Nov. 25, 1941. G. N. ALBREE 2,263,941

CARTRIDGE

Filed March 1, 1939

Fig.1.

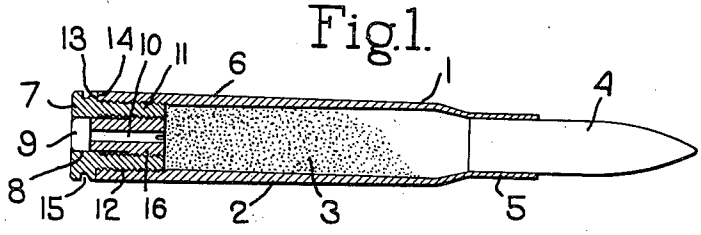


Fig.2.

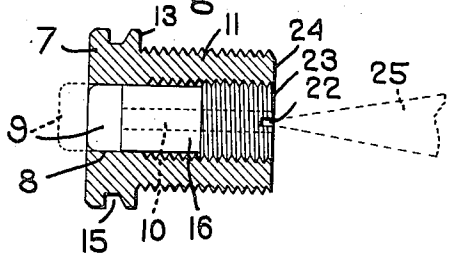


Fig.3.

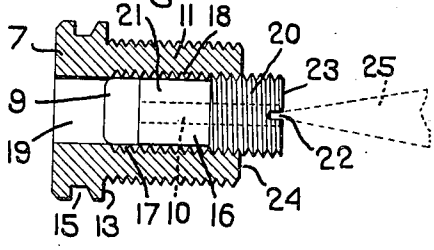


Fig.4.

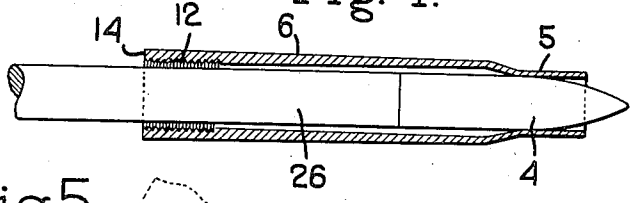


Fig.7.

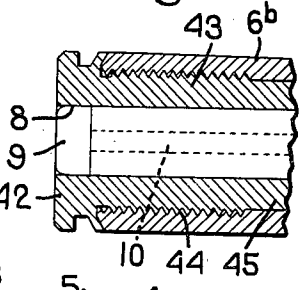


Fig.5.

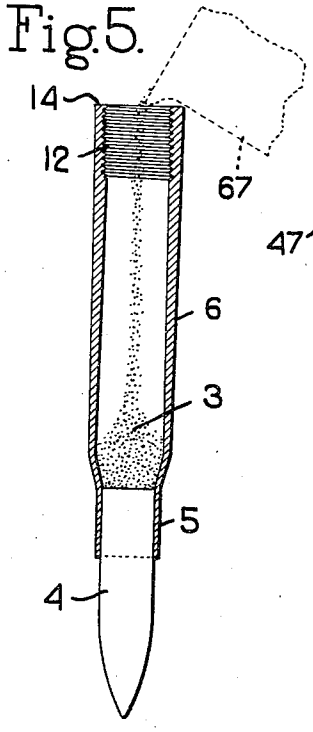
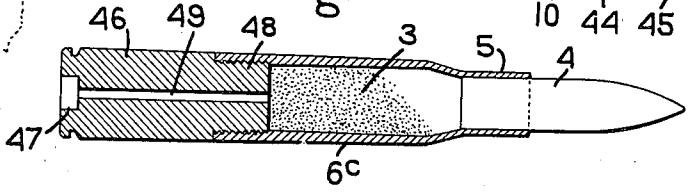


Fig.6.



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UNITED STATES PATENT OFFICE

2,263,941

CARTRIDGE

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Application March 1, 1939, Serial No. 259,173

3 Claims. (Cl. 102—12)

This invention relates to ammunition for rifles and similar firearms and it has for one of its objects to provide a novel cartridge which can be reloaded by hand in a new and novel manner different from that commonly used in hand loading cartridges, and which in the reloading operation requires the use of very few tools except an ordinary screw driver.

