

(No Model.)

J. BEADLE.
MINER'S SQUIB.

No. 502,946.

Patented Aug. 8, 1893.

FIG. 1.

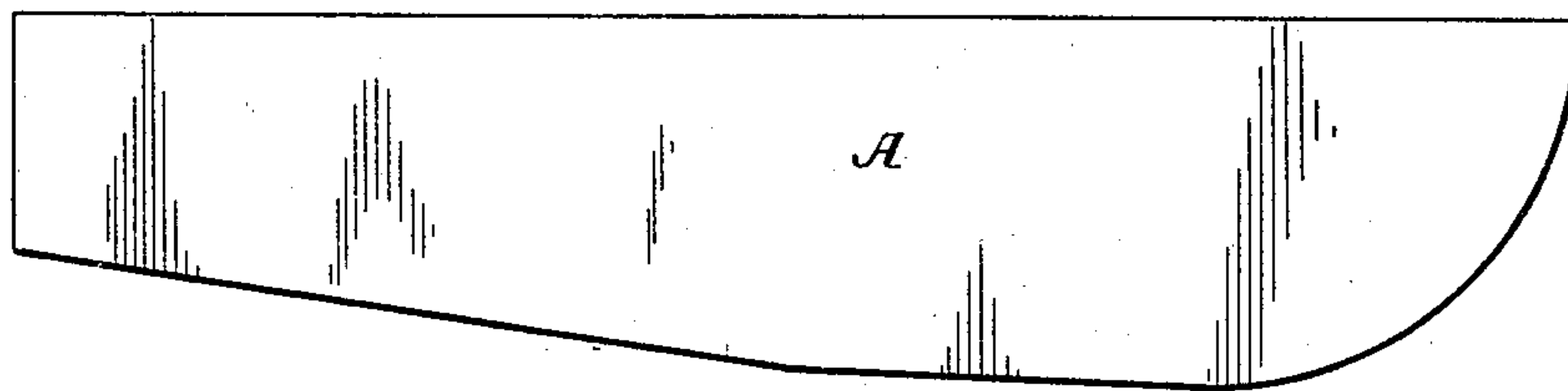


FIG. 2.

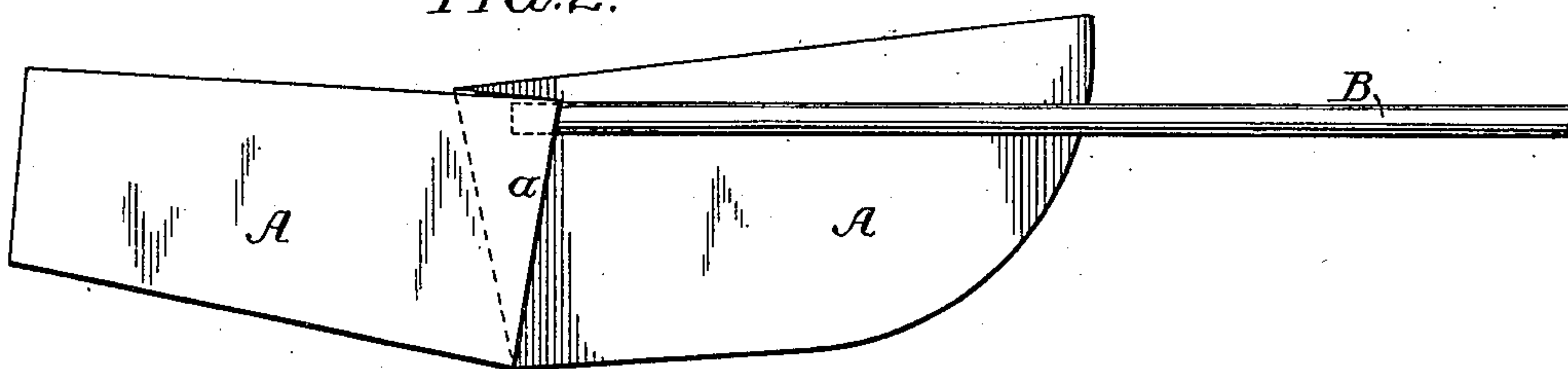


FIG. 6.



FIG. 3.

