

J. BRAMWELL-SMITH.
BLASTING FUSE.
APPLICATION FILED OCT. 12, 1908.

953,588.

Patented Mar. 29, 1910.

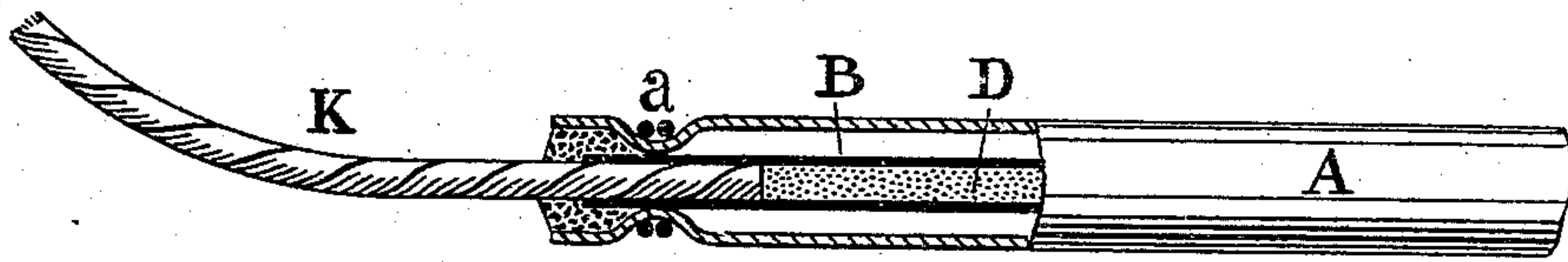


Fig. 5.

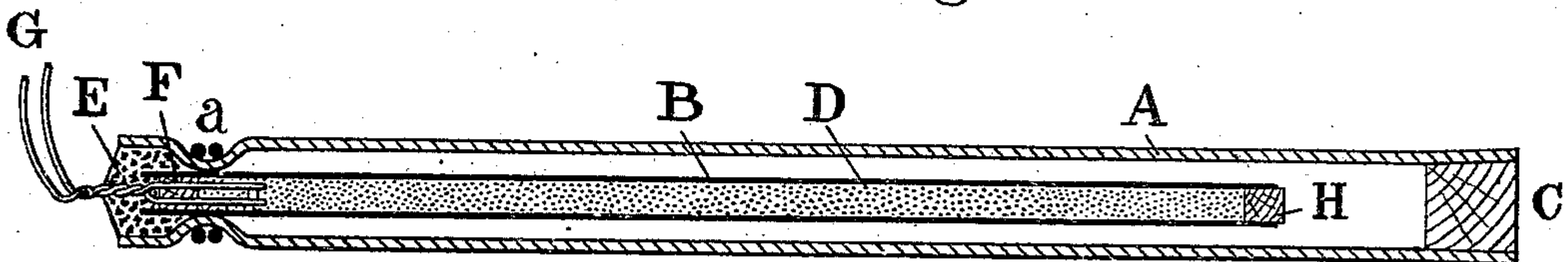


Fig. 1.

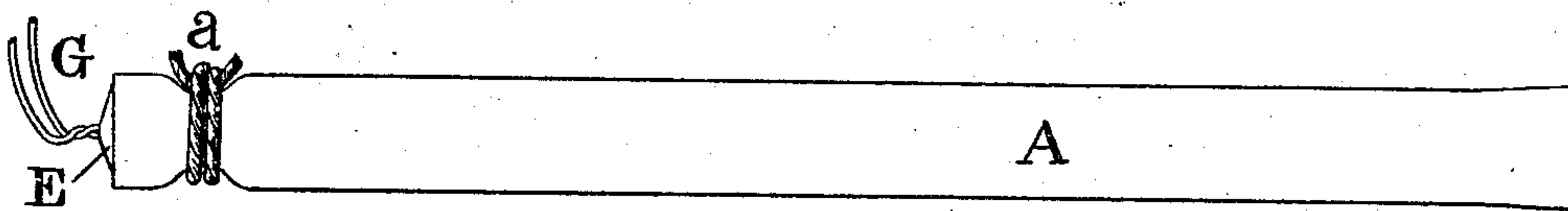


Fig. 2.

