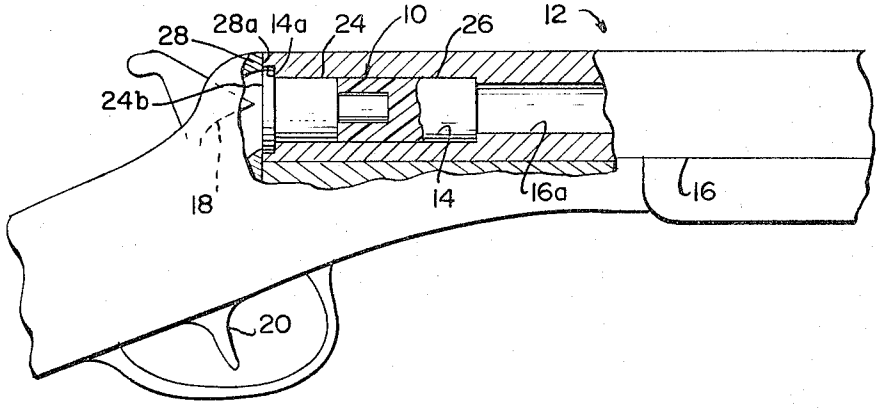
May 14, 1968 C. R. ROCKWOOD 3,382,596

SAFETY PLUG FOR FIREARM CHAMBER

Filed Oct. 27, 1966

FIG.1



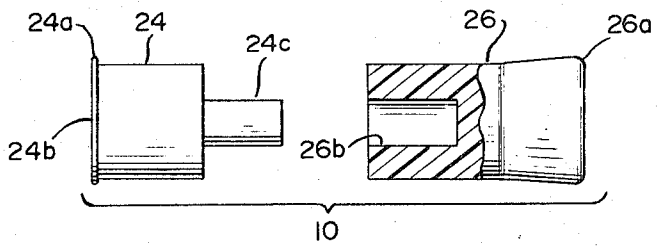


FIG.2

FIG.3

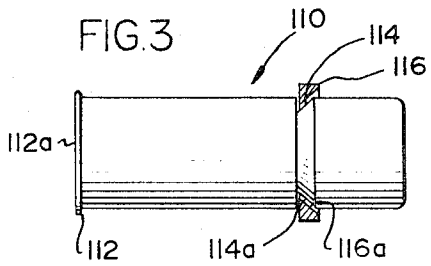
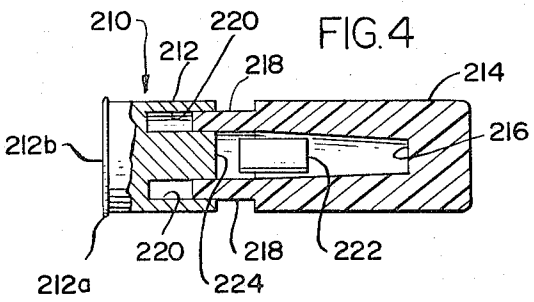


FIG.4



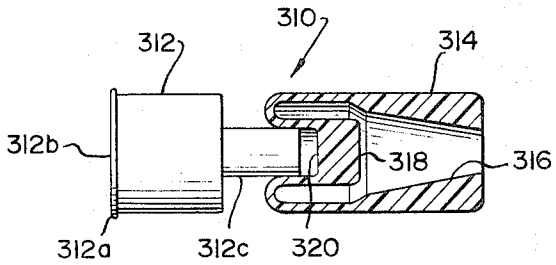


FIG.5

INVENTOR
CLYDE R. ROCKWOOD

BY Hofgren, Wegner, Allen, Stellman & McCord.

ATTORNEYS.

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SAFETY PLUG FOR FIREARM CHAMBER

Clyde R. Rockwood, 2708 Highland Court, St. Joseph, Mich. 49085

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12 Claims. (Cl. 42—1)

ABSTRACT OF THE DISCLOSURE

A safety plug adapted to be installed in the firing chamber of a firearm to prevent unauthorized use of the firearm. The plug has the general external configuration of a conventional shell to be used with the firearm. The plug is bipartite with a rear portion thereof adapted to be extracted or ejected by the ejection mechanism of the firearm when opened. The plug further defines a rear surface adapted to be struck by the firing pin of the firearm for improved safe dry firing of the firearm when desired.

