

Implements for Uncapping, Capping, and Charging Cartridges.

Patented August 26, 1873.

[illegible]

Fig. 3. A vertical section of a mechanical device, likely a pump or valve. It features a central shaft with a piston (D) and a valve (D'). The shaft is surrounded by a housing (A) with a flange (B) at the top. The device is mounted on a base (H). Labels include 3, F, A, B, D, D', H, and various letters in italics.

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IMPROVEMENT IN IMPLEMENTS FOR UNCAPPING, CAPPING, AND CHARGING CARTRIDGES.

Specification forming part of Letters Patent No. **142,157**, dated August 26, 1873; application filed April 3, 1873.

To all whom it may concern:

Be it known that I, WILLIAM M. FOWLER, of the city of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Apparatus for Charging and Recharging Cartridge-Shells, of which the following is a specification:

My improvements relate to apparatus for reloading cartridge-shells, and embrace devices for extricating an exploded cap, and for capping, charging, and crimping shells.

In the accompanying drawings, Figure 1 is an elevation of my apparatus, showing the compound lever depressed to crimp the cartridge-shell by means of the crimping-roller in dotted lines; Fig. 2, a longitudinal section of the hollow shank, and a cartridge-shell, illustrating the operation of capping; Fig. 3, an elevation of the apparatus, with the attachment for turning in the edge of a cartridge-shell adjusted to the end of the shank; Fig. 4, a detail view, showing the trimming-knife attachment, and its position upon the end of the compound lever when in use; Fig. 5, a plan of the attachment for turning in the edge of a cartridge-shell; and Fig. 6, a section of the same with the end of a cartridge-shell inserted.

The hollow cylindrical shank A is permanently closed at one end, and the opposite end is closed by a hollow cylinder, A', screwing therein. The male screw-thread upon the cylinder A' extends a sufficient distance beyond the shank A to allow the rammer G or the edge-turning attachment H, both of which are provided with female screw-threads, to be screwed thereon when required. The inner end of the cylinder A' opens into the shank, while the outer end has a recess, a^1 , formed therein for the reception of a cap, and is perforated centrally to allow the passage of a rod or needle, B, attached to, and guided and centralized by, the plunger b resting within the cylinder A'. The plunger b is attached to a rod, b^1 , of suitable length, having a screw-thread formed upon its opposite end, upon which screws an adjustable disk, b^2 , fitting closely within the bore of the shank A. The latter has two longitudinal bayonet-slots, a , formed on opposite sides, through which pass screws or pins b^3 , attached to the disk b^2 , and

forming the means by which the parts B b b^1 b^2 are slid back and forth.

In operation, a cap having been placed within the recess a^1 in the end of the cylinder A', and the cartridge-shell C passed over the cylinder and shank, with its cap-pin c on the same side and opposite to the end of the compound lever, the end of the needle E is protruded by means of the studs or pins b^3 b^3 , as before stated, and transfers the cap from the recess a^1 to the cap-cavity in the end of the cartridge-shell, when the cap-pin c is forced into place with its inner end resting in the cap by depressing the end of the compound lever D', as indicated by dotted lines in Fig. 2, thus securing the cap in place.

In the operation of displacing a cap from a central-fire cartridge-shell, the latter is passed over the cylinder A', as before, and the cap forced out of position by the end of the needle E. When not in use, the parts B b b^1 b^2 are slid back so as to withdraw the end of the needle E within the perforation a^2 of the cylinder A', and the pins or studs b^3 b^3 turned into the offsets a^3 of the slots a , thereby securing said parts against unintentional or accidental movement. The adjustment of the extent of projection of the end of the needle E with relation to the cap-recess a^1 in the end of the cylinder A' is effected either by screwing the latter farther into or out of the shank A, as the case may be, or by removing said cylinder A' from the shank and adjusting the position of the disk b^2 upon the rod b^1 by turning the latter in the required direction.

After the capping device has been used as much as required, the cylindrical cap G is screwed onto and over the end of the cylinder A', protecting the latter and forming the means whereby the charge in a cartridge-shell may be rammed down. The cartridge-shell having been charged, is next passed over the end of the shank A, opposite to that hereinbefore described, until the last wad rests against the stud or gage a^4 , when the compound lever D D' is depressed, forcing the convex surface f of the roller F against the cartridge-shell and crimping it in against the forming channel or groove a^5 formed on the shank A, when, by turning the cartridge-shell around, an internal bead is formed therein,

just in front of the last wad, thereby securing the charge in place.

