

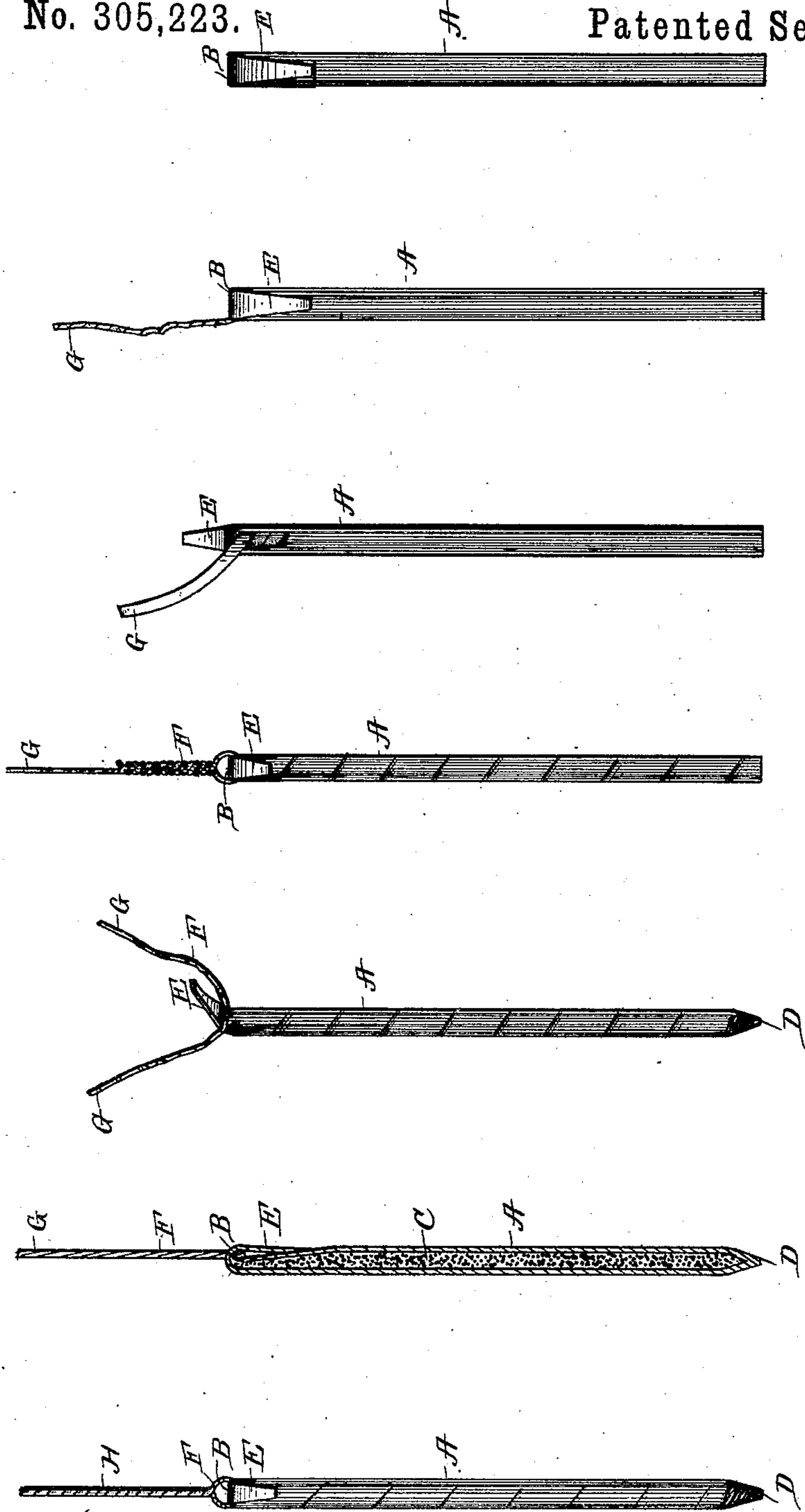
(No Model.)

J. R. POWELL.

MINER'S SQUIB.

No. 305,223.

Patented Sept. 16, 1884.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN R. POWELL, OF PLYMOUTH, PENNSYLVANIA.

MINER'S SQUIB.

SPECIFICATION forming part of Letters Patent No. 305,223, dated September 16, 1884.

Application filed June 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. POWELL, a citizen of the United States, residing at Plymouth, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Miner's Squib, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to miners' squibs; and it has for its object to provide means for attaching the match to the squib-tube, whereby said match will be held securely from accidental displacement.

A further object of the invention is to provide an improved manner of sealing or closing the rear end of the squib-tube, so as to prevent the escape of powder therefrom.

With these and other objects in view the said invention consists in turning back the front end of the tube, to form a flap, and securing it fast to the tube, the match being thereby held in place between the flap and the said tube.

