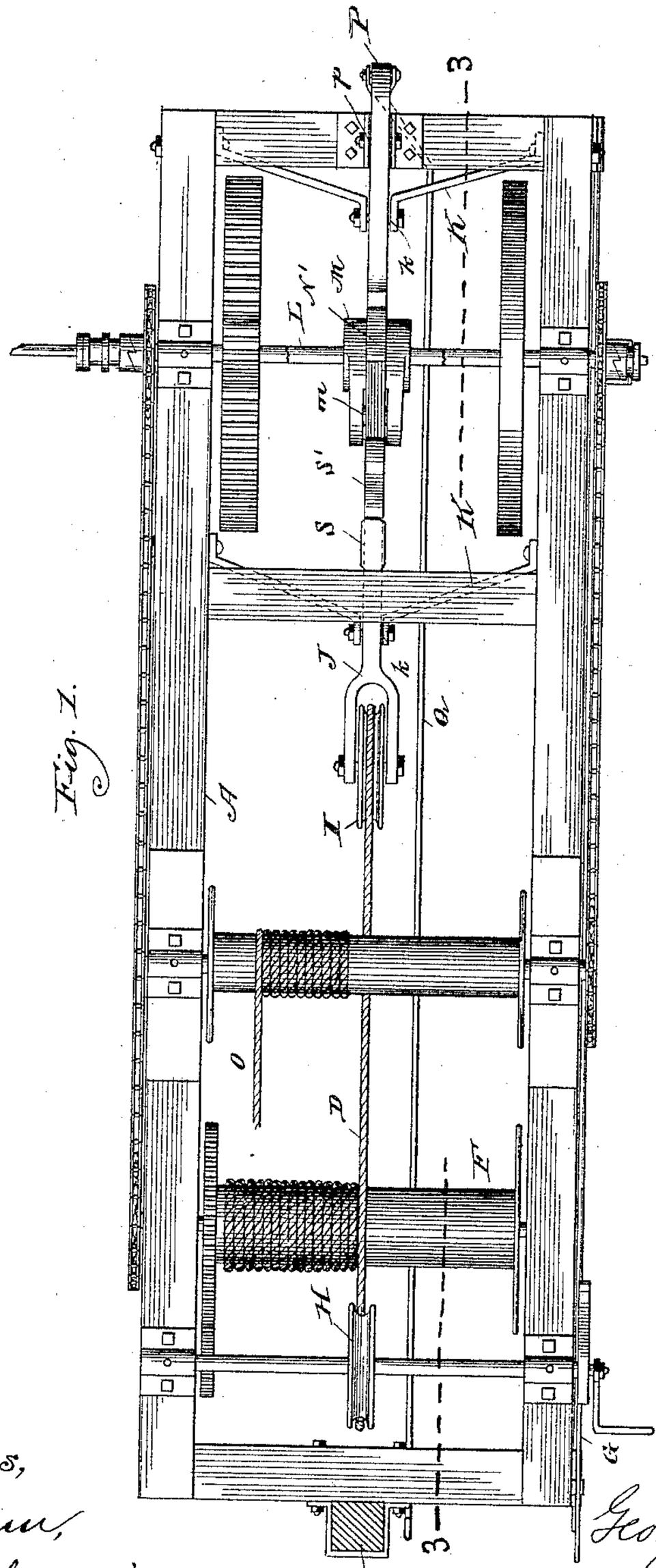
(No Model.)

3 Sheets—Sheet 1.

G. SIEBENS.

WELL DRILLING APPARATUS.

No. 436,675. Patented Sept. 16, 1890.



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(No Model.)

3 Sheets—Sheet 2.

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WELL DRILLING APPARATUS.

No. 436,675. Patented Sept. 16, 1890.

