T. E. MORPETH.

Rock and Coal Drilling-Machine.

No. 216,437. **Patented June 10, 1879.**

Fig. 1.

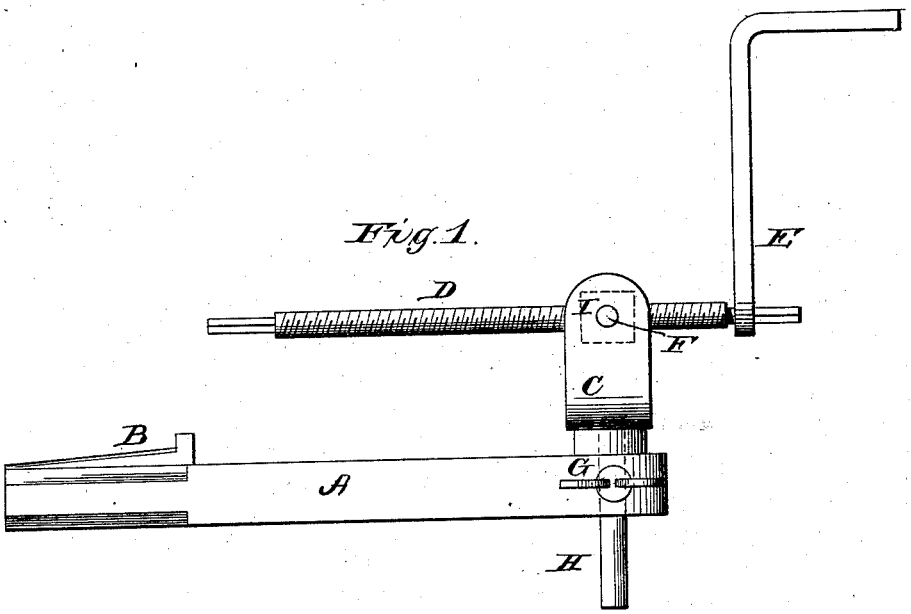
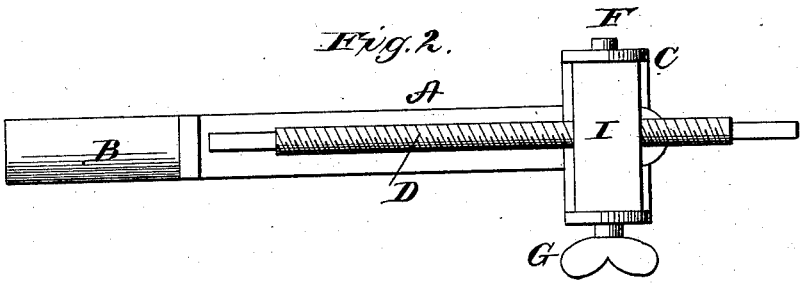


Fig. 2.



WITNESSES

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THOMAS E. MORPETH, OF PLAINS, PENNSYLVANIA.

IMPROVEMENT IN ROCK AND COAL DRILLING MACHINES.

Specification forming part of Letters Patent No. **216,437**, dated June 10, 1879; application filed April 23, 1879.

To all whom it may concern:

Be it known that I, THOMAS E. MORPETH, of Plains, in the county of Luzerne, and in the State of Pennsylvania, have invented certain new and useful Improvements in Rock and Coal Drilling Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to an improved rock and coal drilling machine of convenient size and of great range of adjustment, so that after the machine is fastened into the coal or rock the drilling-bit may be driven upward, downward, or at any considerable angle into the coal or rock.

The invention consists of a standard or bar, of either square, round, hexagonal, or other form, of iron or other metal, one end of which is inserted into a hole in the rock or coal previously prepared for that purpose, which end is fastened therein by means of a metal wedge driven into the hole between its wall and the standard. The swivel is then adjusted to the height required by means of its shaft, which passes through a hole or slot in the standard, and secured at that height by a set-screw in the standard. The bit-screw, passing through the nut-bar, is then turned back from the face of the coal or rock as far as is found necessary, and the bit secured to the same. The crank is then put on the opposite end of the screw, and, the crank being turned, the bit is forced into the coal or rock by the forward motion of the screw.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation, and Fig. 2 a plan view, of my machine.

A represents a standard or bar, of iron or other metal, with a hole or slot cut or bored at right angles with the length of the same at one end thereof.

The opposite end of the standard A is inserted into the face of the coal or rock by means of a hole previously prepared for that purpose by the ordinary drill or otherwise, and a metal wedge, B, driven between the standard and the wall of the hole. A shaft, H, upon the top of which is fitted a universal swivel, C, is then inserted into the hole or slot of the standard, and moves up and down freely therein, permitting the shaft and swivel attached to be adjusted at different distances from the standard, and being fixed at any required distance from the standard by means of the set-screw G. The reversible screw D is then inserted in the nut-bar I, swinging on the bearing F, and screwed through the nut-bar until a bit and socket may be fastened on that end.

The detachable crank E is now adjusted on the outer end of the screw, and when the crank is turned the bit is forced into the rock or coal by the forward motion of the screw D.

When the screw is run its full length, the bit and crank are detached, and the screw D is swung around by means of the swivel, or thrown outward and over by means of the nut-bar I and the bearing F; or the shaft H, swivel C, and screw D are removed from the hole in the standard A, reversed, and replaced in their original relative position at starting, the bit lengthened by adding a joint and replaced, and the crank E readjusted, when the machine is ready for boring another length.

A hole may be drilled at any angle fronting the face of the coal up to an angle of about eighty-five degrees, and several holes may be drilled with one setting of the machine, all owing to the contrivance of the universal swivel C and shaft H.

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

1. The shaft H, movable to and from the standard A, and fixed in the position required by the set-screw G, as herein set forth.

2. The movable universal swivel C, with swinging nut-bar I, by means of which holes may be drilled at different angles, both hori-

zontally and vertically, and more than one hole drilled without resetting the machine, as herein set forth.

3. The combination of the standard A, adjustable shaft H, with swivel C, the swinging nut-bar I, and reversible screw D, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of April, 1879.

THOMAS E. MORPETH.

Witnesses:
ALBERT BROHM,
L. C. KINSEY.