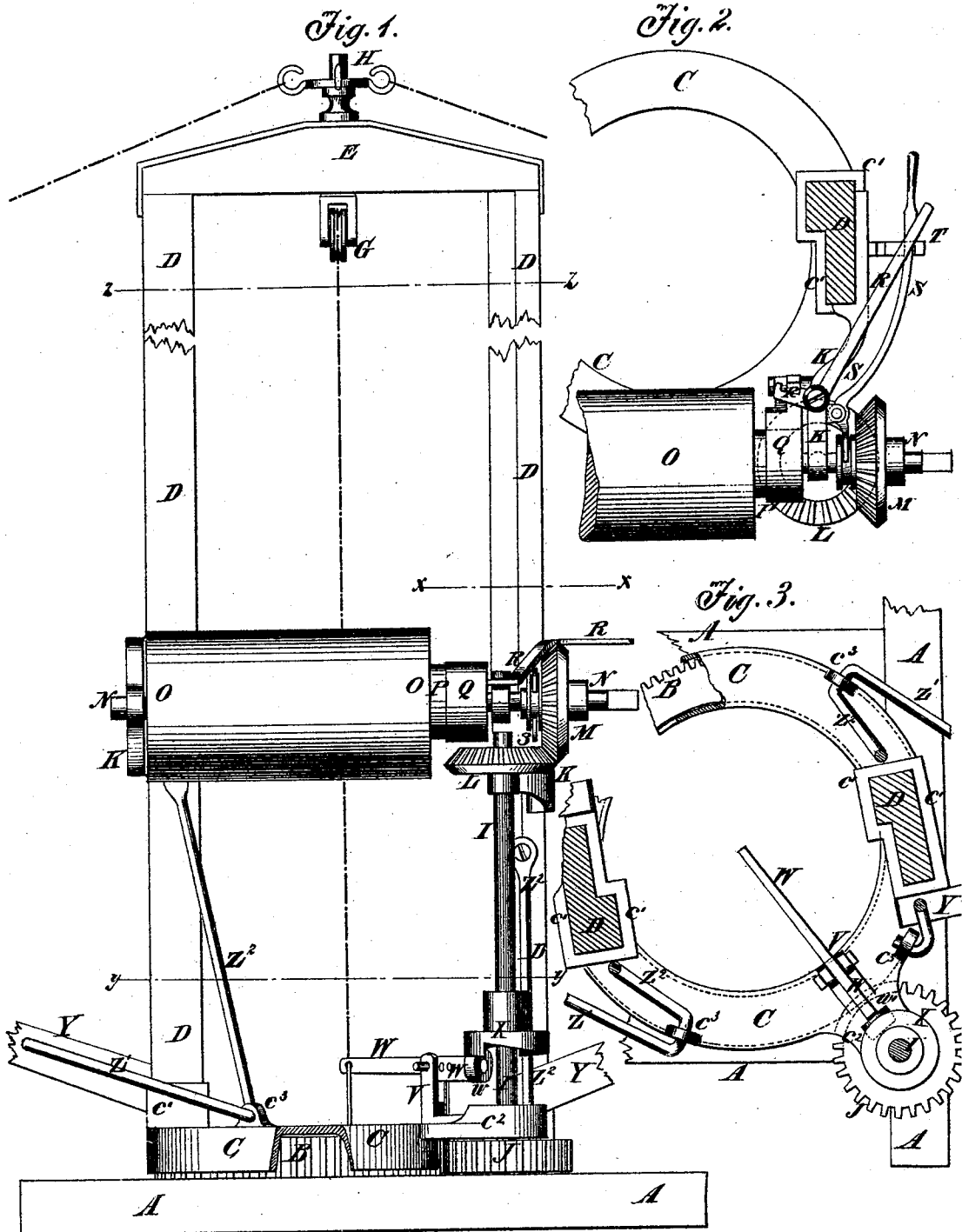


G. A. NEWMAN.

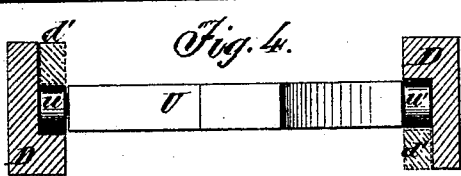
HORSE-POWER OR DERRICK FOR DRILLING WELLS.

No. 171,840.

Patented Jan. 4, 1876.



WITNESSES:
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INVENTOR:
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UNITED STATES PATENT OFFICE.

GEORGE A. NEWMAN, OF CROWDER, NEBRASKA, ASSIGNOR TO HIMSELF
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IMPROVEMENT IN HORSE-POWERS OR DERRICKS FOR DRILLING WELLS.

Specification forming part of Letters Patent No. 171,840, dated January 4, 1876; application filed
November 13, 1875.

To all whom it may concern:

Be it known that I, GEORGE A. NEWMAN, of Crowder, in the county of Saunders and State of Nebraska, have invented a new and useful Improvement in Hollow Revolving Horse-Power or Derrick for Boring, Drilling, and Driving Wells, of which the following is a specification:

Figure 1 is a side view of my improved horse-power, part being broken away to show the construction. Fig. 2 is a horizontal section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a horizontal section of the same, taken through the line *y y*, Fig. 1. Fig. 4 is a horizontal section of the same, showing the auger cross head or bar in place.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved hollow revolving horse-power or derrick for sinking wells, which shall be so constructed as to operate the auger, and raise it without stopping the horse or changing his direction, operate and rotate a drill, and guide the tube and hammer when sinking a drive-well, and which shall be simple in construction and convenient in use.

