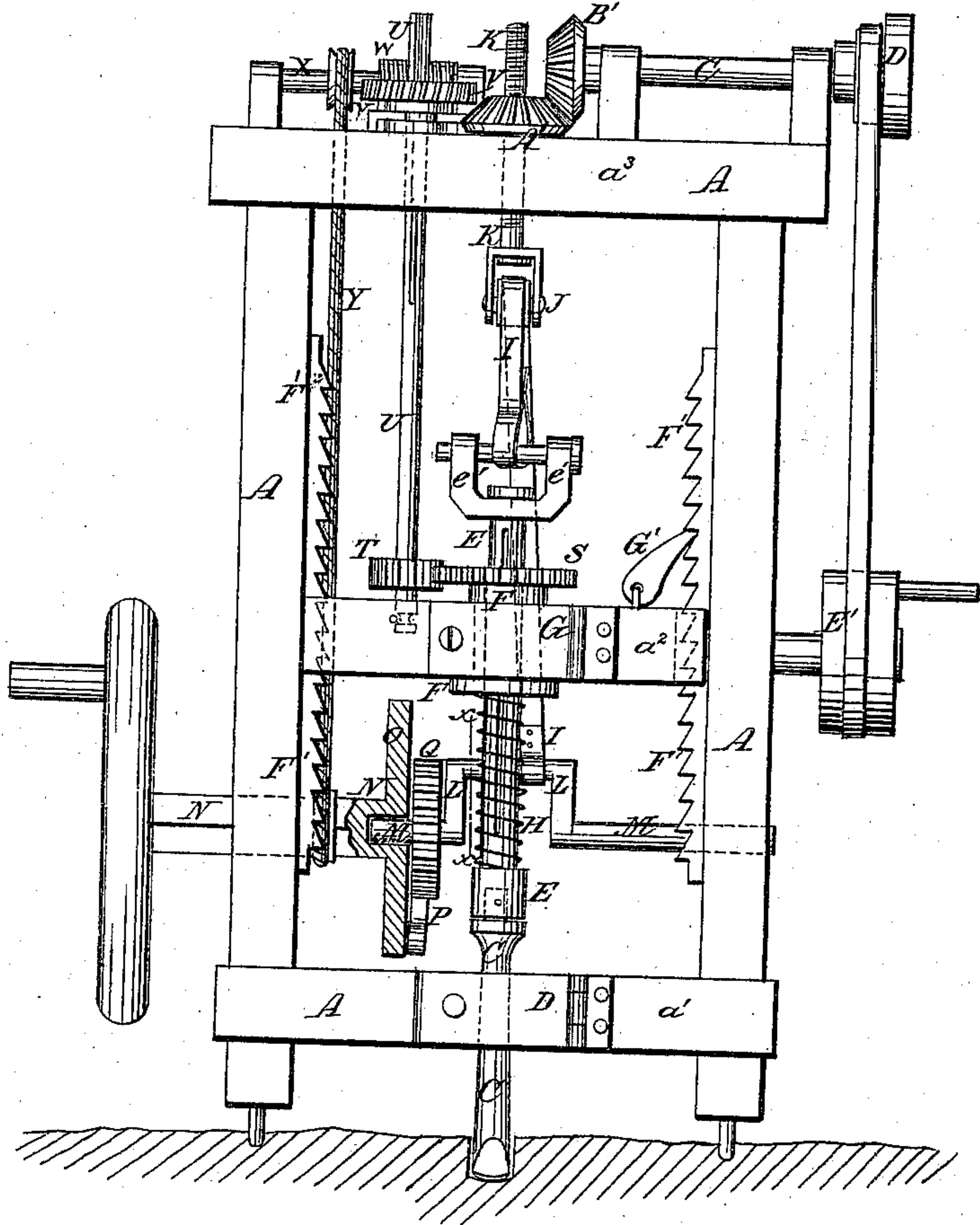


# Rock Drill

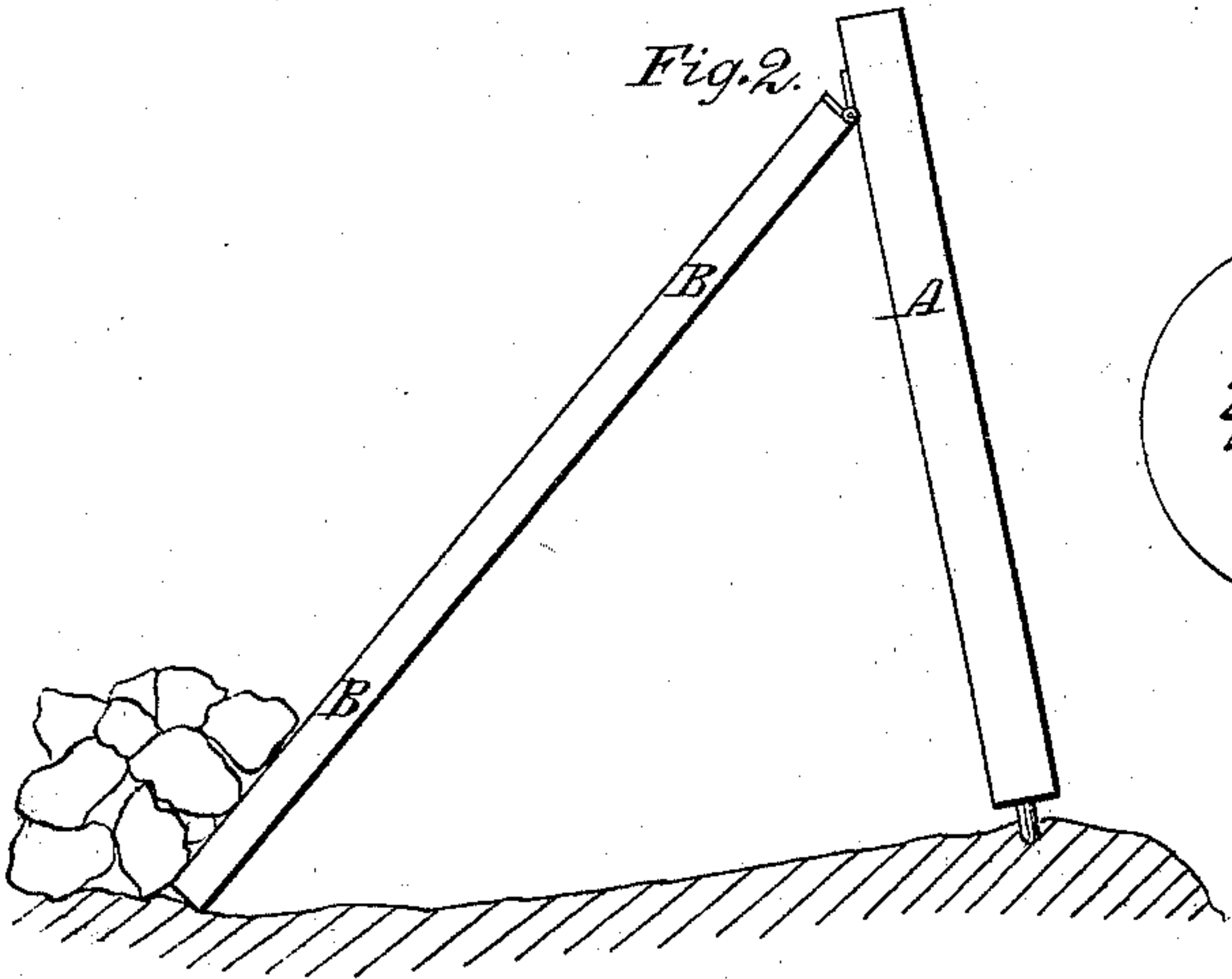
*N<sup>o</sup> 9, 9/2.*

*Patented Jun. 29, 1869.*

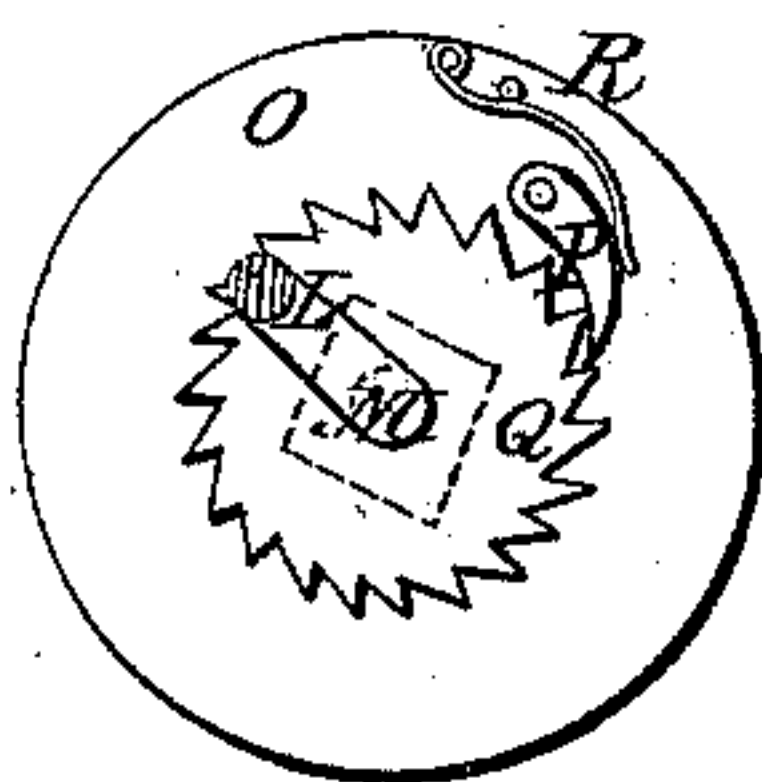
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses.

A. W. Munro  
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*Inventor.*

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Attys



# United States Patent Office.

JOHN CODY, OF NEW YORK, N. Y.

Letters Patent No. 91,912, dated June 29, 1869.

## IMPROVED ROCK-DRILLING APPARATUS.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that I, JOHN CODY, of the city, county, and State of New York, have invented a new and improved Rock-Drilling Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view of my improved machine.

Figure 2 is a side view of the frame-work of the apparatus.

Figure 3 is a detail sectional view, taken through the line *x x*, fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to improve the construction of my improved drill, patented April 5, 1864, and numbered 42,167, so as to make it more effective in operation, and more convenient in use; and

