(No Model.) 2 Sheets—Sheet 1.

W. N. BEARDSLEY & A. D. MOULTON.

CARTRIDGE CRIMPER.

No. 458,679. Patented Sept. 1, 1891.

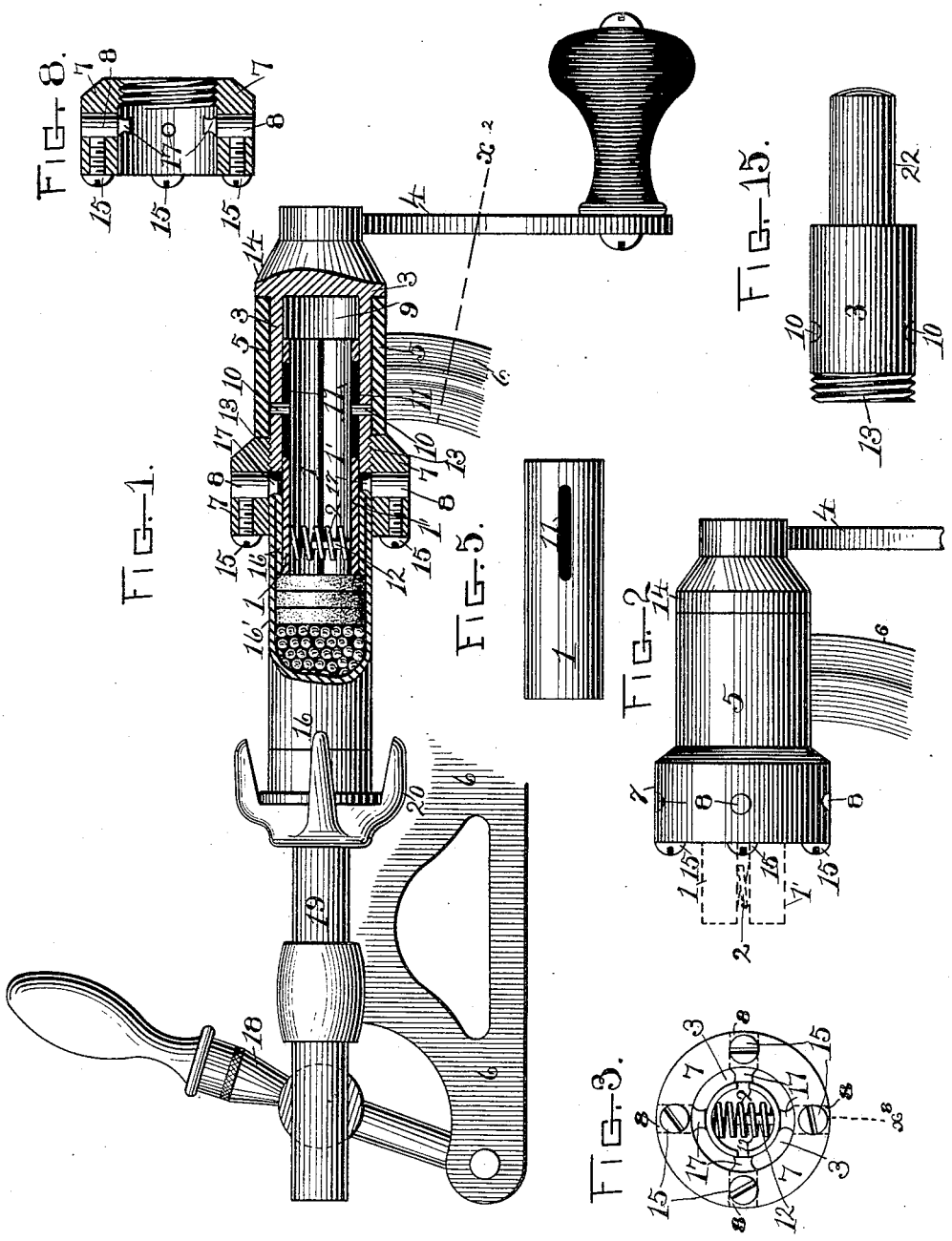

FIG. 1.

