

No. 666,478.

Patented Jan. 22, 1901.

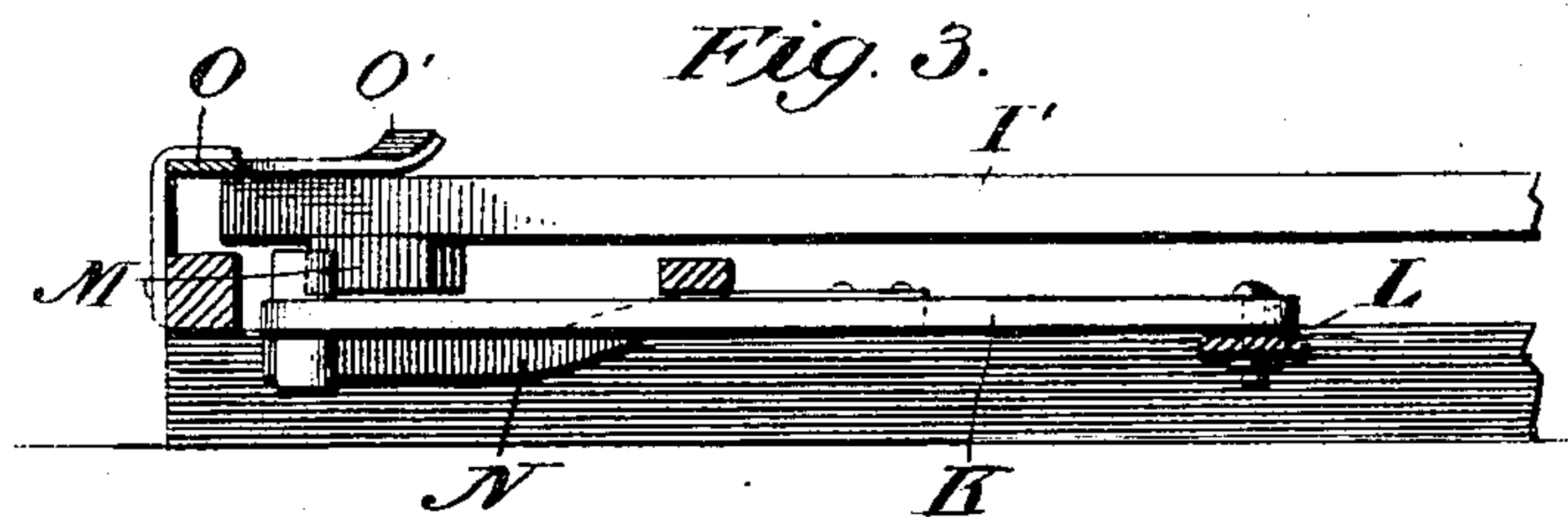
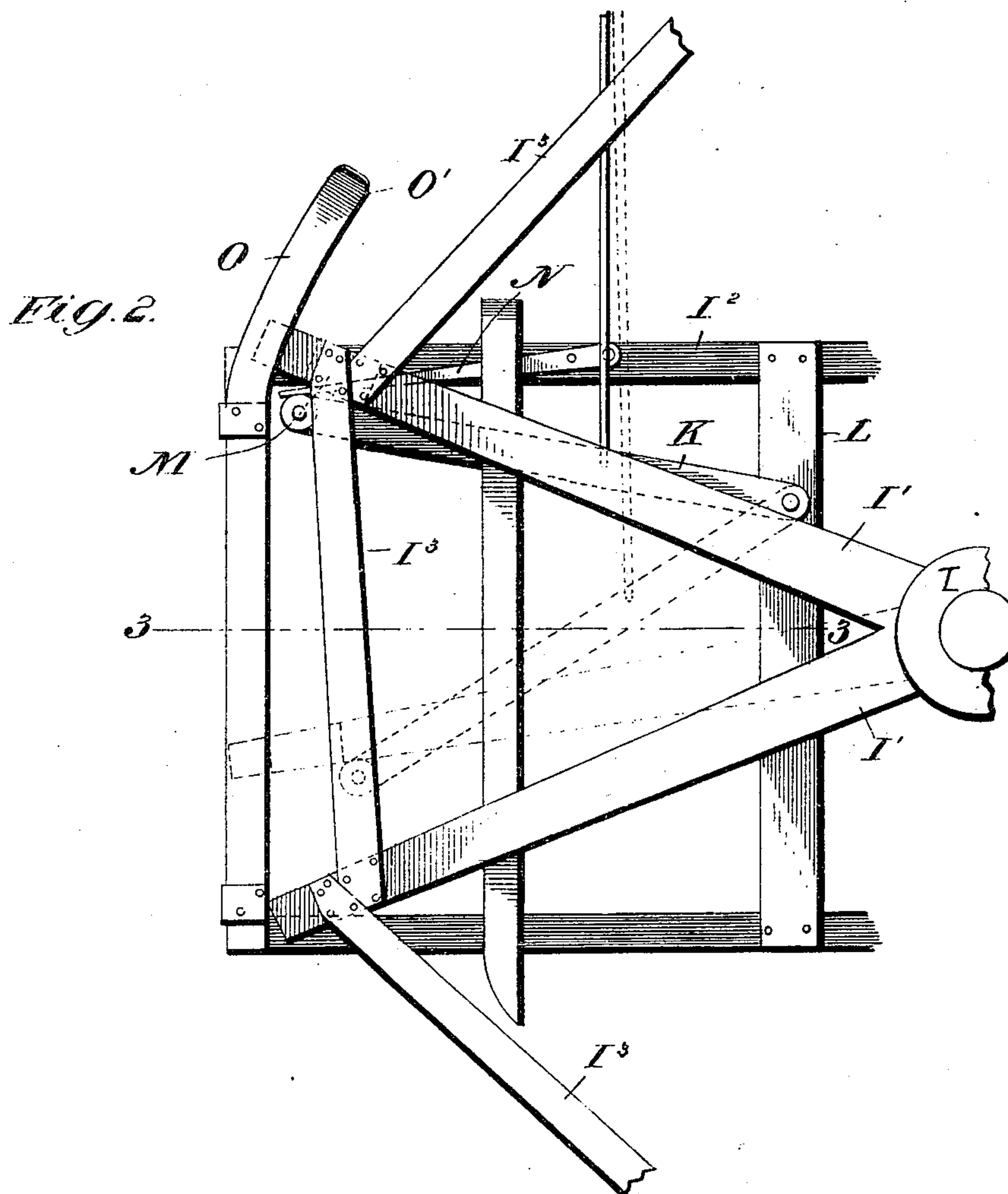
J. J. KOGER.