Another object of the invention is to provide an improved method of handloading a cartridge case which is free from the danger involved in the ordinary method of handloading.

A further object is to provide an improved cartridge case which has greater strength than the cartridge cases in common use, and which is also safer to use and reload than the ordinary cartridge case.

A further object of the invention is to provide an improved cartridge case which is so constructed as to facilitate the extraction of the detonated primer preparatory to reloading the cartridge case.

A still further object of the invention is to provide an improved form of cartridge case which permits reloading the case with a reduced charge without diminishing in any way the effective action of the explosive charge.

Still further objects of the invention are to improve cartridge cases for rifles, and other similar firearms in various particulars which will be more fully hereinafter set forth.

In securing these objects, I make the cartridge case with a tubular body and a head removably secured to the body which head is provided with the primer-receiving pocket and with the necessary flash hole through which the explosive charge is ignited when the primer is detonated.

By making the cartridge case with the removable head, it is possible to reload the case by removing the head and then inserting the bullet into the neck of the body through the open rear end thereof, and subsequently to deposit the explosive charge into the body through its open rear end. After the explosive charge has been deposited in the casing, then the head with a fresh primer therein can be assembled with the casing and secured thereto, thereby completing the loading operation.

In a preferred embodiment of my invention, the removable head is provided with a primer-ejecting member which can be easily operated by an ordinary screw driver to eject a detonated primer preparatory to reloading the cartridge case. This same primer-ejecting member can also be used for introducing a fresh primer into the head.

The head is removably connected to the body by being screw-threaded thereto. Such screw-threaded connection serves the double purpose of providing a detachable connection between the head and the body and also providing a gas-tight joint.

In order to give an understanding of the invention, I have illustrated in the drawing some embodiments thereof which will now be described, after which the novel features will be pointed out in the appended claims.

In the drawing:

Fig. 1 is a longitudinal sectional view through a cartridge embodying my invention;

Fig. 2 is an enlarged sectional view of the removable head showing the manner in which the primer-ejecting member may be manipulated to eject a detonated primer;

Fig. 3 is a view similar to Fig. 2 showing the manner of placing a fresh primer in the primer-receiving pocket;

Fig. 4 is a view illustrating the manner in which the bullet may be loaded into the cartridge case;

Fig. 5 shows the step of depositing the explosive charge in the cartridge case through the open rear end;

Fig. 6 is a longitudinal section of a cartridge embodying my invention but having a somewhat different construction from that shown in Fig. 1;

Fig. 7 is an enlarged sectional view through the rear end of the cartridge case showing still a different embodiment of the invention.

Referring first to Fig. 1, 1 indicates generally a cartridge having the cartridge case 2 containing the charge 3 of powder or other explosive, and also having the bullet 4 carried by the end 5 of the cartridge case, the latter being shown somewhat reduced in diameter to form a neck portion.

My improved cartridge case 2 is formed with the tubular shell or body portion 6 and with a removable head member 7, the latter having a pocket 8 to receive the usual primer 9 and also having a flash hole 10 through which the explosive charge 3 is ignited when the primer 9 is detonated.

The cartridge herein shown is a center fire cartridge, the pocket 8 being located axially of the cartridge case.

The removable head 7 may be detachably secured to the shell or body 6 in various ways without departing from the invention, but I will preferably make said head with an exteriorly screw-threaded portion 11 which has screw-

threaded engagement with the interior screw threads 12 with which the rear end of the tubular body 6 is provided. The removable head 7 is shown as having a shoulder 13 which seats against the end 14 of the body 6 when the head 7 is screwed into the body thereby making a gas-tight joint.

The head 7 may be shaped to form either a rimmed cartridge or a rimless cartridge, and in the drawing, said head has the shape to produce a rimless cartridge, the exterior diameter of the end of the head beyond the shoulder 13 being substantially the same as the exterior diameter of the body 6. The head 7 is shown as provided with the annular groove 15 which cooperates with the extractor of the rifle to extract the cartridge shell after it has been fired.

In the construction shown in Figs. 1 to 3, the removable head 7 is provided with a primer ejecting member 16 by which a detonated primer can be ejected from the head after the latter has been removed from the body 6, and by which a fresh primer may be replaced in the pocket 8.