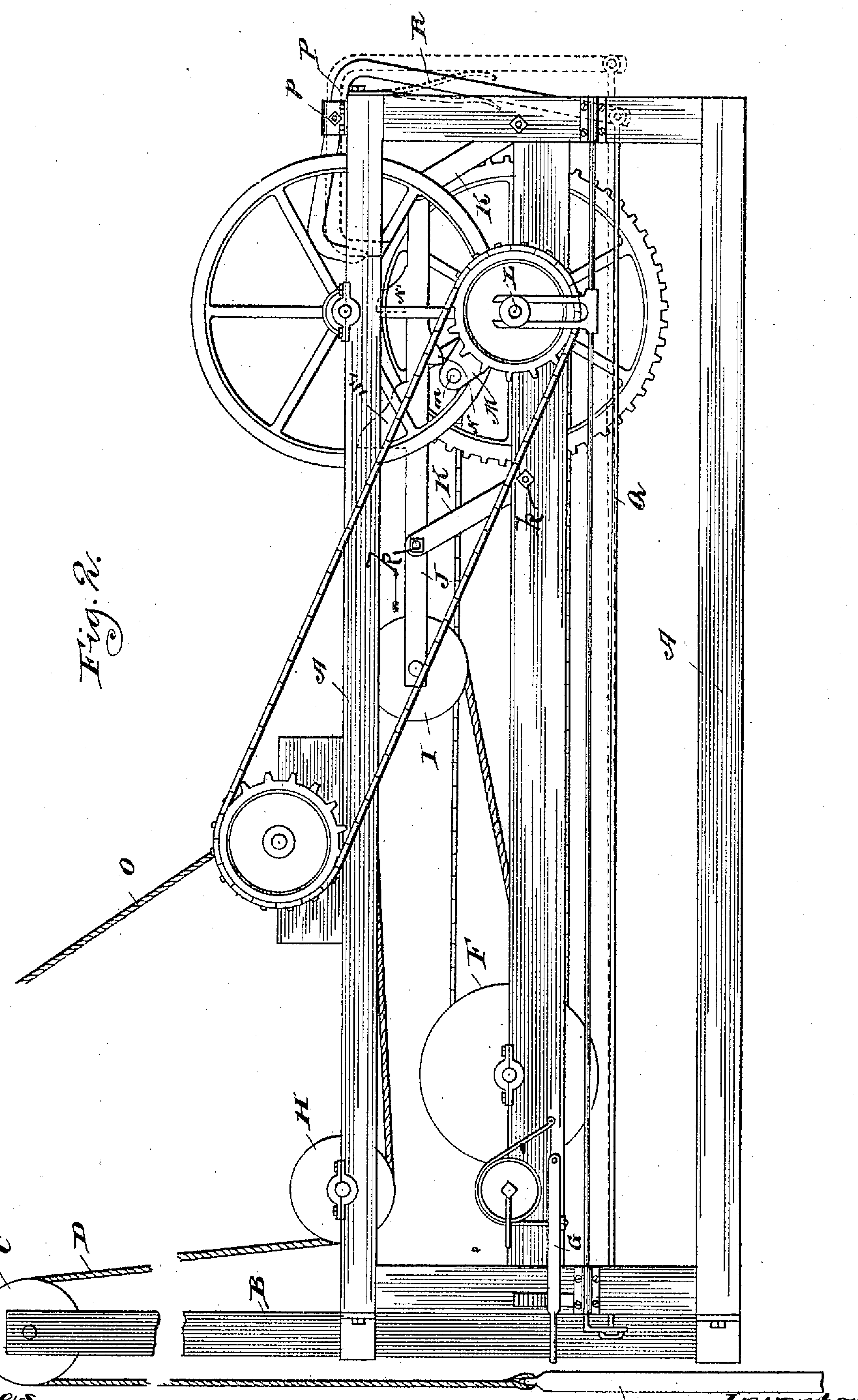

Fig. 2.

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(No Model.)

