July 29, 1924. 1,502,824

L. H. HUETER

CARTRIDGE RELOADING TOOL

Filed March 24, 1923 2 Sheets-Sheet 1

Fig. 1.

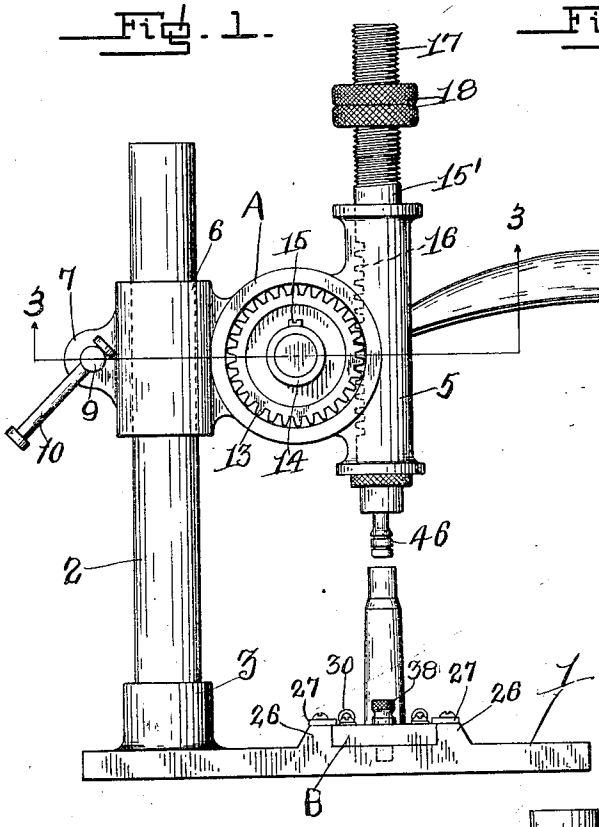


Fig. 2.

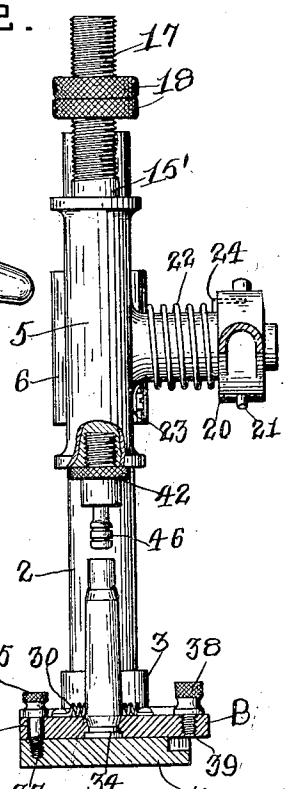
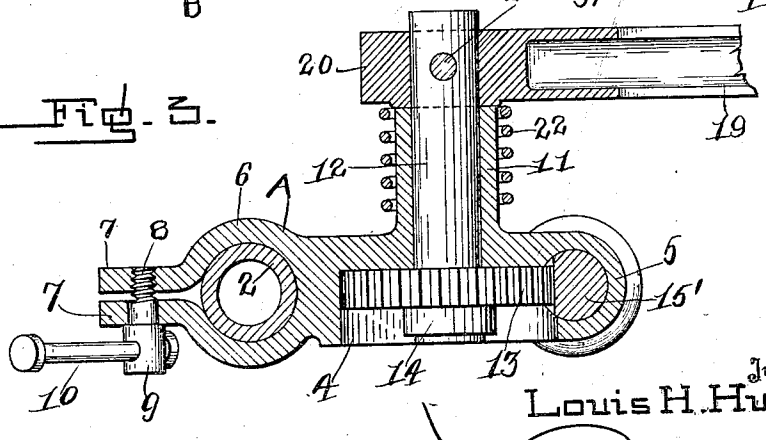


Fig. 3.



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Fig. 9.

