

W. MASON.
CARTRIDGE RELOADING IMPLEMENT.

No. 514,722.

Patented Feb. 13, 1894.

Fig 1

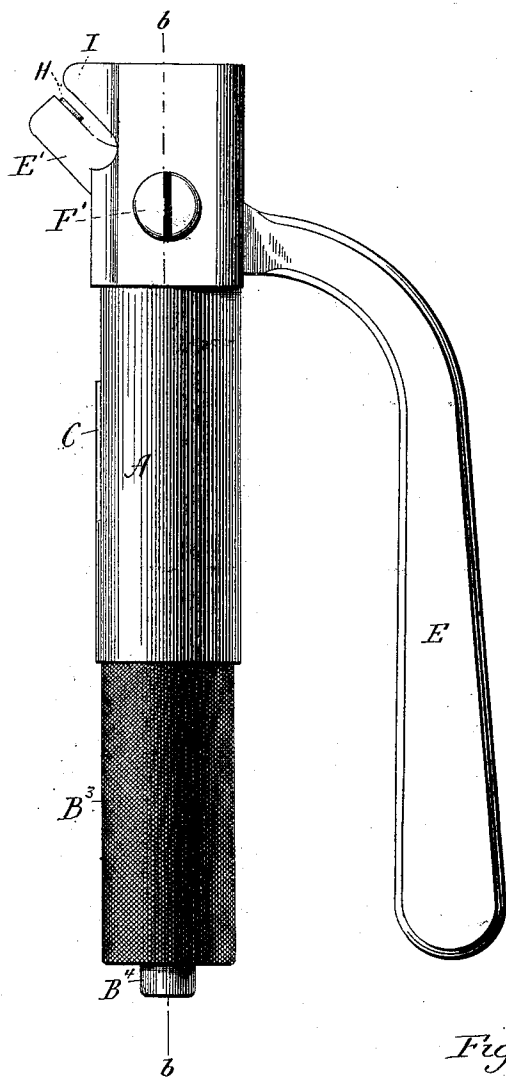


Fig 2

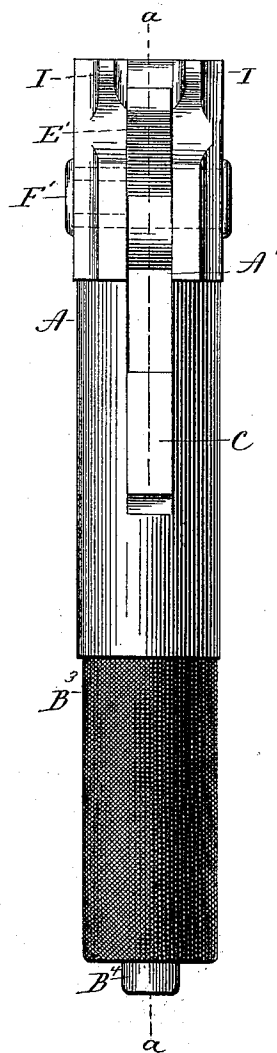
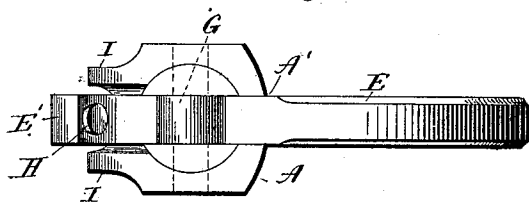


