

No. 721,431.

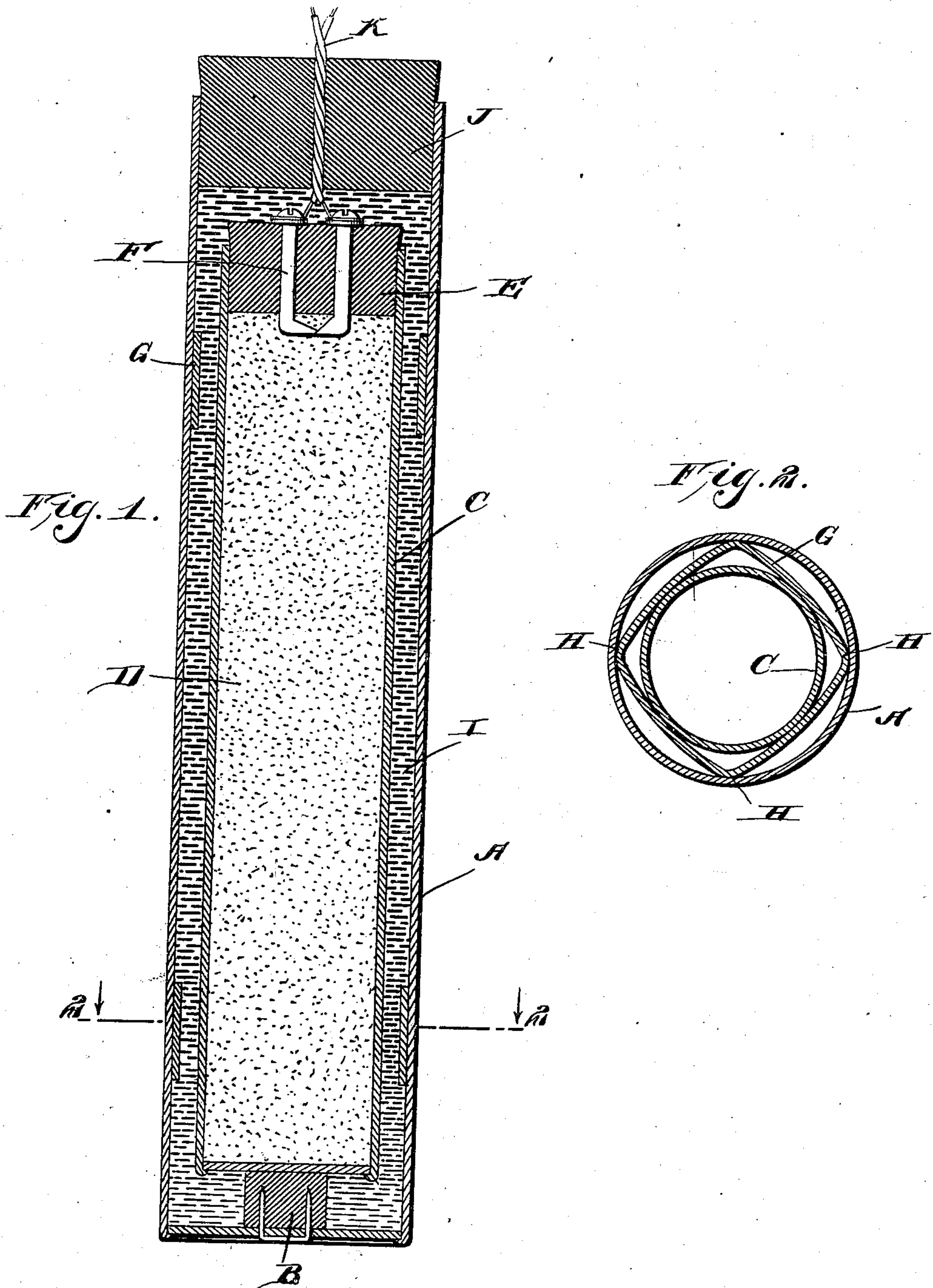
PATENTED FEB. 24, 190

T. F. DURHAM.

GUIDE FOR INSIDE TUBES OF BLASTING CARTRIDGES.