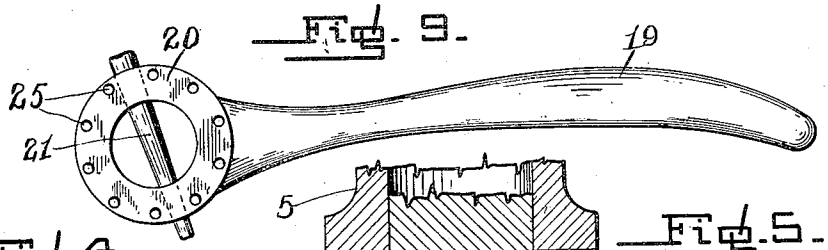


Fig. 5.

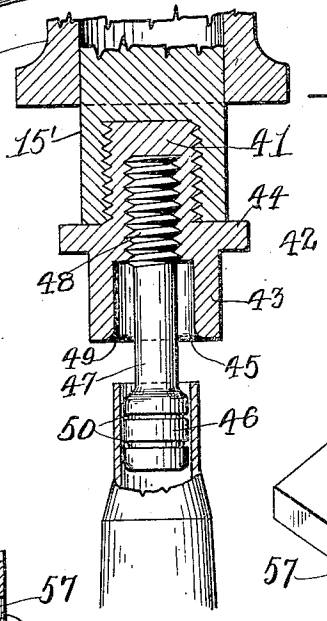


Fig. 4.

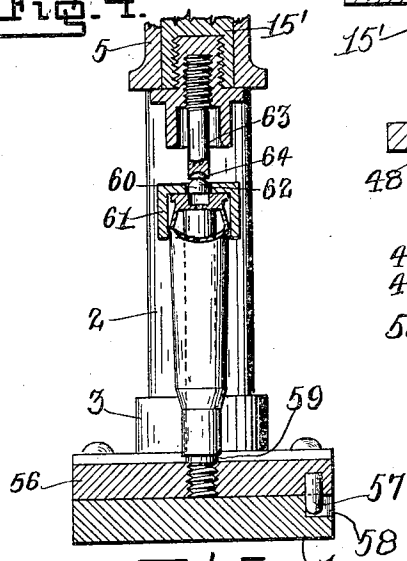


Fig. 8.

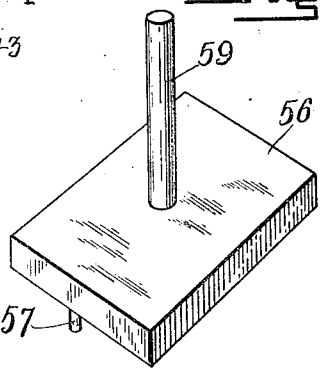


Fig. 6.

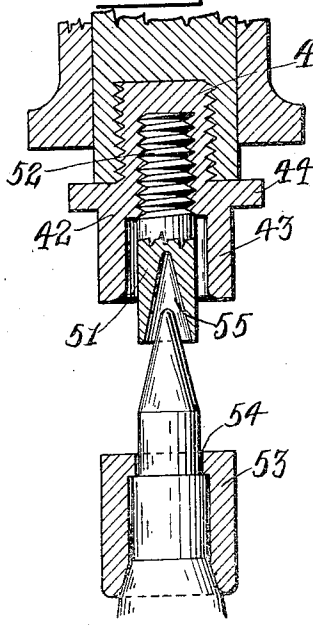
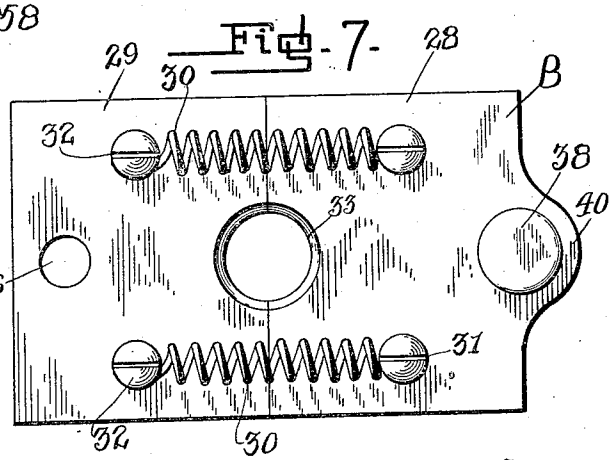


Fig. 7.



