June 18, 1968 G. T. KOEHLER 3,388,665

CARTRIDGE ADAPTERS FOR HIGH-POWERED FIREARMS

Filed April 13, 1966

FIG. 1.

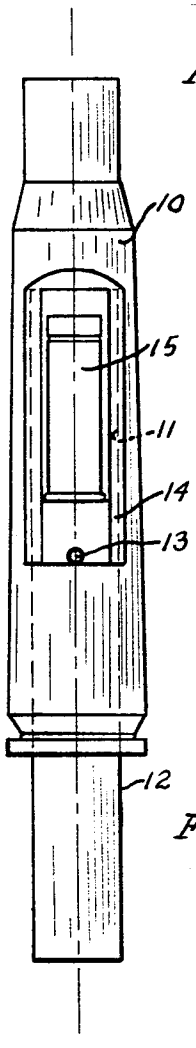


FIG. 3.

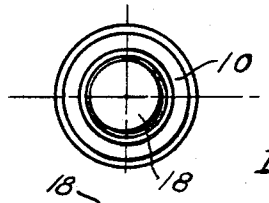


FIG. 2.

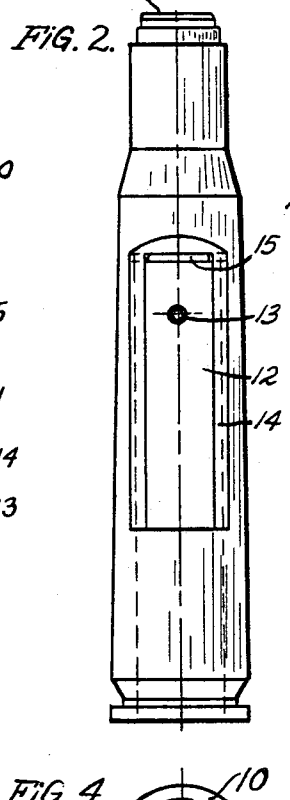


FIG. 4

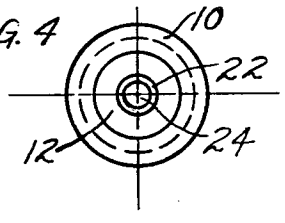


FIG. 5.

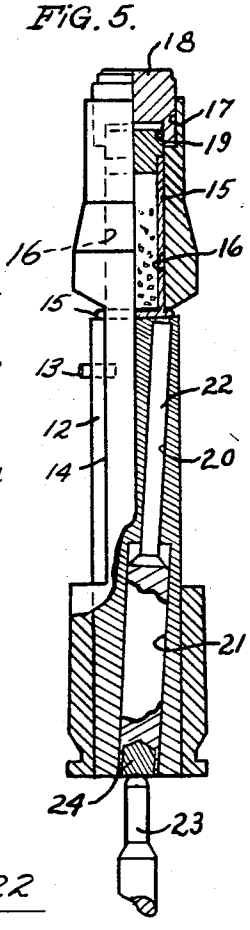


FIG. 6.

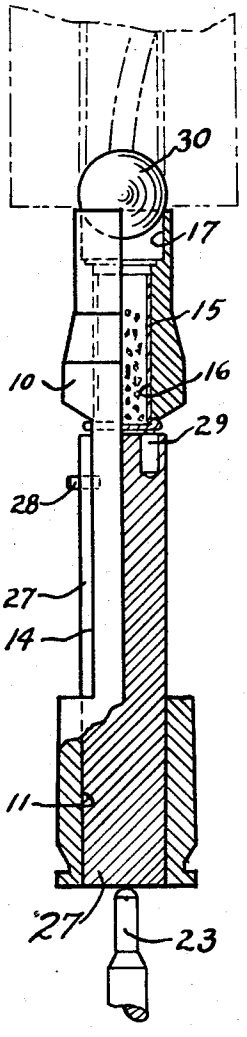


FIG. 7.

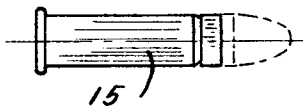
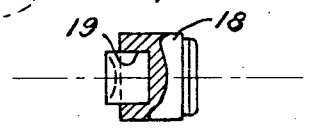


FIG. 8.



