(No Model.) 2 Sheets—Sheet 1.

J. CODY.

ROCK DRILL.

No. 418,449. Patented Dec. 31, 1889.

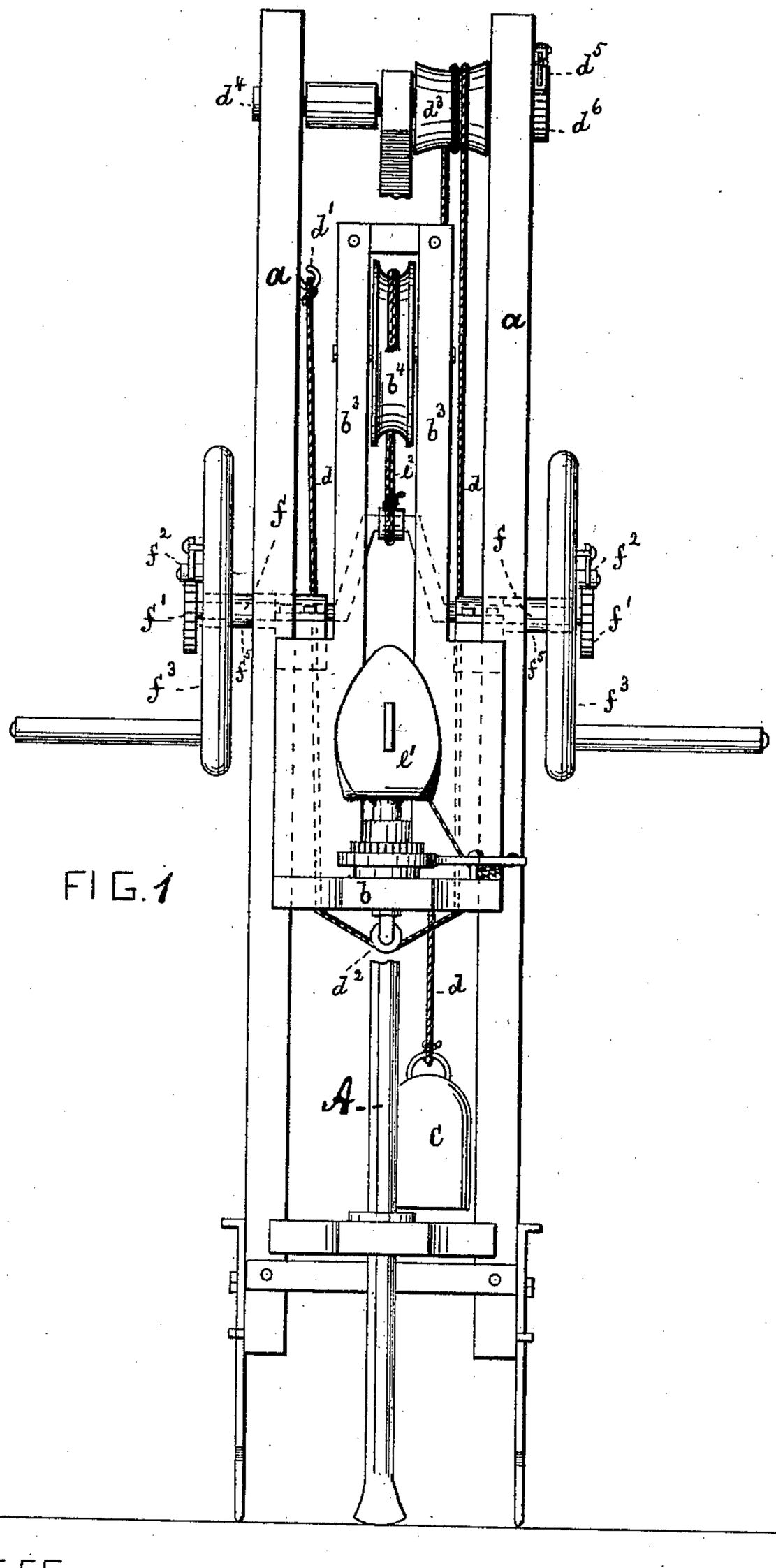

FIG. 1

WITNESSES

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(No Model.)

2 Sheets—Sheet 2.

J. CODY.

ROCK DRILL.

No. 418,449. Patented Dec. 31, 1889.

