

*J. Cody,
Stone Drill.*

N^o 42, 167. Fig. 1.

Patented Apr. 5, 1864.

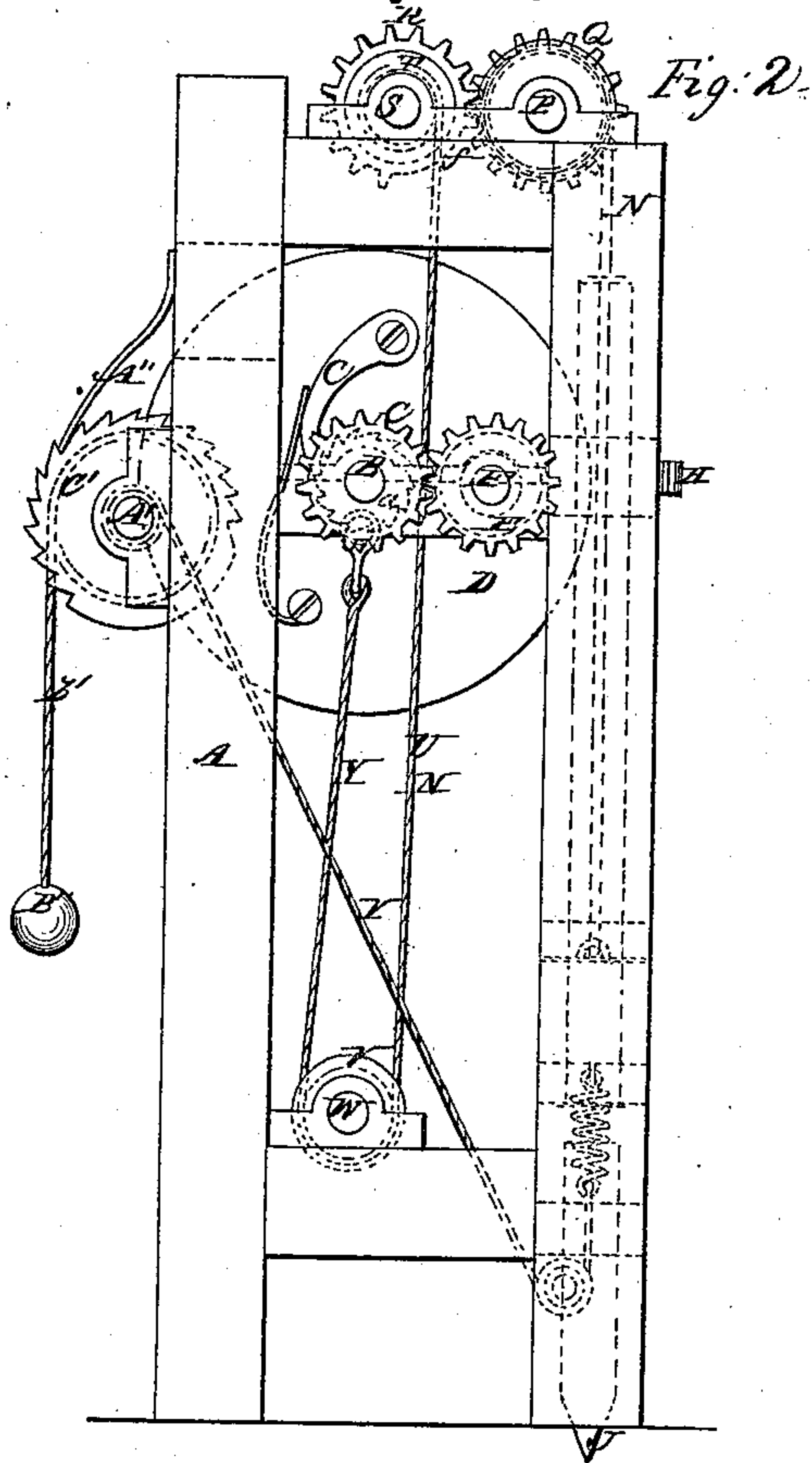