APPLICATION FILED APR. 9, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS F. DURHAM, OF PHILADELPHIA, PENNSYLVANIA.

GUIDE FOR INSIDE TUBES OF BLASTING-CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 721,431, dated February 24, 1903.

Application filed April 9, 1902. Serial No. 101,975. (No model.)

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 Guides for Inside Tubes of Blasting-Cartridges, of which the following is a specification.

My invention relates to a new and useful improvement in guides for inside tubes of blasting-cartridges, and has for its object to provide an inexpensive, simple, and effective means for holding the inner tube of a safety blasting-cartridge at a distance from the outer tube, and in the space between said tubes is designed to be placed the fire-extinguishing agent.

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 claims.

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 vertical longitudinal section of a blasting-cartridge with my improvement applied thereto; Fig. 2, a section taken on the line 2 2 of Fig. 1.

This invention is designed as an improvement upon patent issued to me January 21, 1902, No. 691,367, and is designed to be applied to safety blasting-cartridges in which the explosive is held in a sealed inner tube, and this inner tube is then placed in an outer tube, and the inner tube is held by my device at a distance from the walls of the outer tube, so that the fire-extinguishing agent may surround the inner tube upon all sides.

In the drawings, A represents the outer tube, which is closed at the lower end, and upon the inner side of the closed lower end is secured a block or projection B, upon which the inner tube C is adapted to rest. The inner tube C is also closed at the bottom and after the explosive D is inserted therein is sealed by means of a cork or plug E, through which extends the igniting device F. The projection B holds the inner tube at a dis-

tance from the bottom of the outer tube, and for the purpose of holding the inner tube at a distance from the walls of the outer tube I provide near the top and bottom the bands or strips G, which are bent into rectilinear shape, so as to form angles or corners H, which are adapted to come in contact with the walls of the outer tube A, the inner and outer tubes being circular in cross-section. Thus the strip G will come in contact with the inner tube at four points midway between the angles or corners H, and the corners H of the strip coming in contact with the outer tube will hold the inner tube at an equal distance from the outer tube at all points. These bands or strips G are secured to the inner tube at the points where they touch such tube, and any means may be employed for securing these strips in place; but as I prefer to form the outer and inner tube of pasteboard coated with paraffin glue and paraffin would be sufficient to hold the strips to the inner tube, as they are not subjected to any longitudinal strain. The space thus formed between the inner and outer tube is adapted to be filled with the fire-extinguishing agent I, which may be either a liquid or gas, and then the open end of the outer tube A is closed by a cork or plug J, through which the wire or fuse K of the igniting device projects.

While I have shown two of the bands or strips G used, it is obvious that more could be used without departing from the spirit of the invention, and also while I have shown the strip G bent into a square form, forming four angles or corners H, it is also obvious that this strip or band G could be bent into a pentagon, hexagon, octagon, or any other form and still be within the scope of the claims, it only being necessary that the bands shall be bent so as to form angles or corners which project beyond the inner tube and hold the said inner tube at a distance from the walls of the outer tube, and while holding the inner tube in position it does not interfere with the free circulation of the fire-extinguishing agent within the outer tube. The band G need not necessarily be flat in cross-section, but may be of any shape desired, such as round or square. Therefore I do not wish to be limited to the exact constructions here shown, as slight modifications

could be made without departing from the spirit of my invention.

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

- 5 1. In a safety blasting-cartridge of the character described, an inner and outer tube, means for holding the inner tube at a distance from the outer tube, said means consisting of a band or strip bent into a polygonal form and surrounding the inner tube, the angles or corners formed by the bending of the strip adapted to protrude beyond the inner tube and come in contact with the inside of the outer tube, as and for the purpose specified.
- 5 2. In a safety blasting-cartridge of the character described consisting of an inner and outer tube, both circular in cross-section,

means for holding the inner tube at a distance from the outer tube, said means consisting of a strip or band bent so as to form a plurality of angles or corners, which angles or corners project beyond the inner tube and are adapted to come in contact with the outer tube, said band being secured to the inner tube at points midway between the angles or corners, as and for the purpose specified. 20 25

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

THOMAS F. DURHAM.

Witnesses:

H. B. HALLOCK,
L. W. MORRISON.