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Patented July 29, 1924. 1,502,824

UNITED STATES PATENT OFFICE.

LOUIS HAROLD HUETER, OF SAN FRANCISCO, CALIFORNIA.

CARTRIDGE-RELOADING TOOL.

Application filed March 24, 1923. Serial No. 627,442.

To all whom it may concern:

Be it known that I, LOUIS H. HUETER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Cartridge-Reloading Tools, of which the following is a specification.

This invention relates to new and useful improvements in cartridge reloading tools, and more particularly to a tool of this type which is of the portable hand operated type. When a cartridge has been fired, the empty shell withdrawn from the firearm is somewhat distorted or otherwise forced out of its proper shape, and the cap or primer destroyed.

The main object of my invention is the provision of a cartridge reloading tool which includes in its operation, the recharging and reshaping of the fired shell, resizing and recapping the shell and reseating a new bullet in the open end of the shell, thus completely forming a new cartridge ready for use.

Another object of the present invention is the provision of a reloading tool of this character, wherein the several parts used are separable from the main operating part of the device, so that one part may be readily substituted for the other when desired, the entire device being so constructed that the same may be readily transported from place to place with very little difficulty.

A further object of the invention is the provision of suitable means detachably connected with the base of the tool for supporting the empty shell in an upright position when either shaping or recharging the shell or when recapping the same, said means retaining the shell against any movement during the operation as set forth above.

A still further object of the invention is the provision of a cartridge reloading tool including several parts which are individually used for operating upon the empty shell, said parts being detachably connected from the main portion of the tool so that they may be readily interchanged to carry out the several operations in reshaping, recapping and reseating the bullets in the shell.

A further object of the invention is the provision of a tool of this character wherein the several parts of the tool may be quickly and readily adjusted to accommodate shells of various sizes and types, and additional means is provided for retaining the shells of different sizes and shapes in position when being operated upon.

With the above and other objects in view, the invention consists in the novel features of construction, the combination and arrangement of parts as set forth in the following description, pointed out in the claims and shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a cartridge reloading tool, constructed in accordance with my invention.

Figure 2 is a front elevation, parts thereof being broken away and illustrated in cross section.

Figure 3 is a transverse sectional view, taken on the line 3—3 of Figure 1.

Figure 4 is a detail front elevation, parts of the device being broken away and illustrated in section and illustrating the operative position of several of the parts when recapping a shell.

Figure 5 is a detail longitudinal sectional view, illustrating the manner of reshaping and recharging the shell.

Figure 6 is a detail longitudinal sectional view, illustrating the operative position of several of the parts when reseating the bullet in the shell.

Figure 7 is a top plan view of the adjustable retaining member which retains the empty shell in an upright position while the shell is being reshaped or the bullet seated therein.

Figure 8 is a detail perspective view of the supporting member of the shell, which retains the shell in its proper upright position, while being recapped, and

Figure 9 is a side elevation of the operating handle.

Referring now more particularly to the drawings in which reference characters are used to designate the several parts throughout the views, the numeral 1 indicates a base member which is adapted to support the several operative parts of my improved tool and extending upwardly from one end of the base member is a vertically disposed shaft 2, the lower end of which is fitted into the socket 3 formed in the base 1 and adapted to retain the shaft 2 in its upright position.

Adjustably mounted upon the shaft 2 is the main casting A, which includes the cen-

tral housing 4, the vertically disposed bearing sleeve 5, formed on one side of the housing, and the spaced arcuate clamping sleeve 6 formed on the other side of the housing. The sleeve 6 is adapted to embrace the shaft 2 and is provided at its open side with the perforated ears 7, one of which is provided with screw threads to receive the end of the connecting bolt 8 for tightening the sleeve 6 to clamp the same in engagement with the shaft 2. One end of the bolt 8 is provided with an enlarged perforated head 9, which supports a sliding hand rod 10, adapted for use in rotating the bolt 8 for moving the sleeve 6 toward and away from the outer surface of the shaft 2, whereby the said sleeve may be readily adjusted upon the shaft, and retained in a desired adjusted position.

