

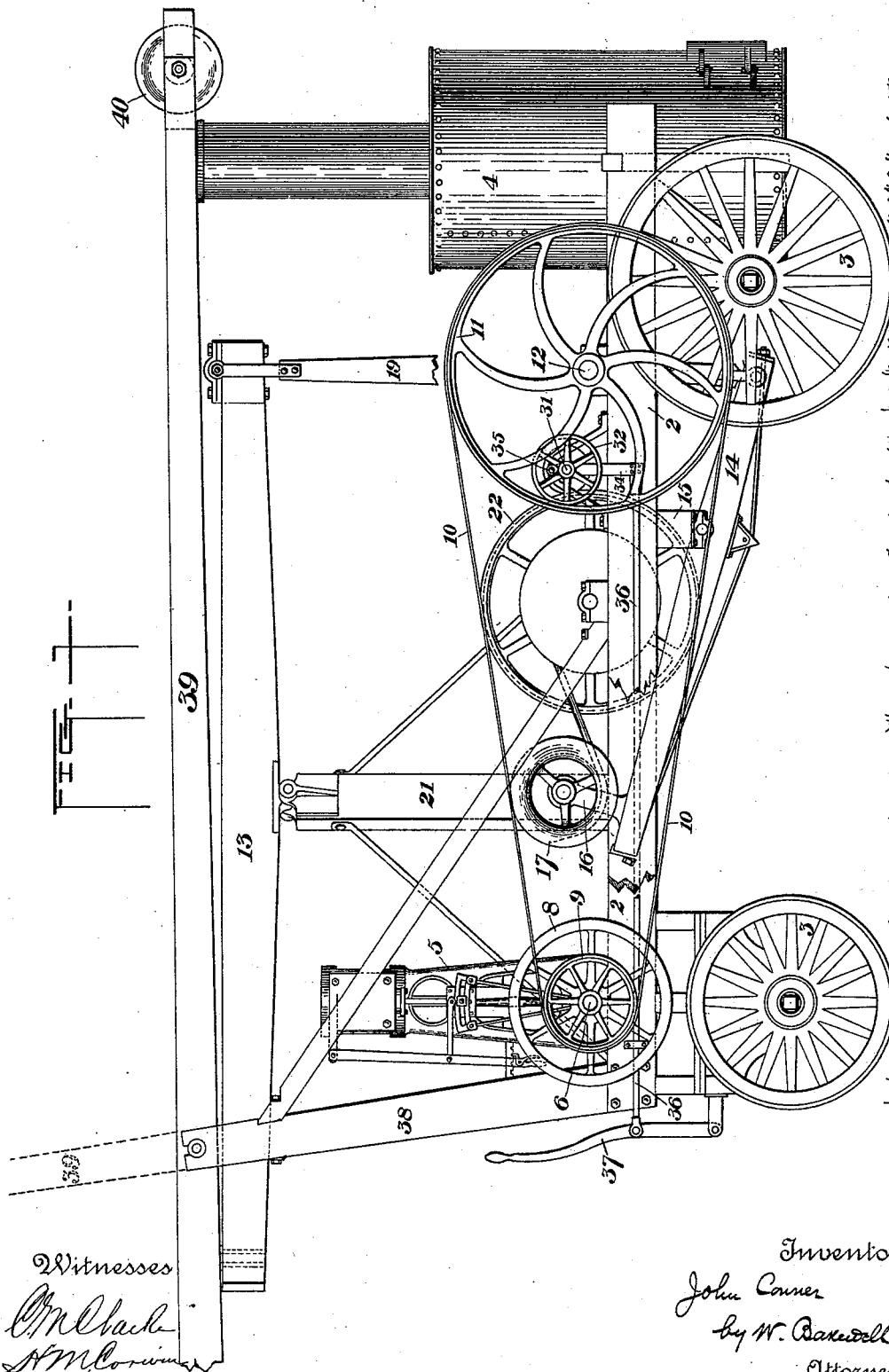
(No Model.)

3 Sheets—Sheet 1.

J. CONNER.
DRILLING APPARATUS.

No. 523,787.