By the employment of a roller for crimping the cartridge-shells, as stated, the annular depression or interior bead in the cartridge shell is formed more uniformly, and no matter how great the pressure applied, the surface of the cartridge-shell cannot be torn or damaged, as is liable to be the case where rigid crimping-pins are employed.

The roller F is mounted upon the outer end of the arm D of the compound lever, preferably by means of an axis, d , screwing therein, provided with a head or nut, d^1 , for the retention of said roller, and it is detachable to allow the substitution in its place (as shown in Fig. 4) of the knife-blade K and cylindrical washer k , (the latter being used to adjust the position of the knife beyond the end of the shank A,) when it is required to trim down a cartridge-shell, the end of which is passed over the shank A, until brought into the required position for the action of the knife. The lever-arm D is pivoted between parallel flanges $a^6 a^6$, projecting from the shank A, and engages with and is actuated by the lever-arm D', pivoted in like manner between said flange-bearings $a^6 a^6$, and having one end of a spring, d^2 , attached near its outer end, the opposite end of which bears against the shank A, or a projection of the same, and tends constantly to force the outer ends of the lever-arms D D' outward from the shank. A perforation, d^3 , is formed, preferably through the long lever-arm D', which coincides, when the lever is in its normal position, with similar perforations, $a^7 a^7$, formed in the bearing flanges $a^6 a^6$.

When it is required to withdraw the inner end of a cap-pin from the cap-cavity of a cartridge-shell, to allow the removal of a discharged cap and the substitution of a new one, the outer end of the cap-pin c is inserted through the perforations $d^3 a^7 a^7$, and gripped firmly by the lever-arm D', by which means the cap-pin may be quickly and conveniently withdrawn. The compound lever thus performs the double function of actuating the crimping-roller F to crimp the cartridge-shell, and of securely holding the cap-pin to withdraw it, as above stated, and its longer arm, D', is also provided, near its outer end, with a perforation, d^4 , (see Fig. 3,) in which a cap-pin may be inserted for the purpose of withdrawing a cartridge-shell from the breech of a gun.

A claw, M, is secured to one of the flanges a^6 of the shank A, and consists of three hooked

arms, $m m m$, formed and arranged to clasp the rim of the metallic end of a central-fire cartridge, as illustrated by dotted lines in Fig. 2, to enable the latter to be withdrawn from the breech of a gun. An attachment, H, for turning in the edge of a cartridge-shell is provided, which may be screwed onto the cylinder A' in place of the rammer G, when it is required to secure the charge within the cartridge-case by this means, instead of using the crimping-roller; and it consists of a cylindrical cup, H', the interior sides of which converge slightly toward the bottom, where an annular groove, h , is formed, in which are situated transverse shoulders $h^1 h^1$, which compress the edge of the cartridge-shell inward, when the end of the latter is pressed into the cup H' and revolved, as illustrated in Fig. 6. The cup H is closed by a cover, h^2 , when not in use, and furnishes a convenient receptacle for the trimming-knife K and washer k . The stud or gage a^4 , upon the end of the shank A, not only regulates the position of the last wad of the cartridge, with relation to the forming-channel a^5 and crimping-roller F, so as to bring the cartridge-shell in the required position for crimping, irrespective of the length of the charge, but it also may be employed to force the cap of a central-fire cartridge into position, and gage the distance to which it enters.

It is obvious that some of the devices included in the aggregation herein described, might be omitted in the manufacture of the apparatus without detracting from the usefulness, or altering the construction of, the devices remaining.

What I claim is—

1. The combination of the perforations $a^7 a^7$, formed in the bearing-flanges $a^6 a^6$ of the shank A, with the coinciding perforation d^3 , formed in one arm of the compound lever D D', for the purpose specified.

2. The combination of the shank A, provided with the forming-channel a^5 and gage-stud a^4 , and the crimping-roller F, having an annular convex surface, f , with the compound lever D D', constructed, arranged, and operating substantially as described, and for the purpose specified.

3. In combination with the compound lever D D' and shank A, the trimming-knife attachment K, for the purpose specified.

WM. M. FOWLER.

Witnesses:

LOUIS LAW,
GEO. W. MIATT.