# W. BUECHLEY & T. THORN.

## Apparatus for Mining.

Patented March 2, 1875.

No. 160,303.

*Fig. 1.*

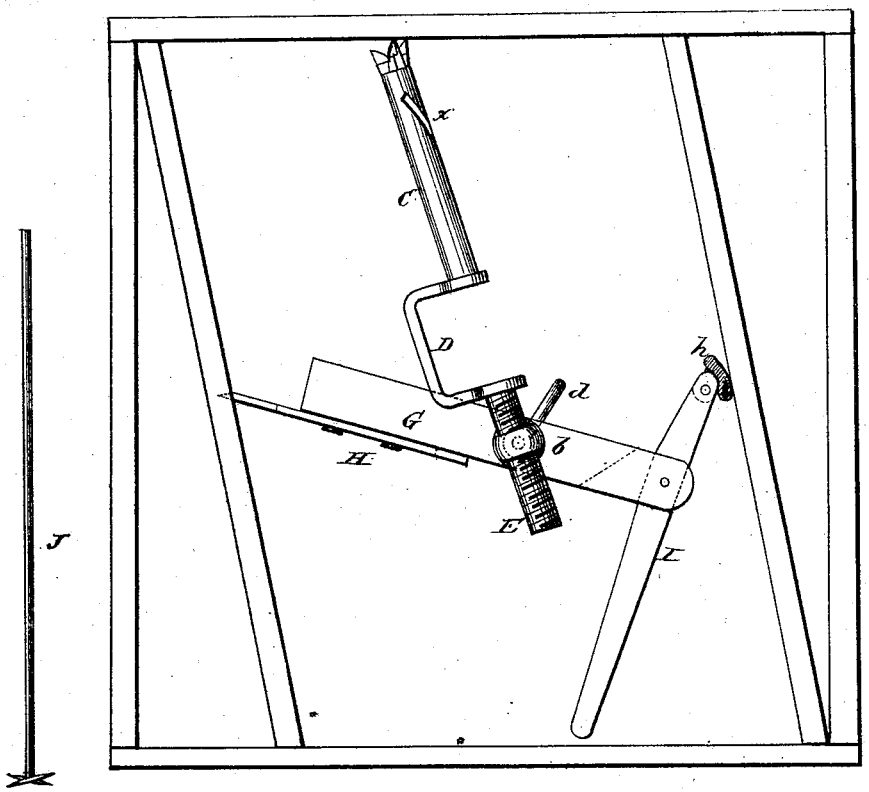



*Fig. 2.*

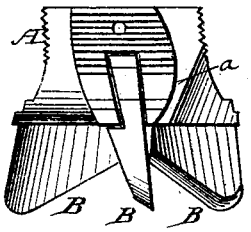



*Fig. 3.*

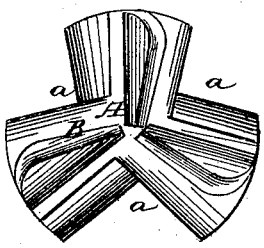
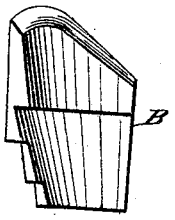



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

WILLIAM BUECHLEY AND THEODORE THORN, OF POTTSVILLE, PA.

## IMPROVEMENTS IN APPARATUS FOR MINING.

Specification forming part of Letters Patent No. **160,303**, dated March 2, 1875; application filed February 3, 1875.

*To all whom it may concern:*

Be it known that we, WILLIAM BUECHLEY and THEODORE THORN, of Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Miners' Drills; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of our invention consists in the construction and arrangement of a drill for miners, as will be hereinafter more fully set forth.

In the annexed drawing, Figure 1 is a side elevation of our drill and the devices for using the same. Fig. 2 is an enlarged side view of the cutter-head. Fig. 3 is an end view of the same. Fig. 4 is a view of one of the cutters.

A represents the stub or cutter-head, in which the cutters B B are inserted by being passed into dovetailed angular grooves from the circumference to the center. The cutters stand to the center, as shown in Fig. 3, in such a manner as to avoid making a lip to the same, whereby the liability of breakage is obviated. The head A is formed with exterior screw-threads, and screwed into the end of the hollow drill-shaft C far enough for the end of the shaft to inclose the inner ends of the cutters, thereby holding the same firmly in place without the aid of any set-screws or other appliances. In the head A, between the cutters B, are made twisted grooves *a a*, to allow the dirt to pass through into the hollow stem or shaft C. The other end of the shaft C is fastened in one arm or end of the crank D, thereby allowing the dirt to pass out through the stem while it is working when the hole is on an upward pitch. In the other end or arm of the crank D is screwed the feed-screw E, which passes through the nut *b*, attached to the beam G. This nut is formed on the end of a bolt, which is passed through the beam G, and fastened in any desired position by a thumb-nut, *d*, placed on the other end.

When the feed-screw E is run out to its full length it is simply unscrewed from the handle or crank D, and another section of pipe added. The feed-screw is then turned end for end by turning the eye-pin or nut and bolt *b*, which gives room for the second section of pipe, thereby avoiding the trouble and saving the time of running the feed-screw back on its thread.

The drill is held in any desired position by means of an adjustable claw-foot, H, projecting from one end of the beam G, and a lever, I, pivoted in a slot at the other end thereof. On the end of the lever is a rubber shoe, *h*, for friction.

In Fig. 1 we have shown one position in which the drill may be placed; but it will readily be seen that it will brace itself in every position by the force brought against it by the lever and its rubber shoe and the adjustable claw-foot, by which latter the post may be lengthened out to suit any height of view.

J represents a screw-scraper to clean out the dirt from the pipe C when the hole is downward.

The hollow stem C is, near its outer end, provided with one or more slots, *x*, for the purpose of catching any loose chip of dirt that may happen to get clogged on the outside of the stem,

In case the cutter-head should go through a small pocket of soft dirt, the slot or slots *x* will gather it up, and it will be forced to the end of the stem or drill. Besides, these slots may be of great benefit in drilling a vertical hole.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The screw-threaded cutter-head A, having twisted grooves *a* and angular dovetailed slots, for the insertion of the cutters B, in combination with said cutters, arranged to slide in the slots from the circumference toward the center, as and for the purpose specified.

2. The combination of the stem C, crank or handle D, feed-screw E, and the adjustable eye-pin *b* in the beam G, substantially as and for the purposes herein set forth.

3. The combination of the beam G, carrying the drill, the adjustable claw-foot H, and pivoted lever I, with rubber shoe *h*, substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

WILLIAM BUECHLEY.
THEODORE THORN.

Witnesses:
JAMES R. REED,
TERENCE SMITH.