It consists in the construction and combination of various parts, as hereinafter more fully described.

A is the main frame of the machine, the lower ends of the side-bars of which may be spiked, or otherwise shod, to prevent them from slipping.

To the rear side of the upper part of the frame A, are pivoted the upper ends of the brace-bars, or frame B, the lower ends of which rest upon the ground, and are held in place by rocks, or other convenient weights, piled upon them, so that the main frame A may be secured at any desired angle.

C is the drill, which passes through and works in a bearing, D, connected with the lower cross-bar *a'* of the frame A, and so constructed, that it may be conveniently opened, to allow the drill C to be removed, when required.

Upon the upper end of the drill C, is formed a tenon, which enters a socket formed in the lower end of the vertical shaft, or stock E, where it is secured in place by a set-screw, or other convenient means.

The shaft E passes up through a sleeve, F, which works in a bearing, G, attached to the central cross-bar *a''* of the frame A, and which is so formed, that it may be conveniently opened, to allow the shaft E to be taken out, when required.

H is a spring, coiled around the shaft E, the lower end of which rests against an enlargement of the lower end of the said shaft E, and the upper end of which rests against the lower end of the sleeve F, so as to force the drill down, when released from the hoisting-device.

The vertical shaft E is grooved longitudinally, and upon the inner surface of the sleeve F, is formed a tongue, which enters the groove of the shaft E, so that the said shaft E may move up and down freely through the said sleeve F, but will be carried with said sleeve in its revolution.

To the upper end of the shaft E, is attached a swivel, *e*, to which is attached one end of a strap, I, which passes over a guide-pulley, J, pivoted to the lower end of the screw K, which passes up through the upper cross-bar *a''* of the frame A, as shown in fig. 1.

