T. H. COATE & L. A. JOHN.

Improvement in Rock Drilling Machines.

No. 121,590. Patented Dec. 5, 1871.

Fig. 1.

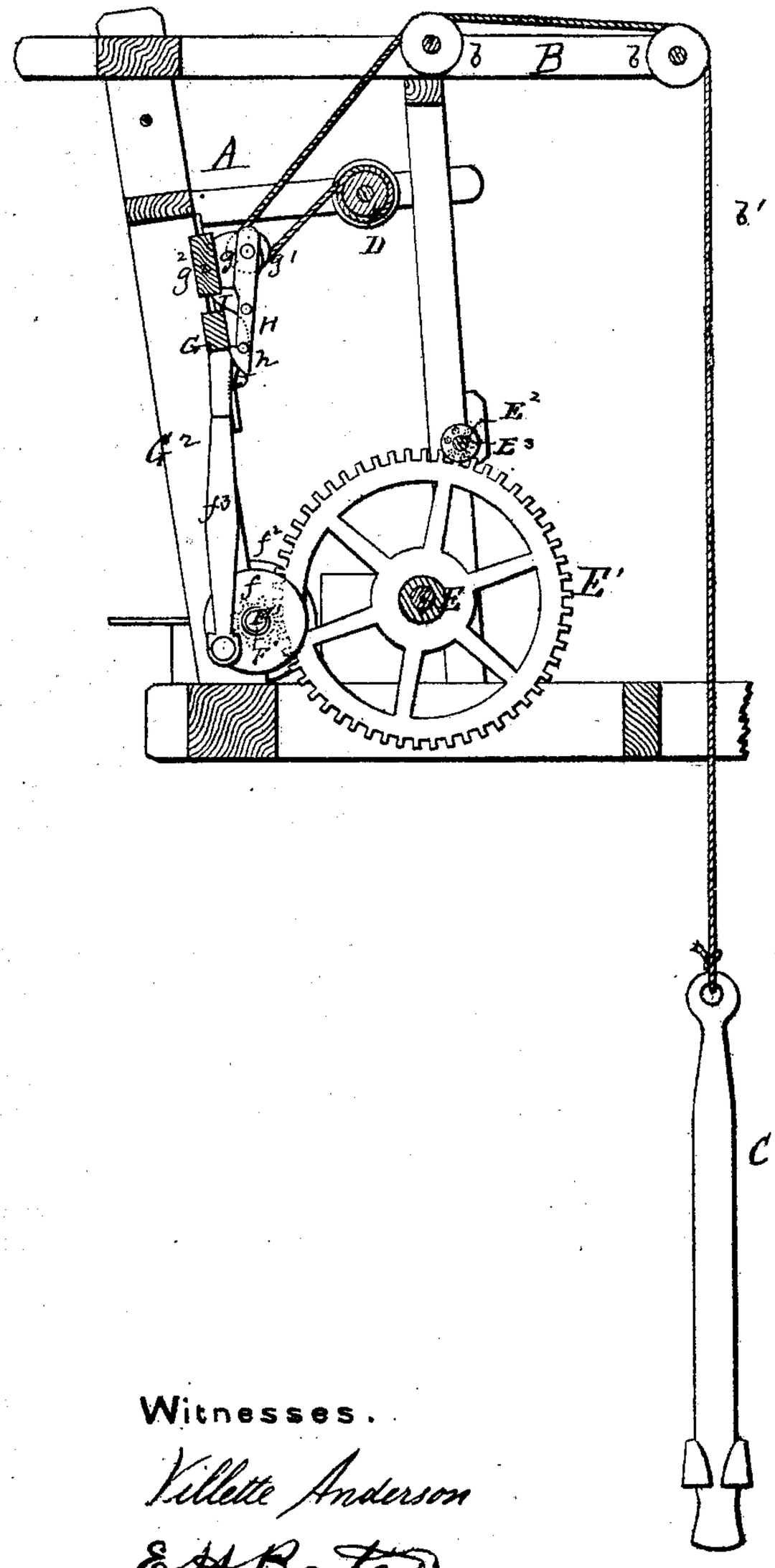
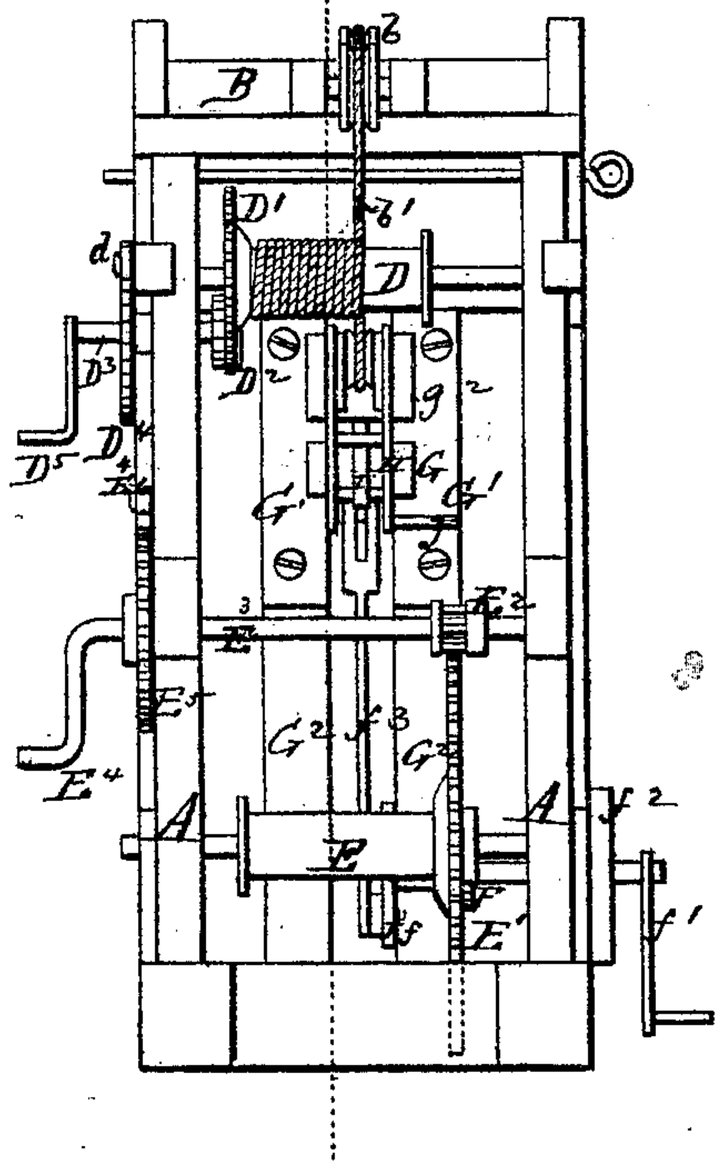