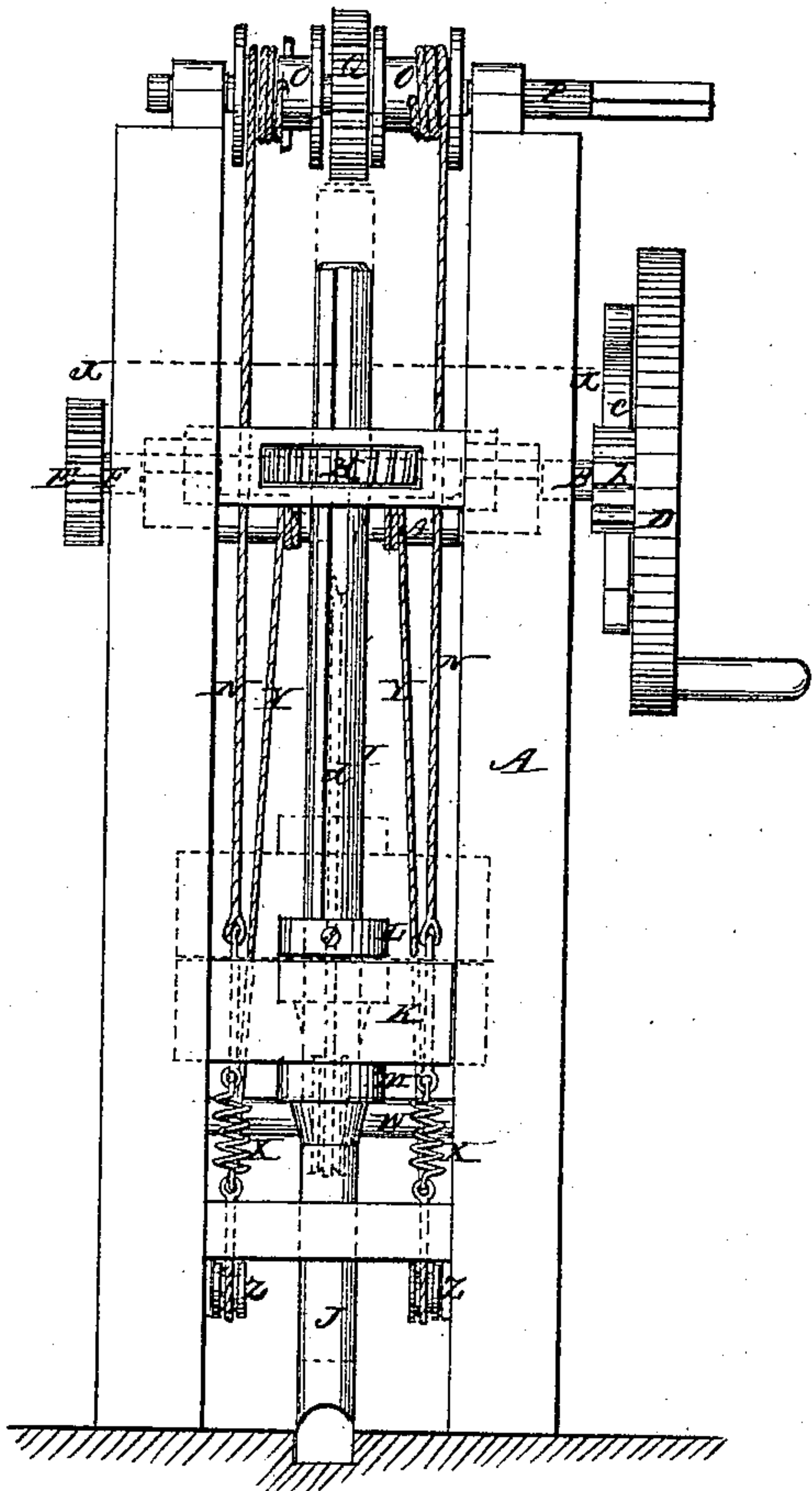
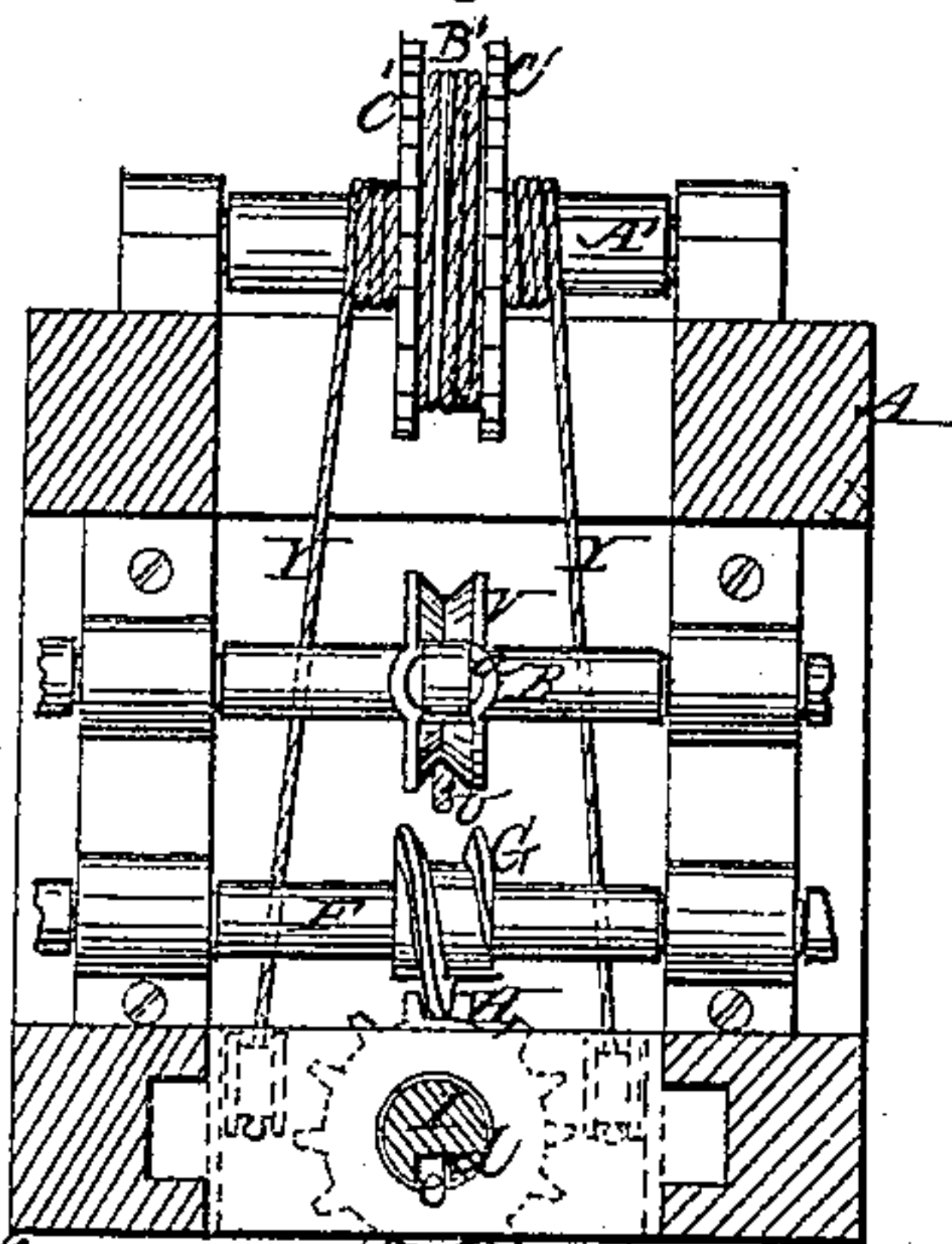


