(No Model.)

E. S. CURRIER.

ROCK DRILL.

No. 527,669. Patented Oct. 16, 1894.

Fig. 1.

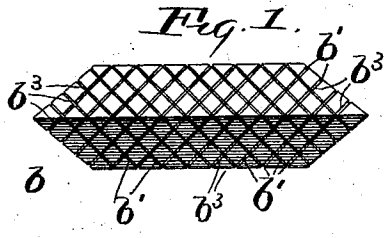


Fig. 2.

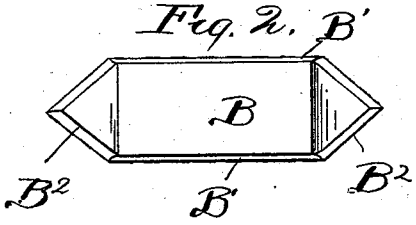


Fig. 3.

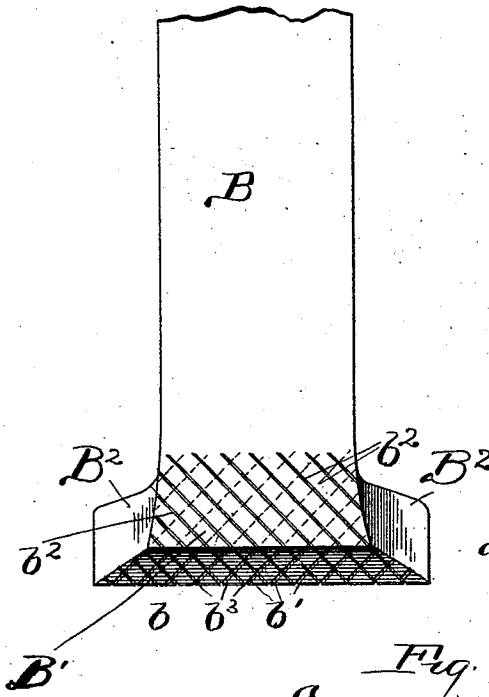


Fig. 4.

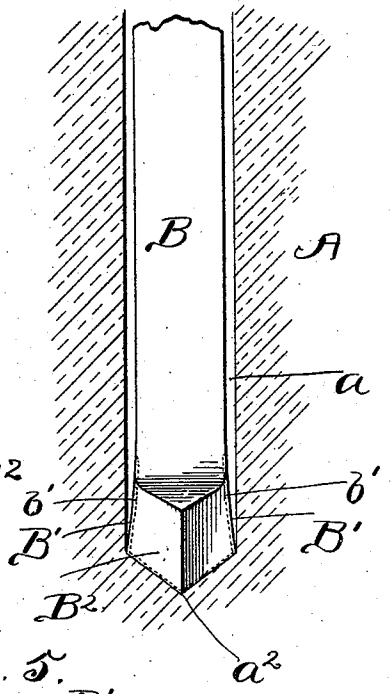
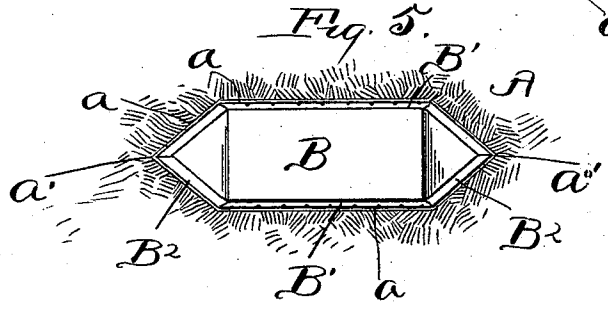


Fig. 5.



Witnesses.
E. B. Gilchrist
Edward

Inventor:
Edwin S. Currier
By M. D. Leggett & Co.
his Attorneys.

UNITED STATES PATENT OFFICE.

EDWIN S. CURRIER, OF PENINSULA, OHIO.

ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 527,669, dated October 16, 1894.

Application filed August 3, 1894. Serial No. 519,401. (No model.)

To all whom it may concern:

Be it known that I, EDWIN S. CURRIER, of Peninsula, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Rock-Drills; 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 pertains to make and use the same.

My invention relates to improvements in rock-drills, especially adapted for making holes in the rock for receiving the explosive or blasting material and adapted to form the hole of such shape as to direct the cleavage of the rock in any desired or predetermined direction and to make said hole without wasting much rock and without necessitating the use of additional tools for the purpose.

In the accompanying drawings, Figure 1 is a bottom plan of the drill. Fig. 2 is a top plan; Figs. 3 and 4 are elevations, Fig. 4 showing the drill in position making a hole in the rock that is shown in section. Fig. 5 is a plan showing my improved drill in position making the hole in the rock.

Referring to the drawings, A, Figs. 4 and 5 designates the rock or substance to be blasted, and a designates the hole made in the rock or substance for receiving the explosive or blasting material, said hole conforming to the shape of the bit of the drill and the surrounding-wall whereof is provided with corners a', adapted, in the blasting operation, to direct the lines of cleavage of the rock, the latter being cleaved on lines radiating or proceeding from said corners.

The drill consists of a metallic bar B provided with a bit b that is preferably V-shaped as shown. The sloping-sides of the bit are grooved, as at b', the grooves leading preferably across the bit and thence upwardly a suitable distance along the drill-bar, as at b^2, above the bit.

The grooves in the bit of the drill form numerous cutting-edges b^3, and said grooves and their extensions b^2 afford egress for the escape of the particles of the rock, sand and water, in the formation of the hole in the rock, the body of the drill-bar, in cross section, being smaller than the dimensions of the bit of the drill to accommodate the upward passage of said particles of rock, sand and water, the body of the drill-bar, preferably at those sides of the lower portion of the drill-bar at which the grooves b^2 are located, being gradually enlarged, as at B', from a point above the bit toward grooves b', as shown very clearly in Fig. 4. The drill-bar, at its lower end, and at one or more points, preferably at the sides adjacent to the sides that are provided with grooves b^2, is enlarged outwardly, as at B^2, said enlargements being V-shaped or gradually reduced in size toward their outer extremities, and the bit of the drill extending in under said V-shaped or pointed enlargements of the drill-bar.

The drill is operated by forcing it downwardly into the hole to be made in the rock, by means of blows delivered upon the upper end of the drill-bar. The V-shaped or pointed lateral enlargements B^2 at the lower end of the drill, form the corners a' in the surrounding wall of the hole in the rock, and which corners, as already indicated, are instrumental in directing or locating the line of cleavage of the rock. The V-shaped bit also forms the corner a^2 centrally of the bottom wall of the hole, and the point of the bit being located in the same vertical plane with the points of the V-shaped enlargements B^2 of the drill-bar, it follows that in the drilling-operation corners a' in the surrounding wall of the hole in the rock and corner a^2 in the bottom wall of said hole, will be located in the same vertical plane. The result of a hole of this construction, in blasting, is that the rock will be cleaved on lines radiating or proceeding laterally from corners a' and also downwardly on a line proceeding from corner a^2, and if said corners are located in the same vertical plane, as they are in the case illustrated, the cleavage of the rock both laterally and downwardly will be in line.

What I claim is—

A rock-drill consisting of a metallic bar B terminating, at its lower end, in a V-shaped bottom or cutting-surface, and having one or more lateral V-shaped or pointed enlargements B^2, all arranged and operating substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 13th day of July, 1894.

EDWIN S. CURRIER.

Witnesses:
C. H. DORER,
WARD HOOVER.