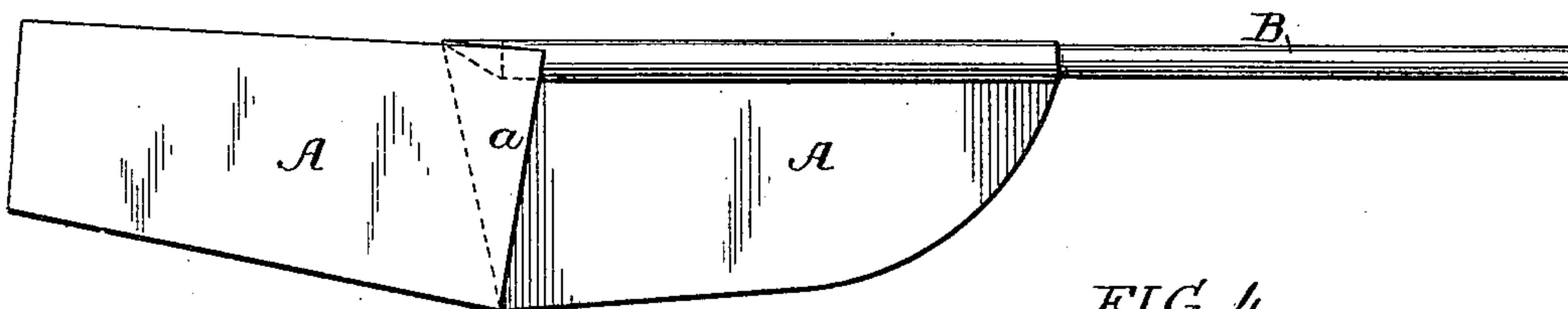


FIG. 4.

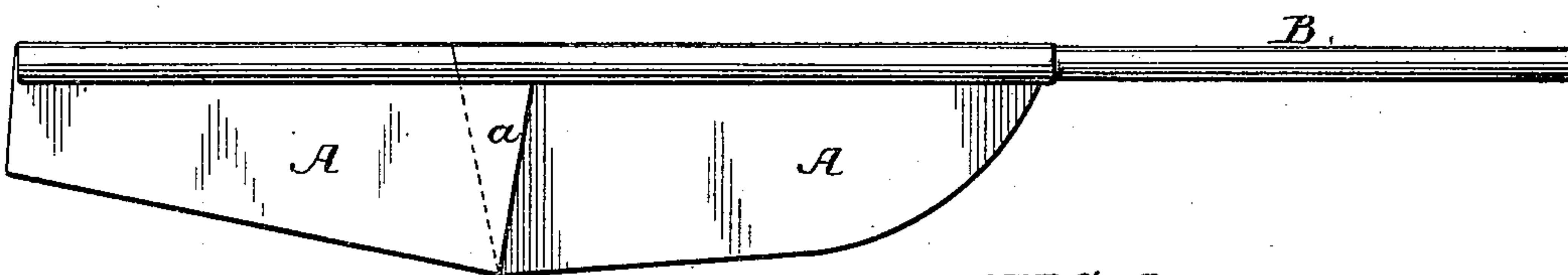


FIG. 5.

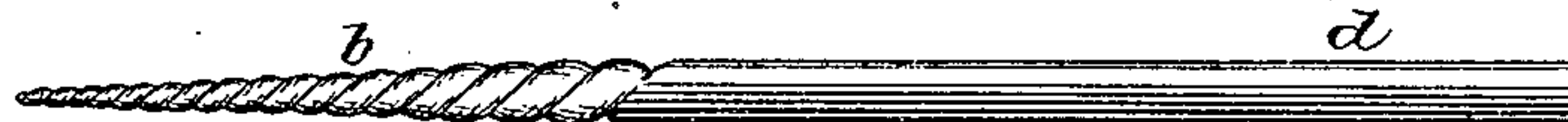


FIG. 7.



Witnesses:
R. Schlicher.
A. V. Groupe

Inventor:
Jesse Beadle
by his Attorneys
Howson & Howson

UNITED STATES PATENT OFFICE.

JESSE BEADLE, OF SHICKSHINNY, ASSIGNOR OF ONE-HALF TO ESTHER
A. DADDOW, OF ST. CLAIR, PENNSYLVANIA.

