A. J. MERSHON.

ROCK-DRILLING MACHINE.

No. 190,232. Patented May 1, 1877.

Fig. 1.

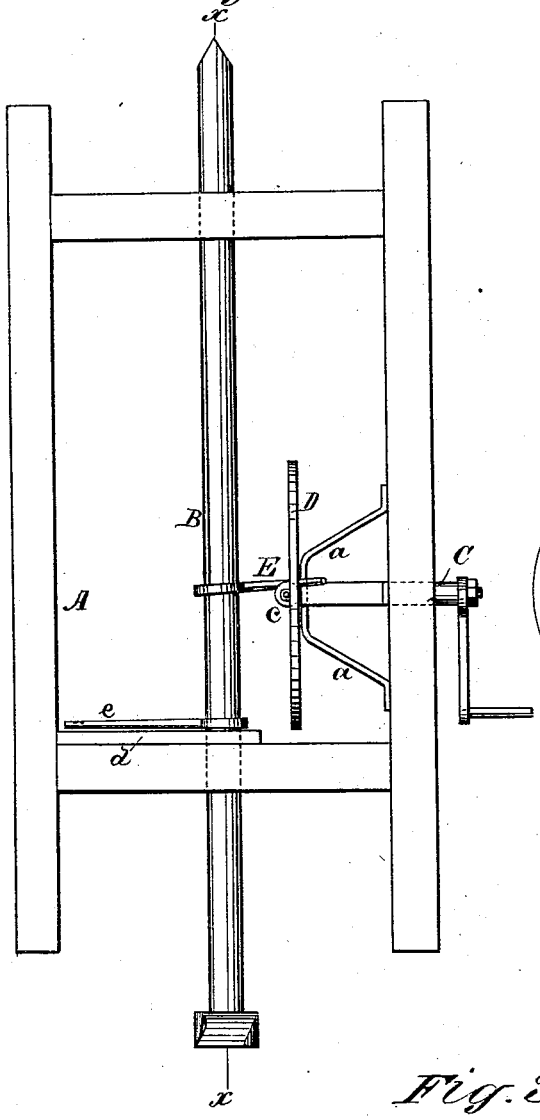

Fig. 2.

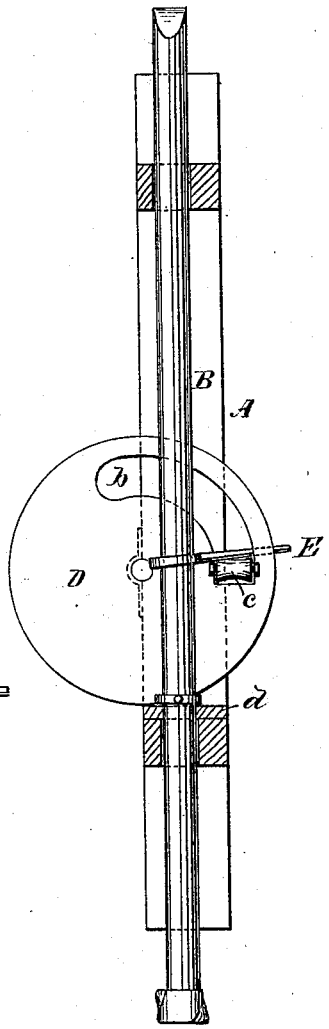

Fig. 3.

WITNESSES:

H. C. Rydquist

J. H. Scarborough.

INVENTOR:

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BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

AARON J. MERSHON, OF WARSAW, INDIANA.

IMPROVEMENT IN ROCK-DRILLING MACHINES.

Specification forming part of Letters Patent No. **190,232**, dated May 1, 1877; application filed April 9, 1877.

To all whom it may concern:

Be it known that I, AARON J. MERSHON, of Warsaw, in the county of Kosciusko and State of Indiana, have invented a new and Improved Rock-Drill, of which the following is a specification:

Figure 1 is a side elevation. Fig. 2 is a central vertical section. Fig. 3 is a detail view of the end of the drill.

Similar letters of reference indicate corresponding parts.

My invention consists in the combination of a disk secured to a shaft, and having an arc-shaped slot, in the end of which is journaled a concave roller, with an arm placed loosely on the drill-rod, and extending through the slot of the disk, so as to be engaged by the concave roller as the disk is revolved.

Referring to the drawing, A is the frame of the drill, which should have sufficient strength and rigidity to withstand the shocks occasioned by the constant working of the machine. The drill-rod B slides through boxes in the cross-beams of the frame A. C is a shaft, one end of which is journaled in the frame A, and the other end in brackets *a*, that are attached to the said frame. Upon the inner end of this shaft the disk D is secured, in which is made an arc-shaped slot, *b*. A roller, *c*, which is concave in the direction of its length, is journaled in one end of the slot *b*. E is an arm that projects from a ring that encircles the drill-rod B, and extends through the slot *b* in the disk D. The brackets that support the inner end of the shaft are of such size as to come wholly within the arc-shaped slot *b*, to permit of the rotary movement of the arm E. A block, *d*, is secured to the lower cross-timber, to receive the ring of the arm E at the lower portion of its stroke. A drill-point having a straight cutting-edge and curved lips, as shown in detail in Fig. 3, may be used, or the ordinary drill-point, shown at the upper end of the drill-rod, may be employed. The shaft C is turned by means of an ordinary winch, or it may be connected with any convenient motor.

The operation is as follows: As the disk D is rotated, the arm E is carried upward by the roller *c*, and as the arm clamps the drill-rod B, on being raised, it carries the drill-rod with it, at the same time turning it through a part of a revolution. When the roller is directly over the shaft C, the arm E is released, and the drill-rod and arm fall together. As the ring of the arm E strikes the block *d* the drill-rod is entirely released, and is permitted to make a full blow on the rock. Each time the drill is raised it is automatically turned, so that its cutting-edge is constantly shifting to a new place in the rock. An auxiliary arm, *e*, may be used to raise the drill out of the hole being bored, by first turning the disk D so as to raise the arm E to the upper end of its stroke, and then raising the arm *e* up until it touches the arm E, when it is permitted to drop and is again raised, and so on until the drill is raised as high as may be desired. The arm E holds the drill as it is raised by the arm *e*.

The advantages claimed for my improvement are its extreme simplicity, and its automatic action in turning and feeding the drill B; and also the facility with which the drill is clamped or released at any point in its length.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The disk D, having the slot *b*, the roller *c*, arm E, and drill-rod B, in combination, substantially as herein shown and described.

AARON JAMES MERSHON.

Witnesses:

HIRAM S. BIGGS,

FRANK SHAW.