Extending outwardly from one end of the casting A is the horizontally disposed bearing sleeve 11, the inner end of which communicates with the interior of the housing 4, and mounted within the bearing sleeve 11 is a shaft 12, the inner end of which extends into the housing 4 and has mounted thereon the gear 13. The gear 13 is retained in position upon the end of the shaft 12 by means of the collar 14 mounted upon the outer end of the shaft and secured thereto by means of the set screw 15.

Mounted for reciprocating movement within the bearing sleeve 5 is the plunger 15′, having formed upon one side thereof a rack 16, the teeth on said rack being disposed in operative engagement with the teeth of the gear 13 in the housing 4, whereby rotative movement on the part of the gear will reciprocate the plunger within the bearing sleeve 5. The plunger 15′ is provided at its upper end with a plurality of screw threads, as shown at 17, and mounted upon the upper threaded end of the plunger are the lock nuts 18, which limit the movement of the plunger in its downward travel, said nuts coming in contact with the upper end of the sleeve 5 upon the downward movement of the plunger. The outer surfaces of the nuts 18 are provided with knurled faces, whereby they may be quickly and readily adjusted upon the threaded portion 17 of the plunger 15′.

In order to impart movement to the gear 13 for reciprocating the plunger 15′, the handle member 19 is provided, one edge of which has mounted thereon an enlarged head 20, adapted to fit over the outer end of the shaft 12 and be secured thereto by means of the transverse pin 21, whereby movement of the handle 19 in the arc of a circle, will impart a rotary movement to the shaft 12, which in turn will rotate the gear 13 and impart a reciprocatory movement to the plunger 15′. A coil spring 22 is mounted upon the bearing sleeve, one end of which is attached to the casting A, by means of a set screw 23, while the other end of the coil spring is disposed at right angles as at 24 and may be inserted in any one of the series of openings 25, formed in the head member 20 of the handle 19. From this it will be noted that when the handle member 19 is moved downwardly toward the base member 1, the plunger 15′ will be reciprocated within the bearing sleeve 5 and moved toward the base member. Upon releasing the handle 19, the coil spring 22 which has been previously placed under tension will return the plunger 15′ and the handle member 19 to the position illustrated in Figure 1. In order to adjust the tension of the spring 22, the end 24 of the spring may be inserted in any one of the openings 25 according to the tension desired, it being apparent that the tension of the spring will always return the handle 19 to its normal position ready for operation again.

The base member 1 has formed upon its upper face, the spaced transversely extending ribs 26 and mounted upon the upper edges of these ribs are the retaining plates 27, the inner edges of which overlie the inner faces of the ribs so as to contact with the upper face of the member disposed between the ribs. In order to retain the shell in an upright position while being recharged or reshaped, and also during the operation of seating the bullet within the shell, a suitable holder B is provided which includes the two sections 28 and 29, said sections having their ends disposed in abutting relation and retained in this position by means of the coil springs 30. The coil springs 30 are secured at one end to the pins 31 carried by the section 28 and the other ends are connected to the pins 32 carried by the section 29, said pins being disposed in spaced relation and arranged upon opposite sides of the longitudinal center of the holder, so that the tension of the springs 30 will normally retain the ends of the sections in abutting relation. The abutting ends of the sections 28 and 29 are each provided with an arcuate recess 33 which form a suitable opening for receiving the priming end of the shell to retain the same in an upright position when being operated upon. The inner walls of the recesses 33 are provided with suitable shoulders 34, adapted to contact with the priming end of the shell to prevent any vertical movement on the part of the shell when arranged between the sections 28 and 29.

The holder B is inserted into the base between the flanges 26 and engages beneath the retaining plate 27, said holder being retained in position against movement when placed in position upon the base by means of a set screw 35, which passes through an opening 36 in the holder and is threaded into an opening 37 formed in the base 1.