FIG. 8.

FIG. 5.

FIG. 2.

FIG. 15.

FIG. 3.

WITNESSES:
A. J. Tanner.
M. C. Hinchcliffe

INVENTORS:
WILLIAM N. BEARDSLEY.
ALVIN D. MOULTON.
by GEO. D PHILLIPS.

(No Model.) 2 Sheets—Sheet 2.

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FIG. 10.

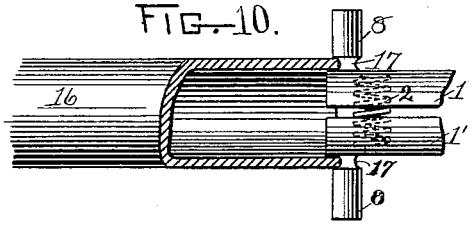


FIG. 11.

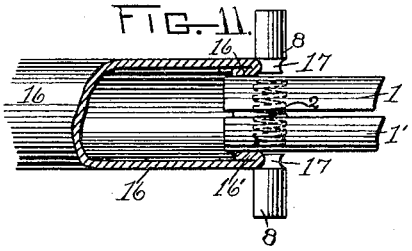


FIG. 9.

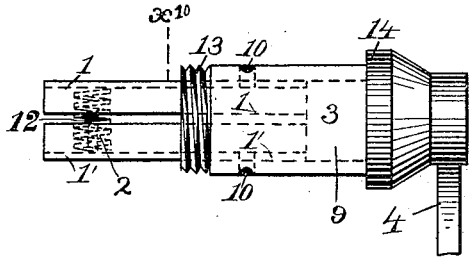


FIG. 13.

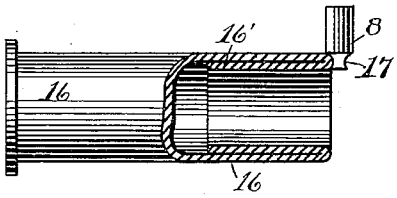


FIG. 14.

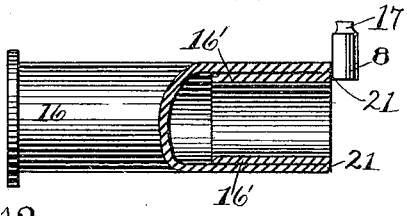


FIG. 12.

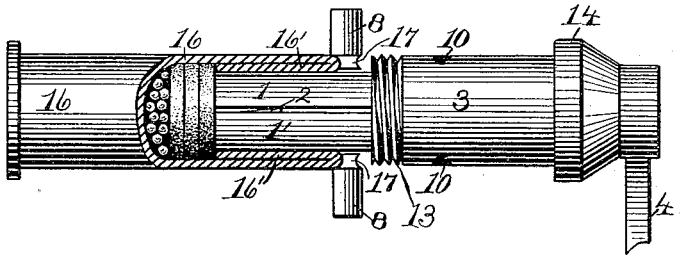
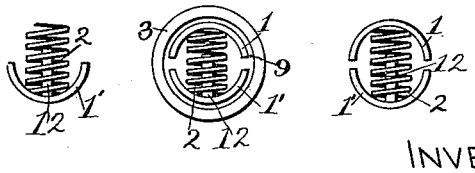


FIG. 6. FIG. 4. FIG. 7.



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A. J. Tanner.

W. C. Hinchcliffe.

INVENTORS:

WILLIAM N. BEARDSLEY.

ALVIN D. MOULTON.

by GEO. D. PHILLIPS.

UNITED STATES PATENT OFFICE.

WILLIAM N. BEARDSLEY AND ALVIN D. MOULTON, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO MARCELLUS HARTLEY AND MALCOLM GRAHAM, OF NEW YORK, N. Y.

CARTRIDGE-CRIMPER.

SPECIFICATION forming part of Letters Patent No. 458,679, dated September 1, 1891.

