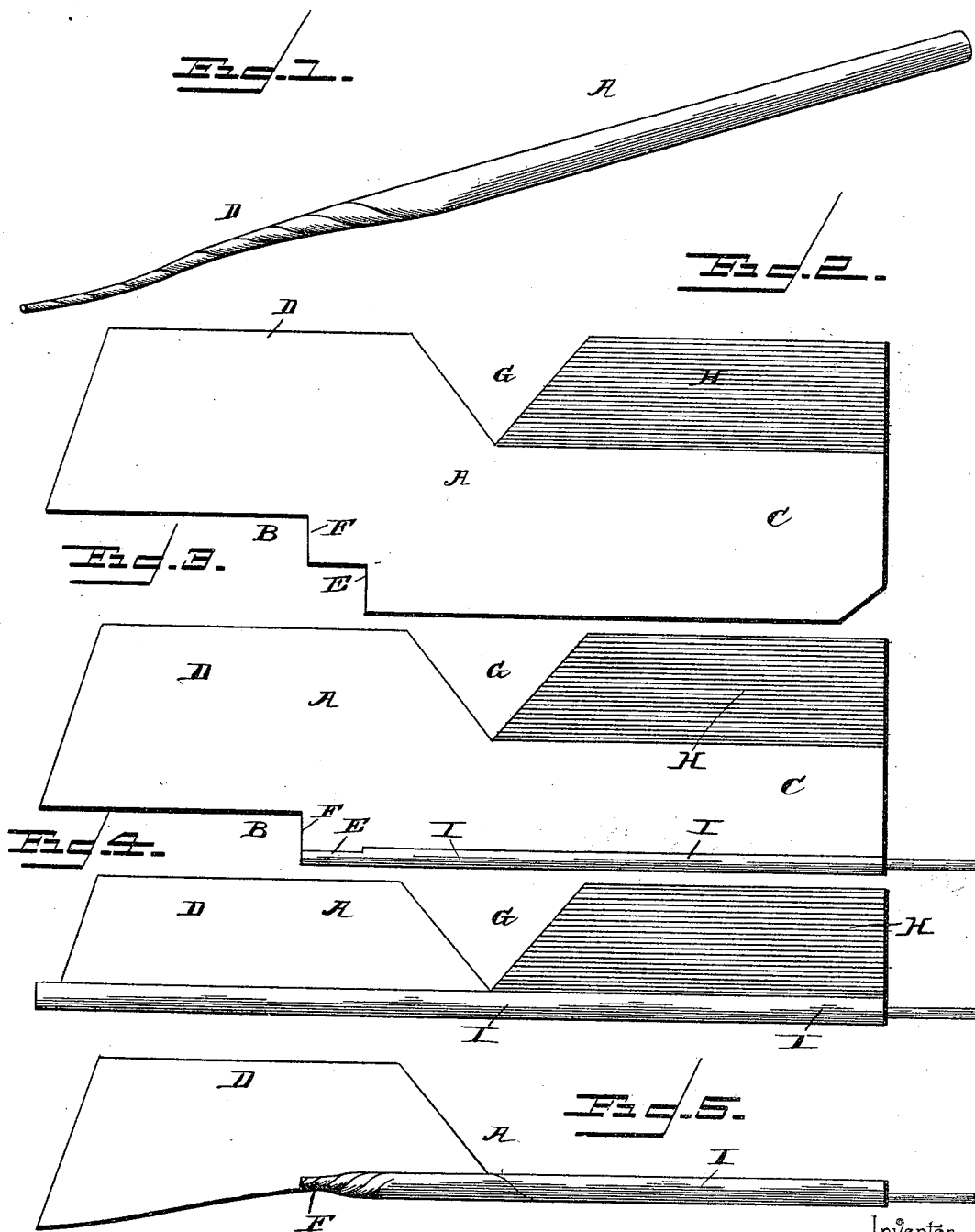


(No Model.)

J. R. POWELL.
MINER'S SQUIB.

No. 518,699.

Patented Apr. 24, 1894.



Witnesses
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JOHN R. POWELL, OF PLYMOUTH, PENNSYLVANIA.

MINER'S SQUIB.

SPECIFICATION forming part of Letters Patent No. 518,699, dated April 24, 1894.

Application filed May 20, 1893. Serial No. 474,941. (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 Mining-Squib, of which the following is a specification.

This invention relates to mining squibs; and it has for its object to provide an improved squib of this character, which, while very simple in construction, at the same time provides a perfectly safe one which can be easily inspected, so as to avoid the danger of premature explosion.

To this end the main and primary object of the present invention is to form a mining squib having a perfect roll-closure at one end to prevent the powder from working into the match portion, and at the same time to provide a squib wherein the match portion thereof can be easily untwisted its entire length, by the miner before using, in order to ascertain if by any accident any particles of powder had escaped into the same.

With these and other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings;—Figure 1 is a perspective view of a completed miner's squib constructed in accordance with this invention. Fig. 2 is a plan view of the blank out of which the squib is formed. Fig. 3 is a similar view showing the first stage of rolling while the closure of the tube is being formed before the match portion is reached. Fig. 4 is a similar view showing the rolling of the tube advanced beyond the match portion so as to roll such match portion therewith, and up to the sealing portion of the blank. Fig. 5 is a detail plan view of the completed squib, showing the match portion opened or untwisted and also more clearly showing the formation of the tube closure roll.

