

(No Model.)

M. H. DURST.
STOP FOR RIMLESS CARTRIDGES.

No. 523,979.

Patented Aug. 7, 1894.

Fig. 1

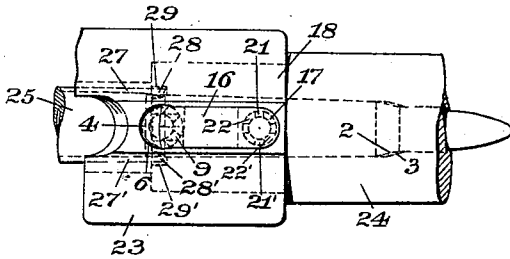


Fig. 6

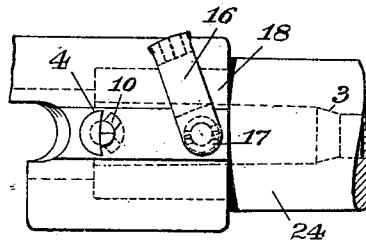


Fig. 2

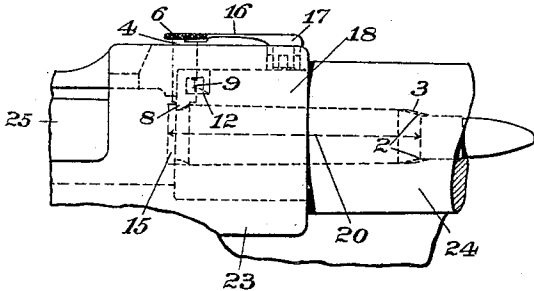


Fig. 3

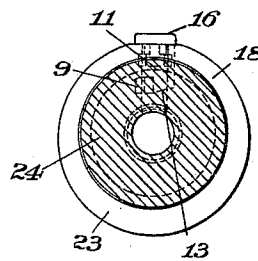


Fig. 4

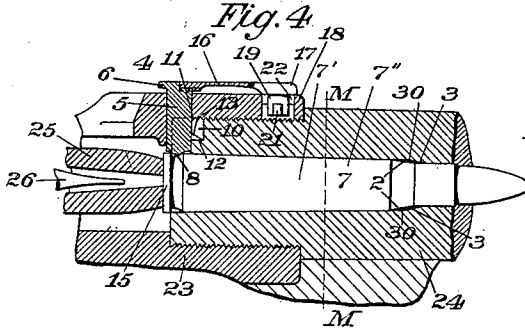


Fig. 5

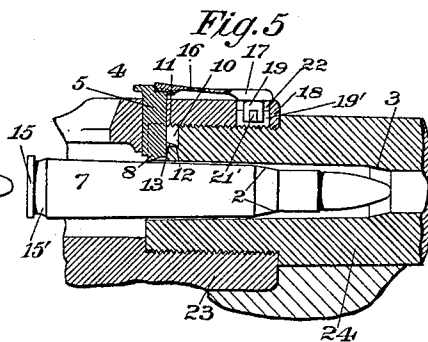


Fig. 10



Fig. 7



Fig. 8



Fig. 9



Fig. 12

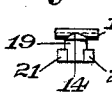


Fig. 13

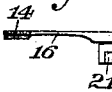
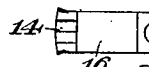


Fig. 11



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UNITED STATES PATENT OFFICE.

MURRAY H. DURST, OF WHEATLAND, CALIFORNIA.

STOP FOR RIMLESS CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 523,979, dated August 7, 1894.

Application filed March 10, 1894. Serial No. 503,113. (No model.)

To all whom it may concern:

Be it known that I, MURRAY H. DURST, a citizen of the United States, residing at Wheatland, in the county of Yuba and State of California, have invented certain new and useful Improvements in Cartridge-Stops for Magazine-Guns, of which the following is a specification.

This invention relates to breech-loading fire-arms especially adapted for using the so-called "rimless cartridges;" the object being to provide means for properly locating the cartridge within the barrel prior to firing the same, for overcoming the transverse breakage of the shells.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan view of a portion of a breech-loading gun embodying my present invention. Fig. 2 shows a side elevation in projection with Fig. 1. Fig. 3 is an end view of the parts shown in Fig. 2, as seen from the right-hand in said figure. Fig. 4 represents a longitudinal vertical section, with the cartridge locked in position for firing. Fig. 5 is a longitudinal vertical section, similar to Fig. 4, showing the cartridge half-way inserted and elevating the cartridge stop-pin. Fig. 6 is a plan view, similar to Fig. 1, but illustrating the method of disassembling the cartridge stop spring and pin. Fig. 7 is a detail vertical elevation of the cartridge stop pin. Fig. 8 is an end view of the same, drawn in projection with Fig. 7. Fig. 9 is the underneath view, locking upward in Fig. 7. Fig. 10 is a plan view of the same, looking downward in Fig. 7. Fig. 11 shows an underneath plan view of the stop spring. Fig. 12 is an end view of the same, drawn in projection therewith. Fig. 13 is a vertical side elevation of the cartridge stop spring disassembled.