Application filed April 10, 1891. Serial No. 388,348. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM N. BEARDSLEY and ALVIN D. MOULTON, citizens of the United States, and residents of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Cartridge-Crimpers, of which the following is a specification.

Our invention relates to an improved crimping-tool for paper cartridges. The hardened glazed surface of a paper shell is broken by the operation of crimping, which consists in turning inward the mouth and folding such turned-over portion upon the interior cylindrical surface of such shell. This crimping process destroys the texture of the paper, so that the turned-over portion is rendered soft and pliable, and consequently will not lie down firmly upon the interior of the shell. This pliable condition also greatly weakens its power of resistance against the explosive gases, especially since the introduction of nitro and other smokeless powders.

The object of our invention is to restore the turned-over end or mouth of the shell to its former degree of hardness, and thus greatly increase its power of resistance, besides improving the appearance of the shell after the crimping process.

To this end our invention consists of a combined flexible shell follower and ironer employed in conjunction with the crimping mechanism to follow down the crimped mouth of the shell, ironing such crimped portion firmly against the cylindrical interior through the combined means of the rotating motion and frictional contact of such ironer with the crimped portion.

It also consists in the detail construction and arrangement of the parts, all as hereinafter more fully described, and particularly pointed out in the claims.

To more fully understand our invention reference is had to the accompanying drawings, and to the figures of reference formed thereon, which drawings also form a part of this specification.

Figure 1 represents a side elevation and broken view of an ordinary crimping-frame, closer-head, broken sectional view of a shell, and sectional view of the closer-head with our improved follower and ironer therein. Fig. 2 represents a side elevation of the crimping-head, also section of the frame and handle through line X^2 of Fig. 1. Fig. 3 represents a front elevation of the crimping-head. Figs. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 represent detail views.

Its construction and mode of operation are as follows:

1 1′ represent the combined follower and ironer in two parts or sections; 2, a spiral spring exerting an outward pressure on the follower-sections; 3, follower-holder, to which handle 4 is attached, said holder having a cylindrical bore and being journaled in the bearing 5 of the frame 6; 7, crimping-head; 8, crimping-pins situated transversely therein.

The ironing-follower is preferably composed of two hemispherical tubular sections 1 1. The spring 2 is so arranged between such sections that its force is exerted outward, so that said sections are opposed to each other and are placed within the cylindrical bore 9 (see Fig. 1) of the holder 3 and arranged to have a free longitudinal movement therein. They are also made, preferably, of smaller diameter than the cylindrical bore 9, (see end elevation of the follower-holder, Fig. 4,) thus providing room for their expansion. The pins 10, situated transversely in the holder 3, each engage a slot provided in sections 1 1, as seen at 11, Fig. 5, which represents a detached plan view of one of the sections. These slots, in connection with pins 10, retain the follower-sections in the holder, and also place them under the control of such holder 3 in its rotative action. The spring 2 (see Fig. 6, which represents an end elevation of the lower section of the follower) is mounted upon stud 12, which stud projects from section 1 and operates to keep spring 2 in place.

Fig. 7 represents an end elevation of both sections of the follower.