Fig 3



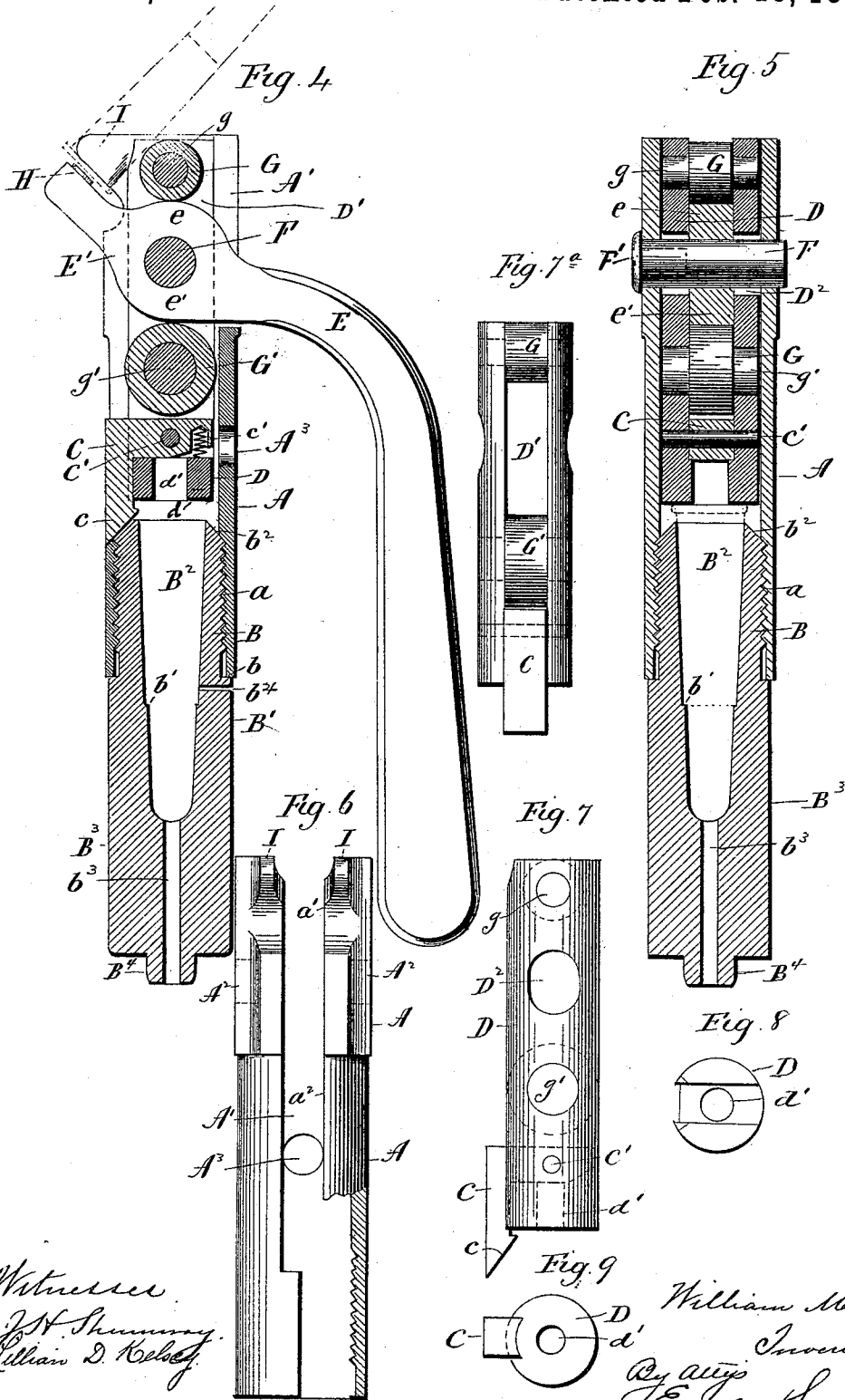
Witnesses:
J. H. Seymour
William D. Kelby.

William Mason
Inventor
By attys
Carle & Seymour

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Witness
J. H. Shumway
William D. Kellogg

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Inventor.
By atty
Earle Seymour

UNITED STATES PATENT OFFICE.

WILLIAM MASON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
WINCHESTER REPEATING ARMS COMPANY, OF SAME PLACE.

CARTRIDGE-RELOADING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 514,722, dated February 13, 1894.

Application filed June 12, 1893. Serial No. 477,335. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MASON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Cartridge-Reloading Imple-
ments; and I do hereby declare the following,
when taken in connection with accompanying
drawings and the letters of reference marked
thereon, to be a full, clear, and exact de-
10 scription of the same, and which said draw-
ings constitute part of this specification, and
represent, in—

Figure 1 a view in side elevation of a re-
loading tool constructed in accordance with
15 my invention; Fig. 2, a view thereof in
front elevation; Fig. 3, an end view thereof
looking toward the plunger; Fig. 4, a view
of the device partly in elevation and partly
in central longitudinal section on the line $a-a$
20 of Fig. 2; Fig. 5, a similar view on the line $b-b$
of Fig. 1; Fig. 6, a detached view partly in
plan and partly in section of the body of the
tool; Fig. 7, a detached view in side eleva-
tion of the plunger; Fig. 7^a, a detached
25 view in front elevation of the plunger; Fig.
8, a similar plan view thereof; Fig. 9, a
similar end view thereof looking toward the
extractor.