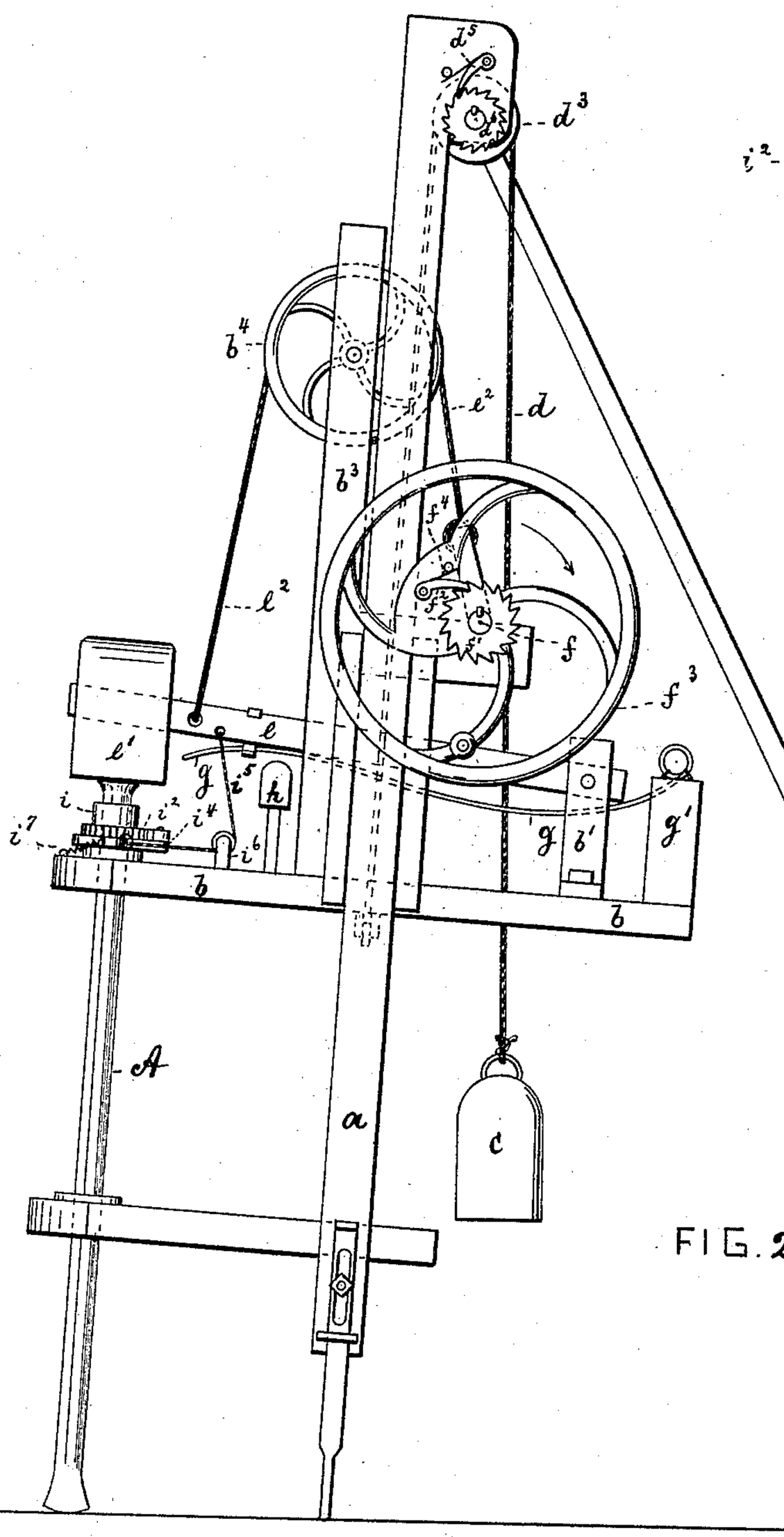

FIG. 2

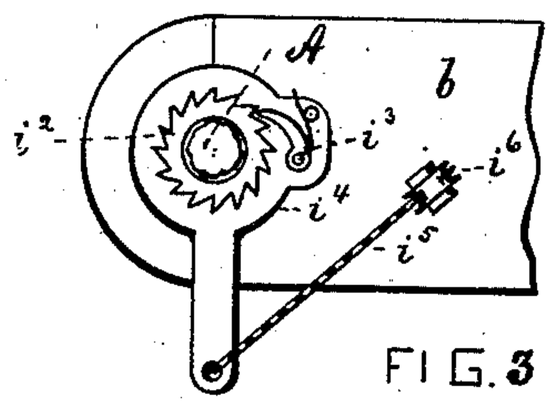

FIG. 3

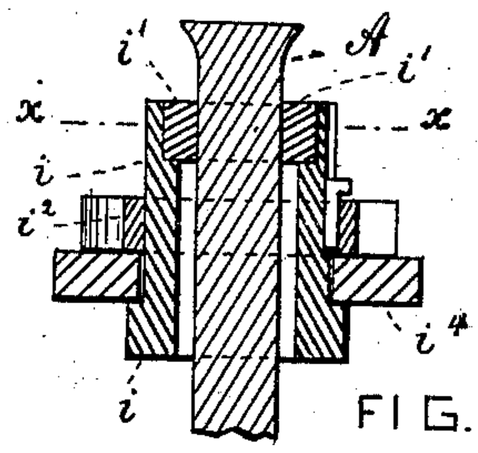

FIG. 4

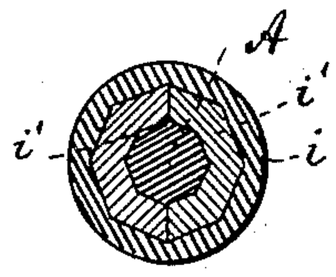

FIG. 5

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN CODY, OF NEW YORK, N. Y.

ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 418,449, dated December 31, 1889.

Application filed September 30, 1889. Serial No. 325,470. (No model.)