In order to insert a shell into an opening formed by the recess 33, the section 28 is moved away from the section 29, against the tension of the springs 30 by grasping the finger piece 38 and imparting a sliding movement to the section 28. After the shell has been placed in position, the finger piece 38 is released, the tension of the spring 30 returning the section 28 into abutting relation with the section 29, the shoulder 34 engaging with the annular rib which is usually formed upon the priming end of the shell so as to retain the shell in position between the sections. The finger piece 38 is preferably threaded into the arcuate extension 40 formed upon the outer end of the section 28 as shown at 39.

After the shell has been arranged in the position as set forth above, it is ready to be reshaped and resized, and in order to carry out this operation, the cap or tool must be attached to the lower end of the plunger 15′. In order to attach the proper tool to the plunger 15′, the lower end of the plunger is provided with an internally threaded bore, into which the stem is threaded, the stem 41 being formed upon the reshaping or recharging instrument 42. The implement 42 includes the annular body member 43, having formed thereon a flange 44 which is adapted to abut against the lower end of the plunger 15′ when the stem 41 is threaded into the bore of the plunger. The body 43 is provided with a bore 45, which is of the required size and shape to coincide with the size of the shell being operated upon and adapted to receive the open end of the shell while being resized and reshaped.

In order that the inner walls of the open end of the shells will be properly aligned or resized, a plunger head 46 is provided, which is adapted to fit into the interior of the outer end of the shell so as to remove any irregularities occurring during the firing of the shell, in the meantime expanding the neck of the shell to the proper size in accordance with the size of bullet which is to be fitted into the shell. The head 46 has formed integral therewith a stem 47, having its outer end threaded, as at 48, and adapted to be threaded into an interiorly threaded bore formed in the inner wall of the bore 45. As disclosed in Figure 5, the head 46 projects beyond the end of the member 42, and is adapted to be forced into the inner end of the shell to expand the walls thereof, whereby as the plunger 15′ moves downwardly, the end of the shell will contact with the tapered portion 49 formed on the lower end of the member 42 and be guided into the bore 45. This operation contracts the neck of the shell to the proper shape, and size. As the reshaping instrument is withdrawn from the end of the shell, the head 46 will be moved upwardly through the neck portion and resize this neck portion in accordance with the size of bullet which is to be fitted into the end of the shell.

Attention is called to the fact that the head portion 46 is provided with a plurality of annular recesses 50, which are adapted to collect any dirt or foreign matter in the neck when the head is being withdrawn, so that the bullet may be readily inserted within the neck of the shell and seated as desired. If found necessary the outer end of the neck of the shell may be crimped or forced inwardly to contact with the periphery of the bullet and securely retain the bullet in proper position within the shell, although this operation will be unnecessary if the end of the shell is properly sized and shaped to receive the bullet intended for use in connection with the shell, as it is preferred to form the end of the shell slightly smaller than the size of the bullet to be used, so that when the bullet is forced into the end of the shell, the frictional contact between the bullet and the inner wall of the shell will retain the bullet in position until the shell has been fired to discharge the bullet.

In seating the bullet within the neck of a shell which has been resized and shaped, the head 46 is detached from the plunger 15′ and in place of the head, the bullet seating member 51 is provided, said member having a threaded stem 52 thereon which is adapted to be threaded into the bore provided therefor in the reshaping implement and disposed in direct alignment with the shell to be operated upon. In order to properly guide the bullet into the end of the shell, a cap member 53 is placed over the end of the shell, said cap member having an opening 54 through which the bullet extends, the opening 54 being disposed in alignment with the open end of the shell, so that when the bullet is extended through this opening, it will be directed into the end of the shell. In view of the fact that the end of the shell which is to receive the bullet is formed slightly smaller than the bullet to be inserted therein, it will be necessary to bring pressure upon the outer end of the bullet to force the same into the shell. In order to apply the proper amount of pressure to the upper end of the bullet, the member 51 which is carried by the plunger 15′ will engage the outer end of the bullet upon downward movement of the plunger forcing the bullet onto its seat within the shell. The member 51 is provided with a recess 55, which is of substantially the same size and shape as the outer end of the bullet as to prevent any lateral movement of the bullet while being seated, the bullet being guided into the shell by means of the cap member 53, so that after

the operation has been carried out as set forth above, the bullet will be properly seated within the end of the shell and as the same substantially contacts with the inner wall of the shell it will be retained in position until forced therefrom through the firing of the shell.