The other end of the strap I is connected with the crank L, formed upon the shaft M, one end of which revolves in bearings attached to the frame A, and its other end works in a socket in the end of the shaft N.

The shaft N revolves in bearings attached to the frame A, and to its outer end is attached a pulley or crank-wheel to which the power is applied.

To the inner end of the shaft N, is rigidly attached a wheel, O, to the side of which is pivoted a pawl, P, which takes hold of the teeth of the ratchet-wheel Q, rigidly attached to the shaft M.

The pawl P is held forward against the teeth of the ratchet-wheel Q, by a spring, R, as shown in fig. 3.

By this construction, the drill C is raised by the revolution of the crank L, and as soon as the said crank has passed its point of highest elevation, the weight of the drill, and the force of the spring H, carry it down to make the stroke. As soon as the stroke has been made, the pawl P again takes hold of the ratchet-wheel Q, and begins to raise the drill for another stroke.

To the upper end of the sleeve F, is attached a gear-wheel, S, into the teeth of which mesh the teeth of the small gear-wheel T, attached to the vertical shaft U, the lower end of which revolves in a socket in the central cross-bar *a''* of the frame A, and the upper part of which passes up through, and revolves in bearings in the upper cross-bar *a''* of the frame.

V is a screw-wheel, placed upon the shaft U, above the cross-bar *a''*, and which is made to carry the said shaft U with it, in its revolution, by having a tongue formed upon its inner surface, which enters a longitudinal groove in the said shaft U, thus allowing the said shaft to move up and down freely through the said wheel V, while, at the same time, it is revolved by the revolution of the said wheel V.

Into the teeth of the screw-wheel V, mesh the threads of the endless screw W, formed upon, or attached to the shaft X, which revolves in bearings attached to the upper cross-bar of the frame A, and to which motion is given from the shaft N, by the band, or belt *y*, which passes around pulleys attached to or formed upon said shafts, so that the drill may be turned by the same shaft that raises it.

Upon the upper end of the screw K is placed a nut, upon which is formed a bevel, gear, or screw-wheel, A', into the teeth of which mesh the teeth or threads of the bevel-gear wheel B', or endless screw, attached to or formed upon the shaft C', which revolves in bearings attached to the upper cross-bar *a''* of the frame A.

To the outer end of the shaft C', is attached a cone-pulley, D', around which, and around the hand or crank-wheel E', is attached a band, or belt, so that the drill



may be fed down, as it cuts its way into the rock, by hand-power.

The ends of the cross-bar  $a^2$  are grooved, to fit upon the racks  $F'$ , attached to the inner sides of the side-bars of the frame  $A$ , which said racks thus serve as guides to the said cross-bar, as it moves up and down.

The cross-bar  $a^2$  is kept from being raised, while the machine is being operated by the pawls  $G'$ , which are pivoted to the upper side of the said cross-bar  $a^2$ , and which take hold of the teeth of the racks  $F'$ , the said cross-bar being allowed to feed itself down by its own weight, as the drill cuts its way into the rock.

Having thus described my invention,

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

1. The combination and arrangement of the pawls  $G'$ , sliding cross-bar  $a^2$ , spring  $H$ , with the vertical shaft, or stock  $E$ , to which the drill  $C$  is attached, and with the racks  $F'$  attached to the frame  $A$ , substan-

tially as herein shown and described, and for the purpose set forth.

2. The combination of the pulley  $J$ , screw  $K$ , combined gear-wheel and screw-nut  $A'$ , shaft  $C'$ , and cone-pulley  $D'$ , with the hoisting-strap  $I$ , substantially as herein shown and described, and for the purpose set forth.

3. The combination of the driving-shaft  $N$ , crank-shaft  $L$   $M$ , fly-wheel  $O$ , pawl  $P$ , and ratchet-wheel  $Q$ , with each other, and with the hoisting-strap  $I$ , substantially as herein shown and described, and for the purpose set forth.

The above specification of my invention signed by me, this 24th day of March, 1869.

JOHN CODY.

Witnesses:

FRANK BLOCKLEY,  
JAMES T. GRAHAM.