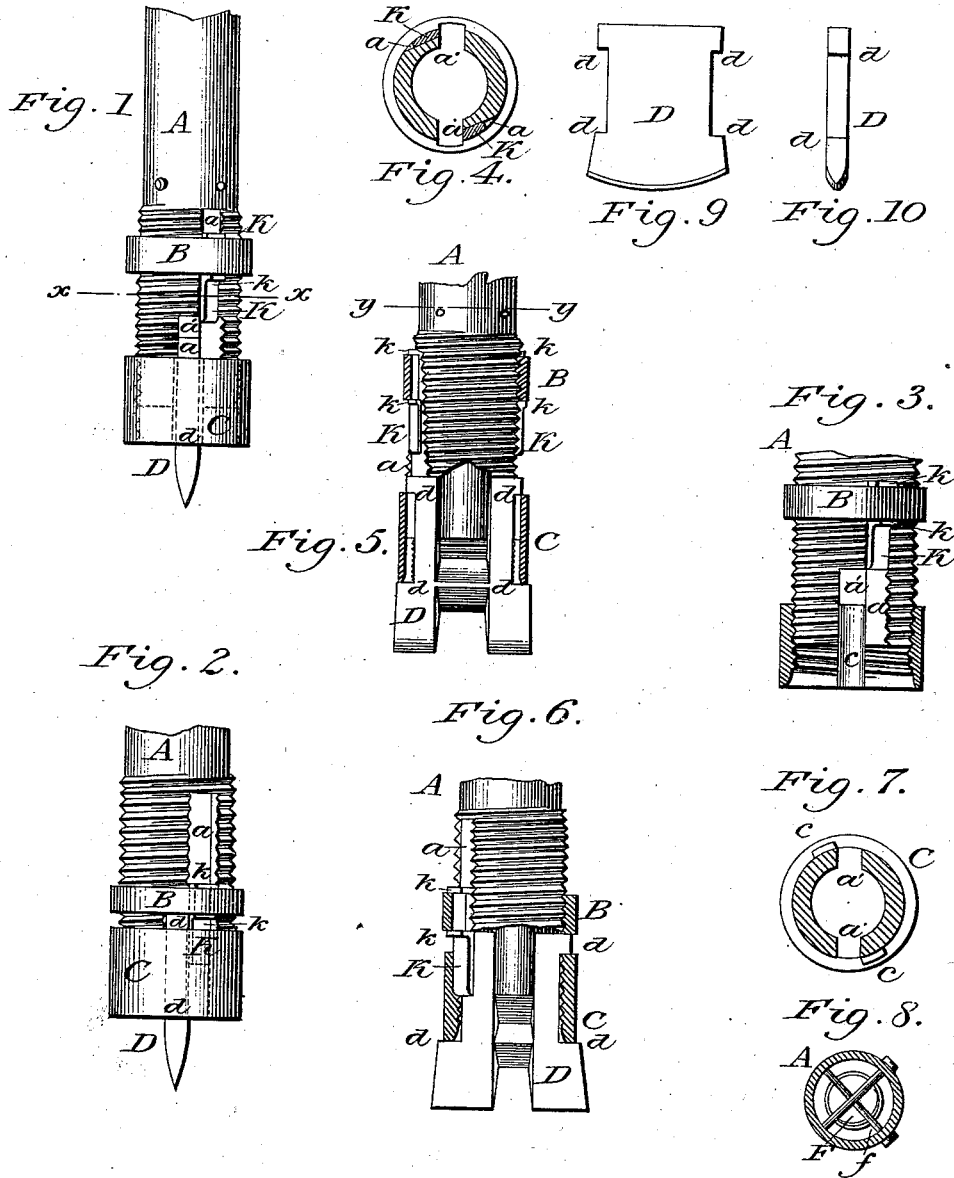


H. & J. SHOEMAKER.

DRILL.

No. 111 265.

Patented Jan. 24, 1871.



Witnesses:

Paul Strodt
William Voss

Inventor:

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United States Patent Office.

HENRY SHOEMAKER AND JOHN SHOEMAKER, OF PUTNEYVILLE,
PENNSYLVANIA.

Letters Patent No. 111,265, dated January 24, 1871.