Fig. 2.



Witnesses.

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121,590

UNITED STATES PATENT OFFICE.

THOMAS H. COATE AND LEWIS A. JOHN, OF PLEASANT HILL, OHIO.

IMPROVEMENT IN ROCK-DRILLING MACHINES.

Specification forming part of Letters Patent No. 121,590, dated December 5, 1871.

To all whom it may concern:

Be it known that we, THOMAS H. COATE and LEWIS A. JOHN, of Pleasant Hill, in the county of Miami and State of Ohio, have invented a new and valuable Improvement in Rock-Drills; and we 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 our invention. Fig. 2 is a rear elevation.

This invention has relation to drilling-machines; and consists chiefly in the construction and novel arrangement of the tripping-mechanism, which operates to release and let fall the drill at regular intervals.

Referring to the accompanying drawing, A shows an upright frame, supporting a horizontal pulley-beam, B, slotted lengthwise and furnished with pulley-wheels *b b*, over which passes the rope *b'* from the windlass to the drill. C designates the drill; D, the windlass around which the rope *b'* winds. D^1 is a toothed wheel on the windlass-shaft, engaging with a pinion, D^2, on a crank-shaft, D^3, on which is a ratchet-wheel, D^4, and crank-handle D^5. The crank-shaft D^3, pinion D^2, and toothed wheel D^1 are used in connection with the windlass D for the purpose of winding up the rope *b'* in order to raise the drill. A pawl, *d*, engages with the wheel D^4 and prevents the shaft D^3 from turning back and allowing the drill to drop when the drill is not required to fall. E represents a windlass in the lower part of the frame A; E^1, a large spur-wheel on its shaft, engaging with a pinion, E^2, on a crank-shaft, E^3, having a crank-handle, E^4, and ratchet-wheel E^5. E^6 represents a pawl, which engages with said ratchet-wheel. The wheel E^1 also engages with a pinion, F, on a crank-shaft, F', which has a crank-plate, *f*, at its inner and a crank-arm, f^1, at its outer end, and holds a fly-wheel at f^2. The crank-plate *f* is connected with a pitman, f^3, which is coupled to a sliding-head, G, which travels vertically on ways G^1 secured to the inner sides of vertical posts G^2 of the frame A, arranged as shown in the drawing. Projecting from the face of the sliding-block g^2 above the block or head G is a bracket, *g*, holding a pulley-wheel, g^1, under and around which passes the rope *b'* from the windlass D to the drill. To this bracket is pivoted a pair of dogs, H, having shouldered ends *h*, which are pressed under the block G by the force of a spring, I. These ends are also beveled, and are released from under the block G as the latter descends by coming in contact with a stud or studs, J, projecting from one or both of the plates G^1. By turning the crank-arm f^1 the block G is brought down, raising the drill. As soon as the dogs come in contact with the stud J they are released and raised by the weight of the drill, which then falls. The rope is unwound from the windlass according as the depth of the drill increases. The windlass E may be employed to hold the rope when it is desired to have it unwound automatically, or the toothed wheel E^1 may be used as a communicating medium between the shafts E^3 F^1, so that power may be divided between them in operating the drill.

We claim as our invention—

1. In a drilling-machine, the dogs H and spring I, in combination with the sliding-blocks G g^2, pulley g^1, rope *b'*, pitman or crank-arm f^3, and studs J, substantially as described.

2. In a drilling-machine, the combination and arrangement of the pulleys *b b*, rope *b'*, windlass D, pulley g^1, sliding-blocks G g^2, dogs H, and studs J, as and for the purpose specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

THOMAS H. COATE.
LEWIS A. JOHN.

Witnesses:
ROBERT ROBERTSON,
DAVIS FOUTS.

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