Fig. 3.



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JOHN CODY, OF NEW YORK, N. Y.

ROCK-DRILL.

Specification forming part of Letters Patent No. 42,167, dated April 5, 1864.

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-Drill; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front view of my invention. Fig. 2 is a side view of the same. Fig. 3 is a horizontal section of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in an improved mode of operating the drill, as hereinafter fully shown and described, whereby the drill is operated or made to act against the rock with an uniform blow throughout the entire length of the hole to be drilled, the drill at the same time being rotated and fed to its work by an automatic mechanism.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a framing, which may be constructed in any proper manner to support the working parts of the machine, and B is a driving-shaft, which is placed horizontally in the upper part of the framing A, and has a crank, *a*, upon it, at about its center, a pinion, C, at one end, and a driving-wheel, D, at its opposite end, the wheel D being placed loosely on the shaft B, and connected with it when turned in one direction by means of a ratchet, *b*, and pawl *c*. The pinion C of the shaft B gears into a pinion, E, on a shaft, F, which has a spiral cam, G, upon it, said cam gearing into a worm-wheel, H, through which an arbor, I, passes, said arbor having a longitudinal groove, *d*, made in it in which a feather or projection, *e*, in the wheel H is fitted. (See Fig. 3.) By this means it will be seen that the arbor I is allowed to rise and fall or move through the worm-wheel H, and the latter at the same time made to turn the arbor I. The cam G has not a regular spiral curve. A portion of it is at right angles with its shaft F, so as to cause the arbor I to be rotated intermittently. In the lower end of the arbor I a drill, J, is secured, which may be of the usual

form, and K is a cross-bar through which the lower part of the arbor I passes, said cross-bar being fitted between a collar, L, on the arbor and a shoulder, M, on the drill, and allowed to rise and fall freely in the framing. The cross-bar K is connected by two cords, N N, to drums O O on a shaft, P, on the upper part of the framing A, said shaft having a pinion, Q, upon it between the two drums, into which a pinion, R, gears, the latter having a portion of its periphery smooth, as shown at *f* in Fig. 2. The pinion R is on a shaft, S, which has a drum or pulley, T, upon it, to which a cord, U, is attached. This cord U extends down underneath a pulley, V, on a shaft, W, in the lower part of the framing, and thence upward to the crank *a*, to which it is attached. To the under side of the cross-bar K there are attached two springs, X X, which may be of india-rubber, or spiral wire springs may be used. These springs have each a cord, Y, attached to them, which pass underneath pulleys Z Z in the lower part of the framing, and extend up and around a shaft, A', which has a pulley, B' upon it with ratchets C' attached, with which a pawl, A'', engages, the pulley B' having a cord, *b'*, around it with a weight, B'', attached.

The operation is as follows: The shaft B is rotated by any convenient power, and a rocking motion is communicated to the shaft S through the medium of the crank *a*, cord U, and pulley T, and this rocking motion is communicated to the shaft D through the medium of the pinions R Q, and the drill J will consequently be operated—that is to say, raised and lowered. The drill acts upon the rock in its descent, but its own gravity is not exclusively depended upon for penetration and force, as the springs X X operate in addition to that. The drill feeds itself to its work in consequence of the teeth of the pinion Q being allowed to slip past the teeth of the pinion R, just above the smooth surface *f* thereof, and as the drill descends, the springs are kept at the proper degree of tension by means of the cords V V, shaft A', cord *b'*, pulley C', and weight B''. Thus by this simple arrangement, a very efficient rock-drill is attained, one involving but little friction in its operation and capable of being operated with but a moderate expenditure of power.

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

1. Operating the drill J through the medium of the crank *a*, cord V, pinions Q R on the shafts P S, the pinion R having a smooth portion, *f*, on its periphery, and the cords N N, attached to the cross-bar K and drums O O on the shaft P, arranged substantially as set forth.

2. The springs X X, attached to the bar K, and connected by the cords Y to the shaft A', having the pulley C' upon it provided with the cord and weight *b'* B'', substantially as and for the purpose specified.

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