

E. M. FUNK.
PRIMER FOR CARTRIDGES.
APPLICATION FILED JAN. 16, 1912.

1,040,250.

Patented Oct. 1, 1912.

Fig. 1.

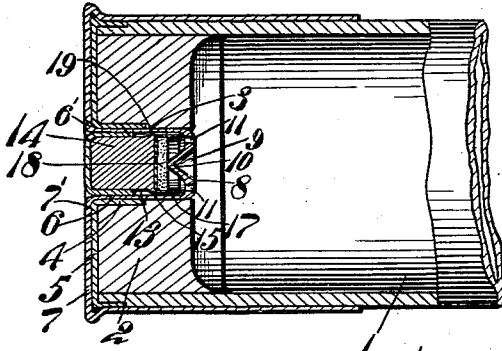


Fig. 2.

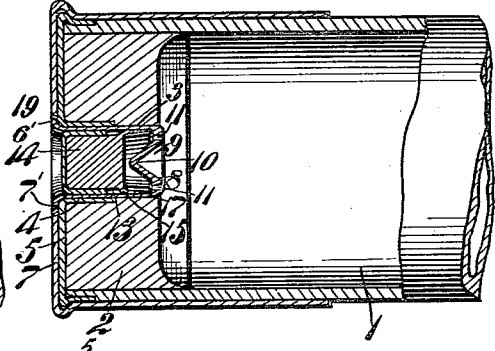


Fig. 3.

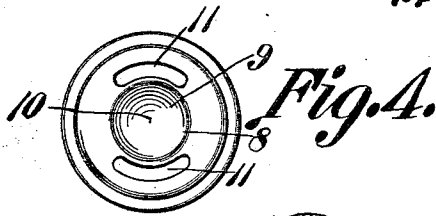
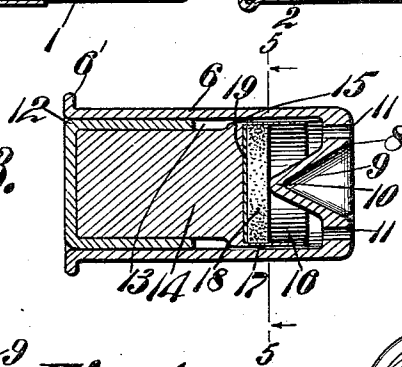


Fig. 4.

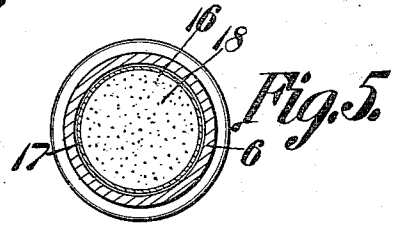


Fig. 5.

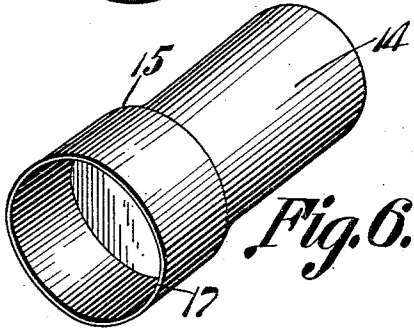


Fig. 6.

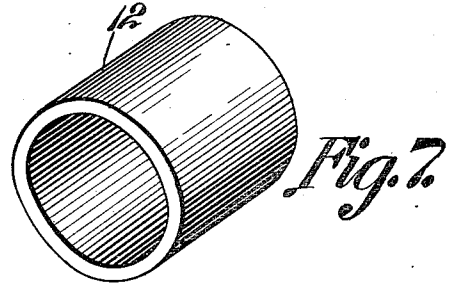


Fig. 7.

Witnesses

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PRIMER FOR CARTRIDGES.

1,040,250.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed January 16, 1912. Serial No. 671,498.

To all whom it may concern:

Be it known that I, EDGAR M. FUNK, a citizen of the United States, residing at Mount Carmel, in the county of New Haven and State of Connecticut, have invented a new and useful Primer for Cartridges, of which the following is a specification.

The present invention relates to improvements in primers for shells and cartridges, in which a cylindrical casing having an outer open end provides a receptacle for the fulminating cap carrying member, which is so disposed as to be capable of a longitudinal movement, the fulminate being normally held in such position, that when the carrying member thereof is acted upon by a firing pin of the fire arm, that the same will be moved forwardly to be exploded by contacting a gas and flame spreading means, which is disposed at the end of the primer casing to properly convey the flash or flame to the powder charge at the base of the shell or cartridge.

A further object of the present invention is the provision of a cavity within the inner end of the fulminate carrying member, the walls of which due to the expanding action imparted thereto when such member is propelled into fulminate exploding position to flare outwardly and form a check to prevent the escape of the gases or the flash from the fulminate toward the rear of the primer, such flared walls coacting with a conical shaped fulminate exploding chamber to conduct the flash at opposite inclines upon each side of the center of the powder charge at the base of the shell or cartridge.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:—Figure 1 is a longitudinal section through the base of a shell constructed in accordance with the present invention, the primer being in normal position. Fig. 2 is a similar view with the parts of the primer in the position they assume after the explosion of the fulminating cap. Fig. 3 is a longitudinal sectional

view on an enlarged scale of the primer *per se*. Fig. 4 is a plan view of the flashing end thereof. Fig. 5 is a section taken on the line 5—5 of Fig. 3. Fig. 6 is a perspective view of the fulminate carrying member. Fig. 7 is a perspective view of the sealing cap of the primer.