Similar characters designate like parts in all the figures.

It will be remembered that in using the so-called "rim cartridges" heretofore more generally employed, it has been customary to limit the entering movement of the cartridge into the chamber of the gun-barrel, by means of the rim of the cartridge striking against the rearward end of the barrel, the cartridge being forced into the barrel by the bolt of the gun. According to that arrangement, of

course, the cartridge is accurately located by the clamping of its rim between the rearward end of the barrel and forward end of the bolt, so that no space would exist at the moment of firing between the rearward face, or head, of the cartridge and the bolt. According to the old plan, therefore, the particular length of cartridge, measured from the head thereof to the forward shoulder at the base of the projectile, was not important within moderate limits, nor could the firing-pin, when striking the cap, drive the cartridge forward in the barrel, since the rim of the cartridge positively limits the entering movement thereof. In these rimless cartridges, however, since the diameter of the head is equal to, or less than, the diameter of the rearward end of the shell, it has been customary to rely upon the forward shoulder 2 of the cartridge coming against the corresponding face or shoulder, 3, of the barrel to prevent the cartridge from passing too far into the bore of the gun. In practice, it has not been found practicable to precisely locate the cartridge in the barrel by means of said shoulder, since the length 20 (see Fig. 2) between the rearward face of the cartridge-head 15 and its forward shoulder 2, varies by an infinitesimal amount, so that, mathematically speaking, the rimless cartridges are of various lengths, notwithstanding the accuracy of their manufacture.

When the cartridge is driven forward in the barrel, the tendency of it is to go forward against the shoulder; and if the said cartridge is shorter than its normal or proper length 20, this deficiency will leave a corresponding space between the head of the cartridge and the bolt; also, the effect of the firing-pin, when this is thrown forward, is to drive the cartridge its total length in the barrel, thereby increasing the space between the cartridge-head and the bolt to the maximum amount. If the cartridge is fired, the first effect of the decomposition of the powder (therefore of the explosion) is to expand the shell within the barrel until this bears against the inner surface of the chamber with such force that the pressure of the heated gases within the shell, even after the bullet has been expelled therefrom, is not sufficient to force back the shell in the chamber, but throws the entire longitudinal force of explosion against the sides of

the shell at a point near the rearward end thereof. This enormous force is sufficient to tear the cartridge-shell in two at about the line M M in Fig. 4, leaving the forward portion 7'' in the barrel when the bolt is retracted, only the rearward portion of the shell being withdrawn.

The object of my present invention is effected by means of a combination, one element of which comprises the cartridge-stop pin 4 located in a vertical recess or bore at the end of the cartridge, or firing-chamber, and movable vertically with the longitudinal axis but normally held in position vertically thereof to engage the forward side of a cartridge-head and thereby hold the cartridge (when this is less than the maximum length) back against the face of the bolt when the bolt is in its closed position ready for firing the gun. The cartridge-stop pin 4 is composed of a body, 5, having preferably a knurled head, 6. At the lower extremity of the cartridge-stop pin is placed a cartridge-stop point, 8, which extends transversely of the gun to engage the rim of the cartridge. In order that the said cartridge-stop pin may not be blown out during the firing-process, a shoulder, 9, formed thereon is fitted into a circular spirally-grooved recess, 10, in the rearward end of the gun-barrel. This together with its engaging shoulder is so constructed that in its upper position while assembled in the gun, it will come in contact with the upper surface, 11, of the receiver, and thereby prevent blowing outward. When in its lower position, said shoulder 9 is in contact with the surface 12 of the gun-barrel, these two contact-surfaces limiting the traveling motion of the cartridge-stop pin. For easily assembling and disassembling said pin, the surface 12 of the gun-barrel is inclined upward, at 13, to facilitate the placing of the pin by gravity. When the shoulder 9 comes in contact with the inclined surface 13, a twisting motion is imparted to the stop-pin, thus revolving the same into its closed position. The upper forward end of the cartridge-stop pin is inclined, preferably in opposite directions, as shown at 14', to form a V-shaped offset or shoulder to fit a corresponding notch, 14, of the deflecting-spring 16, which spring imparts a downward movement to the stop-pin to bring said pin into its closed position with the stop-point 8 thereof in engagement with the rim of the cartridge. The spring 16 is constructed of sufficient width and elasticity to perform its desired function, having its forward end 17 secured in the end 18 of the receiver.