In order to retain the shell in its proper position while being capped as illustrated in Figure 4, the plate 56 is mounted upon the base between the ribs 26 and retained in position by means of the plates 27, which engage the upper face of the plate preventing any vertical movement on the part of the same. The plate 56 is retained against sliding movement by means of the pin 57 carried by the plate and fitting into the recess 58 formed in the base member 1 at a point intermediate the ribs 26. Extending upwardly from the plate 56 intermediate the side and end walls thereof is a supporting post 59, upon which the shell is to be mounted while being recapped, the position of the shell being fully illustrated in Figure 4. In properly positioning the cap 60 while fitting the same into the base end of the shell, a guide cap 61 is arranged over the base end of the shell and provided with a central opening 62 which is aligned with the recess in the base of the shell adapted to receive the cap 60. The cap 60 is placed in position within the opening 62 of the guide cap 61, and in order to force the same into the recess provided therefor in the base of the shell, a pin 63 is connected with the lower end of the plunger 65 and upon downward movement of the plunger, the end of the pin will engage the cap 60 and force the same into the recess in the base of the shell provided therefor.

The pin 63 is screw threaded at its inner end and adapted to engage within the bore formed in the inner end of the body 42 and centrally arranged with respect to the wall of the bore 45.

Attention is called to the fact that the lower end of the pin 63 is provided with an arcuate recess 64, said recess preferably conforming to the upper face of the cap 60, so that when the pin is forced downwardly into engagement with the cap, the upper end of the cap will be fitted into the recess 64 so as to prevent any lateral movement on the part of the cap while being seated in the base of the shell. Should it be found desirable to use the device in seating round nose bullets, the stem 63 may be used in place of the bullet seater 51, the recess 64 being adapted to receive the round nose of the bullet when forcing the bullet into the position within the shell. Should it be found, however, that the recess 64 is too small for the size of the nose of the bullet being seated, a separate pin may be used, having formed in its lower end a recess of the proper size and shape to engage the nose of the bullet being seated.

In using the device in operating upon shells of various sizes, the casting A may be adjusted toward and away from the base member 1 and properly spaced from the base 1 in accordance with the size of shell to be operated upon. In adjusting the casting A, the bolt 8 may be unscrewed to release the sleeve 6 from clamping engagement with the shaft 2, so that the casting A may be moved toward or away from the base and when adjusted to the desired position, the bolt 8 is rotated to bring the sleeve 6 into clamping engagement with the shaft 2 and retain the casting A in its proper adjusted position.

In Figures 1, 2, and 5 I have illustrated the shell in its proper relative position for being operated upon to reshape and resize the open end of the shell for receiving the bullet and also illustrating the proper tools attached to the end of the plunger 15′ which are used to carry out this operation. It will be noted from the views designated above, that when the handle 19 is moved toward the base member 1, by the operator, rotary movement is imparted to the gear 13 which through its connection with the rack 16 upon the plunger 15′ will reciprocate the plunger within its bearing sleeve 5, forcing the head member 46 into the open end of the shell and with the head passing downwardly into the shell, while the upper end thereof is guided into the bore 45 by means of the bevelled face 49. As the member 42 moves downwardly over the outer end of the shell, the end of the shell will be shaped to conform to the shape of the bore 45, which is preferably of the desired size and shape to conform to the size and shape of the bullet to be inserted in the shell. When the operator releases the handle member 19 after having reached the limit of its downward movement the tension of the spring 22 will tend to return the handle 19 to its upper position, the movement of the handle imparting a rotary movement to the gear 13, which in turn will move the plunger 15′ upwardly away from the shell, and as the plunger 15′ moves upwardly, the head 46 will be drawn through the upper end of the shell, so as to properly size the shell to receive the bullet intended therefor, it being understood that the diameter of the bullet receiving end of the shell will be formed slightly smaller than the size of the bullet to be inserted therein, so that when the bullet is forced into position, the same will be retained in position through the frictional contact between the bullet and the inner walls of the shell.

