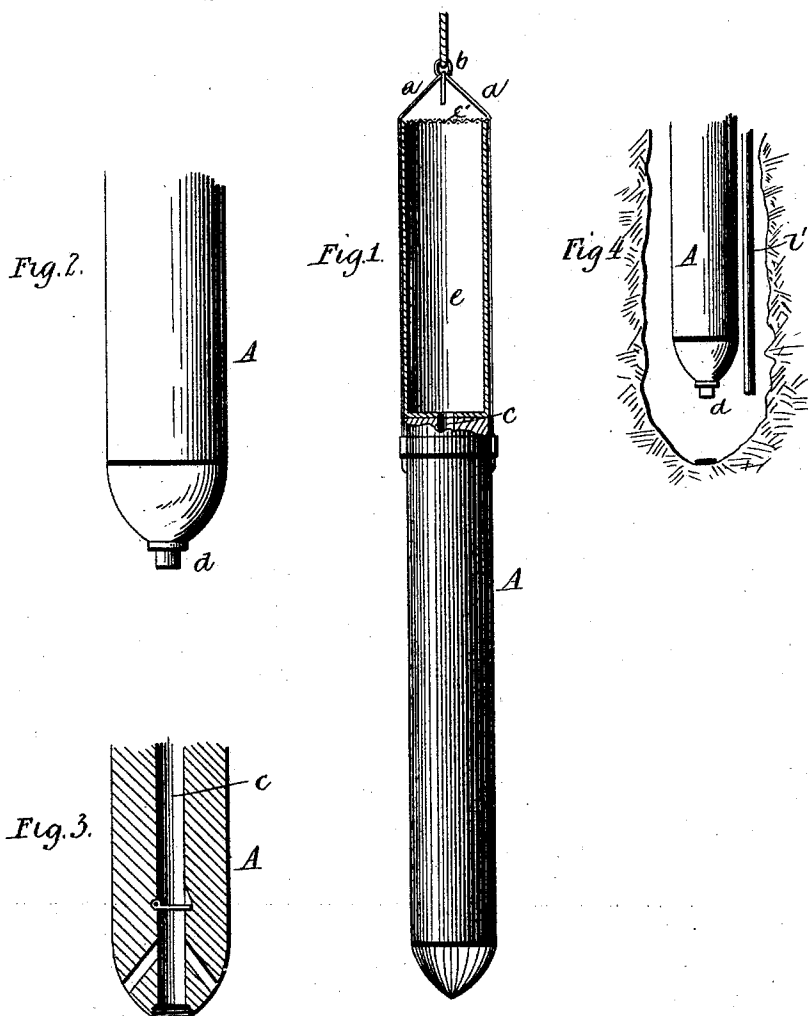


(No Model.)

G. A. MILLER.
WELL BORING AND PROSPECTING.

No. 476,757.

Patented June 7, 1892.



Witnesses:

Wm. Norton
H. C. Knudsen

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UNITED STATES PATENT OFFICE.

GEORGE A. MILLER, OF COLFAX, WASHINGTON.

WELL-BORING AND PROSPECTING.

SPECIFICATION forming part of Letters Patent No. 476,757, dated June 7, 1892.

Application filed January 21, 1891. Serial No. 378,526. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. MILLER, a citizen of the United States, residing at Colfax, in the county of Whitman and State of Washington, have invented certain new and useful Improvements in Well-Boring and Prospecting; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improved method of drilling and excavating for the purpose of making a well or prospecting for valuable mineral. The leading feature of the method consists in dropping an explosive into a cavity formed in the earth and then letting a drill-shaft fall upon it to fire and explode it.

In carrying out my invention I proceed in the manner hereinafter described and make use of the apparatus illustrated in accompanying drawings, in which—

Figure 1 is a view of the drill-shaft surmounted by the receiving-cylinder and showing the lift-straps in position; Fig. 2, a view of the drill-shaft with a firing-pin in place of the drill; Fig. 3, a vertical section of the drill-shaft, with a pumping-rod and valves for removing the crushed mass; Fig. 4, a sectional view of a partly-bored well, showing the explosive-feeding tube and an explosive disk in position and about to be fired by the descending shaft and firing-pin.

A represents the drill-shaft, which in practice will weigh, say, from five hundred to one thousand pounds. It is operated in a reciprocatory manner by means of any suitable device, the raising being done by mechanical means and the falling by gravity. Lift-straps *a* are secured to the shaft and meet above the same, an eye *b* connecting them with the hoisting-rope. The lower end of the shaft is fluted and ovoidal, and in the center thereof is a socket for the reception of the different devices employed.

c is a central bore, which extends the length of the shaft and which is used as a pump-rod.

d is a firing-pin, which is adapted to be in-

serted in the socket and which falls upon the explosive and fires the same, the gravitating force acting with the force of the explosion causing a double concussion, which thoroughly disintegrates the substance through which the well is sunk.

e is a cylindrical reservoir, which surmounts the drill-shaft and which is held in place by the lift-straps. The pumping-rod communicates with the reservoir and delivers the crushed mass therein. The top of the reservoir is provided with a wire-gauze *e'*, or a perforated top may be employed. This permits the excess of water pumped into the reservoir to pass from the upper portion thereof and return in a filtered state to the bottom of the well.

The operation is as follows: The well is first bored by the drill for a short distance to form a seat for the explosive. The explosive is now dropped into position through the feeding-tube *l'*, the drill-shaft is withdrawn, and a firing-cap is inserted in the socket in place of the drill-bit. The shaft and cap are now allowed to fall upon the explosive, which explodes the same, and the gravitating force of the shaft, acting with the explosive force, thoroughly breaks up the rock or other substance through which the well is being bored. The mass is now removed in a dry state if water has not been struck, or water may be run in and the "slush" pumped out by means of the pump in the drill-shaft.

I claim—

The method hereinbefore described of boring wells and prospecting, which consists of, first, forming a seat within the earth for the explosive; second, in dropping said explosive in position; third, in firing the explosive by allowing the drill shaft and cap to drop thereon, and, fourth, in disposing of the disintegrated mass in the manner set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. MILLER.

Witnesses:

BELLE M. MORSE,
W. G. CAMPBELL.