

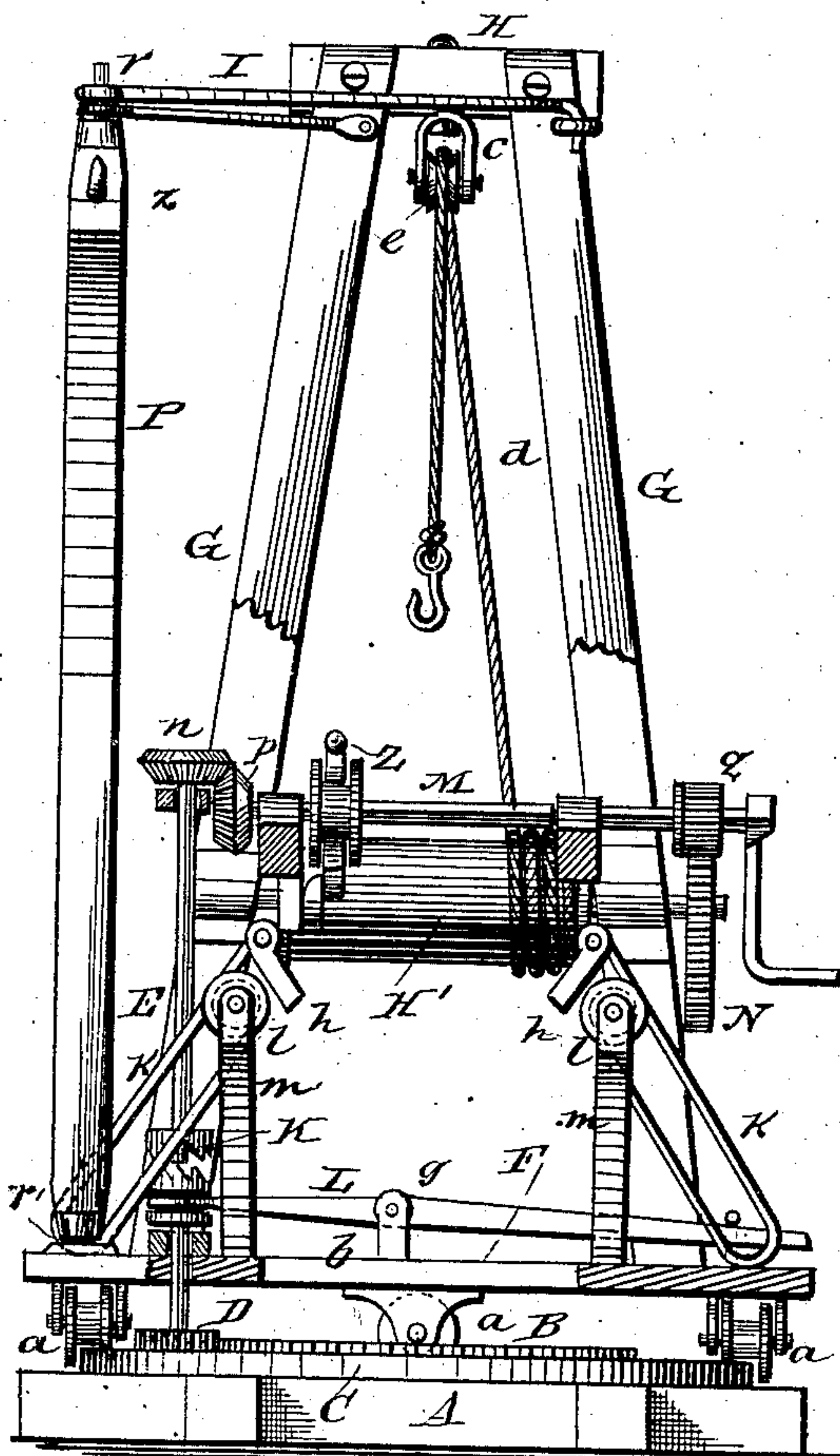
(No Model.)