The crimping-head 7 (see Fig. 8, which is a

sectional side elevation through x^8 of Fig. 3) has a part of its interior threaded and is mounted on the threaded portion 13 of holder 3, (see also Figs. 1 and 9,) thus placing bearing 5 of frame 6 between such crimping-head and shouldered portion 14 of holder 3. The four crimping-pins 8 are held in the head 7 by means of screws 15. When ready to crimp a shell, the follower-sections are forced back into the holder 3, with the ends of such sections projecting outward therefrom a little in advance of the crimping-pins, as seen in Fig. 10, (which represents a section of a shell and section of follower through line x^{10} of Fig. 9, also a detached view of the crimping-pins.) As shown in this view, the end or mouth of shell 16 is brought against the annular groove 17 of such pins. The ends of the crimping-pins will limit the expansion of the follower-sections 3, such ends being so placed with reference to the internal diameter of the shell 16 that the follower-sections will readily enter the mouth of such shell, as shown in Fig. 10. The crimping-pins, under the rotating movement of the crimping-head and the longitudinal pressure exerted by means of handle 18 (see Fig. 1) through rod 19 and pad 20, will turn the end or mouth of the shell inward, (as seen in Fig. 11, which view is similar to Fig. 10,) and such turned-in portion, instantly engaging the follower-sections 3, will compress the same against the outward influence of section-spring 2, and as such crimped portion 16 is forced down the interior of the shell it will, by its engagement with the follower-sections, carry such sections with it. The rotating motion of the crimping-head will also revolve the follower-sections against the crimped portion 16 of the shell and by means of the frictional contact of such sections therewith through the medium of spring 2 will exert a force sufficient to burnish and harden such crimped portion, forcing the same down firmly upon the interior of the shell, and by means of this ironing process restore such crimped portion to its original degree of hardness, also increasing its power to resist the expanding gases. The crimped end will be continued down to the wad, (see Fig. 12, which is a broken sectional view of the shell, side elevation of the follower-sections and follower-holder, also detached view of the crimping-pins, Fig. 13 being a similar view of the shell, showing the crimped end folded in and one of the crimping-pins engaged with the end of the shell,) the end of the follower being so formed that it will not deface the center of the wad by contact therewith. The crimping-pins 8 are so constructed that they can be reversed (see Fig. 14) in their position in the crimping-head, using the straight portion of such pins, when necessary, to form the square end 21, instead of a round end, as shown in the other views.

The device is shown attached to an ordinary crimping-frame and the motive power for revolving the crimping-head applied to the crank or handle 4.

As the only feature of our invention is embodied in the crimping-head, it is quite evident that the follower-holder 3 could be furnished with the shank 22 (see Fig. 15) and such shank used in a chuck revolved by a continuous power, as a lathe, or in any other suitable manner, using suitable means whereby the necessary pressure is needed to force the shell against the crimping-pins.

We employ the two hemispherical tubular sections, as shown, they being lighter and less expensive than two solid hemispherical sections would be. The gist of our invention lies in the expansible feature of the two sections, so that they may be caused to expand and thus exert an outward force against the crimped portion of the shell, ironing such crimped portion down upon the uncrimped portion as fast as such crimped portion is presented.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a cartridge-crimper, of a crimping-head, crimping-pins situated therein and arranged substantially as shown with respect to the crimping-head, a support or holder, said head mounted on one end thereof, with an expansible combined follower and ironer, which follower and ironer is placed longitudinally in the crimping-head support or holder, and means, substantially as shown, whereby such expansible follower is rotated with said crimping-head and holder, such follower arranged to expand against the crimped portion of the shell and by frictional contact therewith iron such crimped portion firmly against the uncrimped part of the shell, as set forth.

2. The combination, with the crimping-head 7, crimping-pins 8, holder 3, and means, substantially as shown, for supporting said head thereto, of the follower-sections 1 1′, arranged in such holder, as shown, spring 2, placed between such follower-sections, such spring arranged to force such sections apart, and means, substantially as shown, to rotate the follower-sections with the holder and crimping-head, such expanding follower-sections arranged to engage with the crimped portion of the shell and by frictional contact therewith iron such crimped portion firmly against the uncrimped part of such shell, as described.

3. The combination, with the crimping-head 7, of the reversible crimping-pins 8, one end of which pins is provided with an annular

groove for forming a circular crimped end on the shell, while the opposite end of said pins is provided with a straight or unbroken surface, whereby a square crimp or straight face is formed on the end of the shell when such portion is brought into contact therewith, combined with the screws 15, arranged, as shown, for securing said pins to the crimping-head.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 1st day of April, A. D. 1891.

WM. N. BEARDSLEY.
ALVIN D. MOULTON.

Witnesses:
SAML. T. HOUGHTON,
HENRY C. EVANS.