The invention consists in the combination of the stationary flanged ring and the revolving grooved ring with the base-frame, the posts, and the sweeps; in the combination of the cross-bar, to which the hoisting rope or chain is attached, and provided with rollers upon its ends, with the rabbeted or shouldered posts of the revolving hollow horse-power; in the combination of the upright shaft and its gear-wheel with the posts, the grooved ring, and the teeth of the stationary ring, to drive the operating parts by the revolution of the said ring and posts; and in the combination of the cam-wheel and the pivoted lever with the upright shaft and the revolving ring, as hereinafter fully described.

A is the base-frame of the machine, to which is securely bolted a cast ring, B, having gear-teeth formed upon its outer or convex side, and an inwardly-projecting flange formed upon the lower part of its inner or concave side. C is a ring-casting, having a ring-groove formed upon its lower side, of such a size as to receive

the ring B, and of such a depth that the inner part of said casting may rest and turn upon the flange of the casting B. Upon the opposite sides of the top of the ring C are formed two sockets, *c'*, to receive the lower ends of the uprights or posts D, the upper ends of which are connected by a cross-beam, E. To the center of the beam E is attached a pulley, G, to receive the hoisting rope or chain, and to the top of said beam is swiveled a spider, H, to receive the guy ropes or chains, for adjusting and securing the machine in a vertical position. Upon the upper part of the outer side of the ring C, a little in front of one of the post-sockets *c'*, is formed a bracket, *c''*, to receive, and serve as a bearing to, the lower part of an upright shaft, I, to the lower end of which is attached a gear-wheel, J, the inner side of which projects through an opening in the outer part of the ring C, and meshes into the teeth of the ring B. The upper part of the shaft I revolves in bearings in a bracket, K, attached to one of the posts D, and to its upper end is attached a bevel-gear wheel, L, the teeth of which mesh into the teeth of a bevel-gear wheel, M, attached to a shaft, N. The shaft N revolves in bearings in brackets K, attached to the posts D, and is made with long bearings, so that it may have a longitudinal movement, to throw the gear-wheel M into and out of gear with the gear-wheel L. To the shaft N is attached a drum, O, to receive the rope or chain for raising and lowering the auger, drill, or hammer. Around a pulley, P, attached to the shaft N, and which may be formed by turning down the end of the drum O, is passed a strap, Q, one end of which is secured to the bracket K; and with its other end is connected the end of the lever R, pivoted to the said bracket K, so that when the auger or drill is allowed to run down by its own weight its rapidity of descent may be readily controlled. The shaft N is moved to throw the gear-wheel M into and out of gear with the gear-wheel L by the lever S, which is pivoted to the bracket K, and the forked end of which rides in a ring-groove in the hub of the gear-wheel M. The lever S is locked in either position by a catch-bar, T, attached to the post D. The end of the shaft N is squared

off to receive a crank, to enable the auger to be prevented from entering the ground too rapidly. The forward parts of the inner sides of the posts D are rabbeted, to form shoulders for the inner ends of the cross-bar or cross-head U to rest against, which ends have small rollers *w* pivoted to them. The cross-bar U is attached to the end of the hoisting rope or chain, and has the upper end of the auger-shaft connected with it by lugs and a key or other convenient means. With this construction the revolution of the machine, by pressing against the ends of the cross-bar U, forces the auger into the ground. V is a stud, attached to the ring-casting C, near the base of the bracket *c*²; and in a slot in its upper end is pivoted a lever, W. The inner end of the lever W projects, so as to be directly over the center of the ring C, and with it is designed to be connected the drill. The outer end of the lever W projects toward and nearly to the shaft I, and has a small roller, *w'*, attached to it to diminish friction. To the shaft I is attached a wheel, X, which has one or more cams formed upon its lower side, to bear upon the outer end of the lever W, to raise the drill and allow it to drop to give the blow, the revolution of the hollow power turning the drill after each blow. The horses to operate the power are attached to the sweeps Y, the inner ends of which are bolted to the ring C or sockets *c*¹, and which are strengthened against the draft strain by braces Z¹. The posts D are secured in an upright position by the braces Z². The lower ends of the braces Z¹ Z² are secured to lugs *c*³, formed upon the ring-casting C.

When the power is used for sinking drive-wells, strips *d'* are secured in the rabbets of the posts D, to form guide-grooves to receive the ends of a cross-bar, for centering the tube and keeping it in a vertical position, and to form guide grooves or ways for the hammer.

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

1. The combination of the stationary flanged ring B and the revolving grooved ring C with the base-frame A, the posts D, and the sweeps Y, substantially as herein shown and described.

2. The combination of the cross-bar U, to which the hoisting rope or chain is attached, and provided with rollers *w* upon its ends, with the rabbeted or shouldered posts of the revolving hollow horse-power B O D, substantially as herein shown and described.

3. The combination of the shaft I and the gear-wheel J with the posts D, the grooved ring C, and the teeth of the stationary ring B, substantially as herein shown and described, to drive the operating parts by the revolution of the ring C and posts D, as set forth.

4. The combination of the cam-wheel X and the pivoted lever W with the shaft I and the revolving ring C, substantially as herein shown and described.

GEORGE A. NEWMAN.

Witnesses:

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