J. FRITZ, J. P. & L. GRISCOM & G. FRISBEE.

Rock-Drills.

No. 156,631. Patented Nov. 10, 1874.

Fig. 1

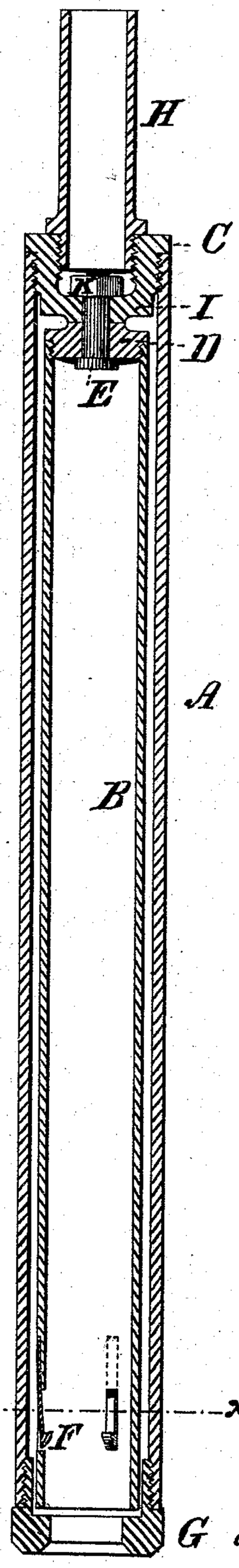


Fig. 3

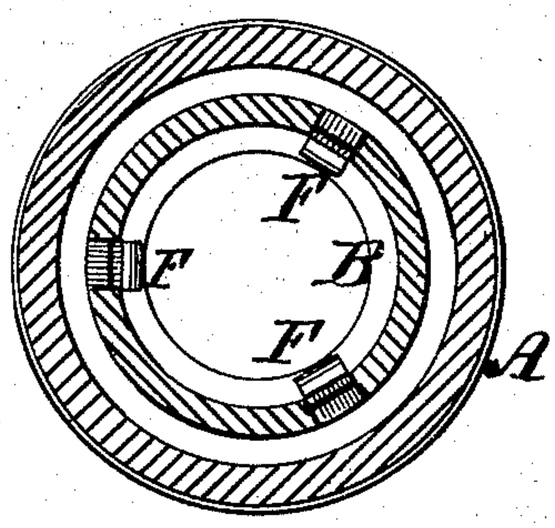
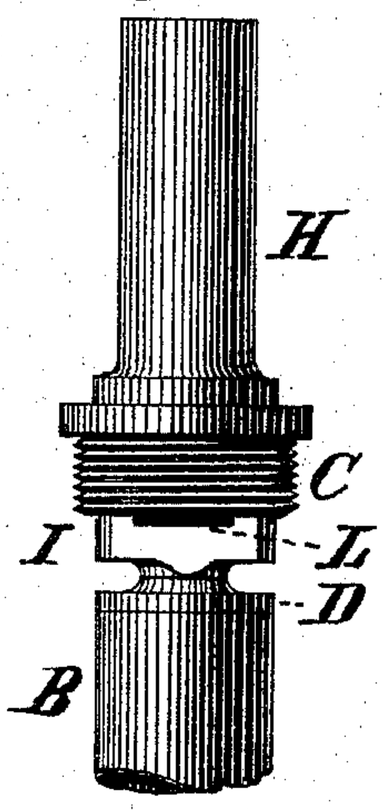


Fig. 2



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UNITED STATES PATENT OFFICE.

JOHN FRITZ, OF HAZLETON, JOHN P. GRISCOM, OF SUGAR NOTCH, LEWIS GRISCOM, OF POTTSVILLE, AND GIDEON FRISBEE, OF READING, PA.

IMPROVEMENT IN ROCK-DRILLS.

Specification forming part of Letters Patent No. **156,631**, dated November 10, 1874; application filed September 24, 1874.

To all whom it may concern:

Be it known that we, JOHN FRITZ, of Hazleton, and JOHN P. GRISCOM, of Sugar Notch, both in the county of Luzerne and State of Pennsylvania, and LEWIS GRISCOM, of Pottsville, in the county of Schuylkill, and GIDEON FRISBEE, of Reading, in the county of Berks, both in the said State of Pennsylvania, have invented a new and useful Improvement in Rock-Drills; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a longitudinal section of our improvement, taken through the axis of the drill-rod. Fig. 2 is a longitudinal elevation of a part thereof, the outer barrel being removed; and Fig. 3 is an enlarged transverse section, taken on the line *x x*, Fig. 1.

The same parts are denoted by the same letters in all the figures.

This invention relates to that class of revolving rock-drills in which an annular bit is employed. Its object is to preserve the core of rock left by such bit from the attrition of the revolving drill-rod, and from the pressure and attrition caused by the water which lubricates the bit; and to this end it consists in the combination, with a hollow drill-rod, of an inside barrel constructed and operating as hereinafter described.

A in the drawing represents the lowest section of the drill-rod, which we prefer to make of greater diameter than the other sections, so as to form an outer barrel of nearly the width of the hole. To the lower end of this barrel is screwed the annular diamond-bit G. B is the inside core-barrel. C is an annular head screwed into the barrel A, and into which is screwed a section, H, of the drill-rod. I is a yoke projecting downward from the head C. D is a head, to which the barrel B is screwed. E is a pin or bolt passing through D and I, and suspended from the latter by means of the nut K, which is screwed onto it and rests on the yoke I. The head of this bolt E supports head D and barrel B, which are free to turn around E. F F are springs fastened in slots in the sides of barrel B, and constructed with hooked points projecting into the interior of said barrel. The sides of the yoke I are flat, as in Fig. 2, which shows one side thereof. A space is thus left on each side, between the yoke and the inner surface of barrel A. This space communicates with the interior of the drill-rod H by means of a slot, L, in each side of the yoke, thereby permitting water to pass from the drill-rod into the space between A and the inside barrel B, and to be discharged into the bit G a little above the diamonds.

In the operation of this improvement, as the bit advances into the rock the inside barrel passes down over the core left by the bit, and the springs F F, pressing against the core, hold the barrel B from revolving, the pin E turning in the head D. The water, passing down through the drill-rod and between the outer and inside barrels, and entering the bit as above described, is kept from contact with the core, which is thus protected from the pressure and wearing action of the current. When the drill is withdrawn from the hole the core is removed by means of the hooked springs F F.

We do not claim the application of spring-jaws within a tubular rock-drill, as claimed in Letters Patent No. 121,821, granted December 12, 1871, to Charles J. Stevenson and Martin H. Duckworth; but

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. The combination, with a hollow drill-rod or outer barrel, of the inside barrel B, substantially as shown and described.

2. The combination of the inside barrel B with a hollow drill-rod or outer barrel, which is free to revolve around said inside barrel, substantially as shown and described.

3. The inside barrel B, constructed with springs F F, which operate as shown and described.

4. The combination, with a hollow drill-rod through which water passes to the bit, of an inside barrel connected to said rod, substantially as shown and described, whereby the core is protected from contact with the water.

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