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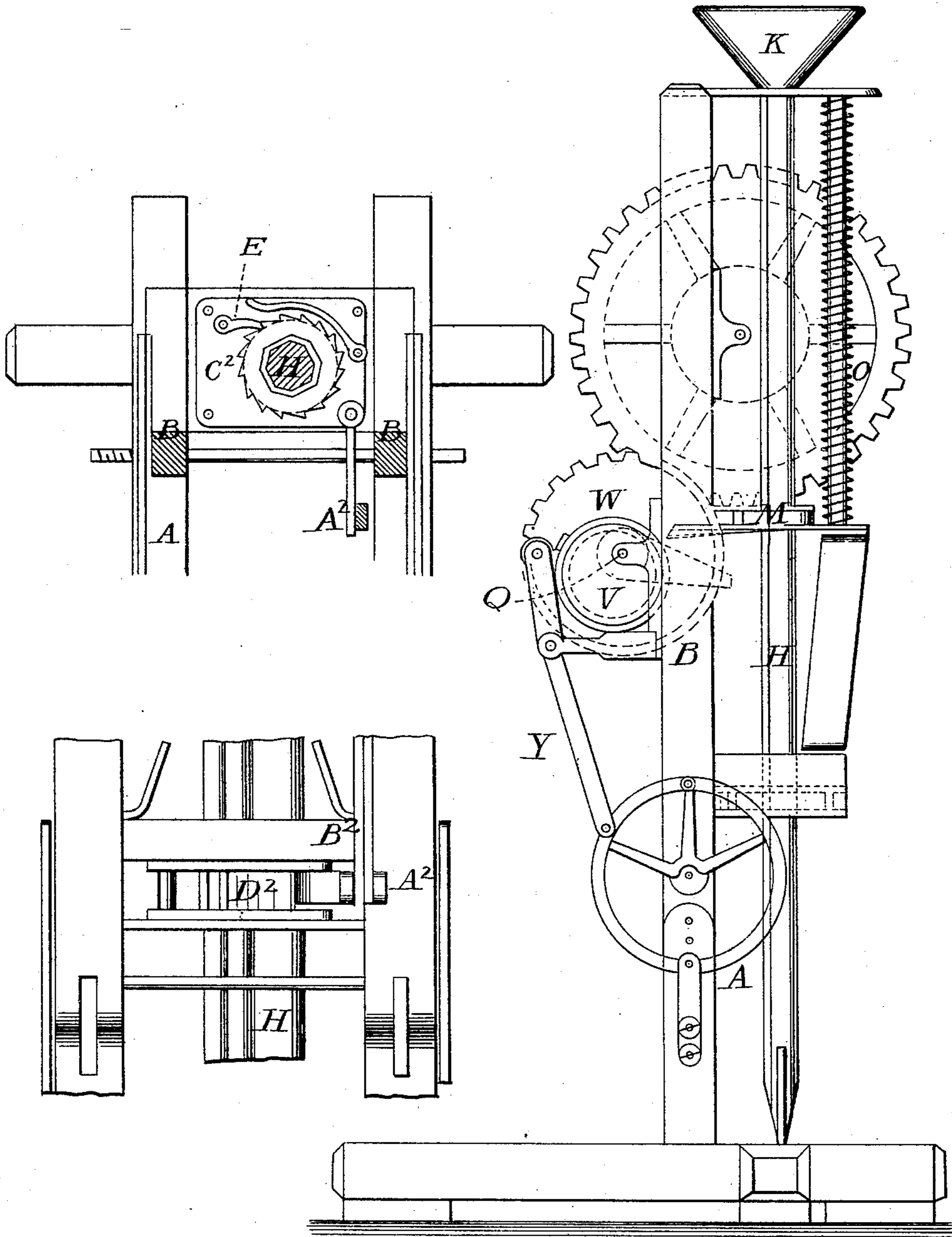
Oct. 3, 1891.

Thompson
Chief Clerk.

G. F. UNDERHILL.
ROCK DRILLING MACHINE.

No. 57,797.

Patented Sept. 4, 1866.



UNITED STATES PATENT OFFICE.

