J. M. Connel.

Cartridge.

No. 45227. Patented Nov. 29. 1864

Fig: 1

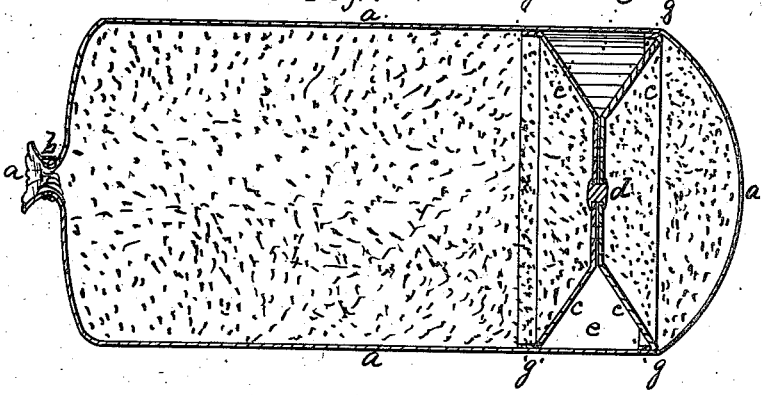


Fig: 3

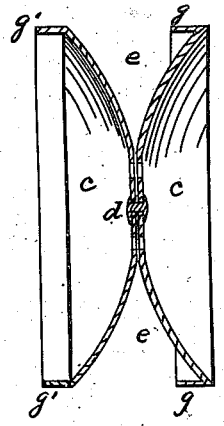


Fig: 2

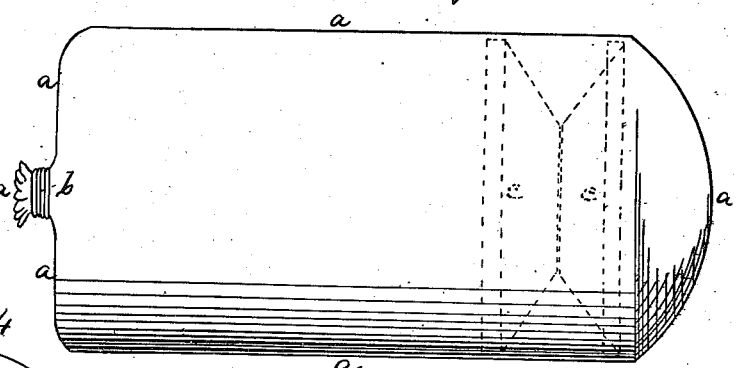


Fig: 4

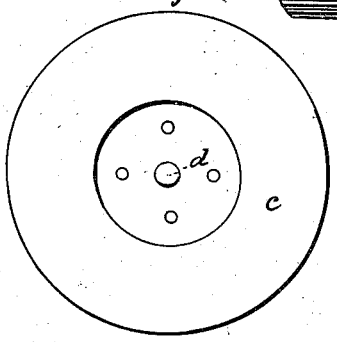
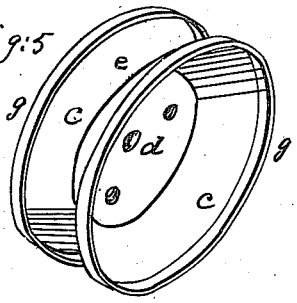


Fig: 5



Witnesses.

R. F. Campbell

Eschafer

Inventor

James M. Connel

by his Atty's

Mason, Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

J. M. CONNEL, OF NEWARK, OHIO.

IMPROVEMENT IN SCRAPING DISK OR WAD FOR ORDNANCE CARTRIDGES.

Specification forming part of Letters Patent No. 45,227, dated November 29, 1864.