After the end of the shell has been properly reshaped and sized to receive the bullet, the stem 47 is removed from the threaded bore in the member 42, and the member 51

replacing the stem 47. The cap 53 is then arranged over the ends of the shell and the bullet extended through the openings 54, until the inner end of the bullet is disposed in alignment with the opening in the shell. The plunger 15′ is then reciprocated in the bearing moving the member 51 downwardly to engage the nose of the bullet, further downward movement upon the part of the plunger 15′ forcing the bullet downwardly into the end of the shell. In order that the proper length of stroke may be imparted to the plunger 15′ for properly recharging and reshaping the end of the shell, and also for properly seating the bullet in the end of the shell, the nuts 18 may be adjusted upon the threaded portion 17 of the plunger in accordance with the length of the stroke desired, said nut being adapted to contact with the upper end of the bearing sleeve 5 upon downward movement of the plunger 15′. From this it will be apparent that should a short stroke be desired, the nut 18 may be adjusted toward the bearing sleeve, or should a longer stroke on the part of the plunger 15′ be desired, the nuts may be adjusted away from the bearing sleeve 5.

In seating the cap 60 within the base of the shell, it will be understood that this operation is preferably carried out before the end of the shell is reshaped and the bullet seated therein. In seating the cap member 60 in the base of the shell, the pin 63 is arranged in its proper relative position in the member 42 and the plate 56 is mounted upon the base 1 between the spaced ribs 26, so that the post 59 will be disposed in axial alignment with the plunger 15′. The shell is then mounted upon the post 59, and the guide cap 61 arranged over the base of the shell so that the opening 62 is arranged in alignment with the recess in the base of the shell. The cap 60 is then placed within the opening 62 and by reciprocating the handle member 19 or moving the same downwardly toward the base member 1, the recessed end of the pin 63 will be brought into contact with the cap 60 and through downward movement of the plunger 15′, the cap will be forced into position in the recess formed in the base of the shell. Upon release of the handle member 19, the tension of the spring 22 will return the plunger 15′ to its normally raised position. The opening 62 formed in the end of the guide slot 61 is slightly larger than the cap to be seated, so that the cap may be readily dropped into the opening and positioned above the recess in the base of the shell, so that when the stem 63 moves downwardly into engagement with the cap, the cap will be forced into the recess and the end of the stem passed into the opening 62 formed in the guide slot, so that the cap or primer 60 will be properly seated in the base of the shell.

In the construction of my improved cartridge reloading tool, it is apparent that the several parts are arranged in compact form, so as to provide a simple and portable hand operated tool, whereby shells of various sizes and shapes may be readily reshaped and recapped and a new bullet reseated in the end of the shell.

It is apparent that in adjusting the length of the stroke of the plunger 15′, the tension of the spring 22 must be adjusted in accordance with the length of stroke desired when applied to the plunger 15′. When adjusting the spring 22′ to accommodate the same to the length of the stroke of the plunger 15′, the tension should be reduced when it is desired to use a short stroke on the part of the plunger and the tension of the spring enlarged when a longer stroke is desired.

While I have shown and described the preferred embodiment of my invention, it is obvious that various changes may be carried out in the construction of the same as well as the operation, without departing from the spirit of the invention or the scope of the appended claims, in which,

I claim:

1. A cartridge reloading tool including a base, a cartridge holder mounted thereon, a plunger carrier arranged above the base, means for adjusting the plunger carrier toward and away from the base, a plunger slidably carried by said plunger carrier, means for imparting a reciprocating movement to the plunger, and a tool detachably connected to the end of the plunger opposed to the base.

2. A cartridge reloading tool including a base, a cartridge holder mounted thereon, a casting supported above the base for adjustment towards and away from the base, a bearing sleeve carried by the casting, a plunger mounted for movement through the bearing sleeve, means for imparting a reciprocating movement to the plunger, and a tool detachably connected to the lower end of the plunger.