To all whom it may concern:

Be it known that I, JOHN CODY, of New York city, New York, have invented an Improved Hand Rock-Drill, of which the following is a specification.

This invention relates to a hand rock-drill of simple construction, which can be readily manipulated.

It consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation of my improved rock-drill with part of the rope e^2 removed. Fig. 2 is a side elevation of the drill; Fig. 3, a detail top view of the drilling-tool, showing the ratchet i^2 and pawl i^3; Fig. 4, a vertical central section through the upper part of the drilling-tool; and Fig. 5, a cross-section on line $x\,x$, Fig. 4.

The letter a represents the frame of my improved rock-drill, said frame being composed of legs and braces joined on top and adapted to be securely placed upon the ground at the bottom.

b is a movable platform suspended by a counter-weight c within the frame a, so as to be guided in the frame while being raised or lowered. The rope d, which connects the platform to the weight, is attached to an eye d' on the frame at one end, thence passes over a pulley d^2 on platform b, thence over a pulley d^3 upon a cross-shaft d^4, and is thence connected to the weight at its other end. A click d^5, engaging a ratchet d^6 on shaft d^4, prevents the weight from drawing the platform b up. From the platform b there projects upwardly a post b', to which is pivoted the shank e of hammer e'. To the platform b there are also secured the uprights b^3, that form the bearings for the axle of a pulley b^4. To the shank e of the hammer there is secured one end of a rope e^2, that passes over pulley b^4, and is thence made fast to a crank-shaft f, turning in outwardly-projecting tubular bearings f^5 of blocks projecting rearwardly from uprights b^3. Thus the crank-shaft rises and falls with the platform, together with the pulley b^4 and the hammer. Upon the crank-shaft f there is keyed, preferably at each end, a ratchet-wheel f', which is engaged by a click f^2, pivoted to a hand-wheel f^3. This hand-wheel turns loosely upon the tubular bearing f^5. A spring f^4 holds the click f^2 in engagement with the ratchet-wheel f'.

To the hammer-shank e, I prefer to attach one end of a strong spring g, that extends back of the hammer-shank for a short distance. The spring g is curved and its rear end is secured to a post g'. The function of the spring is to render the blow of the hammer more forcible.

h is a buffer projecting upwardly from platform b and placed directly below the forward end of the hammer-shank. This buffer should be of such a height as to be struck by the shank when the head e' finds no resistance.

The operation of the device as thus far described will be readily understood. The hand-wheel f^3 is turned and will cause an alternate rising and falling of the hammer-head, so as to drive the drilling-tool A. When the parts are in the position shown in Fig. 2, the crank of the shaft f is up and the hammer down. By a semi-revolution of the wheel (the click f^2 engaging the ratchet f') the shaft f is turned until the crank is down and the hammer is up. The weight of the hammer will now cause its descent automatically. This descent causes the completion of the revolution of shaft f, so that it resumes the position shown in Fig. 2. During this last semi-revolution of the shaft the ratchet f' will revolve rapidly past the click f^2. As soon as the hammer has descended the ratchet f' will cease its rapid motion imparted to it by the hammer and will be again revolved by the click. Thus the uniform revolution of the hand-wheel f^3 causes the proper operation of the machine. As the drilling-tool A is being lowered by being driven, the platform b should be from time to time pulled down by hand. If this should at any time be forgotten, the hammer-shank e will strike against the buffer h, and the strong concussion thus produced will draw the platform down.

In order to revolve the tool A while driving it, it is surrounded by an angular sleeve i, within which is placed a divided angular disk i'. This disk fits closely around the tool A and imparts any motion the sleeve may receive to the tool. To the sleeve i there is

keyed a ratchet-wheel i^2, engaged by a pawl i^3 upon a ring i^4, that loosely surrounds the sleeve. To an arm of the ring i^4 is secured one end of a chain i^5, passing over pulley i^6 on platform b and connected to the hammer-shank e. By the upward motion of the hammer-shank the ring i^4 will be revolved, so as to impart a similar motion through the parts i^3, i^2, i, and i' to the tool A. During the descent of the hammer the ring i^4 will be drawn back by a spring i^7. Thus intermittent reciprocating motion is imparted to the tool.

What I claim is—

1. The combination of a frame with a movable platform, a hammer, pulley, and crank-shaft mounted upon the platform, a rope connecting the hammer to the crank-shaft and passing over the pulley, an outwardly-projecting tubular bearing through which the crank-shaft passes and which constitutes a seat, a hand-wheel loosely mounted upon said seat and carrying a click, and a ratchet-wheel keyed to the crank-shaft and adapted to be engaged by the click, substantially as specified.

2. The combination of a frame a with a movable platform, a hammer pivoted to said platform, a crank-shaft connected to the hammer, an angular sleeve i, an inclosed angular divided disk i', a ratchet-wheel i^2, keyed to the sleeve, a ring i^4, surrounding the sleeve, a pawl i^3, pivoted to the ring and engaging the ratchet-wheel, and a chain i^5, connecting the ring to the hammer-shank, substantially as specified.

JOHN CODY.

Witnesses:
F. v. BRIESEN,
WM. WAGNER.