(Model.) 2 Sheets—Sheet 1.

J. R. HOWELLS.

SUPPORT FOR ROCK DRILLS.

No. 262,673. Patented Aug. 15, 1882.

Fig. 1.

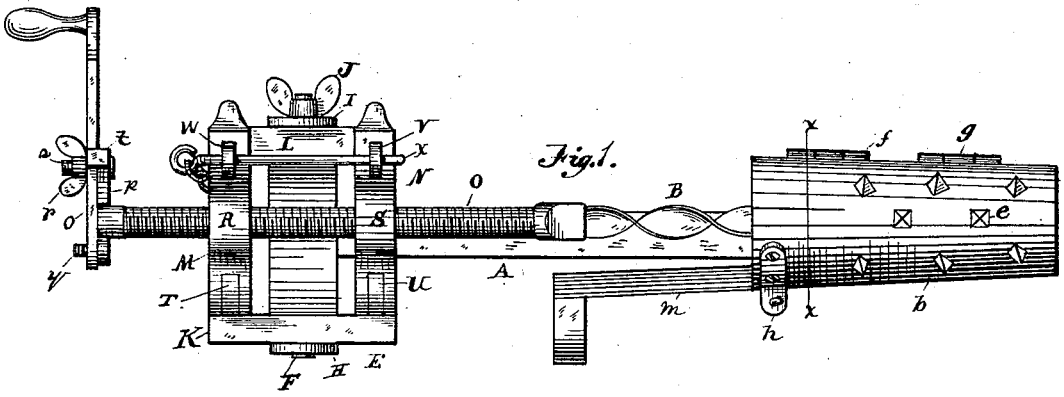


Fig. 2.

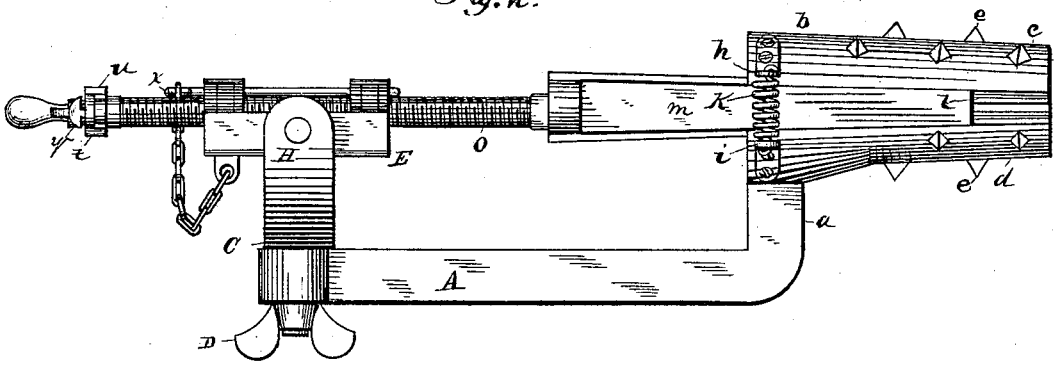
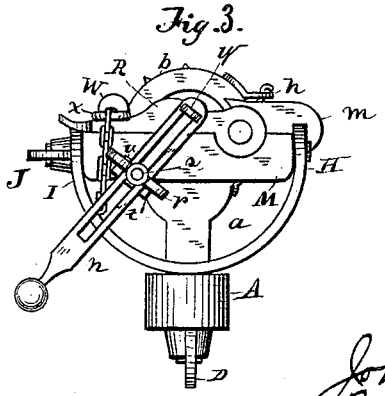


Fig. 3.



WITNESSES

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Fig. 4.

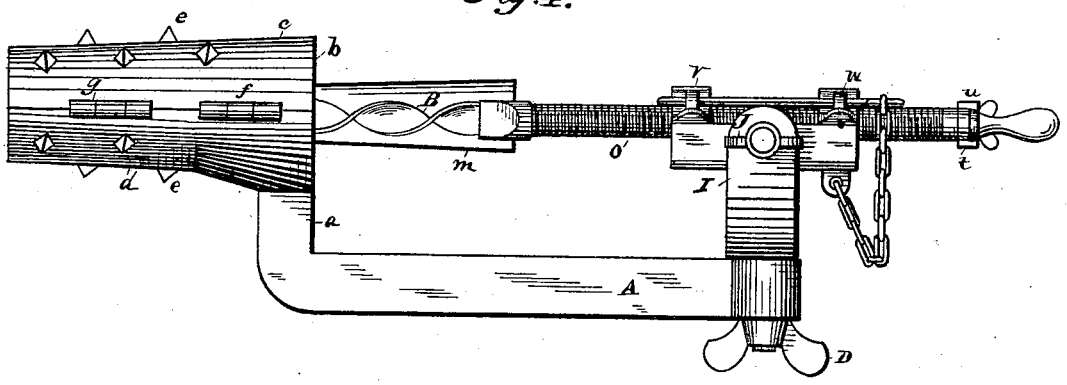
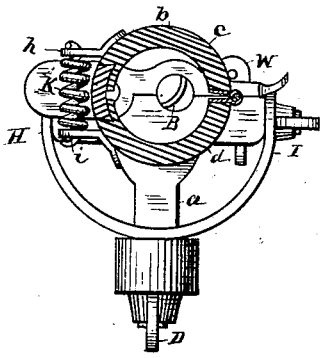


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN R. HOWELLS, OF PLYMOUTH, PENNSYLVANIA.