IMPROVEMENT IN ROCK-DRILLS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, HENRY SHOEMAKER and JOHN SHOEMAKER, of Putneyville, in the county of Armstrong and State of Pennsylvania, have invented a new and useful Drill for Drilling Coal, Slate, and Sand-Rock, and other minerals; and we do hereby declare that the following is a full, clear, and exact description thereof, sufficient to enable those skilled in the art to which our invention appertains to make and use the same, reference being had to the accompanying drawing making part of this specification, and to the letters and figures marked thereon.

Our invention relates to means for holding and operating drills, and consists in a novel construction and combination of devices intended to serve as an effective apparatus for securing a drill in position, and rendering it easily removable and attachable.

In the drawing—

Figure 1 is a longitudinal elevation, showing a drill inserted in the tube, but not locked.

Figure 2 shows the position of the parts when the drill is locked.

Figure 3 is a longitudinal view, partly in section.

Figure 4 is a transverse section, taken in the line *x x* of fig. 1.

Figure 5 is a longitudinal view, partly in section, showing a drill inserted but not locked.

Figure 6 is a longitudinal view, partly in section, showing the drill locked.

Figure 7 is a transverse section, showing the position of the lower band or sleeve when the drill is locked.

Figure 8 is a transverse section, taken in the line *y y* of fig. 5.

Figure 9 is a side view, and

Figure 10 an edge view of one of the drills.

The tube A is made of any suitable metal and of any desired length and diameter, and has formed on one end a male-screw thread corresponding with female-screw threads formed on two bands or sleeves, B and C. The outside of the sleeves B and C may either be milled or made polygonal in form, so as to be turned by a wrench.

On the outside of the tube A, diametrically opposite to each other, are grooves *a*, extending the entire length of the space occupied by the screw-thread; and immediately adjoining the grooves *a* are notches or slits *a'*, extending about one-half the length of the space occupied by the screw-thread.

On the inside of the band or sleeve C, opposite each other, are grooves *c*, corresponding in width with the notches or slits *a'*.

The width of the notches or slits *a'*, and of the grooves *c*, correspond with the thickness of the drills. The band or sleeve B may be of any desired width; but we find that, if made about one-third the width of the band C, it will accomplish the purpose for which it is intended.

Sliding in the grooves *a* are keys K, formed with two shoulders, *k k*, just far enough apart to allow the sleeve B to work easily between them.

The drill D is formed with two shoulders, *d d*, on each side, far enough apart to allow the sleeve C to work between them.

On the inside of the tube A, near the termination of the slits *a'*, a shoulder is formed by making the bore of the tube larger above that point than below it. This shoulder forms a valve-seat for a valve opening upward.

Any suitable form of valve may be used, but the form we prefer, as being the most simple and economical, consists of a plain metallic disk, F, which rests upon the shoulders inside of the tube, and is prevented from rising too far by pins *f*, placed diametrically across the tube.

In adjusting the parts for use the band B is screwed on the tube A until it nearly reaches the termini of the slits *a'*.

The keys K are then placed in the slits *a'* until the shoulders *k* engage with the band B, and then turned so as to slide in the grooves *a*, and the band B is screwed on to near the terminus of the screw-thread.

The sleeve C is then screwed on until it nearly reaches the termini of the slits *a'* and the grooves *c*, placed so as to form a continuation of the lines forming the sides of the slits *a'*.

The drill is then inserted in the slits *a'*, and the sleeve C turned so as to bring the grooves *c* in a line with the grooves *a*, the sleeve C passing between the shoulders *d d*.

The sleeve B is then unscrewed, forcing the keys K into the spaces bounded by the grooves *a* and grooves *c*, locking the drill and holding the parts securely.

By the reverse motion of that just described the drills may be taken out, which will often be found convenient for the purpose of sharpening or to replace them with other drills of different forms.

In using this drill, at every blow the valve F is opened, and the sand and drillings are forced upward or outward, and are prevented from receding by the valve falling again to its seat upon the shoulder in the tube, so that it is not necessary to withdraw the

drill to remove the sand and drillings until the tube becomes filled.

This drill may be used to advantage in drilling oil-wells, by attaching the drill to the sinker-bar in the ordinary manner.

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

The combination of the tube A, sleeves B and C, grooves *a a*, slots *a' a'*, and keys K K, substantially as and for the purposes specified.

In testimony that we claim the foregoing improved drill we have hereunto set our hands this 9th day of May, 1870.

HENRY SHOEMAKER.
JOHN SHOEMAKER.

Witnesses:

JAMES W. QUOWN,
A. YOST.