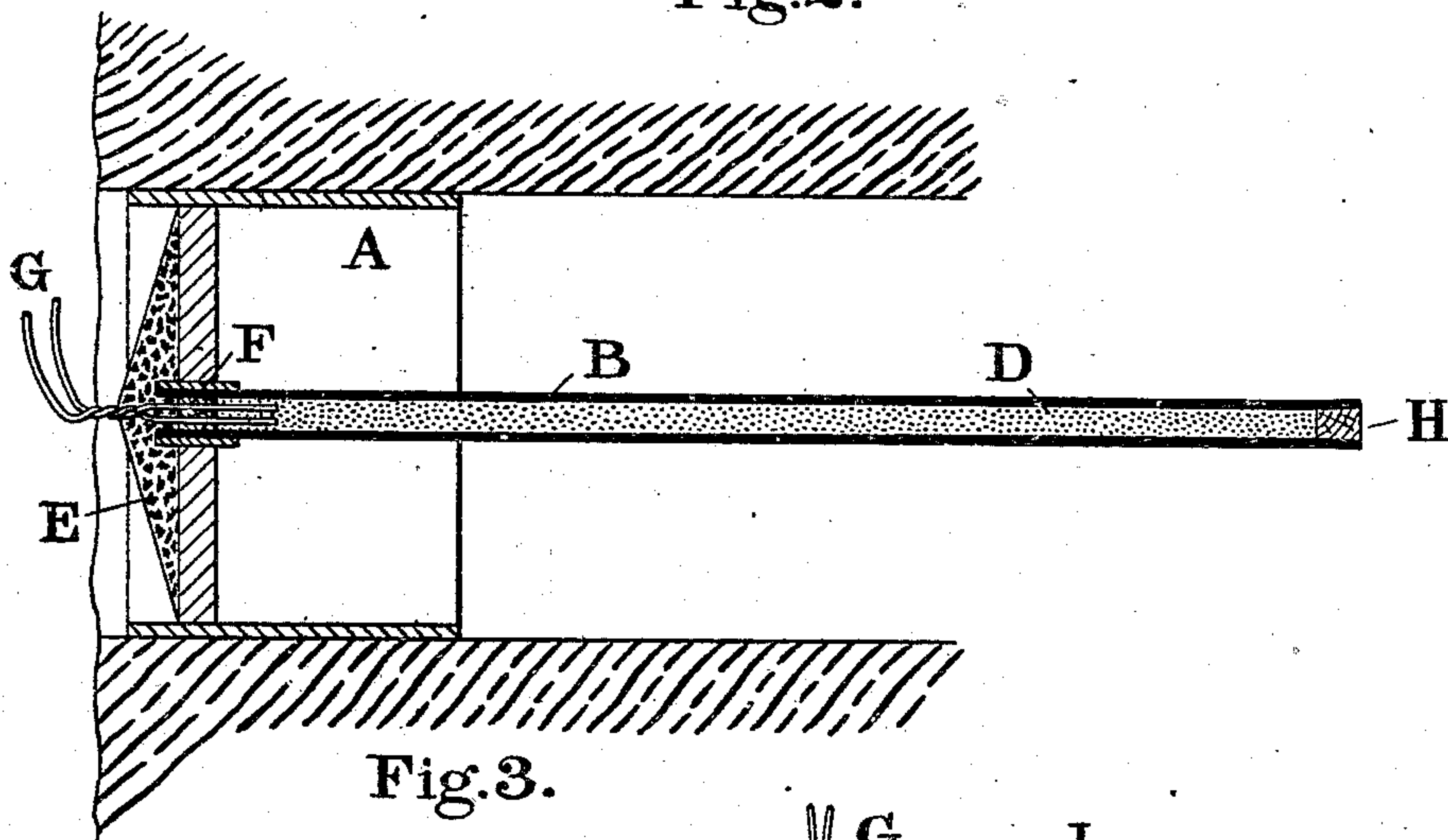


Fig. 3.

