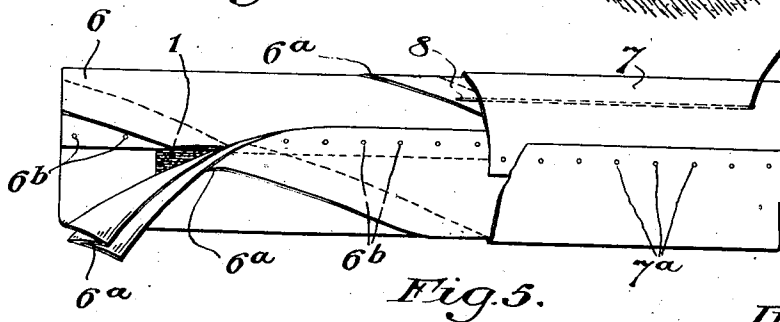
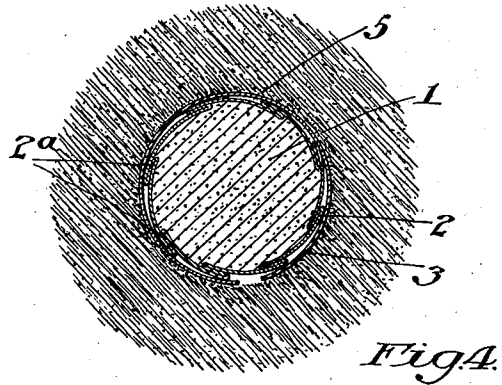
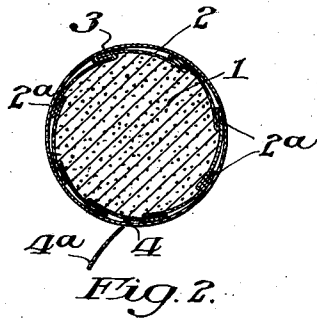
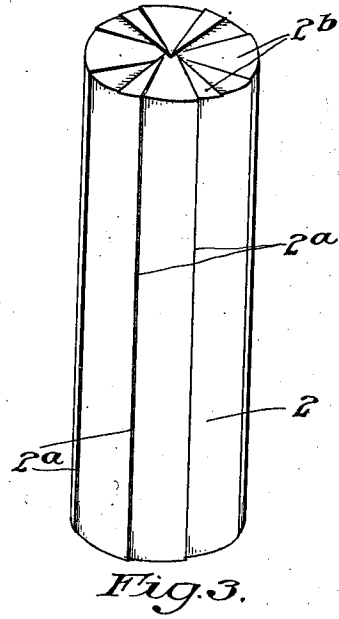
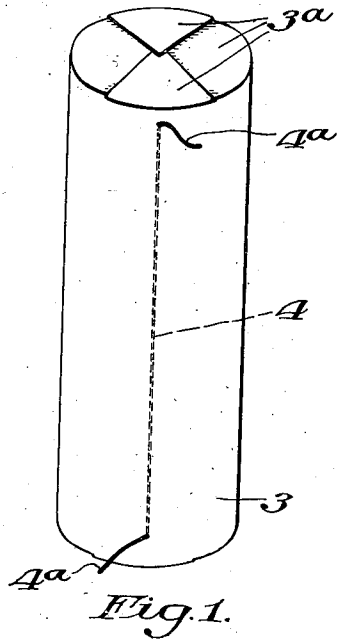


1,220,208.

Patented Mar. 27, 1917.



Inventor:
Amos Ellis,
By C. N. Butler
Attorney.

UNITED STATES PATENT OFFICE.

AMOS ELLIS, OF FLOURTOWN, PENNSYLVANIA.

CARTRIDGE.

Specification of Letters Patent. Patented Mar. 27, 1917.

1,220,208.

Application filed February 4, 1916. Serial No. 76,096.

To all whom it may concern:

Be it known that I, AMOS ELLIS, a citizen of the United States, residing at Flourtown, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Cartridge, of which the following is a specification.

My invention is a product designed for use in blasting operations and for military purposes. It comprises novel containing means for explosives, attaining the desideratum of holding and preserving such explosives so that they can be placed readily, expanded in position so as to fill the aperture in which they are to be detonated, and detonated with great force and certainty due to prevention of waste, the full utilization of the gases and the exclusion of water.

Particularly in blasting rock and ore, it is important to hold the explosive together so that it can be inserted readily in drill holes or other cavities and expanded in position so as to fill the same, without usual loss of explosives, danger of accidental explosions, and liability to the prevention of the desired detonation by the action of water upon the explosives.

There are many elements of danger in previous practices. For instance, the nitroglycerin often creeps or is forced into crevices, escapes the desired detonation and is exploded accidentally later in drilling. With pulverulent explosives, there is great difficulty in use aside from elements of danger, as the cartridge, when split, allows the explosive to pour out and cannot be pushed home in many cases. In wet holes, the explosive is often saturated with water so that it cannot be detonated.

My invention attains the desired and avoids the objectionable results specified by the provision of an expansible container that holds the explosive together and protects it from the action of water, the cartridge preferably having an outer casing provided with means for splitting it without injury to the expansible inner container for the explosive.

The nature and characteristic features of my invention will be understood from the following description and the accompanying drawings in illustration of specific forms thereof.

In the drawings, Figure 1 is a perspective

view of a cartridge embodying my invention; Fig. 2 is a transverse sectional view of the same; Fig. 3 is a perspective view of the cartridge with the outer shell removed; Fig. 4 is a transverse sectional view of the cartridge expanded in a hole; and Fig. 5 is a side view of a modified construction with a section of the outer shell removed and the expansible inner casing partially open.

The cartridge, as illustrated, in Figs. 1 to 4 inclusive, comprises an explosive 1 sealed within an inner container 2, preferably composed of paraffined paper provided with the longitudinal crimps, folds or plaits 2^a, and having the sealed end tucks 2^b, this container being formed from a tube which may be seamless.

A sealed shell or case 3 covers the container 2 and holds it, together with the contained explosive, against expansion, until it is desired to use the cartridge, the shell preferably being a jointed or seamless tube of paraffin paper having the sealed end tucks 3^a.

A thread, cord or fine wire 4 is drawn between the containers 2 and 3, passing through the outer container and having the loose ends 4^a adapted to be grasped, whereby such outer container can be split when it is desired to insert the cartridge.

The outer case 3 having been split, by pulling on the member 4, the explosive 1 is retained in form and without spilling by the inner case 2, which, with the explosive sealed therein and the split shell thereon, is inserted in the hole 5, the explosive and the containers being expanded when in place (so as to fill the hole) by pressure or the action of a tamping rod.

As shown in Fig. 4, the explosive 1 may be held in a container 6 provided with the longitudinal crimps, folds or plaits 6^a in the form of spirals, and with the perforations 6^b which are designed to aid in sealing the longitudinal lap joint of the tube. A case or shell 7 seals the container 6 until it is desired to use the cartridge, the shell being provided with the perforations 7^a for aiding the making of a secure lap joint and with the string 8 for splitting the wrapper when it is desired to use the cartridge.

Having described my invention, I claim:
1. A cartridge comprising a longitudinally plaited expansible container for an

explosive and a sealed case for covering and retaining said container.

2. A cartridge comprising a tube having longitudinal folds permitting its contraction
5 and expansion and a paper case for inclosing and holding said tube in its contracted condition.

3. A cartridge comprising an expansible container for an explosive, a case for said container, and a strand adapted for splitting 10 said case.

In testimony whereof I have hereunto set my name this 31st day of January, 1916.

AMOS ELLIS.