GEO. FREEMAN UNDERHILL, OF NEW YORK, N. Y.

IMPROVED ROCK-DRILLING MACHINE.

Specification forming part of Letters Patent No. 57,797, dated September 4, 1866.

To all whom it may concern:

Be it known that I, GEORGE FREEMAN UNDERHILL, of New York, in the county of New York and State of New York, have invented new and useful Improvements in Rock-Drilling Machines; 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.

The present invention relates to a machine for the drilling of rock; and it consists, principally, in a novel arrangement of parts for operating the drill, as will be now described, reference being had to the accompanying plate of drawings, in which—

Figure 1 is a front elevation of the drilling-machine; Fig. 2, a side elevation; and Fig. 3, a transverse horizontal section taken in the plane of the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

A in the drawings represents the frame-work of the machine, which is to be made of any suitable construction to accommodate the various working or operating parts. This frame-work A is divided into two parts, B and C, which are hinged together so as to swing, and thus enable the upper portion, B, to be inclined with regard to the lower portion, C. The lower portion, C, constitutes the base of the frame-work A, and is provided with a series of rubber cushions, D, upon its under side to prevent its slipping or moving out of position when the machine is at work.

To secure or hold the upper portion, B, in any position to which it may be adjusted with regard to the base portion C, circular disks or frames E are attached to the upper portion, B, which frames pass through clasps F of the lower portion, C, provided with set or thumb screws G, by means of which the said frames can be tightened on the lower portion, C.

H is the drill-rod, made of a polygonal shape in cross-section, and arranged to move in a vertical plane passing through guides I I of the upper portion, B, of the frame-work A. This drill-rod at its lower end terminates with a drill, J, and at its upper end, K, is weighted.

About the drill-rod H is a loose collar, L,

arranged in a horizontal frame, M, moving at one end upon a fixed upright guide-rod, N, of the frame-work, around which rod is placed a spiral or coiled spring, O, which acts to throw down the said frame M after it has been raised by the action of the tappet P of the horizontal shaft Q, hung in bearings upon one side of the upper frame-work, B. On this shaft Q is a gear-wheel, R, with which interlocks a gear-wheel, S, of a horizontal shaft, T, provided with a crank-handle, U, for convenience in turning it.

V is an eccentric fixed to tappet-shaft Q, which eccentric is surrounded by a yoke or collar, W, to the arm X of which one end of a lever-rod, Y, is pivoted. This rod is hung upon a fulcrum, Z, of the upper frame-work, and at its lower end has a short rod, A², hung to it, which connects it with a horizontal frame, B², through which the drill-rod H loosely passes. Between the two plates C² of this frame B² a ratchet-wheel, D², is placed, which ratchet-wheel D² surrounds the drill-rod. E² is a spring-pawl hung in and between the two frame-plates C², by which pawl the ratchet is revolved.

From the above description of the arrangement of the various parts composing my improved rock-drilling machine it is plain to be seen that by turning the crank-handle the drill will be raised and let fall, and at the same time intermittently rotated, so as to bring its drill end properly to bear upon the surface of the rock through which it is intended to drill; and that, furthermore, as the upper portion of the frame-work which carries the drill-rod can be adjusted and set to various angles of inclination, the drill can be brought to bear against the rock at different angles, and according as may be found desirable or necessary.

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

1. The divided frame-work A, hinged together, having the drill-rod H arranged in its upper section, B, in combination with the clamping devices for securing the sections of the frame-work together, substantially as and for the purpose described.

2. The arrangement of the sliding or lifting frame M, tappet-shaft Q, and the poly-

onal-shaped drill-rod H, substantially as and for the purpose described.

3. The eccentric V of shaft Q, yoke or collar W, lever Y, arm A², frame B², ratchet-wheel D², and pawl E², when all arranged and combined together so as to operate upon the drill-rod substantially in the manner and for the purpose specified.

4. The use of rubber cushions upon the un-

der side of the base portion of the frame-work, for the purpose specified.

The above specification of my invention signed by me.

GEO. FREEMAN UNDERHILL.

Witnesses:

M. M. LIVINGSTON,
ALBERT W. BROWN.