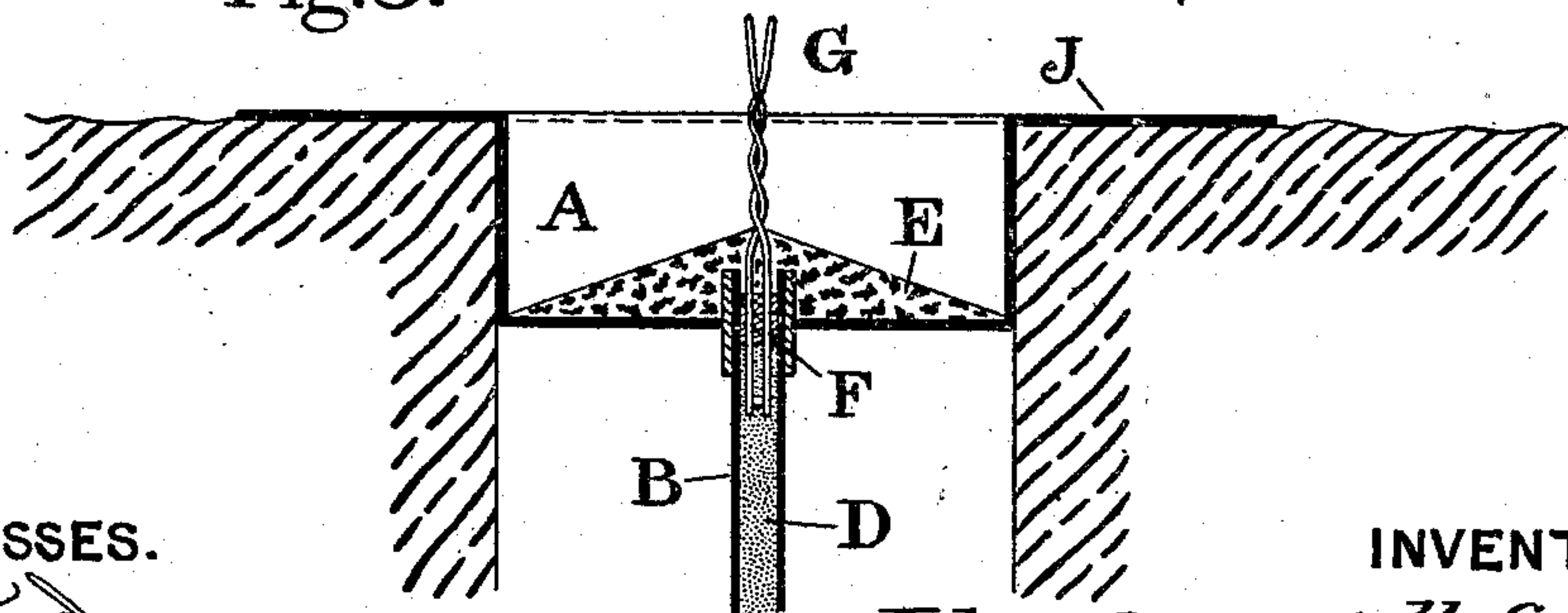


Fig. 4.

WITNESSES.

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JOHN BRAMWELL-SMITH, OF CHAPEL-EN-LE-FRITH, ENGLAND.

BLASTING-FUSE.

953,588.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed October 12, 1908. Serial No. 457,420.

To all whom it may concern:

Be it known that I, JOHN BRAMWELL-SMITH, a British subject, residing at Chapel-en-le-Frith, county of Derby, England, have invented certain new and useful Improvements in Blasting-Fuses, of which the following is a specification.

This invention relates to fuses; and has for its object to provide a cheap, efficient fuse of that type which as it burns, advances or moves in the manner of a rocket, toward inflammable explosives and ignites the same, the invention being especially useful for blasting purposes.

To this end the invention comprises an outer holding tube or container formed of stiff paper, cardboard, sheet metal or other suitable material, and an inflammable tubule of small diameter made of a wheat straw, paper or other substance, charged with gunpowder and rigidly fastened at one end to said holding tube or container by cement or other means. The ends of the tubule are closed in any suitable manner and into the attached end are inserted the wires for electrically igniting the powder, a slow match, or other means of discharging the fuse.