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CARTRIDGE ADAPTERS FOR HIGH-POWERED FIREARMS

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ABSTRACT OF THE DISCLOSURE

An adapter cartridge shaped to fit the firing chamber of a high-powered firearm and having a central bore therethrough which is enlarged at its upper end to receive a projectile, and restricted beneath the projectile to form a chamber to receive a low-powered cartridge. Openings in the sidewall of the adapter give access to the chamber for the insertion and removal of the low-powered cartridge. A plunger is freely supported in the central bore beneath the chamber and carries a firing pin which forms an operating connection between the low-powered cartridge and the firing mechanism of the firearm.

This invention relates to ammunition for small firearms and is particularly directed to means for adapting a low-powered small caliber cartridge for use in a comparatively high-powered large caliber firearm, to provide an economical load or charge suitable for use in indoor target practice for example, and hunting small game.

A general object of the present invention is to provide means for using a reduced or low-powered charge or load in high-powered firearms.

Another object is the provision of an adapter cartridge for use in high-powered firearms, said adapter arranged to accept an inexpensive low-powered cartridge and a suitable lightweight bullet for the economical use of said firearm for accurate short range firing such as indoor target practice and the hunting of small game.

With these and other incidental objects in view the invention includes certain novel features of construction and combinations of parts a preferred form or embodiment of which is hereinafter described with reference to the drawings which accompany and form a part of this specification.

In the drawings:

FIG. 1 is an elevation of the adapter cartridge showing the manner in which the low-powered cartridge is inserted in said adapter.

FIG. 2 is an elevation of the adapter showing the low-powered cartridge and the comparatively lightweight bullet properly inserted in said adapter.

FIGS. 3 and 4 are, respectively, right angle projections of the upper and lower ends of the adapter shown in FIG. 2.

FIG. 5 is an elevation of the adapter, partially sectioned, to better illustrate the manner in which the low-powered cartridge is inserted in said adapter and the projectile or bullet placed in the upper end thereof, and also shows the detailed construction of the firing pin for said adapter.

FIG. 6 is an elevation, partially sectioned, of a modified form of adapter cartridge having a different type of firing plunger and arranged to use a round ball type of projectile instead of the cylindrical type of projectile, shown in FIG. 5.

FIG. 7 is a detail view of the low-powered cartridge used in the adapter, showing the manner in which a portion of the bullet or projectile of said cartridge is cut off so that the remaining portion of said bullet will snugly engage a depression formed in the lower end of the cylindrical projectile.

FIG. 8 is a detail view, partially sectioned, of the cylindrical projectile or bullet for the adapter showing the manner in which the remaining portion of the bullet of the low-powered cartridge engages the depression in the lower end of said bullet and bonds itself firmly thereto during firing, to provide accurate flight of said cylindrical projectile or bullet.

Description

It is desirable and essential that owners of high-powered long range hunting firearms or rifles become thoroughly familiar with said firearms by repeated firing before using them in the hunting of large game. There is no satisfactory way for said owners to gain this information or familiarity in restricted or confined areas as it is impractical, dangerous and unlawful to fire a high-powered arm in this manner. Along with the inconvenience of finding a suitable area in which to fire the high-powered arm is the expense involved in using high-powered hunting ammunition in sufficient quantities to become thoroughly familiar with the use of said arm.

To overcome all of the above inconveniences and expense, applicant has devised an auxiliary adapter cartridge which fits the chamber of the high-powered arm and accepts a low-powered, inexpensive cartridge, such as a 22 caliber rim fire cartridge, and a suitable inexpensive bullet, to satisfactorily adapt the arm for safe and accurate short range firing, such as indoor target practice and the hunting of small game in restricted or confined areas.

Referring to the figures of the drawings in which like reference numerals refer to like parts, the adapter cartridge comprises a case **10**, the external contour and dimensions of which are exactly the same as the high-powered cartridge that it is being used to replace, so as to properly fit the chamber of the arm in which it is to be used. The case **10** is made of any suitable material such as bronze or aluminum alloy and has a central bore **11** which freely supports a plunger **12** having near its upper end a stop-pin **13** which extends through one of two similiar and diametrically opposed openings **14**, said opening serving to provide ample room for inserting a low-powered cartridge **15**, in this case a 22 caliber rim fire cartridge, in the case **10**.

