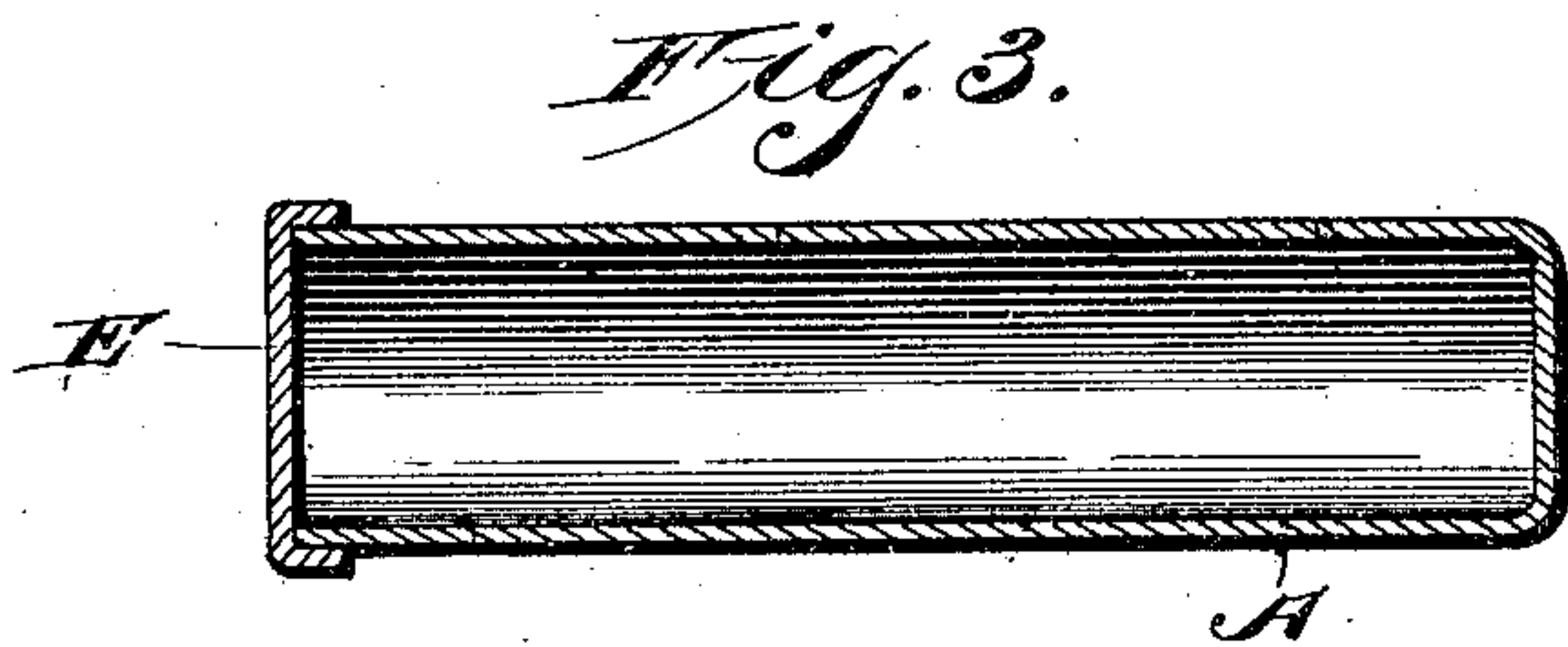
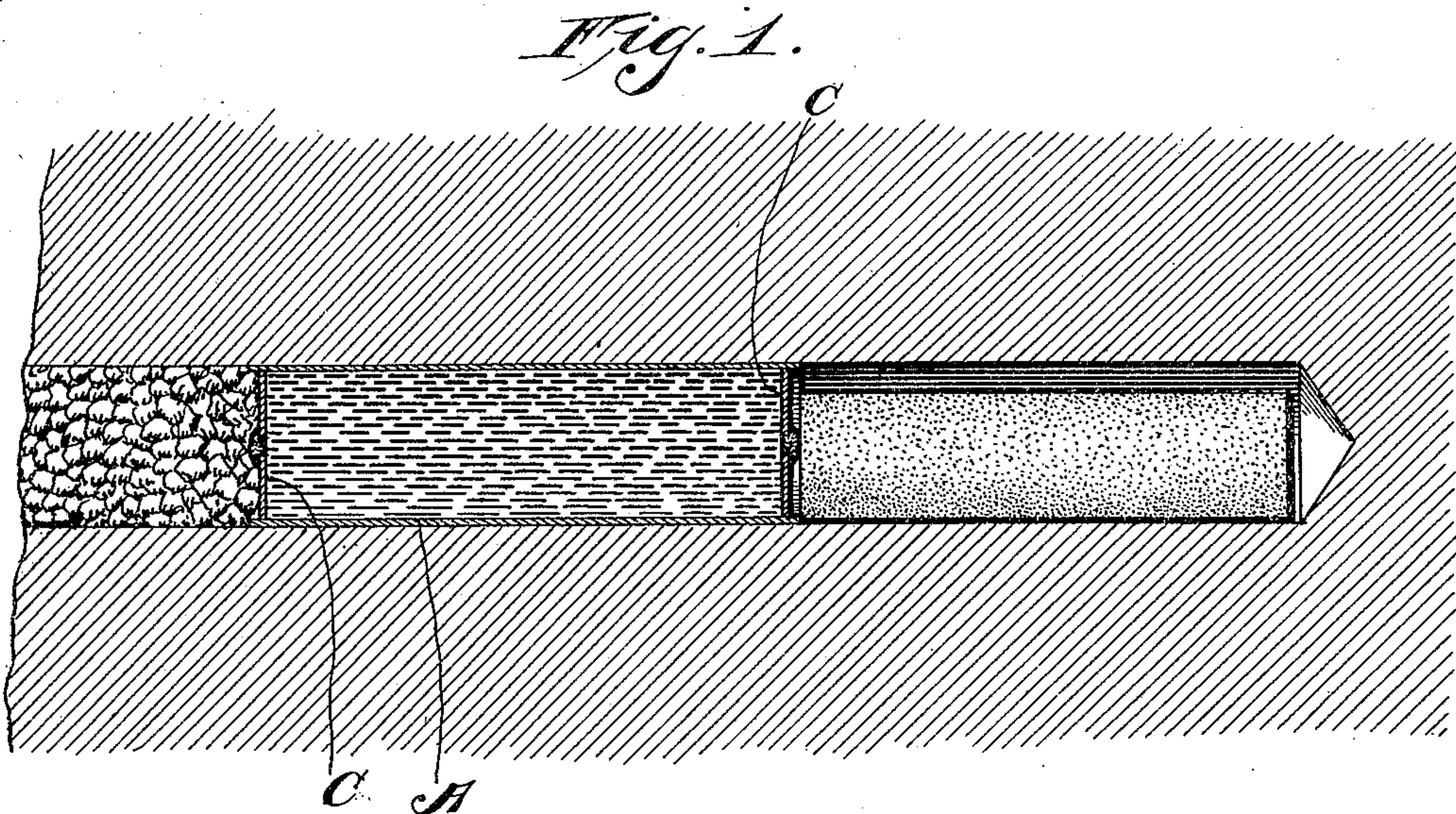


