

D. SHOEMAKER.
Blasting Plugs.

No. 142,948.

Patented September 16, 1873.

Fig. 1.

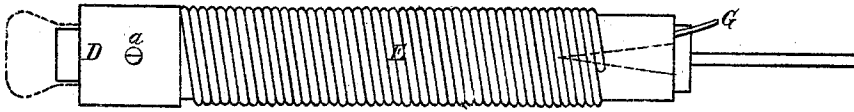


Fig. 2.

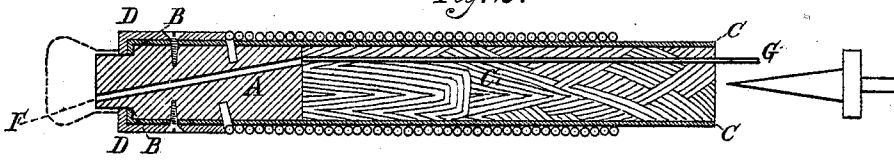


Fig. 3.

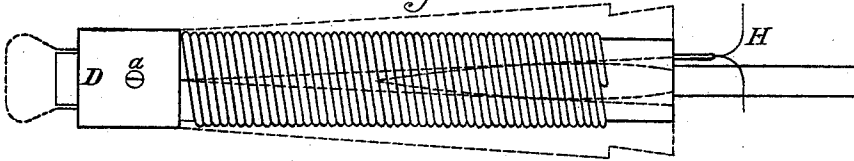


Fig. 4.

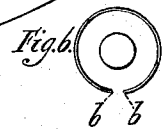
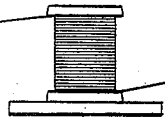
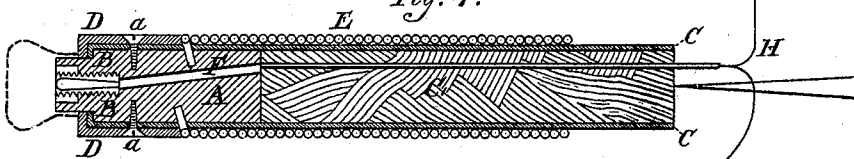


Fig. 7.

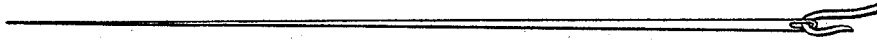


Fig. 8.

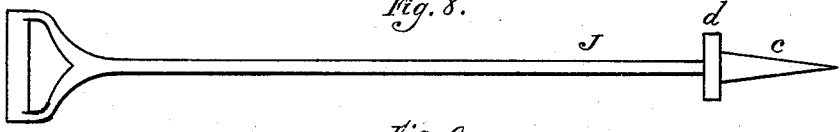
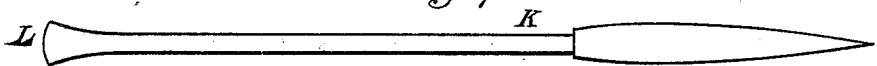


Fig. 9.



Witnesses:
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UNITED STATES PATENT OFFICE.

DAVID SHOEMAKER, OF KITTANNING TOWNSHIP, ARMSTRONG COUNTY, ASSIGNOR OF ONE-HALF HIS RIGHT TO G. A. REICHERT, JR., OF MANORVILLE, AND JOHN HORN REICHERT, OF PHILADELPHIA, PA.

IMPROVEMENT IN BLASTING-PLUGS.

Specification forming part of Letters Patent No. 142,948, dated September 16, 1873; application filed April 18, 1873.

To all whom it may concern:

Be it known that I, DAVID SHOEMAKER, of Kittanning township, in the county of Armstrong and State of Pennsylvania, have invented a new and useful Tamping Apparatus for blasting purposes; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figures 1 and 3 are side elevations of the device illustrating my invention. Figs. 2 and 4, respectively, are longitudinal sections thereof. Fig. 5 is an end view. Fig. 6 is an end view opposite to that shown in Fig. 5. Figs. 7, 8, and 9 are implements to be hereinafter referred to.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to the class of tamping-plugs which are adapted for repeated use. The improvements consist: First, in a flexible casing of peculiar construction, adapted to be expanded within the blasting-hole; second, in a device for connecting and securing together the core-block and casing, as hereinafter described; third, in the combination of a body of elastic packing material forming the upper portion of the plug, and a flexible casing surrounding the same, the whole being adapted to be expanded within the hole by mechanical means, as hereinafter described; fourth, in devices for introducing and expanding the plug.

Referring to the drawings, A represents a cylindrical block, which is formed at one end with a contraction or neck which leaves a shoulder, B. C represents a roll or tube of leather or other flexible material, which is of proper length, and one end of it encircles the block A, and the edge of said end is bent over and laps the shoulder B. A sleeve, D, is slipped over and retains the tube on the block A, and one end of the sleeve is turned in or

flanged, so as to come against and press the bent edge of the tube C, and hold it firmly against the block A. Screws *a a* pass through the sleeve and tube into the block A for confining the sleeve in place. E represents a spring or springs, which are coiled around the tube C, and, beginning at a portion surrounding the block A, extend to nearly the outer end of the said tube C. The inner ends of the springs are secured in place by bending and passing them through openings in the roll and block. The longitudinal edges of the roll constituting the tube are not connected, but left free, as shown at *b*, Fig. 6, and said tube is filled with a packing of strips or pieces, C', of material preferably of leather. An opening, F, is made longitudinally in the block A, and extends diagonally therethrough for the reception of a fuse, G, or said opening extends only partly through the block, and communicates with a non-conducting tube at or about the neck of the block. Wire or wires H from a suitable battery are passed through sheathing, which is introduced into the opening F and through the non-conducting tube, as stated. The cartridge is tied or secured upon the neck of the block, the fuse or wires having been previously applied. J represents an implement which I term a rammer, and consists of a handled rod having a conical end, *c*, and a disk, *d*, at the base of the cone *c*. The conical end is forced into the center of the tube C, and the blasting apparatus introduced by the implement J into the bore or opening in the coal and rammed firmly against the extreme end of the bore. The rammer is now removed, and in lieu thereof I use a wedge, K, which consists of a conical or tapering point, which is secured to or formed with a rod having a head, L. The point should be as long as the tube C, and is introduced into the tube C between the packing, and driven to the block A by blows on the head L. As the wedge is forced into the tube, the latter is distended, and the springs E are dilated, as seen by dotted lines, Fig. 3. The blasting

apparatus is thus fastened in the bore and rendered there compact and firm and unremovable, unless the wedge K is withdrawn. Fire is now applied to the fuse, or an electric current sent through the wires, so that in either case the cartridge is reached and ignited. The explosion then occurring, the mass of coal or other mineral is broken or forced down, and the blasting apparatus remains intact ready for continued or successive use, it requiring merely another cartridge and fuse, but the electric wires are always in condition for subsequent operation. The position of the opening F is such that the wedge will in no wise interfere therewith.

I am aware that tamping-plugs, intended

and adapted for repeated use, have before been made in various ways. This, therefore, I do not claim.

What I claim as new, and desire to secure by Letters Patent, is—

1. An expansible tamping-plug constructed with a flexible cylinder, C, and elastic packing C', substantially as described.

2. The elastic outer casing E, applied and operating substantially as set forth, in combination with an expansible tamping-plug.

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Witnesses:

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