

H. B. GINGRICH.

Improvement in Rock Drill.

No. 121,866.

Patented Dec. 12, 1871.

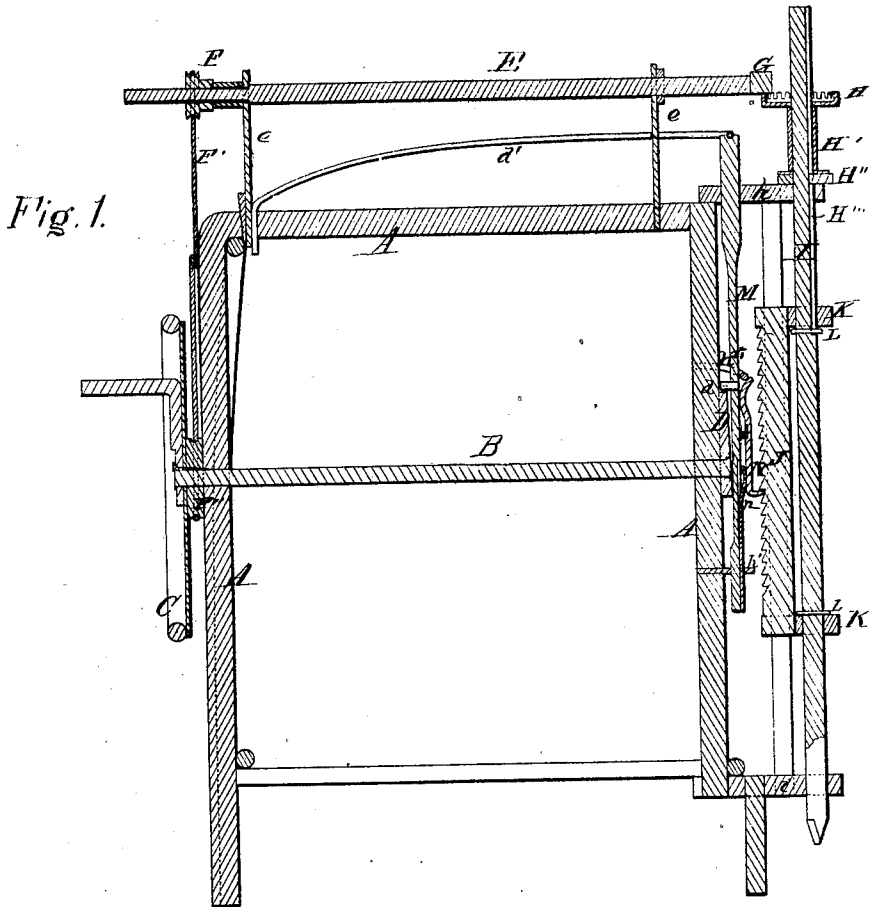


Fig. 2.

Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY B. GINGRICH, OF BRADFORD, OHIO.

IMPROVEMENT IN ROCK-DRILLS.

Specification forming part of Letters Patent No. 121,866, dated December 12, 1871.

To all whom it may concern:

Be it known that I, HENRY B. GINGRICH, of Bradford, in the county of Miami and State of Ohio, have invented a new and valuable Improvement in Rock-Drills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical longitudinal section of my invention. Fig. 2 is a face view of tripping-cam.

This invention has relation to certain improvements in rock-drills; and consists in the construction and novel arrangement of devices under the control of a crank-wheel, by the operation of which the drill is made to rise, fall, and gradually turn around, as hereinafter described.

In the accompanying drawing illustrating this invention, A represents a strong upright frame supporting all the parts of my improved drill mechanism. B represents a horizontal shaft, journaled to the frame A, and supporting, on its rear end, a crank-wheel, C, and on its forward end a cam, D. E represents a like shaft, supported on standards *e*, secured to the top of the frame A. The rear end of this shaft E holds a pulley-wheel, F, which communicates, by means of a band, F', with a pulley-wheel, F'', on the shaft B, and thus produces simultaneous motions of the respective shafts. G indicates a stud projecting from the periphery of the shaft E at its forward end, and engaging with the teeth of a crown-wheel, H, so as to give intermittent rotary motion to the drill. I represents the drill, which slides up and down through brackets *h* *i* projecting from the frame A. The wheel H is secured to a sleeve, H', the interior of which is

furnished with a key, H'', that fits a vertical groove, H''', in the drill, and causes the latter to turn with the wheel, but allows it to play vertically through said sleeve. The sleeve is supported by the projecting bracket *h*. J designates a vertical rack armed with beveled teeth. It is provided at the top and lower ends with guides K, perforated to let the drill pass through, and grooved on either side to fit the posts *k*, between which they and the rack rise and fall. The drill is retained at one position with respect to the guides K, which support it by means of small projections L. M designates a bar adapted to vertical play through brackets *h* *h'* and loop *h''*. It is raised by the action of the cam D on an inwardly-projecting pin, *d*, and is forcibly depressed by a spring, *d'*. N represents a pawl hinged to the front of the bar M, and pressed toward the rack by a spring, *n*. Now, when the bar is raised, through the medium of the cam, the pawl takes hold of a tooth of the rack and raises said rack the necessary distance, whereupon, the loop *h''* being reached, the pawl is disengaged by it from the rack, and the latter, with the drill, let fall. As soon as the pawl is disengaged, as explained, the cam also releases the bar M and allows it to fall, in order that the intermittent action of the pawl upon the rack may be rapid.

What I claim as my invention, and desire to secure by Letters Patent, is—

The rack J, pawl N, bar M, loop *h''*, pin *d*, and cam D, in combination with the drill I, as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HENRY B. GINGRICH.

Witnesses:

JAMES BRANDENBURG,
A. L. WADE.

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