No. 789,967.

PATENTED MAY 16, 1905.

T. F. DURHAM.  
PACKING FOR BLASTING CARTRIDGES.  
APPLICATION FILED DEC. 11, 1901.



Witnesses:

Louis D. Heinrichs  
L. H. Morrison

Inventor  
Thomas F. Durham  
By  
W. Preston Williamson  
Atty



# UNITED STATES PATENT OFFICE.

THOMAS F. DURHAM, OF PHILADELPHIA, PENNSYLVANIA.

## PACKING FOR BLASTING-CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 789,967, dated May 16, 1905.

Application filed December 11, 1901. Serial No. 85,459.

*To all whom it may concern:*

Be it known that I, THOMAS F. DURHAM, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Packing for Blasting-Cartridges, of which the following is a specification.

My invention relates to a new and useful improvement in packing for dynamite blasting-cartridges, and has for its object to provide a packing which will be inserted in the drill-hole after the dynamite-cartridge has been inserted, and thereby be interposed between the dynamite and the tamping at the open end of the drill-hole, and is for the purpose of smothering the flame or sparks and absorbing the noxious gas arising from the explosion of the dynamite.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a central section through an embankment, showing a drill-hole charged with dynamite with my improved packing located therein; Fig. 2, a perspective view of one form of my improved packing-tube; Fig. 3, a longitudinal sectional view of another form of packing-tube.

In blasting with dynamite or other explosives in mines or other subterranean passages great danger is occasioned by the explosion on account of the liability of the flame arising from the explosion igniting any surrounding combustible gas, and thereby occasioning fire or a gas explosion in the passage itself. Another danger arising from the explosion is that the gas thrown off from the explosion of dynamite when it is exploded in the ordinary manner is liable to overcome the miners or workmen by inhaling the same.

The purpose of my invention is to smother

the flame and absorb the noxious gas when the explosion occurs.

In a former application for blasting-cartridge, filed by me June 11, 1901, Serial No. 64,081, I accomplish the object just described by surrounding the explosive with a fire-extinguishing agent upon all sides. With this invention I accomplish the same object, but with a more convenient and cheaper device, which consists of a tube A, closed at each end, and when it is desired to blast this tube A is filled with a fire-extinguishing agent, preferably water, and sealed, and then this filled tube is inserted in a drill-hole behind the explosive. The hole is then tamped or plugged up behind the fire-extinguishing packing, and when the dynamite is exploded the explosion will burst the tube A, containing the extinguishing agent, and this fire-extinguishing agent will immediately smother or extinguish any flame arising from the explosion and will at the same time absorb or prevent the formation of the objectionable gases.

The tube A, which is adapted to contain the fire-extinguishing agent, may be formed in any manner so as to be readily filled and sealed. The form shown in Figs. 1 and 2 consists of a cylinder B, which is fitted at each end with disks soldered into the cylinder, and a hole D is punched through each of these disks. In filling the packing-tube one end of the same is immersed in the fire-extinguishing fluid, and said fluid will rush in the lower end through one of the punched holes D and the air will escape through the other hole D in the upper end, or the tube may be filled by holding it in a running stream of water, so that the water will run in one end and the air escape at the other, and then the two small holes D are plugged or sealed with any suitable substance, such as wax, soap, &c.

In Fig. 3 I have illustrated another form, in which the packing-tube could be constructed and in which the tube is drawn so as to leave one end closed and solid therewith and the open end is adapted to be closed by a cap E. This cap is removed when it is desired to fill the tube, and after the same is filled it is placed upon the tube and may be sealed around

the edge with any suitable substance. These cases may be constructed of metal, cardboard, or any other material suitable for the purpose; but when constructed of absorbent material, 5 such as cardboard, the parts of the tube would be coated with paraffin before being used.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from 10 the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

In a packing for blasting, a receptacle com-

prising a cylinder with heads set slightly back within the same, each head having a hole, the whole being coated with paraffin, a seal for the openings in the head of the cylinder, and a fire-extinguishing agent within the receptacle. 15

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses. 20

THOMAS F. DURHAM.

Witnesses:

H. B. HALLOCK,

L. W. MORRISON.