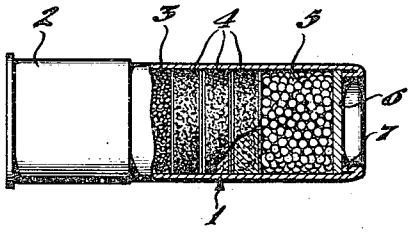
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CARTRIDGE

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INVENTOR

George H. Jacobs

BY

Wood & Wood ATTORNEYS

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UNITED STATES PATENT OFFICE

GEORGE H. JACOBS, OF KINGS MILLS, OHIO, ASSIGNOR TO THE PETERS CARTRIDGE COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO

CARTRIDGE

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This invention relates to an improved cartridge wad suitable for shotgun shells, and has for its particular object the provision of a wad for a shell which is adapted to operate efficiently in arms such as a shotgun.

It is desirable in constructing shotgun shells to secure the greatest possible muzzle velocity of the shot, as this not only makes the shot carry farther, but provides a more even and uniform pattern.

This high muzzle velocity of the shot depends to a great extent on the efficiency of the wad which is placed between the powder or charge and the shot. To be entirely efficient a wad should be so impervious to the gases resulting from the explosion of the charge that the gases do not leak through it, and so strong that it is not broken, cracked or mutilated by the explosion and discharges from the muzzle as one piece.

This invention is predicated upon the discovery that the fibers of sugar cane bagasse are suitable for the fabrication of wadding. When these fibers are compressed together into a completed wad the entwining or association of the fibers is such that the gases resulting from the explosion are appropriately checked and held in back of the wad, and yet the wad is sufficiently resilient to accommodate itself to the bore of the gun and be discharged as one piece driving out the shot ahead of it at the maximum velocity permitted by the size of the charge.

The figure of the drawing is a side elevation of a shotgun shell, a portion thereof being broken away for more fully illustrating the parts of the shell.

It will be apparent that the wads of this invention may be utilized in any small arm cartridge or ammunition. A shotgun shell has been disclosed as a form of ammunition to which application of this invention is readily made, and in which the arrangement of the wads is exemplary of the common arrangement.

The cartridge case or shell proper is indicated at 1, and is usually a paper product. A metal cap 2 encloses the rear end of the shell and supports the percussion pin or cap relative to the powder. The powder is generally indicated at 3, the wads at 4, the shot at 5, and the end closure disc at 6, the disc being held in place by the inwardly clinched end 7 of the case 1. Any number of wads may be used, depending on the amounts of powder and shot used.

Hereinafter the description will be entirely related to one of the improved wads which is placed between the powder and the shot for the purpose of segregating the powder and shot and for other purposes which will be explained in detail hereinafter.

In making cartridge wadding of the nature described, the bagasse fibers are purified, that is, all gummy material is removed from them, after which they are formed into a sheet of appropriate thickness for the wad. The fibers may be appropriately secured together by a felting operation or by the application of a suitable adhesive, such as relatively flexible glue or by both. The individual wads are then cut from the sheets so fabricated as by dyeing operations. On the other hand, the cartridge wads may be fabricated by pressing the bagasse fibers together into individual molds in combination with a suitable adhesive of the nature described.

It is considered preferable, however, to choose a binding material for the fibers which is likewise a water proofing material. One suitable binder is paraffin wax. Another suitable binder of this nature is made from a polymerized oil, such as China-wood oil or Perilla oil, or a suitable gum or resin, after which the wads may be dipped in paraffin to lubricate their passage through the gun barrel. A suitable wad may be made from 70% bagasse fibers and 30% China-wood oil (by weight). Another suitable wad comprises 80% bagasse fibers and 20% softened adhesive (by weight).

Having described my invention, I claim:

1. A wad for cartridges, comprising, an intertwined mass of sugar cane bagasse fibers compressed to a compactness inhibitory to the passage of gases therethrough.

2. A wad for cartridges, comprising, a mass of intertwined purified fibers of sugar cane bagasse and an adhesive dispersed throughout said fibers, said fibers and adhesive com-

pressed together into a compact wad of density sufficient to prevent the escape of gases therethrough.

3. A wad for cartridges, comprising, an interlaced mass of purified fibers of sugar cane bagasse and relatively flexible adhesive adapted to cement said fibers together, said fibers and adhesive compressed into a compact flexible gas-tight cartridge wad.

4. A cartridge wad, comprising, a compressed gas-tight and slightly flexible mass of sugar cane bagasse fiber and China-wood oil.

5. A cartridge wad, comprising, a compressed gas-tight and slightly flexible mass of sugar cane fiber and Perilla oil.

6. A cartridge wad, comprising, a compressed gas-tight and slightly flexible mass of sugar cane bagasse fiber and paraffin wax, adapting the wad to be self-lubricating in its passage through the gun barrel.

7. A cartridge wad, comprising, a compact intertwined mass of sugar cane bagasse fibers and oily binder for said fibers adapted to waterproof said fibers and to lubricate the wad in its passage through the gun barrel, said fibers and binder compressed together into a dense and gas-tight wad possessed of just sufficient flexibility to prevent the wad from shattering under the impact of the explosion.

In witness whereof, I hereunto subscribe my name.

GEORGE H. JACOBS.