3 Sheets—Sheet 3.

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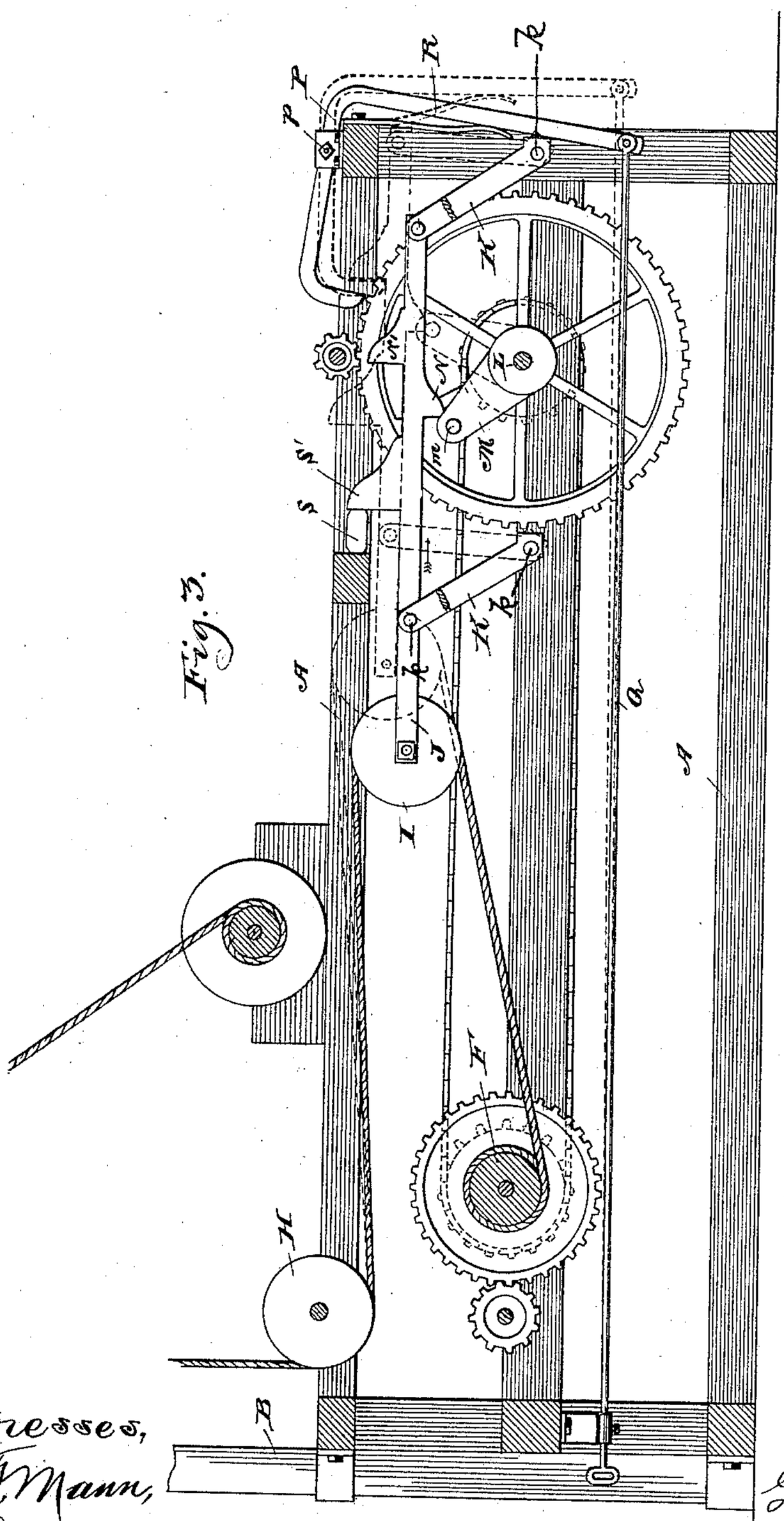
WELL DRILLING APPARATUS.

No. 436,675. Patented Sept. 16, 1890.

Fig. 3.



Witnesses,
L. G. Mann,
Frederick C. Goodwin

Inventor.
George Siebens
By. Offield & Towle Atty's.

UNITED STATES PATENT OFFICE.

GEORGE SIEBENS, OF STORM LAKE, IOWA, ASSIGNOR OF ONE-THIRD TO THE PECH MANUFACTURING COMPANY, OF SAME PLACE.