WELL DRILLING MACHINE.

(Application filed Sept. 22, 1900.)

(No Model.)

2 Sheets--Sheet 2.



WITNESSES:

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JOHN J. KOGER, OF MOORESBURG, TENNESSEE.

WELL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 666,478, dated January 22, 1901.

Application filed September 22, 1900. Serial No. 30,823. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. KOGER, a citizen of the United States, residing at Moorsburg, in the county of Hawkins and State of Tennessee, have invented certain new and useful Improvements in Well-Drilling 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 the characters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in well-drilling machines; and it has for one object the provision of simple, inexpensive, durable, and efficient machinery of this character which will be cheap of construction and positive in its operation.

The invention has for its essential object the provision of a well-drilling machine adapted to be operated by horse-power and so constructed as to provide the greatest possible number of downstrokes of the drill within a specified period of time.

The invention has for a further object the provision of simple and efficient means for regulating or for paying out the rope or cable connected with the drill.

To these ends and to such others as the invention may pertain, the same consists in the novel construction and in the peculiar arrangement, combination, and adaptation of parts, as will be hereinafter more fully described and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the characters of reference marked thereon, form part of this application, and in which drawings similar characters of reference indicate like parts throughout the several views, in which—

Figure 1 is a perspective view of a well-drilling machine constructed in accordance with my invention. Fig. 2 is an enlarged plan view of a portion of the operating-wheel and its connections, showing the extreme positions of the operating-lever; and Fig. 3 is a sectional detail taken upon line 3 3 of Fig. 2.

Reference now being had to the details of the drawings by letter, A represents the framework or timbers designed to rest upon the ground or upon a suitable platform or level surface. This framework A is substantially rectangular in form and is provided with a brace-timber A', extending longitudinally across the center of the frame. At the forward end of the timber A' an upright timber B is provided, the upper end of which timber B is secured between the inclined timbers B', the lower ends of which timbers B' are bolted or otherwise secured to the rear portion of the frame A, and at their upper ends the said timbers have journaled between them a pulley C. At a point one-third of the length of the inclined timbers B' a frictional pulley C' is provided.

D is a capstan or drum the shaft of which is journaled within the upper ends of the uprights E, rising from the outer sides of the frame A, the said shaft being provided with a suitable operating-handle D'. A suitable pulley F is journaled at the rear end of the brace-timber A' of the frame.

G is the drill, and G' the rope connected therewith.