As a means for removably securing the spring 16 to the end 18 of the receiver, the forward end, 17, of said spring is provided with a pin, 19, having laterally and oppositely disposed lugs, 21 and 21', and the end of the receiver has formed therein a pin-receiving recess having inwardly-projecting flanges, or lug-engaging sides, 22 and 22'. In

assembling the parts just described, the pin 19 is entered into the recess 19' of the receiver with the lugs 21 and 21' thereof underneath and in engagement with the engaging-flanges or sides 22 and 22', after which said spring is revolved so that the indent 14 is snapped over the head 14' on the stop-pin 4, thus holding the spring and the pin from turning and disassembling.

When a cartridge is started into the barrel, the sides of the shell impinge against the inner end of the stop-pin, driving this outward, and when the recess 15' on the cartridge comes opposite the stop-pin, this is thrown inward vertically by the spring 16 to firmly engage the cartridge-head, as indicated in Fig. 4.

The gun, partially shown in the drawings, has the usual receiver or frame 23, whose forward end 18 is bored and threaded to receive the correspondingly threaded rearward end of the usual gun-barrel 24. This barrel has therein the usual firing-chamber for receiving the cartridge 7, and is fitted into the end 18 of the receiver, which receiver carries some suitable reciprocating bolt, that may be of any well-known construction. As herein shown, the bolt consists of a principal portion having the forwardly-extended part fitted to drive the cartridge into the bore of the gun and to support the same when fired. The bolt-mechanism is shown provided with the usual firing-pin, 26, which is only partially shown herein, and which may be actuated by a coiled spring (not shown) in the usual manner.

In Fig. 1 the usual extractors, 27 and 27', are shown (in dotted lines) carried by the bolt-head 25, and as having their hooks, 28 and 28', respectively, engaged in the recesses or grooves, 29 and 29', forward of the cartridge-head 15. In this connection, it will be observed that one of the advantages of my present invention is that by limiting, as set forth, the entering movement of the cartridge into the barrel, the head 15 of the cartridge is prevented from going forward of the extractor-hooks, which would thereby be rendered inoperative to extract the cartridge-shell when the bolt is retracted. This feature also obviates the necessity, in manufacturing the ammunition, for so closely gaging the thickness of the cartridge-head; and in general, my improvements are conducive to much more perfect results with the use of less perfectly made cartridges.

Another advantage of my present invention in fire-arms for using the ammunition specified, is that the shoulder 3 of the barrel may be made somewhat in advance of the normal position of the shoulder 2 of the cartridge, leaving a space, 30, for the disposal temporarily of any dirt which may be upon the cartridge-shells or which may be carried forward in the barrel on the insertion of the shell.

On firing the gun, the pressure of gases

within the shell expands the same to fill said space 30; but this action of the shell does not, in practice, burst the shell or otherwise interfere with the extraction thereof, it being prevented by the cartridge-stop pin, the desired result sought for in my invention.

Having thus described my invention, I claim—

1. In a breech-loading gun for using rimless cartridges, the combination with the barrel and means for delivering cartridges thereto, of a cartridge-stop pin revolubly supported in a transverse recess at the rear end of the barrel and having a point adapted for engaging the cartridge and limiting the entering movement thereof, and a resilient stop-actuator in position and adapted for retaining the stop-pin in its cartridge-engaging position, substantially as described.

2. In a breech-loading gun for using rimless cartridges, the combination with the barrel and means for delivering the cartridges thereto, of a cartridge-stop pin supported for longitudinal and rotary movement in a transverse recess in the rear of the gun-barrel and having a laterally projecting lug seated between opposing faces of the gun, to limit the longitudinal movement of said stop-pin, and a resilient actuator shiftably secured to the gun and bearing at its free end upon the stop-pin, substantially as described and for the purpose set forth.

3. In a breech-loading gun for using rimless cartridges, the combination with the receiver and the barrel secured therein and having a firing-chamber, of a spring-actuated cartridge-stop supported for longitudinal and rotary movement in a transverse recess at the rear

end of the barrel, and having its inner end projecting into the firing-chamber and its outer end projected beyond the outer face of the receiver, substantially as described and for the purpose set forth.

4. The combination with the gun-barrel having the firing-chamber, and with the receiver of a gun adapted for using rimless cartridges, of a stop-pin, supported for longitudinal and rotary movement in a transverse recess at the rear end of the gun-barrel, and having a stop-point normally projected into the firing-chamber and having a laterally projecting lug interposed between the walls of the recess at the rear end of the gun-barrel, and adapted for limiting the longitudinal movement of said stop-pin and a resilient actuator revolubly carried at one side of the stop-pin and having a projecting end in a movable engagement with said stop, substantially as described.

5. In a breech-loading gun for using rimless cartridges, the combination with the receiver and with the gun-barrel having the firing-chamber, of a cartridge-stop pin having a cartridge-stop point at its inner end projected into the firing-chamber and having a V-shaped or inclined offset at its outer end, and a spring movably secured to the receiver and having a projected arm with a notch therein corresponding to and adapted for engagement with the offset of the stop-pin, substantially as described and for the purpose set forth.

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