WELL-DRILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 436,675, dated September 16, 1890.

Application filed February 17, 1890. Serial No. 340,744. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SIEBENS, a citizen of the United States, residing at Storm Lake, in the county of Buena Vista and State of Iowa, have invented certain new and useful Improvements in Well-Drilling Apparatus, of which the following is a specification.

My invention has for its object to provide an improved means for converting the rotary motion of the driving-shaft of a well-drilling apparatus into a reciprocating motion of the drill-bar, and this I effect by the employment of a beam bearing a sheave over which the drill-cable is passed, said beam being pivotally connected to short arms, which in turn are pivoted to the supporting frame-work, and a crank upon the driving-shaft, which is adapted for engagement with the beam at each revolution of the crank, whereby to reciprocate it, and thus cause the intermittent lifting of the drill, the release of the latter being effected by the disengagement of the crank and the beam.

In the accompanying drawings, Figure 1 is a plan view of a drilling apparatus embodying my improvement. Fig. 2 is a side elevation thereof, and Fig. 3 is a sectional elevation on the line 3 3 of Fig. 1.

In the drawings, A represents the supporting frame-work of the structure; B, the mast, at one end thereof bearing a sheave C, over which is carried the drill-cable D, the drill being marked E.

F is a drum, upon which the end of the cable opposite the drill is wound.

Intermediate the drum and the sheave C is the sheave H, beneath which the cable is passed, and G is a band-brake applied to the shaft of sheave H.

I is a sheave, which is carried upon the end of a reciprocating beam J, and about which sheave the cable is also passed. The beam J is pivotally connected by the arms K to the frame-work, the pivots being marked *k*.

L is a driving-shaft, which will be rotated by the application of suitable power and will bear centrally thereof, the crank M having, preferably, an anti-friction roller *m*.

The beam J has a catch or shoulder N, which lies in the path of the rotating crank and in position to be engaged by the roller *m* as the shaft is revolved. At each revolution of the crank-shaft the beam will be drawn back in the direction of the arrow, causing the arms K to assume a vertical position. When the crank-shaft reaches a certain point in its revolution it will slip off the shoulder N, and this release the beam and permit the drill to drop by gravity, and thus the alternate raising and releasing of the drill will occur at each revolution of the shaft.

To provide for turning the shaft without operating the drill—as, for example, when it is desired to manipulate the slush-bucket, which will be suspended by the cable O—I employ a locking device to hold the reciprocating beam out of engagement with the crank. This device comprises the bent lever P, which is pivoted at *p*, and has an end thereof projected down in the path of the shoulder N′, opposite the shoulder N on the beam. A rod Q has one end connected to the opposite end of the lever P, and will be provided with a locking means at its forward end—as, for example, the set-screw *q*, Fig. 3. A spring R has its free end adapted to impinge upon the front side of the lever P, so that when the locking-rod is released the lever P will be rocked on its pivot and its short downwardly-projecting end will be adapted to engage the shoulder N′ on the beam.

S is a buffer or stop-block secured upon the frame-work, and S′ a shoulder on the upper side of the reciprocating beam, which will come in contact with said block in the forward movement of the beam, and thus limit said forward movement.

It is apparent that some of the features of construction herein described may be varied without departing from the spirit of my invention—as, for example, the reciprocating beam may be arranged in a vertical or diagonal instead of a horizontal position, as here shown, and a corresponding arrangement may be made of the sheaves and cables. The locking means may also be varied.

I claim—

In a well-drilling apparatus, the combination of the frame-work and a driving-shaft mounted thereon and having a crank, beam

J, having shoulders N, N′, and S′, and bearing-sheave H, over which the cable is passed, said cable having one of its ends wound upon a drum and its other connected with the drill-bar, a stop-block S, and means for driving the shaft, whereby the beam J is drawn back by the crank thereon to elevate the drill and upon its release is stopped by the engagement of the shoulder S′ with the block S, substantially as described.

GEORGE SIEBENS.

Witnesses:
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