This application relates to firearm ballistic weapons and more particularly to an improved safety plug for the firing chamber of a firearm such as a rifle, pistol, shotgun or the like.

It is not uncommon to find a firearm, such as a rifle, shotgun, or pistol in the average home. Such weapons are frequently kept about by sportsmen who may, in fact, have several such firearms. Most owners of firearms are vary careful to unload them before storage thereof and conventionally position the safety latch so that the trigger of the weapon cannot be pulled.

However, a person who is desirous of gaining access to such firearms usually can often do so even if the weapons are stored in conventional locked cabinets. Once having gained access to the firearms, the person may insert a shell therein and release the safety latch. Thereupon, if the person is experienced, reckless, or quite young, serious consequences will result.

Thus, while certain normal safety measures taken with regard to the storage of weapons may be generally sufficient, such safety precautions do not effetively prevent a highly inquisitive, mischievous, or similar person from being able to place the gun in ready-for-firing condition. As a result, safety devices have been developed which are insertable into the breech of a weapon so as to prevent the entry of a live shell into the breech without extracting the safety device, which, in most cases, is extremely difficult except for the knowledgeable and experienced gun owner.

The present invention comprehends the provision of an improved safety plug for the chamber of a firearm, which plug is intended to have a general configuration of a normal shell used with the firearm and is further intended to be separable into two parts so that the rear portion thereof may be ejected or extracted by the ejection mechanism of the weapon when opened, which safety device is further intended to be constructed and arranged to provide a striking surface for the firing pin to permit dry firing of the weapon when the safety plug is inserted in the breech thereof.

It is therefore a primary object of this invention to provide an improved chamber safety plug for firearms which prevents the insertion of the normal fire arm ammunition into the chamber of the fire arm without the forceful and difficult extraction of the safety plug therefrom.

Another object of this invention is to provide an improved safety plug for a firearm which provides a striking surface for the firing pin of a firearm to permit dry firing of the weapon.

A further object of this invention is to provide an improved safety plug for a firearm which is separable with one portion of the plug ejectable from the breech of the weapon in a manner typical of ammunition used with the weapon, the occupation of the remaining portion of the breech of the weapon by the remainder of the safety plug of this invention discouraging further attempts at loading the weapon.

Other objects, features and advantages of the present invention will be apparent from the following description of the preferred embodiments illustrated in the accompanying drawings, in which:

FIGURE 1 is a fragmentary side elevational view of a weapon, partially broken away in section, showing the safety plug of this invention within the firing chamber of the weapon;

FIGURE 2 is an exploded view of the components of the safety plug of this invention;

FIGURE 3 is an elevational view of a modified form of the safety plug of this invention;

FIGURE 4 is a view, partially in section, of another modified form of the safety plug of this invention; and

FIGURE 5 is a view, partially in section, of a former modified form of the safety plug of this invention.

Referring now to the drawings, the numeral **10** generally designates the safety plug of this invention which is intended for use with a weapon **12** which may be a rifle, shotgun or the like. It is intended that the plug be inserted into the breech or firing chamber **14** of the weapon **12** to normally occupy the same and prevent the insertion of the usual ammunition which the weapon **12** is intended to receive.

The extreme rear end or chamber **14** generally has a stepped enlargement **14***a* and the other end of the firing chamber opens into the bore **16***a* of barrel **16**, it not being uncommon for the bore **16***a* to be reduced in dimension relative to the firing chamber **14**. A firing pin **18** occupys the rear of the chamber and is operatively associated with trigger mechanism **20** for striking the rear of a shell which may be placed in firing chamber **14** to activate and fire the same.

The safety plug **10** of this invention includes a rear, or base, piece **24** of relatively rigid material, such as metal or a hard plastic and having a rearwardly enlarged flange **24***a* generally of a size and shape to matingly occupy the stepped end portion **14***a* of the firing chamber **14** with the rear surface **24***b* occupying the position normally occupied by the usual ammunition for the weapon, thereby providing a striking surface for the firing pin **18** for dry firing purposes. The forward end of the rear portion **24** is provided with a first means for joining the rear and forward portion together, this first means being shown in the illustrated embodiment as a stub **24***c*.

