

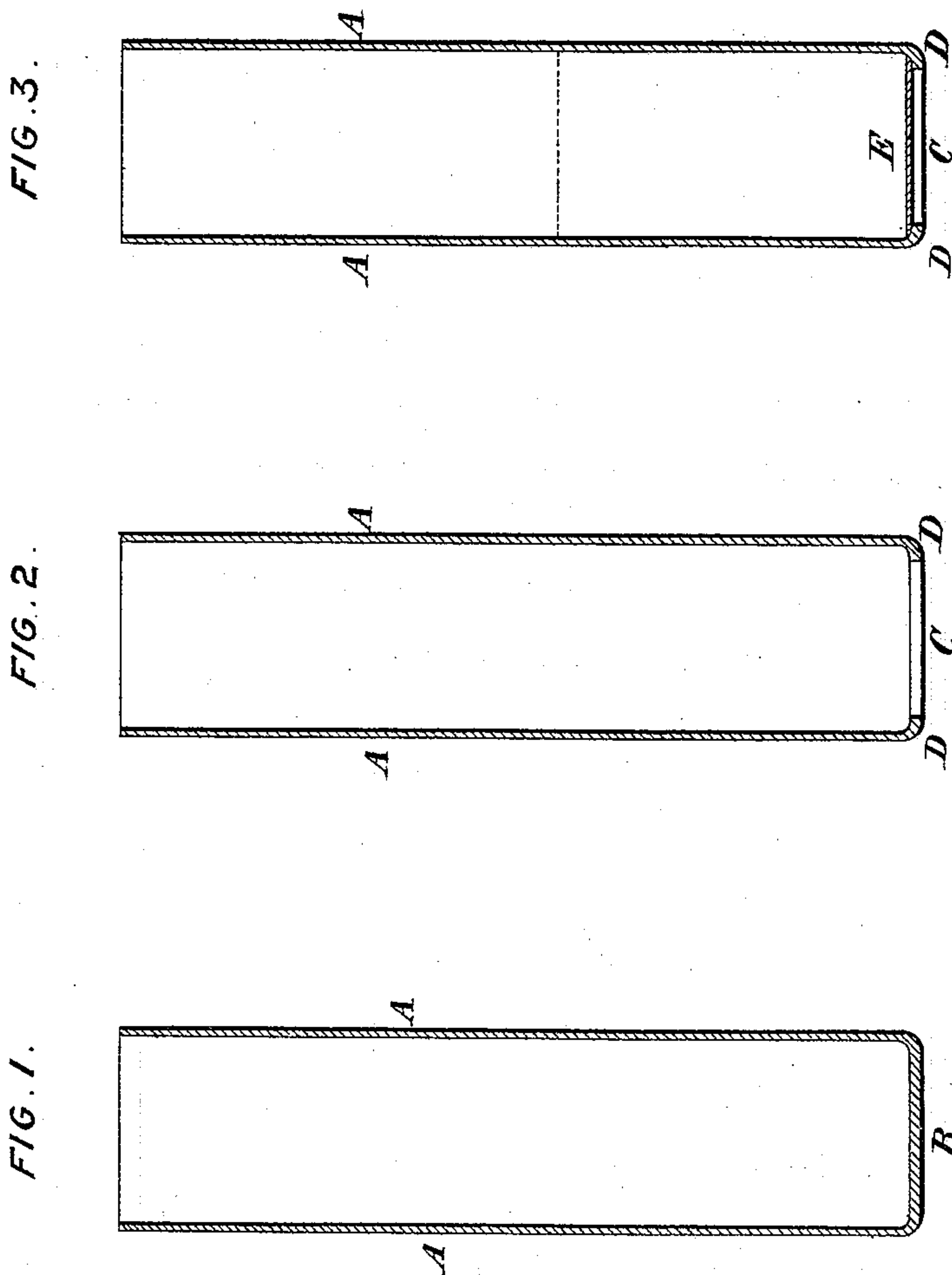
(No Model.)