W. W. CURTIS.  
WELL BORING MACHINE.

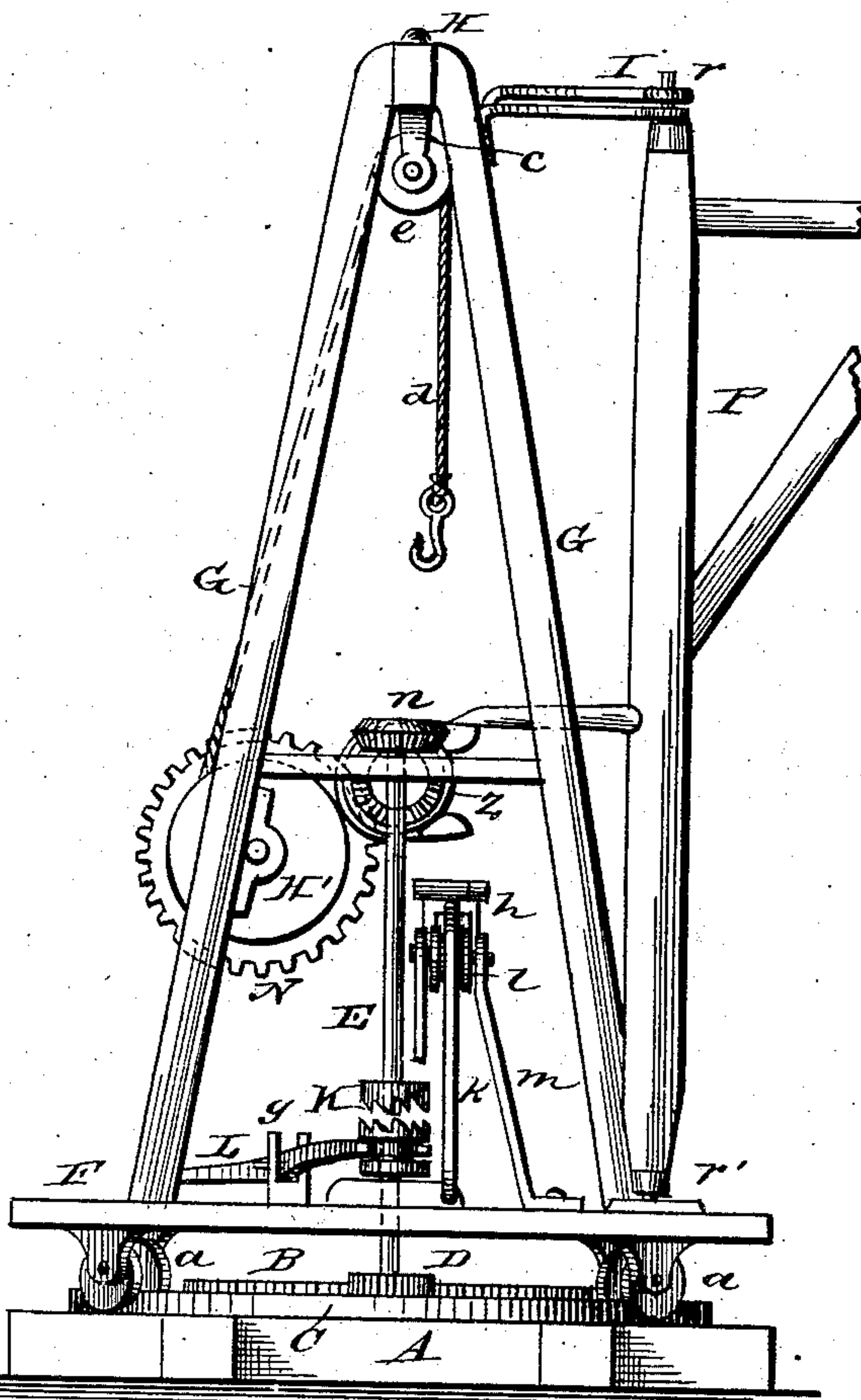
No. 292,735.

Patented Jan. 29, 1884.