MINER'S SQUIB.

SPECIFICATION forming part of Letters Patent No. 502,946, dated August 8, 1893.

Application filed January 14, 1892. Serial No. 418,091. (No model.)

To all whom it may concern:

Be it known that I, JESSE BEADLE, a citizen of the United States, and a resident of Shickshinny, Luzerne county, Pennsylvania, have
5 invented certain Improvements in the Construction of Miners' Squibs, of which the following is a specification.

The object of my invention is to so construct a miner's squib as to prevent the premature firing of the blast by the squib, so that
10 the miner, after lighting the squib, has ample time to gain a place of safety before the blast is fired. This object I attain in the manner hereinafter set forth, reference being had
15 to the accompanying drawings, in which—

Figure 1, is a view of a piece of paper from which the casing of the squib is to be formed. Figs. 2, 3, 4 and 5, are views showing successive operations in the making of the squib.
20 Fig. 6, is an edge view of Fig. 2; and Fig. 7, is a view illustrating a slight modification of the invention.

In making an ordinary miner's squib a piece of paper of proper size is wrapped around a
25 metal pin or rod of small diameter, so as to form a tube which is then twisted throughout a portion of its length to form what is termed a "match," the remaining portion of the tube constituting the powder chamber.
30 This squib is applied to the needle hole formed in the tamping of the drill hole, so that the twisted end projects beyond the same and the projecting match is lighted and burns until the flame reaches the powder chamber
35 of the squib, whereupon the latter is caused to traverse the needle hole and fire the charge, the miner seeking a position of safety while the match is burning. It sometimes happens, however, that powder gains access to the
40 twisted portion or match of the squib in such quantity that the squib acts and explodes the charge before the miner can reach a safe position after lighting said match, and it is with the view of overcoming this objection that
45 my invention has been devised. Before proceeding to roll the piece of paper A upon the rod B to form the squib, I form in said piece of paper a transverse fold *a*, preferably of

the triangular form shown in Fig. 2, and the rod B is preferably so placed that its inner
50 end enters this fold, as shown in said Fig. 2, and also in Fig. 6. The wrapping of the strip of paper around the rod or pin to form the tube is then proceeded with in the ordinary manner, as shown for instance in Figs. 3 and 4, and when
55 the tube has been completed, one end of the same is twisted, as shown in Fig. 5, so as to form the match *b* beyond the end of the powder receiving tube *d*, there being, however, between the powder chamber and the butt
60 end of the match, a powder-tight partition or stop owing to the formation of the transverse fold *a* in the strip before commencing to roll the squib. By this means access of powder
65 to the match portion of the squib is effectually prevented and the slow burning of the match therefore insured, hence the miner has ample time to reach a place of safety before the fire reaches the powder chamber of the
70 squib and causes the same to operate so as to fire the charge.

I prefer, as above stated, to make the transverse fold *a* in the strip A of triangular form because this provides for the formation of the partition or stop in the squib with the least
75 increase in bulk, but it will be evident that my invention is not limited to such a triangular fold but may be carried out by the use of a rectangular fold, such as shown in Fig. 7, or a fold of any other appropriate shape.
80

I am aware that it has been proposed to make a miner's squib with partition between the powder chamber and match end by slitting longitudinally at one end the strip of paper forming the squib blank, partially roll-
85 ing the squib, then folding over upon the body of the partially rolled tube that end of the same which is separated from the rest of the strip by the slit, and then completing the rolling of the squib, but the folding back of
90 the end of the tube in this way has a tendency to crack or break the paper at the fold, especially if paper of an inferior grade is used in making the squib, thus defeating the ob-
95 ject for which the fold is intended. This objection does not, however, apply to a squib in

which a transverse fold is formed in the strip preparatory to rolling the same in accordance with my invention.

Having thus described my invention, I
5 claim and desire to secure by Letters Patent—

A miner's squib consisting of a rolled strip of paper having a transverse fold *a* extending entirely across the same thereby forming a partition, and a twisted portion *b* which forms

the match end of the squib, substantially as is specified.

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

JESSE BEADLE.

Witnesses:

W. A. CAMPBELL,
T. H. WILKINSON.