My invention relates to an improvement in
30 tools for reloading metallic cartridge-shells,
the object being to provide a compact, con-
venient and effective device, composed of few
parts, and constructed to develop great power
in operation.

35 With these ends in view, my invention con-
sists in the combination, in a reloading tool,
with a chambered body, of a die entered into
one end thereof and adjustable therein, and
adapted to receive a cartridge shell and a
40 bullet, a plunger located in the opposite end
of the body, and a lever for operating the
said plunger.

My invention further consists in certain
details of construction and combinations of
45 parts as will be hereinafter described and
pointed out in the claims.

The body A, of my improved tool is made
in one piece, and traversed throughout its
length by a central circular bore or chamber
50 A'. As herein shown, its inner end and main

portion is cylindrical in form, while its outer
end, which is somewhat larger, has flat sides
and beveled corners, forming as it were a
head. The said body is constructed with
coarse screw-threads a , located within its 55
inner end, and with two open slots a' a^2 , en-
tering it from its outer end, and located in
line with each other, the slot a' being the
shorter of the two, and extending inward
only to about the cylindrical portion of the 60
body, while the slot a^2 extends inward into
the said portion of the body, and intersects
the inner screw-threads a . A circular sight-
opening A³ formed in the body about mid-
way the length thereof and opening into its 65
chamber, permits the operation of parts of
the tool to be viewed. The said screw-threads
adapt the inner end of the body to receive
the correspondingly threaded shank B, of a
cylindrical die, also comprising a handle por- 70
tion B', which is considerably longer than
the said shank, and larger in diameter than
the same. An annular shoulder b thus
formed between the shank, and handle por-
tion of the die, abuts against the inner end 75
of the body, and limits the distance which
the die may be entered into the same. The
said die is constructed with a tapering cham-
ber B², entering its shank, and extending
into its handle-portion, and adapted to re- 80
ceive a cartridge shell and a bullet. The
inner end of the said chamber is reduced in
diameter to form a beveled annular shoul-
der b' , which operates to crimp the open
end of the shell upon the bullet, as will be 85
set forth later on. The end of the shank
of the die is beveled, as at b^2 , whereby the
shank is adapted to give clearance to the be-
veled nose c of the pivotal extractor C a de-
tailed description of which will be given at 90
another time. A vent b^3 leading longitudi-
nally outward from the extreme inner end of
the chamber B², provides for the escape of
any foreign matter that may get into the
chamber, and also for the escape of air con- 95
fined in the chamber when the bullet is in-
troduced thereinto, for otherwise the air in
the chamber would form a cushion, and pre-
vent the bullet from being pushed home in
it. The die is also provided with a small ra- 100

dial vent b^4 , leading out of the chamber B^3 , at a point just outside of the annular beveled shoulder b' . This vent also provides for the escape of air from the chamber, preventing the formation of an air cushion to resist the introduction of the cartridge shell into it. The outer end of the handle-portion of the die is knurled, as at B^3 , to adapt it to be conveniently grasped for its rotation in the operation of the tool. A conical expander B^4 , located at the extreme outer end of the handle-portion of the die, is provided for expanding the open ends of the shells, preparatory to the introduction of the bullet thereinto. The vent b^3 before mentioned, passes through this expander.