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

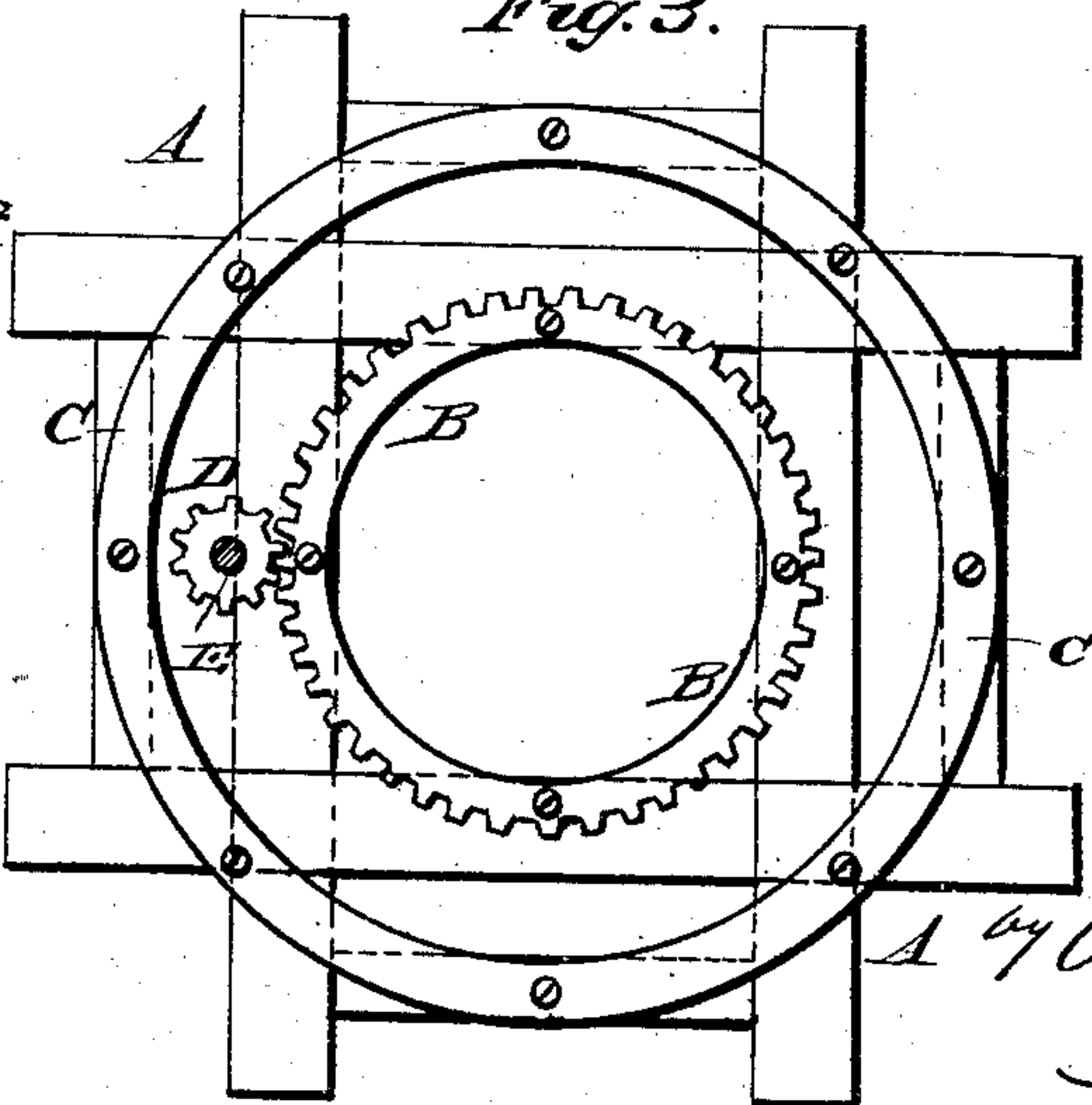
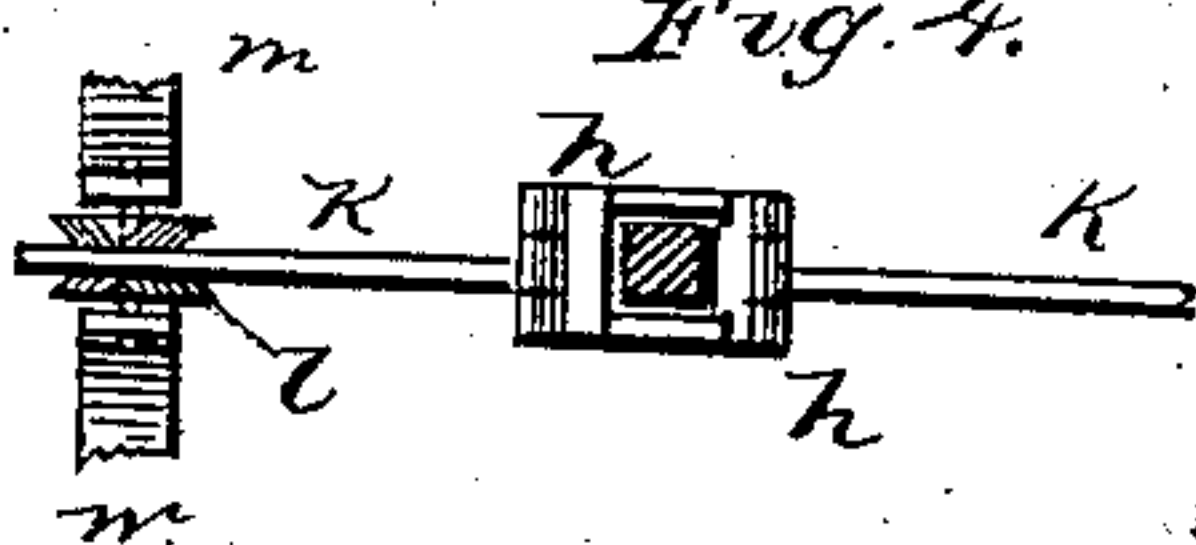


Fig. 4.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

WILLIAM W. CURTIS, OF STANBERRY, MISSOURI.