To all whom it may concern:

Be it known that I, JAMES M. CONNEL, of Newark, county of Licking, State of Ohio, have invented a new and Improved Cartridge for Ordnance; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a diametrical section through the improved ordnance cartridge, having a scraper applied within it. Fig. 2 is an external view of the cartridge. Figs. 3, 4, and 5 are views showing the construction of the scraper which is contained within the improved cartridge.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to construct ordnance cartridges, or powder-bags, as they are commonly termed, of a material which will be impervious to water, and at the same time of such character as will not ignite, or leave sparks in the gun after the discharge, as will be hereinafter described. Another object of my invention is to apply within ordnance powder-bags a device which will prevent the gun from fouling, and thus render it unnecessary to frequently swab the gun during active service, as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

Cartridge-cases, or powder-bags, which contain the charges of powder for ordnance are generally made up of woolen bags of a cylindrical form, adapted to the size of the guns for which they are intended. The object of using wool in the manufacture of the powder-bags is to prevent sparks from being left in the gun after the discharge; and as woolen material is less liable to ignite, or retain its fire, than many other substances, it is therefore used, for the want of a better material. Wool is not so liable to ignite as cotton; still, accidents frequently occur in consequence of the premature discharge of cannon, caused in most instances by a spark of fire in the gun. Instead of this woolen material I employ bags which are made of india-rubber. The bags are made of the proper form and size, according to the different-sized charges required for the same or for different guns, and then filled with powder and secured or sealed by drawing one end together and wrapping it with fine wire or twine, as represented in Figs. 1 and 2, in which *a* represents an india-rubber water-proof envelope which is made of one piece, filled with powder, and sealed with the wire *b*, or in any other suitable manner. These bags may be readily made by spreading the rubber, while in a soft condition, over suitable molds, in the usual manner of making thin rubber bags for other purposes. It will be necessary to have the open ends of the bags of sufficient pliability to allow of these ends being drawn tightly together when the bags are filled with powder and secured as above described.

The advantage in the use of the rubber for ordnance charges is, that the powder will be preserved intact from moisture or dampness; and, while these bags are impermeable to water, they are perfectly safe, so far as preventing powder contained in them from premature explosion or taking fire through carelessness of persons visiting a magazine with fire. As a safeguard against premature explosions of cannon during rapid firing, my rubber powder-bags are superior to woolen or other fabrics, for the reason that the rubber cannot be readily ignited, nor will it leave sparks of fire in the cannon after the discharge.

Inclosed within the breech-end of the powder-bag *a*, I have represented a scraper which is intended for scraping the interior surface of the gun from one end to the other at every discharge, thus preventing the gun from fouling to a great extent, and also obviating the necessity of a frequent use of the swab. This scraper consists of two circular concavo-convex disks *c c*, united together by a rivet, *d*, in such manner as to form the annular groove or chamber *e*. The edges of the two plates *c c* are turned over, as indicated at *g g'*, Figs. 1, 3, and 5, so as to form rings or cylinders which, when the powder is ignited in the gun, are forced outward against the interior surface of the gun, and in this condition discharged therefrom. The length of the forward ring *g'* may be very much increased, if desired, and this will keep the scraper in its proper position during its passage into and out of the gun.

It will be seen by reference to Fig. 1 that the

powder is on both sides of the scraper, and that there is none in the chamber *e*. The powder which is in the breech of the bag *a* communicates with that which is forward of the scraper; hence, when the powder in the gun is ignited, the pressure of confined gases will partially collapse the sides of chamber *e*, and thus expand the scraper against the walls of the gun, so that the forward edges of the portions *g g'* will scrape and clean the gun, as above stated.

When the rubber-gum bags *a* are filled with powder and furnished with the scrapers herein described, and then firmly secured at one end, as shown in Figs. 1 and 2, the contents of the bags will be tightly held in place by the contraction of the elastic bag around them. Now, as the rubber bags are stretched tightly, it will be seen that when these bags are punctured in the gun by the vent-needle, the rubber will instantly contract and expose the powder to the spark of the percussion-cap. This is another advantage attending the use of rubber for ordnance powder-bags.

A special advantage appertains to the use of an elastic sack or bag, as described, in that the sack will yield and conform to the pressure upon it in the act of ramming the charge home without a liability to rupture the same.

It should be stated that the metal of which my scraper is composed should be softer than the metal composing the piece of ordnance in which said scraper is to be used.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the scraper, as described, or its equivalent, with an india-rubber ordnance powder-bag, applied within the same, substantially as described.

2. The construction of the scraper with an annular chamber, *e*, and flanges *g*, substantially as described.

Witness my hand in the matter of my application for a patent on an improved ordnance cartridge-case.

J. M. CONNEL.

Witnesses:
L. J. HAUGHEY,
HENRY I. KING.