(Model.)

E. MOREAU.

ROCK DRILL.

No. 335,469. Patented Feb. 2, 1886.

Fig. 1.

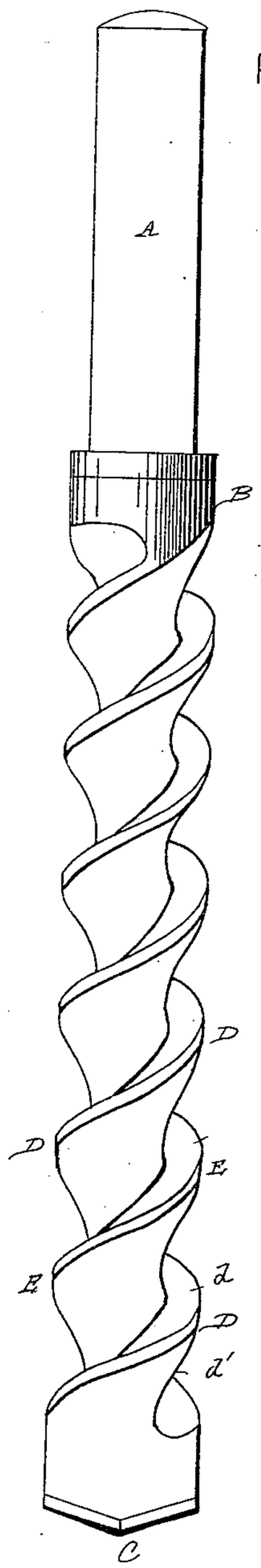


Fig. 2.

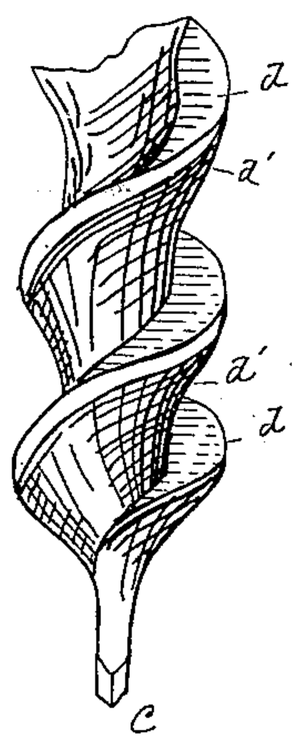
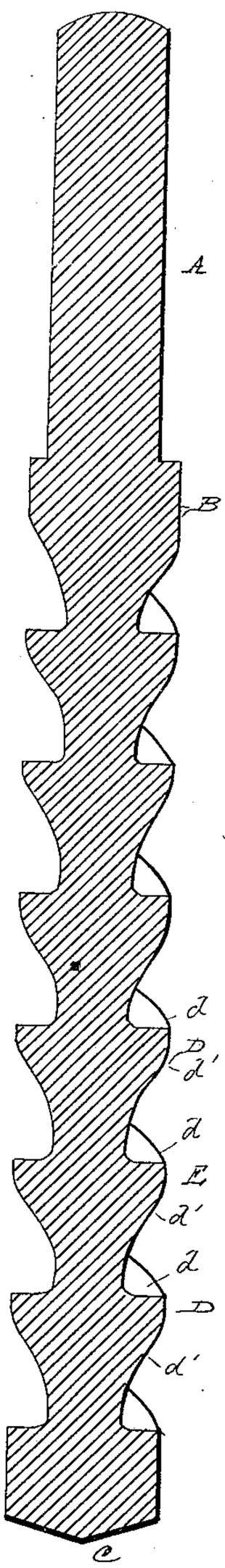


Fig. 3.



WITNESSES:

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ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 335,469, dated February 2, 1886.

Application filed June 3, 1385. Serial No. 167,511. (Model.)

To all whom it may concern:

Be it known that I, EUGÈNE MOREAU, of San Francisco, in the State of California, have invented a certain new and useful Improvement in Rock-Drill Tools, of which the following is a full, clear, and exact description.