Referring to the accompanying drawings, the letter A, represents an approximately rectangular blank from which the squib hereinafter described is made. The blank A, is either Manilla, tissue, or similar paper which

will roll easily without breaking, and the blank made from such paper is cut away at one side edge as at B, which cut commences at one end of the blank and extends to an intermediate point so as to form a tube portion C, beyond, and the match portion D, at the same end in which the cut is made. The inner end of the cut B, is extended at one outer edge of the blank into the notch E, which forms, at the inner corner of the cut B, the projected and intermediate closure piece F, which projects beyond the inner end of the tube portion of the squib blank, and is located at an intermediate point between the outer edge of the blank, from which the tube is rolled, and the beginning of the match portion D. It will be clearly observed by reference to Fig. 2 of the drawings, that one side of the notch extension E, is the inner terminal of the tube to be rolled from the blank, the length of which tube is consequently the distance between that side of the notch and one end of the blank. The squib blank A, is further provided in its edge opposite the cut edge B, with a V-shaped dividing notch or cut G. The V-shaped cut G, is disposed intermediate of the ends of the squib blank and forms a dividing space between the match portion D and the tube body portion C, and at the same time separates the sealing strip H, from said match portion, said sealing strip being located between the V-shaped cut and one end of the squib blank, and has applied thereto suitable adhesive material, which seals up the tube as the roll is continued over the sealing strip. Now with the construction of the blank well in mind, it is thought that the formation and use of the same will be readily apparent to those skilled in the art with but a slight description. The rolling of the tube I, from the tube body portion E, is commenced from one edge of the blank by placing the paper upon a flat base and rolling the same upon the usual rolling needle, in a manner which is well known to those familiar with this art. At the very commencement of the rolling of the blank from one edge, the shape of the tube portion, I, is formed before the projected and intermediate closure piece F, is reached. By continuing the rolling of the blank, the clos-

ure piece, F, now commences to roll up into a number of convolutions, so that by the time the roll reaches one edge of the match portion D, a perfect intermediate roll-closure is formed beyond the inner end of the already rolled tube of the squib, and this roll closure, which does not form a portion of the tube itself after being twisted, is much more secure in its function than closures heretofore made. The rolling of the blank is still continued so that the match D, is rolled simultaneously with the tube and the closure portion of the blank, and is therefore completed together with the rest of the squib. When the roll has reached the inwardly extending apex of the cut G, the same completes the squib by wrapping itself in the sealing strip H, formed at one side of said cut G. The portion of the match D, at the other side of said cut of course rolls up with the tube, but is not sealed, and such match, together with the closure roll, are finally twisted by the fingers in the ordinary manner into the shapes shown plainly in Figs. 1 and 5.

By the means just described the squib is entirely completed and the explosive filling placed in the tube ready for use, in the ordinary manner. Now, when the miner takes up the squib for use, he is desirous of ascertaining whether, by any possible means, a particle of powder has worked itself into the rolled match portion. In order to secure this result, it is simply necessary for him to unroll or untwist the match portion, as clearly shown in Fig. 5 of the drawings, and as will be seen by reference to this figure, such match portion can be untwisted up to the apex of the cut G, and therefore beyond the closure roll itself, whereby the entire inner closed end of the tube is completely exposed up to the beginning of its sealing strip, thereby providing a very advantageous feature of improvement over the ordinary squibs now manufactured. After inspecting the match of the squib it is simply necessary to roll up the match portion again, when the squib will be ready for use.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A mining squib having at one end an unsealed twisted match portion extending as far as a point beyond the inner closed end of the tube of the squib, and adapted to be untwisted up to such point without affecting other parts of the squib substantially as set forth.

2. A mining squib having a tube portion, an unsealed match roll or twist beyond one end of the tube portion, and a projected closure roll formed intermediate of one end of the tube portion and the beginning of the unsealed match roll or twist, substantially as set forth.

3. A mining squib comprising a paper blank having an end cut at one side edge forming a match and tube portion, and a projected closure piece located at the inner corner of said end cut and intermediate of the match and tube portions, the said blank being adapted to be rolled from one edge to successively form the tube, the intermediate closure roll from said projected closure piece, and a match roll from the match portion, substantially as set forth.

4. In a mining squib, the paper blank having a V-shaped cut or notch in one edge forming at one side a sealing strip and leaving at its opposite side an unsealed match portion, said blank being adapted to be rolled into a tube and match roll, the tube of which is sealed from the apex of said cut to one edge of the blank, while the match portion is left unsealed up to said apex, substantially as set forth.

5. In a mining squib, the proper blank consisting of a single rectangular piece of paper having an end cut-away portion forming a match and tube portion, a projected closure piece located at the inner corner of said end cut, and a V-shaped cut or notch in one edge opposite said cut, and forming beyond one side thereof a sealing strip, substantially as set forth.

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

JOHN R. POWELL.

Witnesses:

J. H. SIGGERS,

E. G. SIGGERS.