M. M. SHUR.

Chamber-Drill for Drilling Rock for Blasting Purposes.

No. 214,720. Patented April 22, 1879.

Fig. 1.

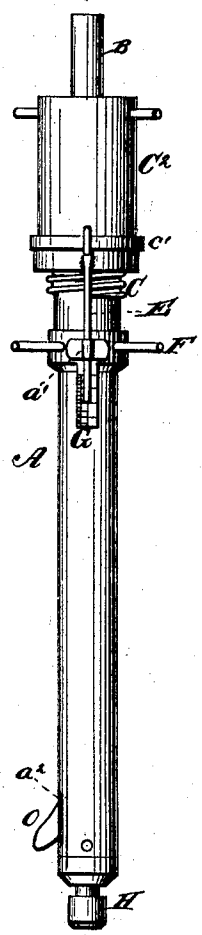


Fig. 2.

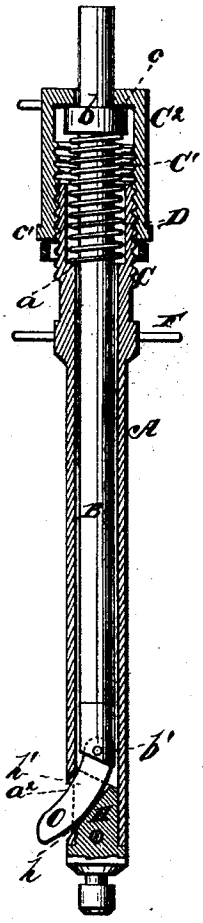


Fig. 3.



Fig. 4.



Fig. 5.



WITNESSES

Robert Everett

McClay Smith

By

INVENTOR

Milton M. Shur.

Gilmore, Smith & Co.

ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MILTON M. SHUR, OF DENVER, COLORADO.

IMPROVEMENT IN CHAMBER-DRILLS FOR DRILLING ROCK FOR BLASTING PURPOSES.

Specification forming part of Letters Patent No. **214,720**, dated April 22, 1879; application filed March 8, 1879.

To all whom it may concern:

Be it known that I, MILTON M. SHUR, of Denver city, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Chamber-Drills for Drilling Rock for Blasting Purposes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a face of my chamber-drill. Fig. 2 is a longitudinal central sectional view of the same; and Figs. 3, 4, and 5 are detail views.

This invention relates to an improved drill for enlarging the lower part of the bore formed by an ordinary drill, so as to form a chamber therein; and to this end it consists, first, in a hollow tube provided with a plunger adapted to work within the same, said plunger being provided at its lower end with a curved tool, adapted to work through a slot in the lower end of the hollow tube against the wall of the bore which is to be chambered, the hollow chamber being externally screw-threaded at its upper end, and provided with an internally screw-threaded sleeve, which can be brought to bear against the plunger, which passes through said sleeve, whereby the plunger may be depressed to advance the tool through the slot in the tube, said plunger being surrounded by a spiral spring, which serves to elevate the plunger and retract the tool when the drill is to be inserted or withdrawn; second, in the combination, with the hollow tube, of a loose ring encircling said tube, and provided with two bars traveling in guides on said tube, the upper ends of said bars being hooked and sitting loosely over a flange on the lower edge of the screw-threaded sleeve, one of said bars being arranged to traverse a graduated scale, whereby the extent to which the tool on the plunger is advanced may be indicated and the size of the chamber determined without withdrawing the drill.

The letter A indicates a hollow tube of suitable dimensions, and B a plunger adapted to work therein. C represents a male screw cut on the upper end of the hollow tube, and C^1 a female screw-thread formed in a hollow sleeve, C^2, adapted to fit upon the upper end of the hollow tube. The plunger B passes through the sleeve C^2, which is inwardly flanged, as shown at *c*, said flange bearing against a shoulder, *b*, on the plunger B.

The letter D represents a spiral spring, surrounding the plunger B, and bearing at its upper end against the lower side of the shoulder *b*, and at its lower end against a flange, *a*, on the interior of the hollow tube A, so as to keep the plunger in a normal position, with its shoulder against the flange *c* on the sleeve C^2.

E is an indicator, consisting of two bars secured to a ring encircling the hollow tube loosely, the upper ends of said bars being hooked, and loosely engaging a flange, *c'*, on the sleeve C^2, the lower ends passing through guides a^1 on the hollow tube, and arranged to traverse the graduated scales G G on the outside of the tube A, to indicate to the operator the size of the chamber without withdrawing the drill.

The letter H represents a stop secured in the lower end of the hollow tube, which is constructed with a curved recess, *h*, which forms a guide for the curved cutter O, which is pivoted to the lower end of the plunger, and is adapted to work through a slot, a^2, in the side of the same as the plunger is moved back and forth. The stop is recessed, as indicated at *h'*, for the reception of an ordinary cutter, to be employed for extending the bore when desired.

The lower end of the plunger is provided with a slot, *b'*, for the reception of a detachable tool, which is pivoted therein, the plunger, in the present instance, being represented as provided with a curved cutter, O; but I design to use tools of different descriptions in the place of the cutter shown—as, for instance, as represented in Fig. 3, in which the cutter is provided with a series of carbon points, K; or as shown in Fig. 4, in which the carbon points are set in two rows; (the points of one row being so arranged as to cut off the ridges left by the spaces between the points of the other row;) or as shown in Fig. 5, in which the cutter is dispensed with, and a clearer, L, is substituted in its place.

When a plain cutter is employed, or the

clearer L, the drill is operated by striking it with a hammer in the same manner as with an ordinary drill, and as the cutter enlarges the chamber the operator depresses the plunger by turning the screw-threaded sleeve, so as not to lose any of the force of his stroke by the resistance of the spiral spring D.

When the carbon cutter is used, the tube of the drill is rotated, by means of a series of arms, F, on the said tube, in either direction the operator may desire. The carbon cutter is advanced through the slot in the tube as the work progresses by means of the screw-threaded sleeve before mentioned.

I claim—

1. The combination, in a chamber-drill, of a hollow tube, a reciprocating plunger adapted to work therein, and held in a normal position by a spiral spring, and a tool pivoted to said plunger, and adapted to work through a slot in the lower part of said tube, substantially as specified.

2. In combination with the hollow tube and its plunger, a screw-threaded sleeve adapted to work on a screw-thread formed on the upper end of the hollow tube, and to depress said plunger and advance the tool, substantially as specified.

3. In combination with the hollow tube, its plunger, and the screw-threaded sleeve, an indicator attached loosely to said sleeve, and adapted to traverse graduated scales on the hollow tube, for the purpose of indicating the size of the chamber without withdrawing the drill, substantially as specified.

In testimony that I claim the foregoing as my own I have affixed my signature in presence of two witnesses.

MILTON M. SHUR.

Witnesses:
IGNATZ HABERL,
SAM S. LANDON.