Sept. 1, 1942. G. N. ALBREE 2,294,822

CARTRIDGE

Original Filed March 1, 1939

Fig. 1.

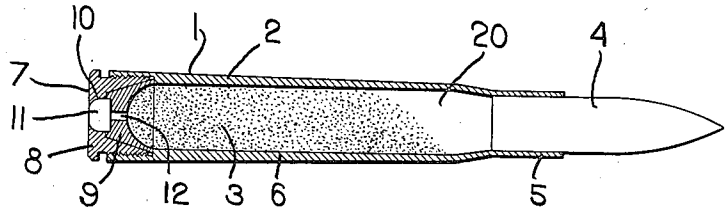


Fig. 2.

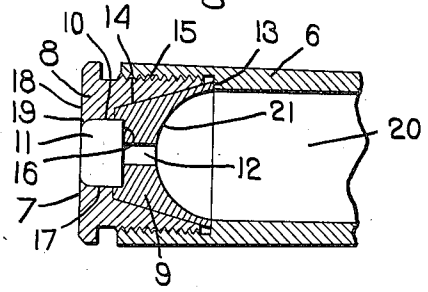
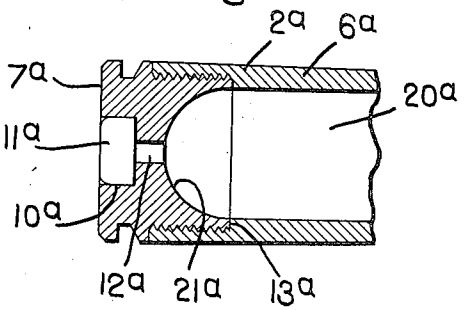


Fig. 3.



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UNITED STATES PATENT OFFICE

2,294,822

CARTRIDGE

George Norman Albree, Winchester, Mass.

Original application March 1, 1939, Serial No. 259,173. Divided and this application March 22, 1940, Serial No. 325,339

3 Claims. (Cl. 102—44)

This invention relates to cartridges for firearms and has for one of its objects to provide a cartridge case having a novel two-part removable head constructed so that the two parts of the head form between them a primer-receiving pocket in which the primer is received. The removable head can be readily removed from the cartridge case after the cartridge has been fired and ejected from the firearm, and when the two parts of the head are separated, the detonated primer is readily discharged and the parts can be easily cleaned chemically or otherwise, ready to be assembled again with each other and with the cartridge case with a fresh primer in the pocket. The above features are especially advantageous when applied to a cartridge case designed to be re-loaded after the cartridge has been fired.

A further object of the invention is to provide a cartridge case in which the head end of the powder-receiving chamber is shaped to facilitate ignition of the powder and to produce better combustion and thus higher velocity to the bullet as it is discharged. This is accomplished by making the head end of said chamber dome-shaped and free from any flat surfaces.

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

In the drawing:

Fig. 1 is a sectional view of a loaded cartridge embodying my invention.

Fig. 2 is an enlarged sectional view through the head end of the cartridge.

Fig. 3 is a sectional view similar to Fig. 2, but showing a different embodiment of the invention.

Referring first to Fig. 1, 1 indicates generally a cartridge having a cartridge case 2 containing a charge 3 of powder or other explosive, and also having a bullet 4 carried by the neck end 5 of the cartridge case.

My improved cartridge case is made with the shell or tubular body portion 6, and with a removable head 7, the latter comprising the outer part 8 and the inner part 9 which form between them a pocket 10 to receive the primer 11, the part 9 having the flash hole 12 extending from the primer-receiving pocket 10 to the chamber 20 containing the powder charge 3. The tubular body portion 6 is made with an enlarged interior diameter at its base end which forms an outwardly facing shoulder 13 at that end of the portion of smaller interior diameter. The portion of the body having the larger interior diameter is interiorly screw-threaded to receive the removable head.

The inner part 9 of the removable head is in the form of a truncated cone, and its base rests against the outwardly facing shoulder 13. The outer part 8 of the two-part head has a conical recess 14 in which the inner part 9 fits and said outer part is provided with exterior screw threads 15 which engage the interior screw threads with which the portion of the body having the larger interior diameter is provided.

The inner part 9 is shown as recessed slightly at its outer end, as indicated at 16. The outer part 8 has an axial through opening which is in alignment with the recess 16 and has the same diametrical dimension as the recess, said recess 16 and the opening 17 forming between them an open-ended primer-receiving pocket 10 having a depth corresponding to the thickness of the primer 11 so that the primer is exposed to receive the impact of the firing pin. The outer part 8, however, presents a retaining lip 19 surrounding the opening which serves to hold the primer in place, in a manner similar to that which results by crimping the head of the ordinary cartridge.

In assembling the primer and cartridge case, the inner part may be placed in the cartridge case with its base resting against the shoulder 13, the primer may then be placed in the recess 16 and the outer part 8 may then be screwed into the cartridge case.

The screwing of the outer part 8 into the cartridge case serves to clamp the inner part firmly against the shoulder 13, said outer part having such a length that it will be brought into firm clamping engagement with the inner part while the inner end of the outer part is still spaced from the shoulder 13.

Where this construction is used in connection with a cartridge case that is to be re-loaded by hand, the bullet 4 may be placed in the neck of the cartridge case, and the powder charge may be poured into the cartridge case from the head end while the two-part head is removed therefrom. The two-part head with the primer may then be assembled with the shell of the cartridge case as above described. With this invention, therefore, the danger of a premature explosion during re-loading of the firearm is greatly reduced, since the powder charge is deposited in the cartridge case before the primer is placed in position.

