175-400.

No. 847,587. PATENTED MAR. 19, 1907.

B. H. LOCKE.

ROCK DRILL.

APPLICATION FILED APR. 16, 1906.

Fig. 1.

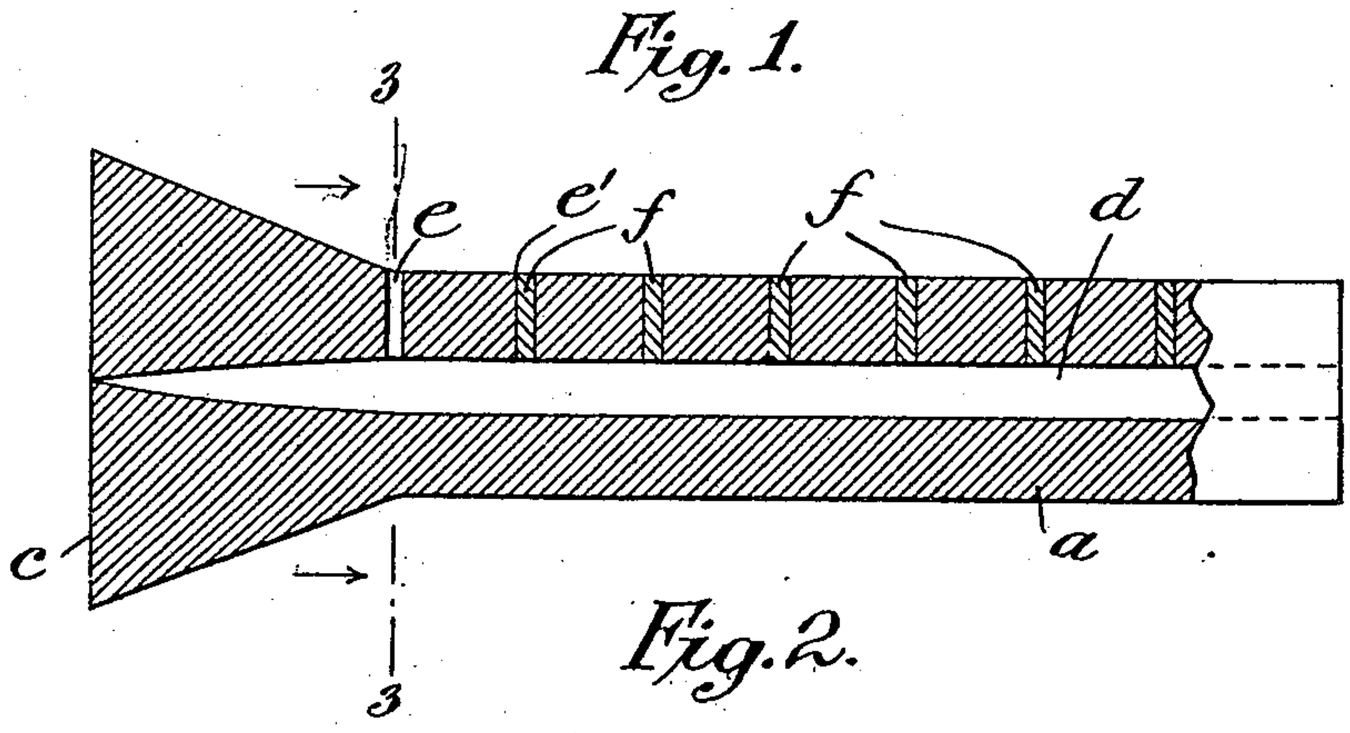


Fig. 2.

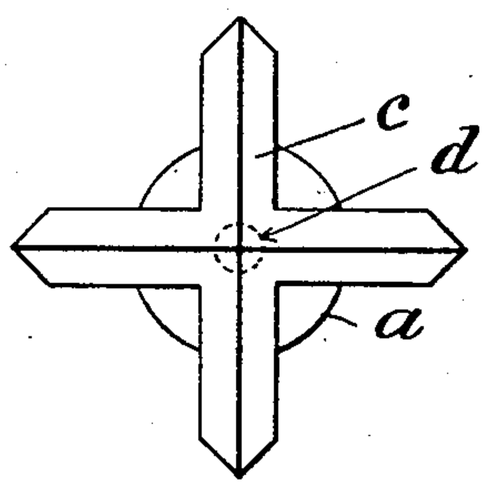
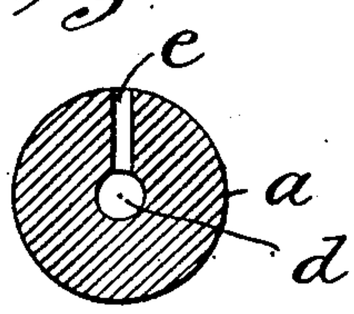


Fig. 3.



