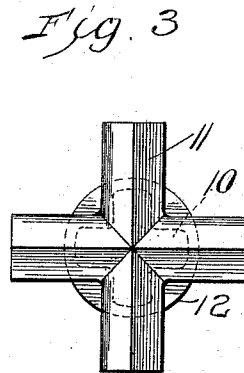
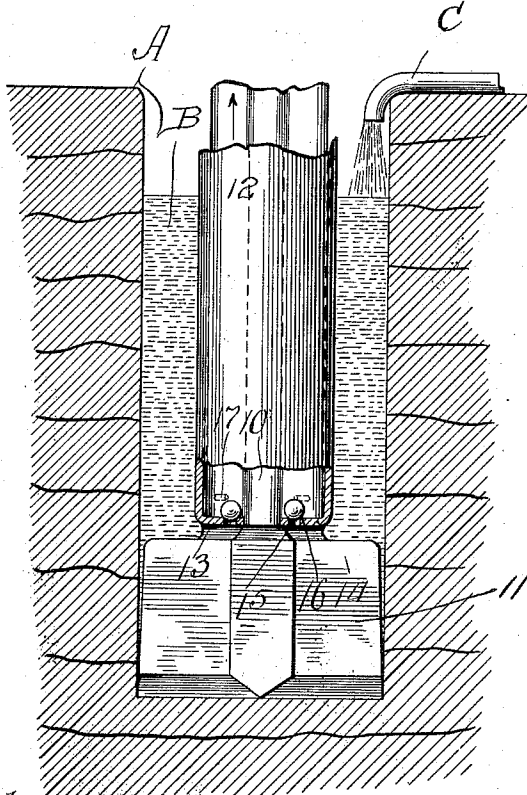
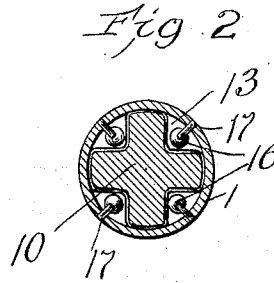
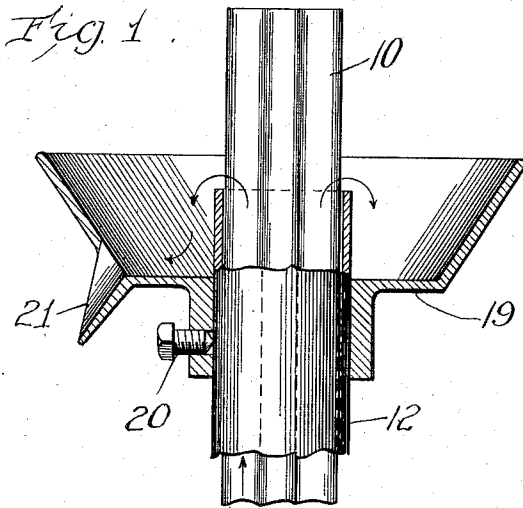


C. H. LOCHER.
ROCK DRILL.

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1,018,834.

Patented Feb. 27, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES H. LOCHER, OF GLASGOW, VIRGINIA.

ROCK-DRILL.

1,018,834.

Specification of Letters Patent.

Patented Feb. 27, 1912.

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To all whom it may concern:

Be it known that I, CHARLES H. LOCHER, a citizen of the United States, residing at Glasgow, in the county of Rockbridge and State of Virginia, have invented certain new and useful Improvements in Rock-Drills, of which the following is a specification.

My invention relates to improvements in rock drilling and it has for one of its objects to provide a rock-drill structure providing in association therewith, for removing water and substances intermingled therewith, from the drill hole.

In the drawings, wherein I have shown an embodiment of my invention, Figure 1 is an elevation of the drill in a hole section, with parts broken away; Fig. 2 is a transverse section of the drill and its casing; and Fig. 3 is a bottom view of the drill.

In the construction shown, 10 indicates a cruciform drill rod, bearing at its extremity a cruciform drill point, 11.

12 indicates a sheath or shell encompassing the drill rod and having within its confines sector-shaped channels, 13, formed by the association of the rod and the shell. The shell at its lower end provides openings to these channels, arranged for closure by gravity valves, the construction shown providing at the lower end of the shell an in-turned portion, 14, apertured, as at 15, and providing seats for ball valves, 16, the upward motion of which may be restrained by appropriate stop pins, 17. The shell extends up around the drill rod at a height above the surface level of the rock to be operated upon, and the upper end of the shell may be open. For receiving material pumped upward through the channel 13, a pan 19 is secured in position around the shell below its top, as by a set screw, 20, said pan being provided with a spout, 21 radially beyond the area of the drill hole.

In the schematic illustration of Fig. 1, A indicates the drill hole and B a body of water therein supplied by a water pipe C. It will be observed that as the drill rod reciprocates vertically, carrying with it the shell 12, the down-stroke of the drill causes the valves 16 to rise, admitting water and material contained therein into the channels 13, the valves closing as soon as the drill rod

begins its up-stroke, so that by the pumping action thus effected, water and material is caused to traverse the vertical channels 13 and flow out into the pan 19, from which it is delivered by the spout 21. In this way, the water level within the hole may be maintained practically constant at whatever is the most effective level to be desired, by proportioning the inflow to the pumping action, and particles of material detached by the operation of the drill and suspended in the water, kept constantly in agitation by the action of the drill, or otherwise, will to some extent be pumped out with the outflowing water.

While I have herein described in some detail a particular embodiment of my invention, it will be seen that numerous changes might be made in the construction without departure from the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. The combination with a drill rod, having a longitudinal channel within its sides, of a shell enveloping said drill rod, and carried thereby, and forming a conduit between said shell and rod, said conduit having a bottom opening and a valve for controlling the flow of fluid through said conduit.

2. The combination with a cruciform drill rod, and a drill point at the end thereof, of a shell enveloping said drill rod and forming therewith vertical channels, there being openings in the shell at the lower end of said channels, and gravity operated valves for closing said openings.

3. The combination with a drill providing channels in its sides, a shell enveloping said drill providing bottom openings for said channels, valves for said openings, and a pan surrounding said shell to receive material escaping from the top thereof, provided with an outlet arranged to deliver the material radially beyond the confines of the drill hole.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

CHARLES H. LOCHER.

In the presence of—
W. LINN ALLEN,
MARY F. ALLEN.