My invention relates to an improvement in percussion rock-drill tools, and applies to those having a head or shank designed to receive the hammer-blows, and at the other end a chisel-like point, with the part between the ends provided with grooves or threads for the purpose of conveying the rock-dust to the opening of the bore.

My improvement consists in giving the threads a certain shape, hereinafter more particularly described, better adapted to the performance of the work.

The object of my invention is to provide a drill-tool that, while possessing sufficient strength not to yield laterally under the blows of the hammer, will clear the bore of the powdered rock and avoid jamming or choking, as is the case with the tools now in use.

In the drawings, Figure 1 is a vertical elevation of the drill-tool. Fig. 2 is a view of the edge of the cutting-point of the tool. Fig. 3 is a vertical cross-section of the tool in a plane passing through the central line of the cutting-edge.

The drill shown in the drawings has two threads, which is the number I prefer, and is the best and most advantageous number; but a single thread may be employed with good results.

A is the shank of the drill-tool. It may be of any shape, cylindrical, as shown, or taper or prismatic.

B is the round uncut portion of the bar.

C is the cutting-edge, which is shown pointed and beveled, but may be of any suitable shape adapted to receive blows and in accordance with the work to be performed.

D and E are the two threads, which are precisely similar. *d* is the flat top of the thread. This portion is at right angles to the axis of the drill-tool. *d'* is the sloping under side of threads, forming a broad base. The thread is of a peculiar form, essential to its proper working, the outline of its cross-section being similar to a ratchet-tooth. The upper surface of the threads is at right angles to the axis of the tool. The under side of the thread unites itself to the body of the tool by a gradual and curved slope, which gives it great strength.

The operation of the tool is as follows: The drill-tool is slowly rotated about its own axis, while at the same time it is receiving the blows of a hammer. Its point or edge chips away the rock, and the dust produced is made to move at each partial revolution of the drill toward the opening of the bore by the lifting action of the thread. Furthermore, the thread having, as shown in section, Fig. 3, the shape of a ratchet-tooth, the débris will always slip easily over the sloping part of the thread *d'*, but will be prevented from returning by the perpendicular face *d*. In other words, considering the section, Fig. 3, *d* is the front or stopping part of the ratchet-tooth, and D is the sliding part of the same. This ratchet-like action of the thread shows its effect especially at each rebound of the drill under the action of the blows. It is entirely an independent effect from the one caused by the rotation, although it is obvious that considering the rotation alone this shape is also best adapted to the work. Thus all the motions of the drill-tool are utilized for the easy conveyance of the débris outside the bore, and the result is shown in the perfect freedom of the tool at any depth.

Another important feature of the tool is the long slope given the under side of the thread, which is designed to be of the greatest possible strength, and to have the greatest strength and stiffness in the core of the tool that is consistent with the space necessary for the lifting and clearing work of the thread.

A further advantage possessed by this drill-tool when made with two threads is that it can be readily repointed by simply untwisting and flattening out a portion of one of the whirls of the thread, there being ample material, which only requires to be brought to a plane surface and then cut off or sharpened to the required form or edge.

I do not claim, broadly, a rock-drill provided with one or more grooves or threads, the same having been used before.

I am aware that a patent for well borer and reamer has been granted to S. H. Whittlesey, No. 52,632, of February 13, 1866; but the tool there shown and described is hollow, triple-pointed, and in no wise adapted to withstand the effect of repeated blows, as is required in a percussion-drill.

I am aware also of the patent of D. W. Siprell for the manufacture of mining-augers, No. 232,767, September 28, 1880, but the tool there shown is not symmetrical in its spiral portion, being so shaped as to be easily cast, and it has a compound and removable cutting-point which would not for a moment resist the effect of blows.

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

A rock-drill provided with a double spiral groove or thread, of which the upper surface is at right angles with the axis of the tool and the under surface slopes gradually to the core, and said tool having a chisel-like point of the full width of the tool, its cutting-edge being in a vertical plane passing through the principal axis of the tool, substantially as shown and described.

In witness whereof I have hereunto set my hand.

EUGÈNE MOREAU.

Witnesses:
WILLARD N. SAWYER,
WM. J. SERRILL.