The 22 caliber cartridge **15**, shown in detail in FIG. 7, is a standard cartridge in every respect except a portion of the bullet or projectile is cut off, as shown here, the lower portion of said bullet remaining intact in the cartridge to prevent the spilling of the powder therein, prior to the use of said cartridge.

Referring particularly to FIG. 5, a reduced portion **16** of the central bore **11** is the proper size to freely receive the low-powered cartridge **15** when it is inserted therein as here shown. With the plunger **12** in its lower position (FIG. 1) as determined by the pin **13** engaging the lower edge of the opening **14**, the low-powered cartridge **15** may be inserted through either of the openings **14**, by use of the thumb and forefinger and slid upwardly into the counter bore **16**, after which the plunger is moved upwardly into firing position, as shown in FIG. 5. An alternative method of loading the low-powered cartridge into the adapter may also be to place the plunger **12** in its lower position, as shown in FIG. 1, then through the openings **14** to place the cartridge **15** upon the upper end of said plunger after which the plunger may be pushed upwardly to firing position, as shown in FIG. 5, and simultaneously carries the low-powered cartridge **15** into proper engagement with the reduced bore **16**. The upper end of the adapter case **10** has a counter bore **17** concentric with the reduced bore **16** and the central bore **11**, arranged to receive a cylindrical projectile or bullet **18**, which in this case, is produced by properly forming or swaging a large size buckshot, said bullet **18** being a

push-fit in said counter bore so that it may be properly seated on the bottom of said counter bore, as shown in FIG. 5, during which seating a recess **19** formed in the lower end of said bullet snugly fits over the cut off portion of the bullet of the cartridge **15**, as shown here.

The central plunger **12**, which may be made of the same material as the adapter case **10**, FIG. 5, has an angular bore **20** therein and a counter bore **21** concentric therewith, said bore **20** arranged to receive the reduced upper end of a firing pin **22** while the counter bore **21** receives the enlarged lower end of said firing pin, said firing pin **22** being freely supported in said bore and said counter bore. The lower edge of the counter bore **21** is peaned or crimped over slightly to prevent the firing pin **22** from falling out of the plunger **12**. The angular mounting of the firing pin **22** in the plunger **12** permits the lower end of said firing pin to be centrally disposed in relation to said plunger so that it will be in alignment with a firing pin **23**, FIG. 5, of the firearm in which the adapter is being used, while the upper end of said firing pin **22** is in alignment with and in proper position to engage the rim of the low-powered cartridge **15** so as to properly fire said cartridge through the medium of the firing pin **23**. The firing pin **22** is made of any suitable material such as properly tempered steel, and the lower end of said firing pin has a recess or bore therein to receive on impact plug **24** made of substantially soft material, such as copper or brass so as not to injure the tip of the firing pin **23** when the adapter cartridge **10** is being used for short range firing.

The angular arrangement of the auxiliary firing pin **22** in the adapter **10**, is necessary because the firearm in which the reduced load is being used is arranged for center fire cartridges while the low-powered cartridge **15**, used in the adapter, is a rim fire cartridge and must be struck on the rim thereof in order to produce proper firing.

To remove the low-powered cartridge **15** after firing, requires only that the adapter **10** be ejected from the chamber of the arm in the same manner as the ammunition ordinarily used in said arm is ejected, after which the plunger **12** may be pulled downwardly to its lower position, as shown in FIG. 1, whereupon the low-powered cartridge **15** may be grasped by its rim and pulled out of the bore **16** by use of the fingers or pushed out of said bore **16** by inserting a suitable rod of any kind through the counter bore **17** in the upper end of the adapter **10** and into the hollow end of said cartridge **15**. It will be noted, by referring to FIG. 5, that the upper edges of the openings **14** in the adapter **10** are of angular or tapered configuration directly adjacent the rim of the low-powered cartridge **15** to provide ready access to said rim for the removal of said cartridge.

It is to be noted that through repeated use of the adapter **10** there has been no tendency of the low-powered cartridges **15** to stick in the bore **16** and they are generally easily removed by simply grasping the rim of said cartridge and pulling it out of the bore **16**.

A modified form of the adapter **10** is shown in FIG. 6, and the case of said adapter is similar in every respect to the case for the preferred form, and the central bore **11** of said modified case slidably supports a plunger **27** which is different in construction from the plunger **12** of the preferred form.