## WELL-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 292,735, dated January 29, 1884.

Application filed February 15, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. CURTIS, a citizen of the United States, residing at Stanberry, in the county of Gentry and State of Missouri, have invented certain new and useful Improvements in Well-Boring Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a front view of my machine. Fig. 2 is a side view, and Fig. 3 is a plan view. Fig. 4 is a detail view of one of the fork-heads, with loop-slides and rollers.

This invention has relation to machines for operating earth-augers and rock-drilling tools; and it consists in the construction and novel arrangement of devices, as hereinafter set forth, and particularly pointed out in the appended claims.

In the accompanying drawings, the letter A designates the bed of the machine, which is formed of sills, to which are secured the main driving-gear wheel B, and the track C, concentric to the gear-wheel B. The main wheel B is an open-ring wheel, toothed to engage the lower pinion, D, of the vertical shaft E, which extends up through the platform F, to which it is connected. The platform F forms the base of the derrick, which rotates on the track C, being provided with a series of flanged wheels, *a*, which rest on the track. An opening, *b*, is made in the center of the platform of sufficient size for the passage of the auger, and the shaft E extends upward at one side of this opening.

G G indicate the uprights of the frame, which are inclined somewhat inward from the base to the cross-head H, to which their upper ends are firmly secured. To the cross-head is secured a hanger, *c*, carrying a pulley, *e*, over which the lifting-rope *d* passes to the drum H'. The shaft E is made in two portions, independent of each other, but capable of being connected by a clutch, K, to which a lever,

L, pivoted to a fulcrum or bearing, *g*, is connected. The bearing *g* is secured to the platform at the side of the opening, so that the lever extends across said platform within easy reach of the foot of the operator in attendance on the machine. When the lever is at rest, the upper and lower sections of the shaft E are not in engagement, and the machine is in condition for boring. In this operation the square auger-shaft is embraced by the fork-heads *h*, (shown in detail Fig. 4 of the drawings,) which are hinged to the elongated loop slides or shanks *k*, which are seated on roller-bearings *l*, which are pivoted between strong standards *m*, firmly secured to the platform on each side of the center opening. As the auger descends the holding devices or slides *k* follow it downward, the auger being turned by the circular motion of the platform as it is rotated by horse-power.

At the upper end of the upper section of the shaft E a pinion, *n*, is provided, which is in engagement with a pinion, *p*, on one end of a horizontal shaft, M, the other end of which is provided with a pinion, *q*. This shaft is seated in suitable bearings on the derrick-frame, and parallel thereto, and also seated in bearings on said frame is the drum H', which is provided with a large gear-wheel, N, at its end, which engages the pinion *q* of the shaft M. The hook or coupling of the lifting-rope is connected to the auger or auger-shaft, and when it is desired to raise the auger with its load the outer arm of the lever L is depressed, causing the upper and lower sections of the shaft E to engage through the medium of the clutch K, turning the shaft M and drum H, and winding the lifting-rope on the latter. As the auger rises up through the center opening of the platform the forked holding-arms also rise, and, disengaging from the shaft, slide away therefrom in opposite directions on their bearings.

From the cross-head of the derrick-frame extends the brace-arms I, which support the upper bearing, *r*, of the crane P, the lower end of which is pivoted in a bearing, *r'*, on the platform. The crane is provided with a connection, *z*, and coupling, which, when the auger is raised, is engaged therewith, to en-

able the auger to be moved outward from the platform to be discharged. Then the auger is returned to position over the central opening of the platform and connected to the lifting-rope, to be let down into the well. The crane is turned back then out of the way.

Between collars or flanges arranged at one end of the horizontal shaft a clamp-brake, Z, is located, designed to engage a circular bearing on said shaft, and provided with a lever-arm extending from its upper branch, whereby it may be easily operated.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. A machine for turning and raising earth augers and drills, consisting of a bed carrying a circular track and centrally open-toothed circle, a rotary derrick thereon having an

opening in the center of its platform, the vertical sectional shaft carrying pinions at its upper and lower ends, the horizontal shaft, its pinions and drum, and the clutch-lever operating to connect the upper and lower sections of the vertical shaft, substantially as specified.

2. The combination, with the rotary derrick-frame, of the slide-arms having the hinged fork-heads designed to engage the square stem or shank of an earth auger or drill, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM W. CURTIS.

Witnesses:

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