After the cartridge has been fired, the head may be readily removed, and when the two parts 8 and 9 are separated, the detonated primer will be discharged from its pocket. These parts can then be easily cleaned either chemically or mechanically, and then re-assembled with a fresh primer when the cartridge case is to be re-loaded. The outer part 9 of the two-part head is provided at its end with an outwardly extending flange 22, said flange being so disposed that when the outer

part 8 is screwed home, thereby to clamp the inner part 9 against the seat 13, said flange 22 is spaced somewhat from the end of the body 6, thereby providing a groove to receive the extractor by which the shell is automatically removed from the barrel after it has been fired.

Another feature of my invention relates to the shape of the head end of the powder-receiving chamber 20, said chamber 20 having a shape at its head end which facilitates the ignition of the powder charge and results in discharging the bullet with increased velocity.

These ends are accomplished by making the head end of the chamber 20 with a dome shape, which may be either semi-spherical or parabolic. In the drawing, the head end of the chamber 20 is shown as substantially semi-spherical in shape and where this feature is applied to the two-part removable head, shown in Figs. 1 and 2, the inner part 9 will be formed with the semi-spherical surface 21 which forms the head end of the chamber 20. This semi-spherical or dome-shaped surface 21 merges into the surface constituting the inner wall of the recess 20 at the shoulder 13 so that the chamber 20 will present a smooth interior surface with a rounded or dome-shaped end and without any shoulder or break at the point where the inner part 9 of the head meets the shoulder 13.

I have discovered that the rounded or dome-shaped end of the cartridge case which is free from flat surfaces will facilitate the ignition of the powder charge, and a bullet discharged from a cartridge case having such rounded or dome-shaped end will be delivered with a higher muzzle velocity than when discharged from a similar cartridge case containing the same charge but having a powder-receiving chamber with a flat end.

In Fig. 3 I have illustrated another embodiment of the invention where the dome-shaped feature is embodied in a cartridge having a one-piece removable head. In this embodiment of the invention, the cartridge case 2*a* is formed with a shell 6*a* and with the removable one-piece head 7*a*, the latter having a primer-receiving pocket 10*a* adapted to receive the primer 11*a*, and also having the flash hole 12*a*. This head 7*a* is provided with exterior screw-threads and is adapted to be screwed into the end of the shell 6*a*.

The inner face 21*a* of the removable head 7*a* is also dome-shaped to provide the dome-shaped end of the powder-receiving chamber 20*a*. In this embodiment, the shell 6*a* is formed with the shoulder 13*a* against which the head 7*a* seats and the dome-shaped surface 21*a* merges into the wall of the chamber 20*a*.

This dome-shape for the end of the powder-receiving chamber gives the head of the cartridge case a natural truss effect which adds to its strength.

Another advantage of my improvement is that the shell 6 of the cartridge case can be made of tubing, thereby greatly simplifying the manufacture of the cartridge case over the usual method of forming a cartridge case of sheet metal.

This application is a division of my co-pending application, Serial No. 259,173, filed March 1, 1939.

I claim:

1. A cartridge case for firearms having a tubular body member, the interior diameter of which is enlarged at its base end to form an outwardly facing shoulder between the portions of different interior diameters, the portion of enlarged diameter being interiorly screw-threaded, and a two-part head detachably secured to the tubular member and comprising an inner part in the shape of a truncated cone having its larger end seated against said shoulder and also having a recess in its smaller end, and an outer part screw-threaded into said interior screw threads and provided with a recess of a shape to fit the inner part and of a size to receive substantially all of said inner part, said outer part having a central opening extending axially therethrough which is aligned with and has the same diametrical dimension as said recess in said inner part, said recess in said inner part and central opening together forming an open-ended primer-receiving pocket having a depth corresponding to the thickness of a conventional primer, said outer part extending beyond the end of the tubular body and having at its outer end a flange slightly spaced from the end of said tubular body, which flange forms with the end of the tubular body a groove to receive the ejector of the firearm.

2. A cartridge case for firearms having a tubular body member, the interior diameter of which is enlarged at its base end to form an outwardly facing shoulder between the portions of different interior diameters, the portion of enlarged diameter having interior screw-threads extending from the base end of the cartridge case to the shoulder and a two-part head detachably secured to the tubular member and comprising an inner part having the shape of a truncated cone and also having its larger end seated against the shoulder and further having a recess in its smaller end, and an outer part screw-threaded into said interior screw threads and provided with a recess of a shape to fit the inner part and of a size to receive substantially all of said inner part, said outer part having a central opening which is aligned with and has the same diametrical dimension as said recess in said inner part, said opening and said recess in said inner part together forming a primer-receiving pocket of a depth corresponding to the thickness of a conventional primer, the inner end of the inner part being concavely curved on a radius substantially the same as that of the interior diameter of said body portion.

3. A cartridge case for firearms having a tubular body member, the interior diameter of which is enlarged at its base end to form an outwardly facing shoulder between the portions of different interior diameters, the portion of enlarged diameter extending from the end of the cartridge case to said shoulder and being interiorly screw-threaded, and a two-part head detachably secured to the tubular member and comprising an inner part in the shape of a truncated cone having its larger end seated against said shoulder and having a recess in its smaller end, and an outer part screw-threaded into said interior screw threads and provided with a recess of a shape to fit the inner part and of a size to receive substantially all of said inner part, said outer part having a central opening extending therethrough which is aligned with and has the same diametrical dimensions as the recess in the inner part and said outer part also having an inwardly directed retaining lip at the outer end of said opening, said recess in said inner part and said central opening together constituting an open-ended primer-receiving pocket having a depth corresponding to the thickness of a conventional primer.

GEORGE NORMAN ALBREE.