H is a frame constructed of heavy timber and is designed to rest either upon a platform or other suitable level surface. Suitably journaled at the center of the frame H is the operating-wheel I. This operating-wheel is of skeleton form, the arms I' of the wheel being securely bolted at their inner ends to the hub I² and at their outer ends are connected by the brace-timbers I³. A suitable arm or extension I⁴ is connected with one of the spokes of the wheel, and at the outer end of this extended arm I⁴ is carried a whiffletree I⁵, to which the horse may be attached. In the present instance I have shown an operating-wheel having eight arms or spokes, and I prefer this number of spokes, though it is at once evident that the number of spokes in the wheel may be varied and a greater or less number employed, if desired. K is a pitman-bar pivoted at a point at or near its inner end to a cross-timber L of the frame H, and at a point intermediate of its ends the said pitman-bar has connected to it a rope L', to which the end of the rope G', attached to the

drill G, is connected. Attached to the under surface of each of the spoke-timbers I', at a point adjacent to the outer ends of said spokes, is a block M, beveled upon its inner edge, as shown, these blocks M being adapted to be struck or engaged by an idle pulley or upward extension M' upon the upper surface of the outer end of the pitman-bar M, as shown, as the operating-wheel I rotates.

N is a spring which receives the forward throw of the pitman-bar, and thus serves to relieve the jolt or jar which would otherwise be imparted to the frame.

O is a guard, preferably of metal, which is provided at the end of the frame H above the outer or movable end of the pitman-bar. The forward end of the said guard O is inclined upward, as shown at O', the office of said guard being to insure the outer circumference of the wheel being held down in its movements, thus insuring the contact between the block M and the block or friction-pulley M'.

From the foregoing description it will be seen that the rope G', which is attached to the drill, is passed upward over the pulley C, thence extended downward around the movable pulley P, and thence over the friction-pulley C' to the drum D, around which it is wound by the crank-lever D'. A rope 2 is attached to the pulley-block of the pulley P and extended downward around the pulley F and is attached at its end to the link or rod L', the opposite end of which rod is pivotally attached to the pitman-bar, as described.

The operation of the machine is simple and will from the foregoing description be readily understood. It will be noted that each of the blocks M, carried at the outer ends of the spoke-timbers of the operating-wheel, in turn engage the block or friction-pulley at the outer end of the pitman-bar, and that as the wheel rotates the outer end of the pitman-bar will be carried back until the distance from the center of the operating-wheel to the block M is greater than the length of the pitman-bar, when in the further rotation of the wheel the pitman will be released and will be drawn back by the drill, thus imparting a downward stroke to the drill. The pitman in its forward movement will contact with the spring N, thus relieving the machine from jolt or jar. The pulley M, carried upon the next succeeding spoke, will in turn engage the friction-pulley or block upon the outer end of the pitman-bar, and the bar will thus be held back in readiness to impart a second downward stroke to the drill, this blow operated by the drill being repeated as each spoke of the operating-wheel is brought into contact with the outer end of the pitman, as will be readily understood.

Having thus described my invention, what

I claim to be new, and desire to secure by Letters Patent, is—

1. In a well-drilling machine, the combination with the upright having pulleys mounted thereon, a drill, a windlass and rope connections between the latter and said drill, a horizontally-disposed wheel having radiating spokes, a pivoted bar and connections between same and said drill-actuating rope, blocks on the under surface of each spoke of said wheel adjacent to their outer ends, and an antifriction-roller mounted on the free end of said pivoted bar, and disposed in the path of said blocks, and adapted to throw said lever as each spoke passes said antifriction-roller, whereby the drill is raised, and means for holding said wheel against vertical movement while the drill is being raised, as set forth.

2. In a well-drilling apparatus, the combination with the drill, the upright having pulley-blocks, the windlass and rope connections between the windlass, pulley-blocks and drill, a horizontally-rotatable wheel having radiating spokes, blocks mounted on the under surface of each spoke adjacent to their outer ends, a horizontally-disposed guard-piece having an upturned end, underneath which guard the projecting ends of the spokes are adapted to pass, a bar pivoted at one end to the frame of the machine, connections between said bar and the drill-actuating connections, an antifriction-roller at the free end of said pivoted bar, which roller is disposed in the path of said blocks, and adapted to be struck thereby, as each block contacts with said antifriction-roller, whereby the drill is raised, substantially as shown and described.

3. In a well-drilling machine, an upright, pulleys mounted thereon, a drill, a windlass and rope connections with said drill and windlass, a horizontally-rotatable wheel having radiating spokes, blocks on the under faces of each of said spokes adjacent to their outer ends, a bar pivoted at one end to the frame of the apparatus, connections between said bar and the drill-actuating ropes, horizontally-disposed cross-pieces having curved ends between which cross-pieces said pivoted bar is guided, an antifriction-roller carried at the outer end of the pivoted bar, and disposed in the path of said blocks, a spring, against which the outer free end of the pivoted bar is adapted to strike as the drill descends, and means for holding said rotatable wheel against vertical movement as the drill is being raised, as set forth.

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

JOHN J. KOGER.

Witnesses:

C. V. WILLIAMS,
T. R. JAMES.