

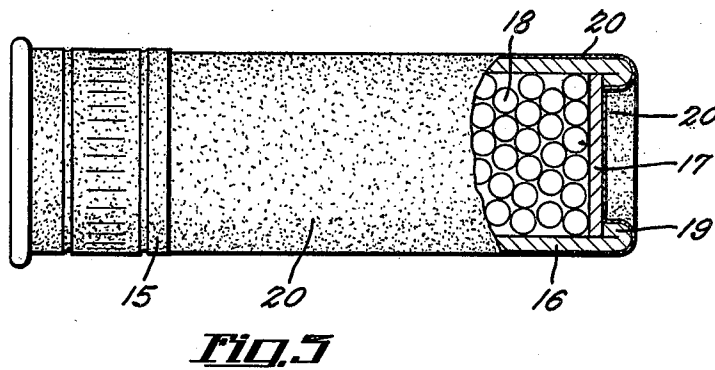
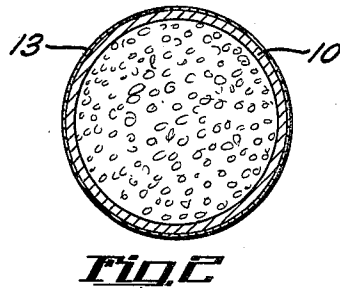
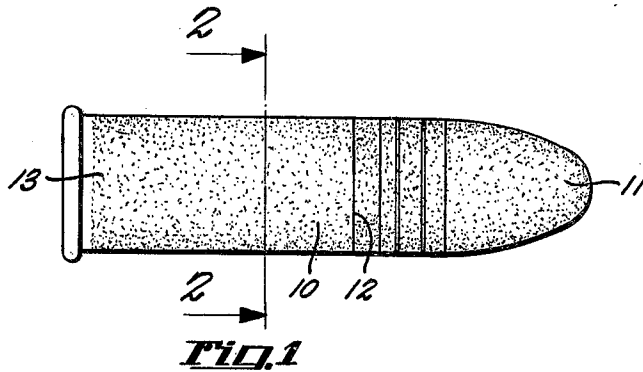
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GUN CARTRIDGE

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GUN CARTRIDGE

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4 Claims. (Cl. 102—12)

This invention relates to gun cartridges for shot guns, rifles, machine guns, or any other type of gun.

An object of the invention is to provide a dry water-proofing and lubricating coating on the exposed surface of such cartridges which facilitates the insertion or ejection of the cartridge from the gun barrel and prevents sticking or jamming due to the cartridge being swollen or over-sized prior to insertion in the barrel or due to any swelling of the casing caused by the firing explosion. Any tightness of fit of the casing in the gun barrel often causes jamming of the automatic ejecting mechanism in various types of guns, particularly automatic shot guns and machine guns. This difficulty has been long recognized and various solutions of the problem have been proposed and tried. At the present time various kinds of grease are often used on the outside of the cartridges to prevent jamming of automatic ejecting devices. Any kind of grease has the serious disadvantages of being easily rubbed off and of easily catching and retaining dirt or any foreign matter which will greatly interfere with the desired lubrication of the cartridge.

The hard dry strongly adhering lubricating coating of this invention remains clean and efficiently performs the desired lubricating function and avoids the above described defects of grease or any sticky lubricant.

Another object of the invention is to provide a dry lubricating coating that can be efficiently and simply applied to filled cartridges without application of heat and hence without danger or harm to the cartridge load, and which will strongly adhere to the cartridge surface and will not be rubbed or worn off in handling.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing, wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

Fig. 1 is a side elevation of a metal casing rifle cartridge treated with the dry lubricant coating of this invention.

Fig. 2 is a section on line 2—2 of Fig. 1 on a larger scale and illustrates the relatively thin surface coating.

Fig. 3 is a side view, partly in section, of an ordinary paper shot gun shell treated with the lubricant coating of this invention.

In Figs. 1 and 2, 10 is the ordinary brass casing and 11 the lead or other metal projectile

which is held partly within casing 10, the joint between the two being shown at 12 in Fig. 1. 13 designates the hard dry lubricating coating of this invention which covers all the exposed surface of projectile 11 and nearly all the exterior surface of casing 10. The joint 12 is more securely sealed by coating 13 to safeguard the powder contents from deterioration by the action of air or water.

The lubricating material is made by first thoroughly dissolving pyroxylin in a suitable solvent such as acetone and then mixing in the desired amount of very finely divided amorphous graphite to form a homogeneous mixture. The proportions by weight of the dry pyroxylin and graphite may vary from 65% graphite and 35% pyroxylin to 85% graphite and 15% pyroxylin for best results under various conditions of usage of the lubricant material. The consistency of the fluid mixture may be regulated or made whatever desired by the amount of acetone or other solvent used, since the solvent itself does not form a part of the final dry lubricating coating. The consistency should be such that the cartridges, when dipped into the liquid lubricant mixture and then immediately allowed to drain and dry, will have a dry coating 13 of the desired thickness. Obviously the thickness of coating 13 obtained from a single dipping will be greater if less solvent is used for a given amount of pyroxylin and graphite, and less if more solvent is used. Upon the quick evaporation of the acetone the mixture of pyroxylin and graphite remain as a uniform coating strongly bonded to the brass casing 10 and projectile 11. The coating on the projectile serves as a dry lubricant between the projectile and the rifling of the gun barrel.

In Fig. 3 the ordinary shot gun shell there shown has a brass cap 15, a paper composition casing 16 and a paper wad 17 pressed against the shot 18 therein and held in place by the crimped end 19 of casing 16. When this completely loaded shell is dipped into a liquid mixture as above described the dry water-proof lubricating coating 20 is formed which seals the joint between the crimped end 19 and the wad 17. Then there is provided a water proof overall coating 20 which prevents all moisture from entering the paper casing and causing swelling thereof. This lubricant coating 20 for shot gun shells greatly facilitates the operation of automatic shot guns, and also renders more easy the manual insertion or removal of the shell in any type gun.

While the embodiment of the present invention

as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

5 What is claimed is as follows:

- 10 1. A small arm gun cartridge having a metal casing and an exposed metal bullet and a strongly-adhering dry lubricating and protective coating for said casing and bullet, said coating comprising a homogeneous mixture of roughly from 15 to 35 percent pyroxylin and from 85 to 65 percent very finely divided amorphous graphite.
2. A small arm gun cartridge having a strongly-adhering dry lubricating and protective coating encasing said cartridge and tenaciously bonded thereupon said coating comprising a homogeneous mixture of pyroxylin and very finely divided amorphous graphite.
3. A small arm gun cartridge having a part

metal and part paper external casing, said casing having a strongly-adhering dry lubricating and protective film coating comprising a homogeneous mixture of pyroxylin and very finely divided graphite strongly bonded to both the metallic and paper portions thereof, said coating having from 65 to 85 percent graphite content by weight. 5

4. A loaded shot gun shell having a paper casing crimped over a wad at the discharge end thereof, said paper casing and wad having a strongly-adhering dry waterproofing and lubricating coating comprising a homogeneous mixture of pyroxylin and graphite applied thereupon after the casing is crimped over the wad, said coating having from 65 to 85 percent graphite content by weight. 10 15

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