A cylindrical plunger D , located in the circular bore A' , of the body A , and entered thereinto from the outer end of the same, coacts with the die in forcing the cartridge shells into the same, and in withdrawing them therefrom. The said plunger is thereto constructed at its inner end with a flat abutment face d , against which the headed ends of the shells impinge. An open longitudinal slot D' , entering the plunger from its outer end, extends nearly throughout its length, receiving at its extreme inner end the extractor C before mentioned, the same being hung upon a transverse pin C' , the opposite ends whereof enter the opposite walls of the slot. A small spiral spring c' located in a recess formed in the foot or body of the extractor, and impinging against the forward end wall of the said slot, exerts a constant effort to throw the beveled nose c of the extractor inward over the abutment face d , of the plunger. It will be observed by reference to Fig. 9 of the drawings, that the inner edge of the said beveled nose is concaved to correspond to the curvature of the cartridge shell. A central opening d' leading from the said abutment face d through into the slot D' of the plunger, provides a vent for the relief of the tool in case a shell should explode while being reloaded. The plunger is reciprocated back and forth in the body within very narrow limits, but with great power, by means of a hand-lever E , which enters the body through the short slot a' thereof, and emerges therefrom through the outer end of the long slot a^2 thereof. This lever is constructed at its inner end with a cam E' , having two cam faces e and e' , and hung upon a heavy removable hollow pin F , which is secured in place by a screw F' , and the opposite ends of which are passed through suitable perforations A^2 A^2 formed in the outer end of the body of the implement.

The plunger D is provided, as will be seen in Figs. 5 and 7 of the drawings, with elongated slots D^2 D^2 , to receive and give clearance to the said stud F . The inner end of the lever E , passes through the slot in the plunger for the engagement of its cam faces e and e' respectively with anti-friction rollers G and G' , located in the slot of the plunger on opposite sides of the elongated slots D^2 D^2

therein, the said rollers being supported on pins g g' entering the opposite walls of the slot in the plunger. The hand-lever is constructed at its inner end with a capping finger E' , which is provided with a very small cup-shaped die H , adapted to receive a primer or cap for forcing the same into a depression or pocket provided for it in the flanged head of the shell, which is, at that time, supported by the flange of its head upon two beveled ears I I , formed upon the outer end of the body, and having their inner walls concaved, as clearly shown in Figs. 2, 3 and 6 of the drawings.

Having now described my improved reloading tool, I will proceed to set forth the method of its operation. The shell to be reloaded is first forced against the expander B^4 , whereby its open end is sufficiently expanded to permit the bullet to be partially entered into it. Of course, this operation may be dispensed with if the bullet can be entered into the shell without expanding the same. The powder previously placed in the shell will, however, prevent the bullet from being pushed home therein as it is designed that the bullet shall compress and pack the powder during the reloading operation. The shell having the bullet thus entered into it, is then slipped into the die, which is at this time detached from the body of the tool. When the shell and bullet are entered into the die, the latter seats or bottoms itself in the inner end of the chamber B^2 , formed therein, the headed end of the shell projecting beyond the die according to the distance which the shell must be moved over the bullet before the two parts are in their final adjustment with respect to each other. The die is now entered into the threaded inner end of the body, and rotated so as to be advanced thereinto until the head of the shell impinges against the abutment d , of the plunger, which is, at this time, retracted by the outward movement of the hand-lever away from the body of the tool. When the head of the shell impinges against the plunger as described, the same will be moved outward until its anti-friction roller G' is brought to a solid bearing against the cam face e' of the hand-lever, which is then brought into its closed position, in which it stands substantially parallel with the body of the tool. This movement of the hand-lever forces the plunger inward with great power, and pushes the cartridge shell into the chamber in the die, and hence over the bullet therein for a distance represented by the movement of the plunger. I may here remark that the hand-lever, its cam faces and the plunger are so constructed that the movement of the plunger when compared with the movement of the lever, will be say as one is to two hundred, whereby I secure in a hand instrument very great power, though at the expense of time and labor, for the movement of the plunger is so slight that it must be repeated many times in doing the work required of it. I do not, of course, limit my-

self to a construction in which the movement of the lever and plunger will be as one is to two hundred, for my invention will be satisfied by any construction in which the movement of the lever is utilized in securing a short but very powerful movement of the die. But to return again to the operation of the tool. The lever is now carried into its open position, and the die rotated to move it inward until the head of the cartridge has impinged against the plunger and again brought the friction roller G' carried thereby to a firm bearing against the cam face e' of the lever, which is again drawn into its closed position, whereby the plunger is moved inward with the effect of forcing the cartridge-shell still farther into the die, and hence farther over the bullet therein. These operations are repeated until the shell has been pushed entirely into the die with the exception of the flange of its head, and a very small portion of the shell lying adjacent thereto, and just sufficient to permit the flange to be engaged by the extractor. I should remark that just before the shell reaches its final position in the die, its open end engages with the annular beveled shoulder b' thereof, whereby it is drawn inward and crimped or forced down upon the bullet, whereby the shell and bullet are firmly secured together.