The head 7 is provided with an axial bore 17, the inner end 18 of which is interiorly screw-threaded and the outer end 19 of which has a smooth non-threaded wall. One end 20 of the primer-ejecting member 16 is provided with exterior screw threads adapted to screw into the interior screw threads 18, and the other end 21 of said primer-ejecting member has a smooth non-threaded exterior surface and has a size to fit the non-threaded portion 19 of the bore 17.

The inner or screw-threaded end of the primer-ejecting member 16 is shown as having a screw driver notch 22.

When the primer-ejecting member 16 is in position with its inner end surface 23 flush with the end surface 24 of the head 7, the smooth non-threaded portion 21 thereof will extend partially into the non-threaded portion 19 of the bore as shown in Figs. 1 and 2. The length of this primer-ejecting member is such that when it is thus located in the head 7 there will exist a primer-receiving pocket 8 in the outer end of the bore 17 and beyond the end of the primer-ejecting member 16, said member forming one wall of this pocket 8. The flash hole 10 extends axially through the primer-ejecting member 16 and thus constitutes a communication between the primer-receiving pocket 8 and the chamber within the cartridge case in which the explosive charge 3 is confined.

To reload a fired cartridge having the above construction, the head 7 with the detonated primer 9 therein is first removed from the body 6. The cartridge-ejecting member 16 is then screwed further into the head 7, thereby advancing it to the left in Fig. 2 with the result that the detonated primer 9 will be ejected from the pocket 8 as shown in dotted lines, Fig. 2. This manipulation of the ejecting member 16 may be accomplished by the use of an ordinary screw driver 25 inserted into the screw driver slot 22.

When the detonated primer 9 has been ejected, then the primer-ejecting member 16 is removed entirely from the head 7 by screwing it backwardly, and a fresh primer 9 may then be inserted into the right hand end of the bore 17 and moved forwardly toward the left in said bore by replacing the ejecting member 16.

In the manufacture of the outer member of the head, the interior diameter of the non-threaded portion 19 of the bore 17 will be such that the primer will fit said bore with a tight or snug fit. When the primer is placed in the right-hand end of the bore 17, it will move freely in said bore until it reaches the non-threaded portion and when the ejecting member has been inserted into the bore sufficiently so that its exterior screw threads 20 begin to engage the interior screw threads 18 of the head, the end of the ejecting member 16 will then be in engagement with the primer. By turning the ejecting member 16 with the screw driver, the latter will be screwed into its operative position shown in Fig. 2 and will gently force the primer 9 into its proper position in the pocket 8, which is formed by the ejecting member 16 and the portion 19 of the bore 17 beyond the ejecting member. During this operation, the primer is seated flatly against the end of the ejecting member and, therefore, when the primer is in position, it rests flatly against the bottom of the primer-receiving pocket.

This reloading of the head with a fresh primer is accomplished while the head is removed from the body 6 of the cartridge case and is done in a gentle manner which obviates all danger of accidental detonating of the primer.

If it is desired to re-size the neck 5 of the body 6 before loading the latter, this may be done in any suitable or usual way. Assuming that the neck 5 is of the proper size, then the reloading operation may be continued by inserting the bullet 4 point first into the body 6 through its open rear end. Such bullet may be forced into proper position in the neck 5 by means of any suitable tool or implement 26 by which a suitable pushing force may be applied to the rear end of the bullet.

After the bullet has been located in the neck 5 of the body, then the explosive charge 3 may be deposited into the body through the open rear end as illustrated in Fig. 5, wherein a measured quantity of explosive material 3 is shown as being poured into the open end of the body 6 from a suitable receptacle 67.

After the measured charge of explosive has been thus deposited in the body 6, then the head 7, which has been reloaded with a fresh primer 9, may be screwed into the end of the body 6, thereby completing the reloading operation.

The assembling of the head 7 and body 6 may be done without the use of any special tools, and there is nothing about this operation which might accidently detonate the primer thereby causing a premature firing of the cartridge. Furthermore, according to my improved method, the explosive charge is deposited in the cartridge case after the bullet has been inserted in the neck 5 instead of before the assembling of the bullet with the shell, as is the common practice. This difference in operation is also one which eliminates hazards in reloading the cartridge case.