The invention will be fully described with reference to the accompanying drawings.

Figure 1. is a longitudinal section through one construction of the fuse. Fig. 2. is an outside view of same. Fig. 3. is a section showing modified form of holder or container. Fig. 4. is a section showing another modification. Fig. 5. is a section of fuse arranged to be ignited by a time or safety fuse or by touch paper.

In the form of the invention shown in Figs. 1 and 2 an outer holder, tube or container A of paper, sheet metal or other suitable material is provided into which is inserted and secured at one end a tubule B which may be an ordinary wheat straw charged with gunpowder or other explosive D, or may consist of a small tube of paper or other suitable combustible material charged in the same way. The tubule B is secured at one end in the holder or container A by means of cement E and a string or wire α wound around the holder or container near one end to compress or crimp the holder into contact with the end of the tubule so that when a cement E is poured into the end of the holder or container around the tubule, said cement cannot pass

the compressed or crimped portion thereof. The end of the tubule secured in the holder is provided with a small plug F formed with two holes through which two electric wires G connected up to a battery are passed for the purpose of igniting the powder in the tubule. The ignition may take place by means of a spark or by the fusing of a very fine bridge wire connecting the "two wires." The other or free end of the tubule is provided with a small plug H to prevent the powder escaping. The holder or container A is somewhat longer than the tubule B and at the free end a small removable block or stopper C is preferably inserted for strength and security when stored or in transit.

In operation the block is first removed from the end of the container and the fuse is then inserted into the drill or bore hole containing the shot to be fired. If necessary it may be kept from dropping down or passing too far along the hole by a small piece of cement or mud or in any other suitable way. When the men have withdrawn from the place the fuse is fired by closing the electric circuit. The fuse is ignited first of all at the end which is secured in the holder or container. As soon as this part of the fuse is burned, that is when the tubule is burned through, it is liberated from the holder and forced down or along the bore hole by the burning of the fuse in the same way as a rocket, so that the tubule is caused to be moved upon the shot and thus to obviate a misfire.

In the form shown in Fig. 3. the holder or container A is made shorter and of larger diameter so as to just fit the hole into which the fuse is to be placed. The tubule B is of the same construction as described above and may be secured to the holder by cement or may fit into a small tube, in any other suitable way.

Fig. 4. shows a construction somewhat similar to that shown in Fig. 3. the chief difference being that the holder A is formed with a flange J which extends around the holder A and rests against the rock or ground in which the hole is bored to prevent the holder or fuse from falling into the hole.

In Fig. 5. a fuse is shown in which instead of employing electricity for the purpose of ignition, an ordinary time or safety

fuse K or touch paper is employed for this purpose. Otherwise the fuse is exactly similar to that shown in Figs. 1 and 2.

The invention is specially applicable for firing what are known as springing shots, but is also capable of being used for other purposes.

What I claim as my invention and desire to protect by Letters Patent is:—

10 1. A fuse comprising a holder, a stiff tubule formed of inflammable material, and filled with an explosive material, means for clamping or crimping the holder about one end of said tubule, a cement like material
15 surrounding said clamped end of the tubule to fasten it rigidly to said holder, and exploding means in the same end of the tubule.

20 2. A fuse comprising a tubular holder, an inflammable tubule supported within said holder and filled with an explosive material, a flexible band adapted to be wound about said holder near its end to crimp the same against said tubule, a cement like material

poured into said end of the holder to hold the tubule immovable, and means extending through said cement into the tubule for igniting the same. 25

3. A fuse comprising a holder, a stiff inflammable tubule filled with an explosive and inserted in the holder, the one extremity of the tubule being fixed to one extremity of the holder and the said tubule extending into the holder clear of contact with any part of the wall of the latter, and means for
35 igniting the explosive in the tubule and extending into the extremity of said tubule secured to the holder to cause the tubule to be detached from the holder and travel toward an explosive charge. 40

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN BRAMWELL-SMITH.

Witnesses:

J. OWDEN O'BRIEN,
B. TATHAM WOODHEAD.