It consists, further, in twisting or contracting the rear end of the squib-tube, so as to prevent the escape of the igniting-charge, and in certain details of construction and combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of a mining-squib embodying my invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a perspective view illustrating the manner of attaching the match in position. Fig. 4 is a perspective view, jute twine dipped in resin being employed in place of the paper match. Figs. 5 and 6 are views illustrating a modification. Fig. 7 illustrates another modification.

Like letters refer to corresponding parts in the several figures.

Referring to the drawings, A designates the cylindrical case or tube, which constitutes the body of the shell, and contains the charge C of igniting material, the rear end of the case or tube being twisted to a point, D, so as to seal the same and retain the charge in place, and the front end being bent over, as shown at B, and turned back to form a flap, E. To stiffen the twisted end D, I prefer to apply some suitable adhesive substance thereto; but I do not wish to be limited to this manner of

sealing the rear end of the tube, since I may employ any other suitable means for effecting the same purpose, as may be found desirable.

F designates the match, formed of a single piece of Manila or tissue paper, and having its central portion looped around the flap E, the ends G G projecting forward and twisted together to form a single strand, H, as shown in Figs. 1 and 2.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the annexed drawings.

The squib-tube is formed of a single piece of paper twisted spirally to contain the igniting-charge, the rear end being twisted off to a point or sealed in any other manner which I may deem desirable. The front end is immersed or dipped in a solution of saltpeter and water and bent over and turned back, to form a flap, as shown and described, the match being looped around the flap, when the latter is dipped in any suitable adhesive substance and pressed against the body of the tube, so as to securely fasten the match in position, the latter at the same time being twisted into one strand, as shown in Figs. 1 and 2.

As shown in Fig. 3, jute twine may be used in place of Manila or tissue paper by dipping the twine in melted resin or Burgundy pitch, slipping the short end of the twine around the flap E, securing the latter, in the manner described, to the tube, and finally pressing the short end of the twine against the body thereof, the resin on the twine being in such a state as to render a perfect cohesion between the parts.

In Figs. 5 and 6 is shown a modification in the attachment of the match, the latter being formed of a single strand, one end of the match being fastened to the upper end of the squib-tube and twisted around the same, the flap E being pasted or otherwise fastened to the squib-tube over the match, so as to hold the latter in place. In this manner the flap prevents the match from untwisting and holds the single strand from becoming displaced.

In Figs. 3 and 5 are shown the manner of attaching the match before fastening the flap against the squib-tube, the match being either looped over the flap or twisted around the front end of the tube, and then, by applying

adhesive substance to the flap, the latter is pasted down over the match or against the tube.

The manner of using the squib is well known, and therefore need not be particularly pointed out here. Before adjusting the squib in the blasting-barrel, the twisted end D is cut off to provide a small opening at the rear end of the tube, said opening affording a means of communication with the blasting-charge.

The match is constructed of Manila paper, tissue-paper, jute twine or other cord, and may be dipped in melted resin, Burgundy pitch, saltpeter and water, or other inflammable composition.

In mines which give off inflammable gases, or which are subject to strong currents of air, I prefer to use the dead-match, made in the usual manner by dipping the same in a solution of saltpeter and water, and by dipping this "dead-match" in liquid sulphur a flame is given to the same which will not be blown out by strong currents of air.

My improved squib is simple in construction, and will prove of great utility in use. It will be seen that the turned-back end or flap of the squib-tube forms not only a means for attaching the match, but it also provides a seal for the front end of the tube, and thus the charge will be retained therein. The match will be securely held in place, and thus there will be no danger of it becoming separated from the tube.

It will be apparent that I may provide a straw shell or tube with a flap, as shown in Figs. 5, 6, and 7, by twisting a piece of paper around the front end, so as to allow a portion to project beyond the tube, said projecting portion forming a flap to seal the front end and provide holding means for the match.

I would have it understood that I do not confine myself to mere details of construction, as various modifications may be resorted to

without departing from the spirit or scope of my invention.

Having described my invention, I claim—

1. In a miner's squib, the shell or case having its front end provided with a flap, which may be formed with or attached thereto, in combination with the match, said flap being turned back and secured to the shell or case, so as to hold the match in place, as set forth.

2. In a miner's squib, the tube having its front end turned back to form a flap, and the match having its body slipped around the flap, the latter being fastened to the tube, as set forth.

3. In a miner's squib, the tube having its front end turned back to form a flap, in combination with the match looped around the flap, and twisted together to form a single strand, the flap being pasted or otherwise secured to the tube, as set forth.

4. In a miner's squib, the tube having its front end turned back to form a flap, in combination with the match having its rear end twisted around the front end of the tube, and the flap secured over the match and tube, as set forth.

5. In a miner's squib, the tube having its front end turned back to form a flap, in combination with the match formed of jute twine or other cord saturated in melted resin, Burgundy pitch, or other suitable adhesive combustible material, said twine being looped around the flap and secured by the latter in place, the ends of the twine being twisted together to form a single strand, as set forth.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in presence of two witnesses.

JOHN R. POWELL.

Witnesses:

EDWARD G. SIGGERS,
WILMOT L. HARRIS.