Another advantage in my improved method of hand loading a cartridge case is that the explosive charge 3 is poured into the body 6 through a relatively wide or large opening at its rear end instead of through the narrower smaller opening afforded by the neck 5 as in ordinary practice. With my method, the operator has a much better opportunity to see into the interior of the body during the loading operation, and to observe whether or not he is attempting to load a shell which has already a charge of explosive material therein.

It is sometimes an advantage to be able to use a high-powered rifle for short distance target practice by reloading the cartridge case with a

reduced charge of explosive material. In order to get the proper results from the use of an explosive charge in the form of smokeless powder, it is necessary that the charge should burn under a high pressure and this necessitates that the charge should substantially fill the chamber within the cartridge case. Where it is desired to reload a cartridge case with a reduced charge, I prefer a form of removable head which, when assembled with the body 6, forms a chamber of reduced size to receive the explosive charge. Such a construction is shown in Fig. 7 wherein the removable head 42 is provided with the exteriorly screw-threaded portion 43 to engage the interior screw threads 44 of the body 6b and is also provided with an extension 45 on its forward end which extends into and occupies a considerable portion of the interior of the body 6b, thereby leaving within the body a small or reduced chamber for the reduced charge of explosive material.

In Fig. 6 a construction is shown wherein such reduced chamber is formed by reducing the length of the body 6c and using a removable head 46 of sufficient length to form with the shortened body 6c a cartridge case of the required length. In this embodiment the outer end of the elongated head 46 is formed with the primer-receiving pocket 47, and the inner end of said head has the exteriorly-screw-threaded portion 48 which screws into the end of the shortened shell 6c. This elongated head 46 has the flash hole 49 extending therethrough.

The cartridge case herein shown has special advantages when it is to be hand loaded with a so-called "duplex" charge, that is, a charge containing two different kinds of powder. The large opening in the rear of the shell through which the charge is introduced makes it much easier for the person loading the shell with a duplex charge to see the loading operation.

I claim:

1. A cartridge case having a tubular body, a head removably secured to the outer end of the body and comprising an outer member having an axial bore therethrough of a size throughout to receive a primer, and an inner member having a flash-hole and insertable into and withdrawable from said bore at the inner end only of the head, said inner member being shorter than the outer member and, when in operative position, being situated entirely within the bore and forming with the outer member a primer-receiving pocket at the outer end of the head, said inner member, when being inserted into the outer member from the inner end, being adapted to force a primer through the bore into said pocket, and said inner member, when in operative position with a primer in place in said pocket, being adjustable further into the outer member to eject a detonated primer from the pocket.

2. A cartridge case having a tubular body and a head removably secured thereto, said head comprising an outer member having an axial bore therethrough, the inner end of which bore is interiorly screw-threaded, and a central plug adapted to be screw-threaded into and removed from said bore at the inner end of the head only, said plug being shorter than the outer member and, when in operative position, being situated entirely within the bore and forming with the outer member a primer-receiving pocket, the interiorly screw-threaded portion of the outer member being longer than the exteriorly screw-threaded portion of the plug whereby when said plug is in its operative position with a primer in place in said pocket, said plug may be screwed further into the outer member thereby to eject a detonated primer from the pocket.

3. A cartridge case having a tubular body and a head removably secured to the end thereof, said head comprising an outer member having a bore extending axially therethrough, the inner end of said bore being interiorly screw-threaded and the outer end thereof being cylindrical and non-threaded, and a combined primer-inserting and primer-ejecting plug located entirely within the outer member, the inner end of the plug being exteriorly screw-threaded to engage the interior screw threads of the outer member and the outer end of said plug being cylindrical and non-threaded to fit the non-threaded portion of said bore, said plug being of less length than the outer member and, when in operative position, being located entirely within the bore and forming with the outer member a primer-receiving pocket at the outer end of the bore, said plug further being removable from the bore and insertable thereinto through the inner end only of the head, and adapted when so inserted into the head to force a primer into said pocket through the bore from the inner end of the head, the interior screw threads of the outer member being longer than the screw-threaded portion of the plug, whereby said plug can be screw-threaded from its operative position toward the outer end of the plug, thereby to discharge a detonated primer from the pocket.

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