It will be understood that every time the shell is pushed over the bullet, the powder in the shell will be subjected to compression, and the shell reduced in diameter, if it has been expanded in diameter, which will generally be its condition. It will require many movements of the die and plunger to reload the shell in the manner stated, but the operation is one requiring the expenditure of great power, which is not to be secured in a hand machine except by a leverage which will move the die a little at a time. A rapidly moving die would demand for its operation a greater power than could be brought to bear upon a hand tool. The power secured by my tool is so great that in case the bullet does not quite conform to the shape of the chamber in the die, it will be re-formed during the operation of reloading the shell. The loaded cartridge is then extracted from the die by a reverse operation of the tool. The die is reversely rotated until the anti-friction roller G , carried by the plunger is brought to a solid bearing against the cam-face e of the hand lever, the plunger being drawn inward by the die through the medium of the extractor C , the beveled nose whereof is hooked over the flanged head of the cartridge shell. The hand lever is then thrown outward whereby its said cam face e , acts on the anti-friction roller G , to move the plunger outward away from the die, thus drawing the loaded cartridge a short distance out of the same. The hand lever is then returned to its closed position, and the die again reversely rotated, until the roller G , has again been brought to a firm bearing upon the cam-face e of the lever, which is then again

thrown outward, with the effect of still further extracting the loaded cartridge from the die. These operations are repeated until the cartridge is drawn little by little out of the die, so far that it may be readily pulled away from the same by the fingers after rocking the extractor on its pivot to disengage the same from the head of the cartridge.

The capping of a cartridge by means of a tool has already been referred to, and does not need detailed description.

It will be noted that the plunger is positively forced inward, or positively drawn outward according to the way in which its anti-friction rollers are brought to bear upon the respective cam faces of the hand lever.

It is apparent that in carrying out my invention, some changes in the construction herein shown and described may be made, and I would therefore have it understood that I do not limit myself to the exact construction set forth, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a reloading-tool, the combination with a chambered body, of a die entered into one end thereof and adjustable therein, and adapted to receive a cartridge-shell and a bullet, a plunger located in the opposite end of the body for reciprocal movement toward and away from the inner end of the die, and a lever pivotally mounted in the said body for operating the said plunger, substantially as described.

2. In a reloading-tool, the combination with a chambered body having threads formed within one of its ends, of a die constructed with threads and entered into the said end of the body in which it is adjustable, and adapted to receive a cartridge shell and a bullet, and having a handle portion by means of which it is rotated; a plunger located in the opposite end of the body for reciprocal movement toward and away from the inner end of the die, and a lever pivotally mounted in the said body for operating the said plunger, substantially as described, and whereby the die may be turned inward by hand between the successive operations of the lever.

3. In a reloading-tool, the combination with a chambered body, of a die entered into one end thereof and adjustable therein, and adapted to receive a cartridge-shell and a bullet, a plunger located in the opposite end of the body, a lever for operating the said plunger, and an extractor carried by the plunger, substantially as described.

4. In a reloading-tool, the combination with a chambered body, of a die entered into one end thereof and adjustable therein, and adapted to receive a cartridge shell and a bullet, and having its inner end beveled; a plunger located in the opposite end of the body,

a lever for operating the said plunger; and an extractor carried by the inner end of the plunger, and having a beveled nose, and constructed and arranged to engage with the
5 flanged heads of the shells, substantially as described.

5. In a reloading-tool, the combination with a chambered body having one end constructed with internal screw-threads, and having two
10 longitudinal slots which enter it from its opposite end, a die entered into the threaded end of the body in which it is adjustable, and adapted to receive a cartridge shell and a bullet, a longitudinally slotted plunger entered
15 into the opposite end of the body, having an abutment face to co-operate with the die, and

carrying two anti-friction rollers, a hand-lever hung on a pivot mounted in the slotted end of the body, passing through the slots thereof and through the slot of the plunger, and constructed with two cam-faces which are located between the two rollers of the plunger, and an extractor located in the inner end of the slot in the plunger and co-operating with the die, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM MASON.

Witnesses:

FRED C. EARLE,
GEO. D. SEYMOUR.