(No Model.)

T. MURDOCK.

ROCK DRILLING DEVICE.

No. 357,729. Patented Feb. 15, 1887.

Fig. 1

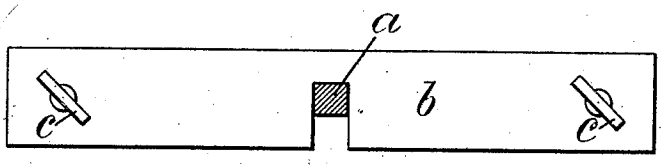


Fig. 2

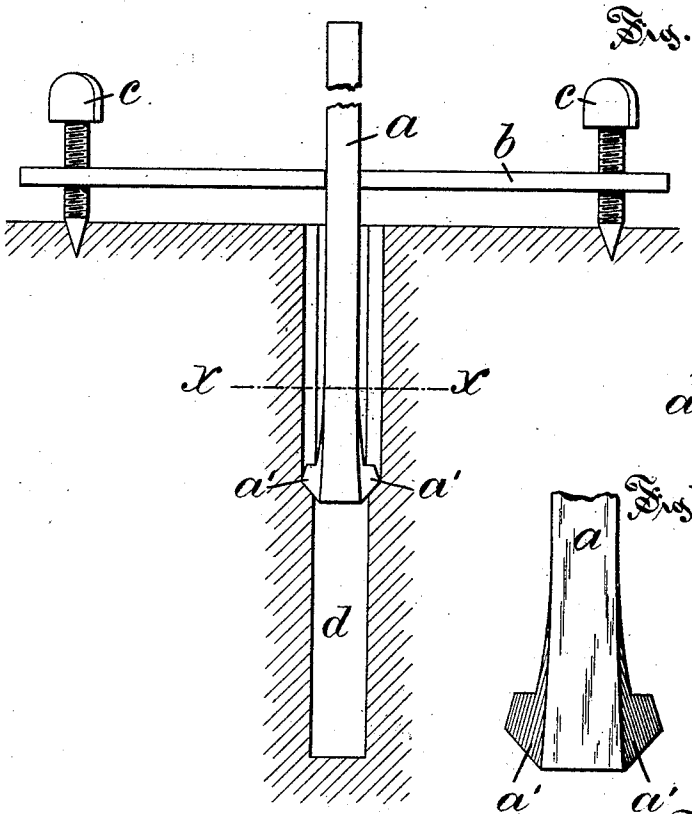


Fig. 3

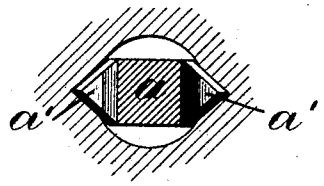


Fig. 4

Fig. 5



Fig. 6



Witnesses:

Wm. Bjorkman,

H. R. Williams.

Inventor:

Thomas Murdock,

by Simonds & Burdett,

Atty.

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

THOMAS MURDOCK, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO THE KNOX ROCK BLASTING COMPANY, OF PITTSBURG, PENNSYLVANIA.

ROCK-DRILLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 357,729, dated February 15, 1887.

Application filed July 22, 1886. Serial No. 208,726. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MURDOCK, of Middletown, in the county of Middlesex and State of Connecticut, have invented a certain new and useful Improvement in Rock-Drilling Devices, of which the following is a description, reference being had to the accompanying drawings, where—

Figure 1 is a plan of the guide-plate with the drill cut in horizontal section. Fig. 2 is a side view of the device in place for use, with the rock cut in vertical section through the center of the previously-drilled round hole. Fig. 3 is a view from above on the horizontal section denoted by dotted line *x x*. Fig. 4 is an enlarged side view of the lower end of the drill. Fig. 5 is an enlarged edge view of the lower end of the drill. Fig. 6 is an enlarged end view of the lower end of the drill.

Previous to the making of this improvement it was known that the alignment of a fracture of rock caused by exploding a blast in a hole drilled in the rock might be controlled by first drilling a round hole and then making two similar V-shaped grooves in opposite sides of the hole.

My improvement consists in a device for more effectually putting this idea in practice, the special object being to accurately guide a tool which makes the side V-shaped grooves in the wall of the previously-drilled round hole.

The letter *a* denotes the body of the drill, which is square, (or the equivalent polygonal shape.) At its lower end this square-bodied drill is furnished with lateral cutting-wings *a'*, which cut the V-shaped grooves in the previously-drilled round hole. The square shape of the drill has among others two features of use in operation, to wit: First, it can operate with a correspondingly-shaped mortise in the guide-plate, soon to be described, so that it shall not turn rotarily while being driven vertically, and, second, the space between the sides of the drill and the wall of the round hole gives room for débris.

The letter *b* denotes the guide-plate, made of iron, with a square mortise in one edge thereof, corresponding to the square shape of the body of the drill. It is made in the edge of the guide-plate, for the reason that the drill cannot be introduced into the mortise endwise, by reason of the presence of the lateral cutting-wings at the lower end of the drill, and by reason of a battering of the upper end of the drill, which necessarily takes place in hammering thereupon to drive downward in the hole.

The letters *c* denote screw-pins penetrating the guide-plate, screwing therein, provided at the upper ends with proper thumb-plates, and somewhat bluntly pointed at the lower ends to enter corresponding pin-holes to be made in the face of the rock. These screw-pins enter such pin-holes in the face of the rock, and hold the guide-plate, and consequently the drill, from both longitudinal and lateral displacement. A workman sits upon this guide-plate when it is in use, and with his hands holds and aids in directing the drill in its vertical descent. The pins *c* are made screw-pins for purposes of adjustment, the face of the rock not being always one general level.

The letter *d* denotes the round hole drilled in the rock before the device of this patent is used.

It is obvious that the means and mode herein described of guiding a tool for cutting V-shaped grooves in the wall of a previously-drilled round hole are applicable where but a single groove is cut at a time, and where, in the following claims, I mention "wings *a' a'*," I include the use of one or more such cutting-wings.

Cotemporaneously with the filing of this present application an application is filed by John L. L. Knox and myself for patent on means and method for blasting out rock corners, Serial No. 208,727, and what is described and claimed in the said application of Mr. Knox and myself is not claimed as my invention herein.

I am made aware of the contents of Letters Patent to Henry Palmer for drill for artesian wells, No. 54,199, dated April 24, 1866, and of the contents of Letters Patent to Charles Snedekum for forked drill, No. 337,351, dated March 2, 1886, and what is described and claimed in the said two Letters Patent last mentioned is not claimed as my invention herein.

I claim as my improvement—

1. The square-bodied drill *a*, bearing the lateral cutting-wings *a' a'*, in combination with the guide-plate *b*, having the square mortise in one edge thereof, all substantially as described, and for the purpose set forth.

2. The square-bodied drill *a*, in combination with the guide-plate *b*, having the square mortise in one edge thereof, and the screw-pins *c*, all substantially as described, and for the purpose set forth.

THOMAS MURDOCK.

Witnesses:

CHAS. A. JARVIS,

H. A. CORNWALL.