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ROCK-DRILL.

No. 847,587. Specification of Letters Patent. Patented March 19, 1907.

Application filed April 16, 1906. Serial No. 312,046.

To all whom it may concern:

Be it known that I, BRADFORD H. LOCKE, a citizen of the United States, at present residing in the borough of Manhattan of the city of New York, in the State of New York, have invented certain new and useful Improvements in Rock-Drills, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates particularly to the construction of drills such as are employed in power-driven machines—such as electric drills, steam-drills, &c.—and in which provision is made for carrying a stream of air or water through the drill-stock to be discharged at or near the bottom of the hole being made by the drill for the purpose of stirring up and facilitating the ejection of the mud. Such drills are commonly provided with longitudinal axial bores or channels which terminate in or close to the drill-heads. In sharpening a drill of this character such a hole is closed and provision must be made for reopening it. Furthermore, it is found that such a hole is liable to be plugged by a fragment of rock driven into it under the action of the drill, so that the passage of the stream of air or water under normal pressure is prevented.

It is the object of this invention to overcome the difficulties above referred to and to provide means for admitting the stream of water or air at a point suitably near the drill-face which shall not be liable to be rendered inoperative by plugging in the manner described, shall not be closed in the process of sharpening, and shall not require any attention except the removal of a plug during the life of the drill, notwithstanding successive sharpenings.

In accordance with the invention the drill-stock is provided with a longitudinal channel, which may or may not be axial, and such channel is further provided at suitable intervals along its length, back of the drill-head, with lateral openings. All of such openings, except the one nearest the drill-face, are temporarily plugged, so that the stream of air or water issues from the opening nearest the drill-face, where it will be found to perform its intended purpose quite as efficiently as if the channel terminated in the drill-face. As one lateral hole after another is closed in successive sharpenings the plug is withdrawn from the next hole above and the drill continues in operative condition without further attention.

The invention will be more fully explained hereinafter with reference to the accompanying drawings, in which—

Figure 1 is a view, partly in side elevation and partly in longitudinal section, of a drill constructed in accordance with the invention. Fig. 2 is a face view of the drill, and Fig. 3 is a transverse section in the plane indicated by the line 3 3 of Fig. 1.

The drill-stock *a* may be of any suitable size and of any desired cross-section. Its face or head *c* may also be formed and sharpened in any suitable manner. The drill-stock is provided with a longitudinal channel *d*, which is connected at the extremity of the drill-stock or at any suitable point with a supply of air or water under such moderate pressure as may be desirable for the purpose of stirring up and facilitating the discharge of the mud from the hole being drilled. This channel is shown in the present instance as substantially axial, and at frequent intervals along its length, back of the drill-head, it is provided with lateral holes or openings *e e'*, &c., the same opening through the side of the drill-stock. These holes are so placed that one of them shall be within a short distance of the spread of the drill occasioned by sharpening, and this particular opening is left free while the openings above it are plugged temporarily, preferably with small wooden plugs *f* lightly driven in.

In the use of the improved drill the stream of air or water issues from the hole *e* nearest to the drill-head *c* where, it is found, the issuing stream of air or water acts with as much efficiency in attaining the desired object as if it issued axially in the face of the drill. If the hole *e* is closed when the drill is resharpened, then the plug *f* is removed from the next hole, as *e'*, and so on as the length of the drill is gradually reduced in successive sharpenings.

I claim as my invention—

1. A rock-drill having a longitudinal channel and a series of lateral openings therefrom at frequent intervals along its length back of the drill-head, whereby the drill can be suc-

cessively sharpened without closing the openings other than that next the head.

2. A rock-drill having a longitudinal channel and a series of lateral openings therefrom at frequent intervals along its length back of the drill-head, the openings except that next the drill-head being temporarily plugged.

This specification signed and witnessed this 5th day of April, A. D. 1906.

BRADFORD H. LOCKE.

In presence of—
THOMAS J. CANTY,
LUCIUS E. VARNEY.