ring, means for rotating said ring relatively to the mouth of the cartridge inclosed therein, a movable crimping-surface in said ring, a mandrel within the ring, and means for positively adjusting said mandrel to eccen- 50 tric relation with the ring, and toward the movable crimping-surface, all substantially as described.

3. In a cartridge implement, a ring for containing the mouth of the crimped or folded 55 cartridge, a mandrel within said ring, means for pressing said mandrel toward one side of the ring, and means for rotating the ring relatively to the cartridge, all combined substantially as described. 60

4. In a cartridge implement, the crimping-ring, the mandrel within said ring, the crimping-surfaces extending into close proximity with said mandrel, and means for retiring at least one of said crimping-surfaces to permit 65 displacement of the mandrel, substantially as described.

5. In a cartridge implement, the cartridge-supporting ring, and means for rotating it, elastically-supported crimping-surfaces with- 70 in the ring, and the mandrel normally in central position in the ring, and means whereby said mandrel may be made eccentric to the supporting-ring, all combined substantially as described. 75

In testimony whereof I affix my signature in presence of two witnesses.

SIMON B. KITCHEL.

Witnesses:

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IDA M. ROBLEE.