Referring to the drawings, the numeral 1 designates the shell casing, provided with the usual reinforced base 2 having the concentrically disposed primer receiving aperture 3 the outer portion of which is lined with the cylindrical sleeve 4 carried by the auxiliary reinforcing metal cap 5 fitted upon such base, and surrounded or incased by the usual base reinforcing metal cap 7 provided with the concentric aperture 7'.

Disposed and fitting snugly within the sleeve 4 and the inner portion of the aperture 3 of the base is the main casing 6 of the primer. The outer rim 6' of this casing is flared to fit upon the adjacent portion of the auxiliary reinforcing cap 5 and into the annular cavity formed by the aperture 7' of the base cap 7.

The inner end 8 of the case 6 is provided with the cavity 9 which provides a conical shaped fulminate exploding member or pin 10, with the two segmental flame or flash conducting slots or apertures 11.

Sealing the open end of the primer case 6 is a soft metal cap 12 which provides a receptacle for the reduced solid end 14 of the fulminate carrying member, whose inner end is provided with the shoulder 15 and with the fulminate carrying cavity 16, whose walls 17 are exceedingly thin. The cap 12 provides a chamber 13 within the case 6 so that the enlarged fulminate carrying end of the member 14 may have a slight longitudinal movement therein as the outer walls of the fulminate carrying cap or cavity 16 is of a slightly lesser diameter than the bore of the chamber 13. Carried in the cavity 16 is the disk 18 of fulminate, which is separated from the body of the member 14 by a coating 19, preferably of shellac.

From the foregoing description, assuming that the parts are in the position as shown in Fig. 3, and the shell or cartridge is in position within the fire arm for exploding, the action of the firing pin of such fire arm will strike the sealing cap 12 driving it and the fulminate carrying member 14 so that the fulminate 18 is projected against

the firing point 10 of the primer casing, such contact exploding the fulminate and producing the flash or flame therefrom, the expansion from which explosion forcing the
 5 thin or tissue walls 17 outwardly in contact with the inner walls of the chamber 13. Simultaneously with such action the inner walls of the conical firing pin 10 will split the flash and coact with the outwardly
 10 flared walls 17 to convey the flash through the two apertures 11 upon opposite sides of the central point of and directly to the powder charge in the shell.

The explosive action of the fulminate in
 15 flaring the rim or wall 17 of its cavity, to assume the position as shown in Fig. 2 seals the primer casing, prevents any flare-back of the exploded gases and at the same time insures the guidance thereof through the
 20 apertures or slots 11 to the powder charge at two, instead of a single point, as is the usual practice.

The fulminate carrying member 14 and the cap 12 are so positioned within the
 25 primer casing that a sharp blow, such as the blow from the firing pin of the fire arm is necessary to explode the cap, so that the loaded shells or cartridges containing this form of primer are as safe to transport as
 30 the usual form of primer.

In this form of primer, in which the fulminate carrying member 14 is provided with a solid block end interposed between the point of impact and the point of explosion, a protecting means for the firing pin
 35 is afforded, rendering it impossible to injure the gun or person by puncturing the sealing cap 12. By this means no gas is permitted to blow or flare back through such sealing
 40 cap into the gun, and as the explosion of the fulminate is at the front of the primer, the fulminate carrying member is driven back against the sealing cap 12, making an
 45 well as a puncture proof one.

What is claimed is:—

1. In a powder charge holding member, a primer, having a casing with a flash directing and fulminate exploding means
 50 disposed to direct the flash to the powder charge, a cap hermetically sealing and within the other end of said casing, and a fulminate carrying member, a portion of which
 55 is disposed within said cap, and a portion of which is within but out of contact with the walls of the casing, said latter portion being a receptacle with flexible walls that flare outwardly due to the explosion of the ful-

minate and the projection of the member to seal the casing and direct the flash to the
 60 powder charge.

2. A primer, having a casing open at one end, the other end of which is provided with a conical exploding member projecting within the casing and with flash outlets, a
 65 cap sealing and movable within the open end of the casing, a fulminate carrying member having a solid cylindrical portion fitting snugly within the cap and provided with
 70 a fulminate receptacle in its other end, said cavity normally incasing the fulminate exploding member, and positioned when pro-
 75 pelled toward said member to coact therewith in exploding the fulminate and to have its rim flared outwardly to engage the
 80 walls of the casing to assist in directing the flashes through the outlets.

3. A primer, having a casing open at one end, the other end of which is provided with a conical exploding member projecting with-
 80 in the casing and with flash outlets, a cap sealing and movable within the open end of the casing, a fulminate carrying member having a solid cylindrical portion fitting
 85 snugly within the cap and provided with a fulminate receptacle in its other end and beyond the rim of the cap, said cavity normally incasing the fulminate exploding
 90 member, and positioned when propelled toward said member to coact therewith in exploding the fulminate and in directing the
 95 flashes through the outlets, the rim of the wall of the receptacle due to the propulsion thereof and the explosive force of the ful-
 100 minate being flared outwardly to provide a seal with the wall of the casing to prevent
 105 a flare-back of the gases within the casing and to assist in the directing of the flash.

4. A primer, having a casing, a sealing cap of lesser length than the cavity of the
 100 casing fitting in one end of the casing, a firing pin disposed in the other end thereof, and a fulminate carrying member having a solid cylindrical portion fitting within the
 105 sealing cap with its other end within the casing and beyond the rim of the cap to protect the firing pin and fulminate and to prevent a flare back of the gases through
 110 the sealing cap.

In testimony that I claim the foregoing
 as my own, I have hereto affixed my signature in the presence of two witnesses.

EDGAR M. FUNK.

Witnesses:

SELINA WILLSON,
 C. E. DOYLE.