Further included in safety plug **10** is a front or forward piece **26** having an outer configuration generally of a size and shape to be received within the chamber **14** in a force fit relationship therewith, such as enlarged forward portion **26***a*. The rear of the front piece **26** has a second means for joining the front and rear pieces together which, in the illustrated embodiment, is shown as a bore **26***b*, generally of a size and shape to snuggly matingly receive stub **24***b*.

The force fit relationship of the front piece **26** relative to the interior of the chamber **14** could be obtained in several ways, such as by forming portions of, or the entire piece **26**, of a slightly larger diameter than the inside diameter of the chamber. That portion of front piece **26** which is formed relatively larger than the interior of the chamber could have several different patterns so as to exert pressure against the inside surface of the chamber so that piece **26** could not be extracted from the chamber by simple manual manipulation or the influence of gravity,

thereby preventing removal of the piece 26 other than by use of a tool which is axially inserted down through the open end of the barrel. It is also evident that the force fit relationship could be obtained by forming the base piece 24 and front piece 26 with surfaces which have a wedge relationship to each other so that the relative movement of the two pieces together could cause expansion as the wedge surfaces slide past each other. In any event, preferably front piece 26 is formed from a slightly deformable material, such as a deformable, stiff plastic so that it will tightly wedge in firing chamber 14 in a force fit relationship without damaging the interior thereof.

Other forms of the invention are shown in FIGURES 3 through 5. In FIGURE 3, the plug 110 is shown as having the enlarged rear flange 112 similar to flange 24*a* on plug 10. Rear surface 112*a* is intended to occupy a position in chamber 14 similar to that described with reference to surface 24*b* for dry firing purposes. The plug is provided with an annular groove 114 on the periphery thereof intended to receive a ring 116. Both the rear of groove 114 and the rear of ring 116 are formed in planes generally perpendicular to the axis of plug 110 whereas the underside 116*a* of ring 116 and the forwardly extending surface 114*a* of groove 114 are beveled relative to the rear surfaces providing mutually cooperable wedge surfaces. Thus, rearward movement in an attempt to extract plug 112 from chamber 114 would cause ring 116 to be expanded outwardly into tighter engagement with the inside of the chamber by the wedging action resultant between surfaces 114*a* and 116*a*. Continued rearward pulling on the shell would further increase the snug engagement between ring 116 and chamber 14. Although plug 110 is shown as a one-piece plug with the separate ring, it is understood that the plug itself could be made in two separate sections, as shown with regard to plug 10.

In FIGURE 4, a different plug 210 is shown. Plug 210 includes a base 212 having the rear flange 212*a* and rear surface 212*b* for occupation in the chamber 14 in the same manner as described with reference to portions 24*a* and 24*b* of plug 10. Plug 210 also has a forward or front piece 214 including a rearwardly facing cavity 216 and rearwardly extending finger means 218, reduced relative to the body portion of the plug 214. Finger means 218 may be a reduced annular extension or a plurality of annularly spaced individual fingers. Fingers 218 are intended for occupation in slot means 220 which may be an annular groove or a plurality of annularly spaced notches in base piece 212. A free stub or slug 222 is positioned in the cavity 216 of front piece 214 closely adjacent the nose 224 of base piece 212 which lies between the openings 220.

It is intended that plug 210 in its extended form, as shown in FIGURE 4, will be longer than chamber 14 so that when the plug is installed in the chamber, the action of closing the chamber will compress base 212 toward front 214, causing stub 222 to force the outer periphery of front 214 radially outwardly, thereby creating the force fit of the front 214 in the chamber. Although the base piece 212 may be ejected by the ejecting mechanism of the weapon when the chamber is opened, front piece 214 will still be wedged in the chamber and extraction of the same can only be obtained by forcing a tool down the open end of the barrel against the forward end of front piece 214, the stub 222 being so tightly wedged and inaccessible as to prevent its withdrawal from the cavity 216.