The plunger **27** is formed of any suitable material such as aluminum alloy the same as case **10**, and has a pin **28** which extends through one of the two diametrically opposed openings **14**, the same as the pin **13** for the preferred form. It will be noted that the plunger **27** of the modified form has no firing pin **22**, such as the plunger **12** of the preferred form, but instead has a pin **29** formed of suitable material, such as tempered steel, being a press-fit in a bore in the upper end of said plunger **27**, so as to be in alignment with the rim of the low-powered cartridge **15**, as shown in FIG. 6.

In the case of the modified form it will be noted that the projectile or bullet has been entirely removed from the case of the low-powered cartridge **15**, and that instead of the cylindrical shaped bullet **18** of the preferred form, the modified form is provided with a round or ball shaped projectile **30**, which in this case is a standard lead buckshot of proper dimensions which has been copperplated to prevent excessive fouling of the bore of the firearm.

The low-powered cartridge **15** is inserted in the adapter **10** of the modified form, in exactly the same manner explained for the preferred form. Finally the ball **30** is pushed into the counter bore **17** in the upper end of the adapter **10**, whereupon said adapter **10** of the modified form is in proper condition for firing. The plunger **27** being made of suitable material which is comparatively soft does not in any way tend to injure the end of the firing pin **23** of the firearm and operates in an entirely satisfactory manner for the purpose intended. If desired two of the firing pins **29** may be diametrically disposed in the upper end of the plunger **27** to insure proper firing of the low-powered cartridge **15**.

It is to be noted that several of the adapters **10** may be loaded into the magazine of the repeating firearm being used and fed into the firing chamber of said firearm in exactly the same manner as the regular high-powered ammunition.

While the forms of mechansims herein shown and described are admirably adapted to fulfill the objects primarily stated it is to be understood that it is not intended to confine the invention to the forms or embodiments herein disclosed for it is susceptible of embodiment in various other forms all coming within the scope and spirit of this invention.

What is claimed is:

1. In a device for adapting a low-powered cartridge for use in a high-powered firearm, the combination of a cartridge-shaped casing of proper outside dimensions to fit the chamber of the firearm, said casing having a central bore restricted near the upper end of said casing to form a chamber to receive the low-powered cartridge; diametrically opposed openings in the casing providing access to the central bore and to the chamber for the finger-loading of said cartridge in said chamber and for removing said cartridge therefrom; and means including a plunger freely supported in the central bore for limited movement therein and a firing pin mounted in said plunger to form an operating connection between the low-powered cartridge and the firing mechanism of the firearm, whereby operation of said firing mechanism will discharge said cartridge.

2. In a device for adapting a low-powered cartridge for use in a high-powered firearm, the combination of a cartridge-shaped casing of proper outside dimensions to fit the chamber of the firearm, said casing having a central bore of proper diameter to receive in its upper end a projectile of suitable size and weight, said bore having a restricted area near its upper end and beneath the location of the projectile to form a chamber to receive the low-powered cartridge; diametrically opposed openings in the casing providing access to the central bore and the chamber to permit finger-insertion of the cartridge in said chamber and its removal therefrom; a plunger freely supported in the bore so that its lower end is in coacting relationship with the firing mechanism of the firearm; stop means in the plunger and coacting with one of the openings to limit the free movement of said plunger in the bore; and a firing pin mounted in the upper end of the plunger in coacting relationship with the rim of the cartridge whereby operation of the firing mechanism discharges said cartridge.

3. In a device for adapting a low-powered cartridge for use in a high-powered firearm, the combination of a cartridge-shaped casing of proper outside dimensions to fit the chamber of the firearm, said casing having a central bore of proper diameter to receive in its upper end a pro-

jectile of suitable size and weight, said bore having a restricted area near its upper end and beneath the location of the projectile to form a chamber to receive the low-powered cartridge; diametrically opposed openings in the casing providing access to the central bore and the chamber to permit finger-insertion of the cartridge in said chamber and its removal therefrom; a plunger freely supported in the central bore; stop means in the plunger and coacting with one of the openings to limit the free movement of said plunger in the bore; and a firing pin freely mounted in a boring in the plunger in such a manner as to form an operating connection between the cartridge and the firing mechanism of the firearm so that the operation of said firing mechanism will discharge said cartridge.

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