O. G. Warren,

Rock Drill.

No. 54,982. Patented May 22, 1866.

Fig. 1.

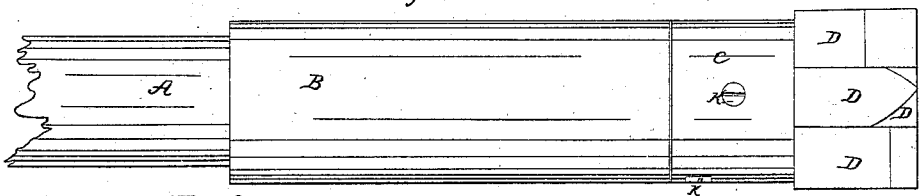


Fig. 2.

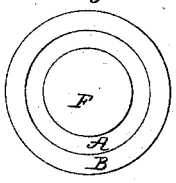


Fig. 3.

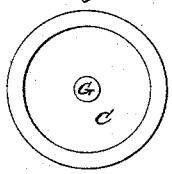


Fig. 4.

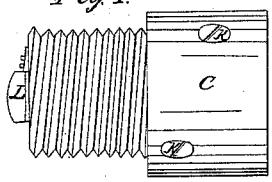


Fig. 5.

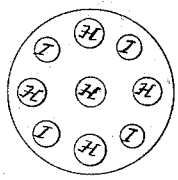


Fig. 6.

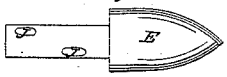


Fig. 7.

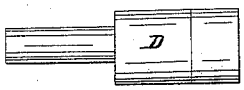
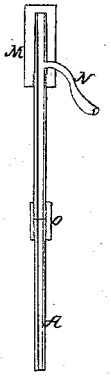


Fig. 8.

Fig. 9.



Witnesses.

J. D. Stuntevent

Albert Johnson

Inventor.

Owen G. Warren

UNITED STATES PATENT OFFICE.

OWEN G. WARREN, OF NEW YORK, N. Y.

IMPROVED ROCK-DRILL.

Specification forming part of Letters Patent No. **54,982**, dated May 22, 1866.

To all whom it may concern:

Be it known that I, OWEN G. WARREN, of the city, county, and State of New York, have invented a new and useful Improvement in Rock-Boring Drills; and I hereby declare that the following is a full and exact description thereof.

To enable others skilled in the business to make and use my invention, I proceed to describe its construction and operation, reference being had to the drawings hereunto annexed, and making part of this specification.

Figure 1, part of the pipe with the collar and the chisel-stock and chisels; Fig. 2, section, the pipe and collar; Fig. 3, upper end of the chisel-stock; Fig. 4, side of the same; Fig. 5, lower end of the same; Fig. 6, one of the picks; Figs. 7 and 8, chisels; Fig. 9, diagram exhibiting the upper part of the pipe in section, with the collar-weight and outlet-pipe.

The same letters refer to the same things in all the designs.

A, the pipe or boring-shaft; B, the collar which holds the chisel-stock; C, the chisel-stock; D, the chisels; E, the picks; F, bore of the pipe; G, valve-opening in the top of C; H, holes or sockets for chisels or picks; I, inlet-holes by which the water, &c., is admitted into the pipe and drawn out; J, pin-holes to secure in the chisels, &c.; K, the pins or screws to secure the chisels, &c.; L, the valve; M, the collar-weight, drawing reduced; N, the outlet hose or pipe; O, the junction-collars by which the pipe is lengthened.

I use iron pipe for the shaft of the drill, uniting it by a collar at each length, as gas-pipes are united. For a well whose supposed depth will be less than two hundred feet I would make it one inch and a half in diameter, and the thickness of metal a quarter inch, though it would stand if but one-eighth of an inch, with a light weight upon it. The thickness of the collar should be a quarter inch, so that a strong screw can be made in it. It should be six inches long.

When the joint is made the two lengths of pipe should abut together firmly by a true fit, so as to resist the shock and not wear the screw. When screwed together the joint should be also keyed for additional safety. At the foot of the pipe it fits strongly and securely upon a chisel-stock. This is made to receive in its sockets or holes three or more chisels. Seven is a good number, since the greater the number the sharper they may be made. Picks or points may be mixed with them sometimes with advantage. In certain kinds of rock and in all earth a pointed piece may be rammed through, packing the earth at the sides.

This stock should be of steel and made to hold securely the chisels. There should be several holes to admit the water and the débris of the cutting up into the pipe, and at the top of the stock, inside the pipe, there should be a valve to hold whatever rises.

The chisel may be of any shape and sit at any angle. The cutting-edge may be in the line of its center or at one side of the center. They should altogether cut a hole for this size of pipe of two and one-fourth inches.

At the top of the pipe there should be a collar-weight to slip on and clamp fast, and it should weigh from a hundred pounds to a ton, according to the size of the bore and to the power to operate the drill.

This drill, if loaded, needs but a small lift. It will do with a few inches. The collar-weight also prevents the drill falling through.

Successive pipes, one within another, may well be used for very deep wells to give strength.

What I claim as my invention, and desire to secure by Letters Patent, is—

Loading the shaft with the collar-weight to render unnecessary a high lift and for rapid boring.

OWEN G. WARREN.

Witnesses:

J. D. STURTEVANT,
ALBERT JOHNSON,
VALORUS DREW.