SUPPORT FOR ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 262,673, dated August 15, 1882.

Application filed May 6, 1882. (Model.)

To all whom it may concern:

Be it known that I, JOHN R. HOWELLS, a citizen of the United States of America, residing at Plymouth, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Drilling-Tools for Miners' Use; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a plan; Fig. 2, a side elevation; Fig. 3, an end view; Fig. 4, a side elevation; Fig. 5, a cross-section taken on the line *x x* of Fig. 1.

This invention relates to a hand-drill for use principally in coal-mining and in drilling soft rock, and has for its object the cheapening and improvement of the construction of the drill as a hand-tool for miners' use; and it consists of the construction and operation of parts, as will be hereinafter more fully set forth.

In the accompanying drawings, A represents the stock of the drill, which may be made of any suitable material, preferably of iron, and must be of suitable length to carry the swivel sustaining the bearings of the drill-auger at one end and the device for fastening the drill to the coal or rock at the other end.

The supporting device for the drill-auger B consists of a swivel, C, set in the end of the stock A, and held by a thumb-nut, D, upon the under side of the stock, which permits of a horizontal revolution of the drill-auger, except when the thumb-screw is tightened. The swivel C carries the bearing-frame E by means of two trunnions, F and G, seated in the upper ends of the arms H and I of the swivel. The end of one of the trunnions is made long enough to extend through the swivel-arm, and receive a thread and a thumb-nut, J, which, when forced down against the swivel-arm, holds the bearing-frame in any position to which it may have been adjusted.

The bearing-frame E consists of two parallel bars, K and L, and two end bars, M and N, which connect the ends of the bars K and L.

The screw O of the auger B is seated in screw-threaded bearings P and Q, which are located at or about the center of the bars M and N. The upper portions of the bearings constitute a part of the arms R and S. These arms are hinged to lugs T and U that form a part of or are secured to the bars M and N, and by means of their slotted ends shut down over lugs V and W, which receive a pin, X, that holds the arms in place. The object of this form of construction is to permit of the quick withdrawal of the auger from a hole of a depth of, say, from three to four feet, by pulling out the pin, throwing back the arms, raising the screw sufficiently to clear the threads, and drawing the auger out.

The front end of the stock is provided with a standard, *a*, which may form a part of or be secured to the stock. To the top of this standard is secured, by any suitable means, the device by which the drill is held in place while its work is done. This device consists of a hollow slightly-tapering cylinder or head, *b*, through the center of which the auger passes to the coal. The cylinder or head *b* consists of two sections or parts, *c* and *d*, preferably of equal size, and both provided with steel teeth *e* over their outer surfaces, distributed a suitable distance apart for entering the coal. The lower section of the cylinder, or "drill-holder," as it is usually termed, is rigidly secured to the top of the standard, and the other section is attached to it by means of hinges *f* and *g*, secured to one side, and the lugs *h* and *i*, secured to the opposite side, and connected by a spiral or other suitable spring, *k*. This construction permits the sections to open upon the hinges, limited by the spring secured to the two lugs. Along the open side of the drill-holder or cylinder the outer edges of the sections are cut away, so as to form, when closed, a wedge-shaped groove, *l*, with receding sides for receiving a wedge, *m*, with flaring sides.

The operation of this device is as follows: With an ordinary drill or pick a hole is made at the spot where the drilling is to be done of suitable dimensions to receive the cylinder or head *b*, with the wedge out. The head is then inserted in the hole and the wedge started in the groove, and driven in until the sections

are expanded and the steel teeth enter and "take hold" of the coal. The boring is then commenced, and if at any time the fastening loosens a trifle it can be tightened by a blow on the end of the wedge.

Any suitable kind of a lever or handle may be secured to the end of the screw-rod O for its operation; but I prefer an adjustable lever, *n*, such as is shown in the drawings, and consists of a slotted lever-bar, *o*, held to and adjustable upon a bar, *p*, by means of a headed bolt, *y*, and set-screw *s* and nut *r*, the arm *p* being provided with lugs *t* and *u* to relieve the bolt and set-screw of strain.

When the hole is bored to a suitable depth the wedge *m* is drawn out, which permits the spring *k* to retract the teeth from the sides of the hole and close the two sections. The drill can then be drawn away.

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

1. In a drilling-tool for miners' use, a drill holder or head consisting of hinged sections provided with teeth and expanded by means of a wedge, substantially as shown and described.

2. In a drilling-tool for miners' use, a drill-holding head or cylinder composed of two sections and expanding mechanism, said sections being secured to each other on one side by hinges and on the other by a spring for withdrawing the sections, substantially as set forth.

3. In a drilling-tool for miners' use, the combination, substantially as hereinbefore set forth, of the sections *c d*, groove *l*, expanding-wedge *p*, and contracting-spring *k*.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN R. HOWELLS.

Witnesses:
W. T. JOHNSON,
F. B. BROCK.