3. A cartridge reloading tool including a base, a cartridge holder removably mounted upon the base, a standard extending above the base, a casting carried by said standard and adjustable towards and away from said base, a bearing sleeve formed on the casting and disposed with its axis in a vertical plane, a plunger mounted for reciprocating movement within the bearing sleeve, means for imparting movement to the plunger, and a tool connected to the lower end of the plunger.

4. A tool of the class described including a base member, an upright shaft mounted upon the base, a casting adjustably supported upon the shaft towards and away from the base, a bearing sleeve formed in-

tegral with the casting, a reciprocating plunger movable in the bearing sleeve, a cartridge support mounted upon the base in alignment with the plunger, means for imparting movement to the plunger, and a tool detachably connected to the lower end of the plunger.

5. A tool of the class described including a base member, spaced ribs formed upon said base member, a cartridge holder removably arranged between said ribs, a shaft extending upwardly from the base, a casting mounted upon the shaft for adjustment toward and away from the base, a bearing sleeve carried by the casting, a plunger mounted for reciprocating movement through the bearing sleeve, means for imparting movement to the plunger, and a detachable tool connected to the lower end of the plunger.

6. A tool of the class described comprising a base member, a cartridge holder removably mounted upon the base, an upright shaft secured to the base, a casting mounted for adjustment upon the shaft said casting having a housing, a bearing sleeve formed integral with the casting, a plunger mounted within the bearing sleeve, a rack formed upon one side of the plunger, a gear mounted for rotation within the housing and adapted for cooperation with the rack, means for imparting rotary movement to the gear for reciprocating the plunger, and a tool detachably connected to the lower end of the plunger.

7. A tool of the class described including a base member, a casting arranged above the base and mounted for adjustment toward and away from the base, a bearing sleeve formed integral with the casting, a plunger mounted within the bearing sleeve, said casting including a housing, a shaft extending into the housing, a gear mounted upon the shaft and arranged within the housing, a handle upon the outer end of the shaft whereby movement of the handle in the arc of a circle will impart a rotary movement to the gear, means carried by the plunger cooperating with the gear to impart reciprocating movement of the plunger upon rotation of the gear, and a tool detachably connected to the lower end of the plunger.

8. A tool of the class described including a base member, a casting arranged above the base and mounted for adjustment toward and away from the base, a bearing sleeve formed on the casting, a plunger mounted for movement within the bearing sleeve, said casting including a housing, a shaft having one end extending into the housing, a gear upon the end of the shaft and arranged within the housing, a handle member connected with the other end of the shaft and normally disposed in a raised position whereby downward movement of the handle will impart a rotary movement to the gear, means on the plunger having operative connection with the gear whereby to reciprocate the plunger when rotating said gear upon downward movement of the handle, and means mounted upon the shaft for returning the handle to its normal position.

9. A tool of the class described including a base member, a casting arranged above the base member and mounted for adjustment toward and away from the base, a reciprocating plunger supported by the casting and movable toward and away from the base, means for imparting movement to the plunger, means for adjusting the stroke of the plunger with respect to the casting, and a tool detachably connected to the lower end of the plunger.

10. A tool of the class described including a base member, a casting arranged above the base member and mounted for adjustment toward and away from the base, a sleeve formed integral with the casting, a plunger mounted for movement through the sleeve, means supported by the casting and having cooperative connection with the plunger for imparting movement to the plunger, means for adjusting the length of the stroke of the plunger, and a detachable tool carried by the lower end of the plunger.

11. In a device of the class described, a tool comprising a shaft portion, having one end threaded and a head member formed upon the other end of the shaft having annular dirt receiving recesses formed therein.

12. A tool of the class described including a base member, a casting arranged above the base member, a reciprocating plunger supported by the casting and movable toward and away from the base, means for imparting movement to the plunger including a driving shaft and a handle for the driving shaft, a coiled spring having one end anchored to said casting and its other end adjustably connected with said handle to cause said spring to be wound a predetermined amount when the handle is turned to rotate the shaft and move the plunger downwardly, and a tool detachably connected to the lower end of the plunger.

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