Finally, in FIGURE 5 another modification of this invention, the combination plug 310 is shown. This plug has a base piece 312 very similar to base 24 of plug 10 including a rear flange 312*a* and rear surface 312*b* so that the plug may occupy the extreme rear portion of the firing chamber 14 as shown and described with respect to the plug 10 in FIGURE 1 and its corresponding portions 24*a* and 24*b*. Plug 312 is further provided with a forwardly extending stub or nose 312*c* for engagement with the forward piece 314. Front piece 314 is molded to provide a central cavity 316 and a rear slug or plunger portion 318 which extends inwardly into the cavity at the rear end thereof and has a rearwardly facing cavity 320 of a size and shape to receive the stub 312*c* of base piece 312. The inner walls of cavity 316 are of gradually reducing diameter from the rear toward the front end thereof and the outer diameter of the plunger portion 318 closely mates with the enlarger rear diameter portion of the walls 316 and is in interference fit relationship with the forward inner diameter of cavity 316.

As was the case with plug 210, plug 310 is in its original form as shown in FIGURE 5, longer than chamber 14 so that when the plug is inserted in the chamber and the chamber is closed, base piece 312 is forced axially forwardly relative to front piece 314 and stub 312*b* of base 312 pushes in cavity 320 of the plunger portion 318, forcing the plunger portion 318 axially forwardly towards the area of reduced diameter in the cavity 316. This will create a wedging action which will cause an expansion in the outer diameter of the forward portion 314, thereby tightly lodging portion 314 within chamber 14 of a weapon. Again, base piece 312 may be ejectable responsive to opening of the chamber in the usual fashion with the front piece 314 still wedged therein against removal other than by the insertion of a suitable tool down the forward end of the barrel.

From the foregoing, it can be seen that the safety plug of this invention has characteristics which afford advantages heretofore unavailable in related safety devices for performing the same purpose. The rear end or base portion is constructed and arranged to closely approximate the configuration of an actual round of ammunition which is to be used with the weapon providing a striking surface for the firing pin to permit "dry firing" without harming the firing pin. In addition, the separable nature of the rear and front portion of the plug causes the rear to eject when the chamber is open in a fashion similar to that with ammunition normally used with the weapon while the front portion of the plug remains lodged in the firing chamber. This tends to discourage persons from further tampering with the weapon. Finally, the front portion of the plug is so securely wedged in the firing chamber that it cannot be removed by manual manipulation, but only by the reverse thrust exerted thereon by a rod extended down the bore of the barrel.

As shown in FIGURE 1, the flange 24*a* of the safety plug base piece 24 is received fully in the enlargement 14*a* of chamber 14 in the loaded arrangement. The flange 24*a* as shown is similar to the conventional flange provided on rimmed ammunition and thus engages the front surface 28*a* of the breech block 28 as the breech is swung down to the loaded position from the broken, loading position. Thus an additional feature of the present safety plug is the arrangement thereof for movement into the normal loaded position of a conventional shell in the firing chamber of the firearm by the mechanism conventionally provided for loading such shells into the firearm.

While the foregoing disclosed embodiments of my invention have been directed to the application of a safety plug to firearms chambered for rimmed ammunition, as will be obvious to those skilled in the art, the invention is equally applicable to firearms chambered for rimless ammunition.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A safety device for plugging the firing chamber of a firearm, comprising: a plug having a rear end terminating in a base portion defining a plastic surface portion extending fully across the rear end and adapted to be re-

peatedly struck by a firing pin of the firearm without damage to the firing pin, said rear end being constructed and arranged to be received in the rear of the firing chamber of a firearm with said surface of the base portion in position therein providing a safe striking surface for the firing pin of the firearm substantially similar to the striking surface on the rear of a round of ammunition intended for use with said firearm, said plug further including a forward portion having means for retaining the forward portion in the firing chamber of said firearm against accidental or digital withdrawal therefrom.