G. SMITH.

PRIMER TUBE FOR DYNAMITE CARTRIDGES.

No. 411,206.

Patented Sept. 17, 1889.



Witnesses:

E. J. Griswold
Geo. A. Brane

Inventor:

Geo. Smith,
By his Attorneys
Howson and Howson

UNITED STATES PATENT OFFICE.

GEORGE SMITH, OF GLASGOW, COUNTY OF LANARK, SCOTLAND.

PRIMER-TUBE FOR DYNAMITE CARTRIDGES.

SPECIFICATION forming part of Letters Patent No. 411,206, dated September 17, 1889.

Application filed June 26, 1888. Serial No. 278,281. (No model.) Patented in England June 25, 1886, No. 8,368; in France December 9, 1886, No. 180,179; in Belgium December 10, 1886, No. 75,562; in Germany December 11, 1886, No. 41,322; in Canada January 19, 1887, No. 25,813, and in Austria-Hungary August 9, 1887, No. 1,073 and No. 34,645.

To all whom it may concern:

Be it known that I, GEORGE SMITH, a subject of the Queen of Great Britain and Ireland, residing at Glasgow, in the county of Lanark, Scotland, have invented an Improved Detonator - Tube for Cartridges Charged with Dynamite or Similar Explosive, of which the following is a specification.

An invention on which the present invention is an improvement has been patented to me in a British patent dated June 25, 1886, No. 8,368; in a French patent dated December 9, 1886, No. 180,179; in a Belgian patent dated December 10, 1886, No. 75,562; in a German patent dated December 11, 1886, No. 41,322; in a Canadian patent dated January 19, 1887, No. 25,813, and in an Austria-Hungarian patent dated August 9, 1887, No. 1,073 and No. 34,645.

My improved detonator-tube is made of thin steel instead of copper, which has hitherto generally been employed. It has been proposed to make cartridge-shells (which are analogous to detonator-tubes) of thin steel, but not in the manner and with the accessories constituting the combination which I claim as my present invention. Copper has been used for making percussion-caps, detonator-tubes, and cartridge-shells, because of its being less liable than iron or steel to produce sparks when accidentally struck or scratched by a hard substance. In order to remove the liability to produce sparks from my steel detonator-tubes, I electroplate them with a thin coating of copper when they are otherwise finished.

In describing my invention I will refer to figures on the accompanying sheet of explanatory drawings, these figures showing the detonator-tubes as considerably enlarged.

My improved detonator-tube is at an early stage of its formation of the form shown in Figure 1. It is a tube A, with one end B closed, and is made, in a well-known manner, by forcing the steel through a die. In making a tube the end B is unavoidably made

thicker than the sides A, whereas it is desirable that while there should be an end to retain the fulminant or detonating explosive in the tube, that end should be weaker than the sides in order that the explosion should be mainly directed through the end, in order to act with certainty on the dynamite or other explosive forming the main charge of the cartridge into which the detonator-tube is inserted. In the next stage of the tube's formation an opening C is formed by punching out the end B, but so as to leave a contraction or inwardly-bent flange D round the edge. Afterward the end opening C is closed by a disk E, of very thin copper or other suitable material, introduced from the other end of the tube. The fulminant or detonating explosive is put into the tube so as to occupy about half its interior next the disk E, and when made ready for use the end of the fuse is inserted into the open end of the tube—the upper end—as shown in the drawings.

By forming the detonator-tube of thin steel in the manner described I am enabled to make it not only at less cost than when made of copper, but also with sides which from their greater strength cause the explosion to take effect in the desired direction and with increased certainty.

What I claim is—

A detonator-tube for cartridges charged with dynamite or similar explosive, and consisting of a tube of thin steel having an open but contracted inner end, a plating of thin copper upon this tube, and a disk of thin material closing the inner end, the said disk being inserted at the outer end and retained by the contraction at the inner end, substantially as and for the purposes herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE SMITH.

Witnesses:

EDMUND HUNT,
DAVID FERGUSON.