AMMUNITION FOR TOY GUNS

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Fig. 1

Fig. 2

Fig. 3

Fig. 4

INVENTOR

A. R. MILLS

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AMMUNITION FOR TOY GUNS


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This invention relates to ammunition for toy guns of the kind comprising a cartridge case and a removable bullet arranged so that a cap can be inserted in the cartridge case at the rear end of the bullet.

It is an object of the present invention to provide an improved construction of ammunition of this kind obviating any danger due to detonation of a cap forcing the cartridge case and the striker arm backwards when the gun is fired and possibly ejecting the cartridge case violently. Such a danger can possibly arise if several caps are put in together as it sometimes happens that the caps will detonate simultaneously or almost simultaneously and give a much more violent explosion and ejection of gases than would a single cap.

According to this invention, ammunition for a toy gun comprises a cartridge case with a removable bullet, the bullet being so formed as to leave a passage or passages for the outlet of gases forwardly through the open end of the cartridge case. Preferably also the cartridge case is provided with an aperture or apertures at its rear end to permit the escape of gases.

To permit of the forward escape of gases, an aperture might be provided extending axially through the bullet, for example at the centre thereof. If a central aperture is provided in the bullet, however, the central part of the detonator cap may not be held firmly against the base of the cartridge case and so detonation may not be certain. Preferably, therefore, the forward escape of the gases is permitted by a passage or passages around the outer surface of the bullet. For this purpose conveniently the part of the bullet within the cartridge case is provided with projections, for example, longitudinal ribs which locate the bullet centrally within the cartridge case but permit of passage of the gases between the inner surface of the cartridge case and the outer surface of the bulb between the projections. Conveniently three such longitudinal ribs are provided. For the better appearance of the ammunition, a circumferential rib may be provided on the bullet just forward of the forward end of the cartridge case leaving a small annular escape passage between this rib and the front end of the cartridge case for the outward radial escape of the gases. In front of this circumferential rib, the bullet may be shaped as desired to resemble a real bullet.

As previously mentioned, the rear end of the cartridge case may have an aperture or apertures and conveniently three such apertures are formed spaced around the base of the cartridge case near the outer periphery thereof. Such apertures thus would not interfere with the proper detonation of the cap.

As a further safety feature the rear end of the bullet may be rounded so that the centre part of the rear end of the bullet can seat firmly against the cap whilst leaving a space around the rear end of the bullet so as to prevent excessive pressure building up when the cap is detonated.

The following is a description of one embodiment of the invention, reference being made to the accompanying drawings in which:

Figure 1 is a view in side elevation of a cartridge case with bullet and detonator cap, the cartridge case being in section;

Figure 2 is a transverse section along the line 2—2 of Figure 1;

Figure 3 is a section through a bullet along the line 3—3 of Figure 2; and

Figure 4 is a view in end elevation of the base of the cartridge case.

Referring to the drawings there is shown a cartridge case which conveniently is formed of brass and has a cylindrical body portion 10 with a flat base 11. In the base are three apertures 12 arranged eccentrically as shown in Figure 4. A detonator cap 13 is put in the base of the cartridge case and the bullet 14 is then inserted so that the detonator cap is held between the rear end of the bullet and the base of the cartridge case. This bullet is of hollow form as shown in Figures 2 and 3 in order to save material and is conveniently made as a die casting using a zinc alloy. The part 15 of the bullet 14 which fits inside the cylindrical portion 10 of the cartridge case is externally of cylindrical form with three longitudinal ribs 16, these ribs extending from near the rear end of the bullet to a point just forwardly of the open end of the cartridge case when the bullet is pressed into the cartridge case to hold the detonator cap 13 against the base 11. At the forward ends of the ribs 16 there is formed a circumferential rib 17 which is thus just forward of the open end of the cartridge case, leaving a gap 18 for the escape of gases. The circumferential rib 17 serves to improve the appearance of the bullet by making it appear to fit closely in the cartridge case and also provides a shoulder which can engage a fixed abutment or abutments in the toy gun or pistol to prevent any possibility of the bullet being ejected forwardly through the barrel of the gun or pistol when a cap is detonated. The front portion 19 of the bullet is shaped as desired to resemble a conventional bullet. The rear end of the bullet is rounded as shown at 20 in Figures 1 and 3.

With the toy ammunition illustrated in the drawings, when the detonator cap 13 is detonated by the striker arm of the gun or pistol hitting the base 11 of the cartridge case, the gases generated by the cap can pass forwardly through the space between the outer periphery of the portion 15 and the inner surface of the cartridge case in the passages defined by the ribs 16 and thus out through the aforementioned gap 18. The ribs ensure that the bullet is held centrally in the cartridge case thus giving a free passage for the gases around the whole of the periphery of the bullet between the ribs 16. The gases can also escape rearwardly through the apertures 12 in the base 11 of the cartridge case. The rounding of the rear end of the bullet, by providing an air space in the cartridge case, also assists in preventing any build-up of excessive gas pressure in the cartridge case. The shaping of the rear end of the bullet and the provision of the apertures 12 eccentrically on the base 11 of the cartridge case ensure that the detonator cap 13 is firmly held between the bullet and central part of the closed end of the cartridge case so as to ensure effective detonation of the cap when the base 11 of the cartridge case is struck.

It will be seen that this toy ammunition effectively ensures that there is no possibility of the cartridge case being ejected violently backwards even if several detonator caps should be in together and if these detonator caps should fire simultaneously.

1 claim:
1. In ammunition for a toy gun, of the type compris-
ing a tubular cartridge case having one open end and a base at the opposite end, a detonator cap engaged with the base and evolving gases when detonated, and a bullet removably engaged in the case and having an inner end holding the cap against the base; the improvement comprising peripherally spaced, longitudinally extending ribs on the bullet, engaged with the cartridge case and extending beyond the open end of the case when the bullet is disposed therein in engagement with the cap, the ribs providing passages for the escape of the gases forwardly around the peripheral surface of the bullet and through the open end of the cartridge case; the bullet having a rounded inner end providing an air space in the cartridge case facilitating release of evolved gases to prevent excessive gas pressure increase within the cartridge case; and a plurality of eccentrically located apertures in the base of the cartridge case; the rounded inner end of the bullet, in conjunction with said apertures, insuring the detonator cap being firmly held between the bullet and the center of the base to insure effective detonation of the cap when the base is impacted by a hammer.

2. In ammunition for a toy gun, of the type comprising a tubular cartridge case having one open end and a base at the opposite end, a detonator cap engaged with the base and evolving gases when detonated, and a bullet removably engaged in the case and having an inner end holding the cap against the base; the improvement comprising peripherally spaced, longitudinally extending ribs on the bullet, engaged with the cartridge case and extending beyond the open end of the case when the bullet is disposed therein in engagement with the cap, the ribs providing passages for the escape of the gases forwardly around the peripheral surface of the bullet and through the open end of the cartridge case; the bullet having a rounded inner end providing an air space in the cartridge case facilitating release of evolved gases to prevent excessive gas pressure increase within the cartridge case; a plurality of eccentrically located apertures in the base of the cartridge case; the rounded inner end of the bullet, in conjunction with said apertures, insuring the detonator cap being firmly held between the bullet and the center of the base to insure effective detonation of the cap when the base is impacted by a hammer; and a rib extending peripherally of the bullet at the outer ends of said longitudinally extending ribs and having an outer periphery substantially congruent with that of the open end of the cartridge case.

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