2. A safety device for plugging the firing chamber of a firearm, comprising: a plug having a rear end terminating in a base portion, said rear end being constructed and arranged to be received in the rear of the firing chamber of a firearm so as to place the base portion in position therein to afford a striking surface for the firing pin of the firearm substantially similar to the striking surface on the rear of a round of ammunition intended for use with said firearm, said plug further including a forward portion having means for retaining the forward portion in the firing chamber of said firearm against accidental or digital withdrawal therefrom; and means separably connecting said rear end and forward portion for assuring that after the plug is inserted into the firing chamber of the firearm, the rear end only is ejected therefrom as an incident of the reopening of the chamber with the forward portion remaining in the chamber to maintain plugging of the chamber.

3. The safety device of claim 2 wherein said means for retaining the forward portion of the plug in the firing chamber comprises means on said forward portion providing a force fit relationship of the device with the inner surface of the firing chamber.

4. The safety device of claim 3 wherein said force fit means comprises first and second wedging elements carried by the forward portion of the plug.

5. A safety device for plugging the firing chamber of a firearm, comprising: a plug having a rear end terminating in a base portion, said rear end being constructed and arranged to be received in the rear of the firing chamber of a firearm so as to place the base portion in position therein to afford a striking surface for the firing pin of the firearm substantially similar to the striking surface on the rear of a round of ammunition intended for use with said firearm, said plug further including a forward portion having means for retaining the forward portion in the firing chamber of said firearm against accidental or digital withdrawal therefrom, said means for retaining the forward portion of the plug in the firing chamber comprising first and second wedging elements on the forward porion of the plug providing a force fit relationship of the device with the inner surface of the firing chamber, said first and second wedging elements comprising a beveled surface formed on the forward portion of the plug and a ring having a generally mating beveled surface, said ring extending around the plug in the area of the plug beveled surface.

6. A safety device for plugging the firing chamber of a firearm, comprising: a plug having a rear end terminating in a base portion, said rear end being constructed and arranged to be received in the rear of the firing chamber of a firearm so as to place the base portion in position therein to afford a striking surface for the firing pin of the firearm substantially similar to the striking surface on the rear of a round of ammunition intended for use with said firearm, said plug further including a forward portion having means for retaining the forward portion in the firing chamber of said firearm against accidental or digital withdrawal therefrom, said means for retaining the forward portion of the plug in the firing chamber comprising first and second wedging elements on the forward portion of the plug providing a force fit relationship of the device with the inner surface of the firing chamber, said first and second wedging elements including a cavity of forwardly decreasing diameter in the forward portion of the plug and a slug positioned in the cavity adjacent the base portion, said slug having a larger diameter than the major portion of the cavity, said rear end and forward portion being normally in a retracted relationship to each other and being brought toward each other responsive to closing of the chamber to cause forward displacement of said slug in said cavity toward the smaller diameter portion thereof to create an enlargement of the outer circumference of the forward portion of the plug establishing said force fit relationship with the interior of the firing chamber.

7. The safety device of claim 6 wherein said rear end portion has a forwardly extending nose and said forward portion has a rearwardly extending cavity, for telescopically receiving said nose of the rear end, such telescoping of the nose in the rearwardly facing cavity being responsive to closing of the firing chamber after insertion of the plug and causing forward displacement of said slug.

8. The safety device of claim 7 wherein said plug is integral with the side walls of said forward portion of the plug.

9. The safety device of claim 1 including means adapted to be engaged by the mechanism of the firearm provided for inserting a conventional round of ammunition into said firing chamber and said plug further having an overall external configuration substantially similar to that of the conventional ammunition round to permit said safety device to be inserted into said firing chamber in substantially the same manner as is said conventional ammunition round.

10. The safety device of claim 9 wherein said first named means comprises an annular surface on said base portion of the plug corresponding to the annular surface on the rear of the conventional ammunition round.

11. The safety device of claim 2 wherein said retaining means comprises resilient means on said forward portion having an uncompressed transverse extension greater than the inside diameter of said firing chamber to define a compressible gripping means.

12. The safety device of claim 7 wherein said slug is integrally formed as an extension of the side walls of said forward portion of the plug.

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BENJAMIN A. BORCHELT, *Primary Examiner.*