Patented July 31, 1894.



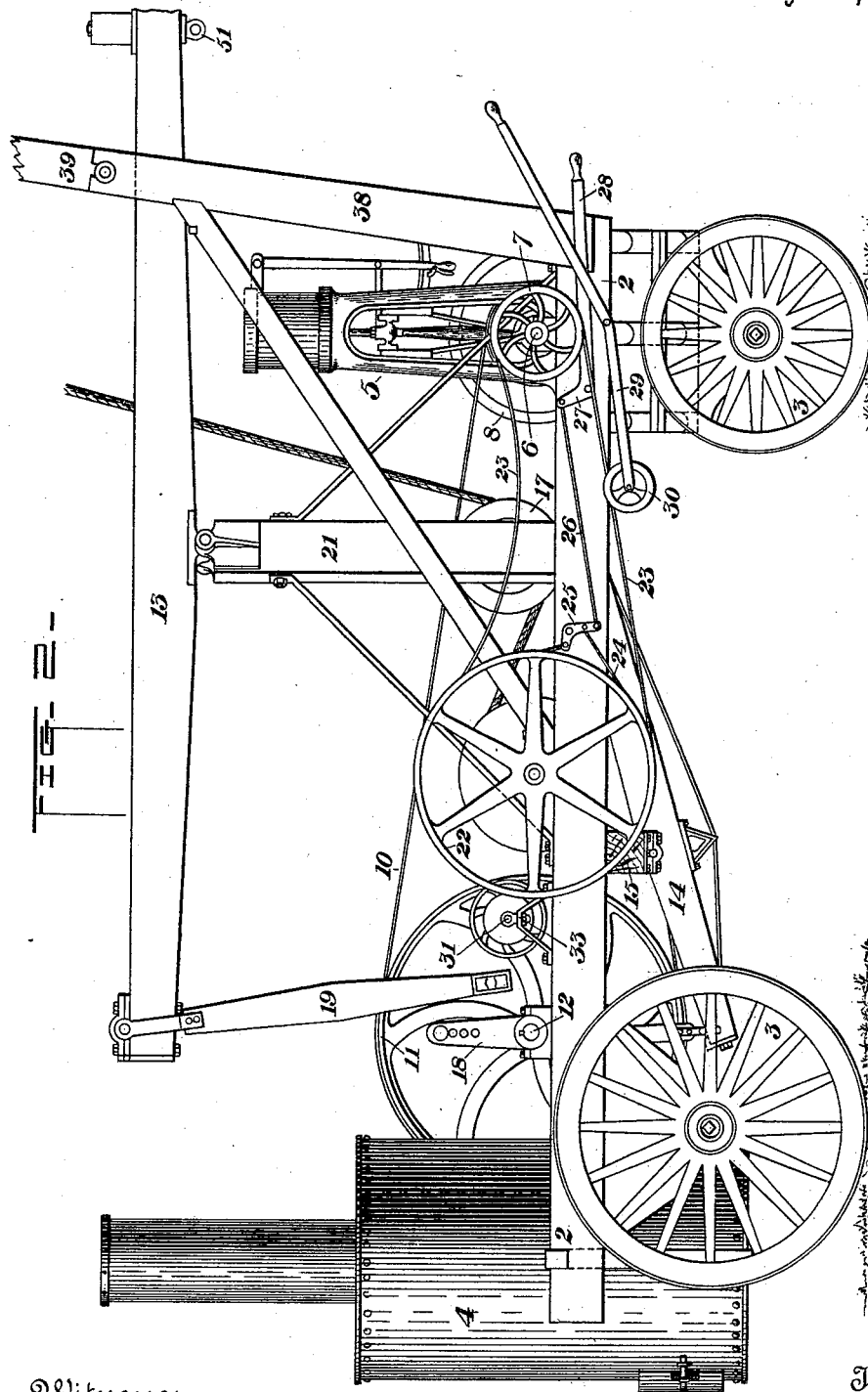
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3 Sheets—Sheet 2.

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Witnesses

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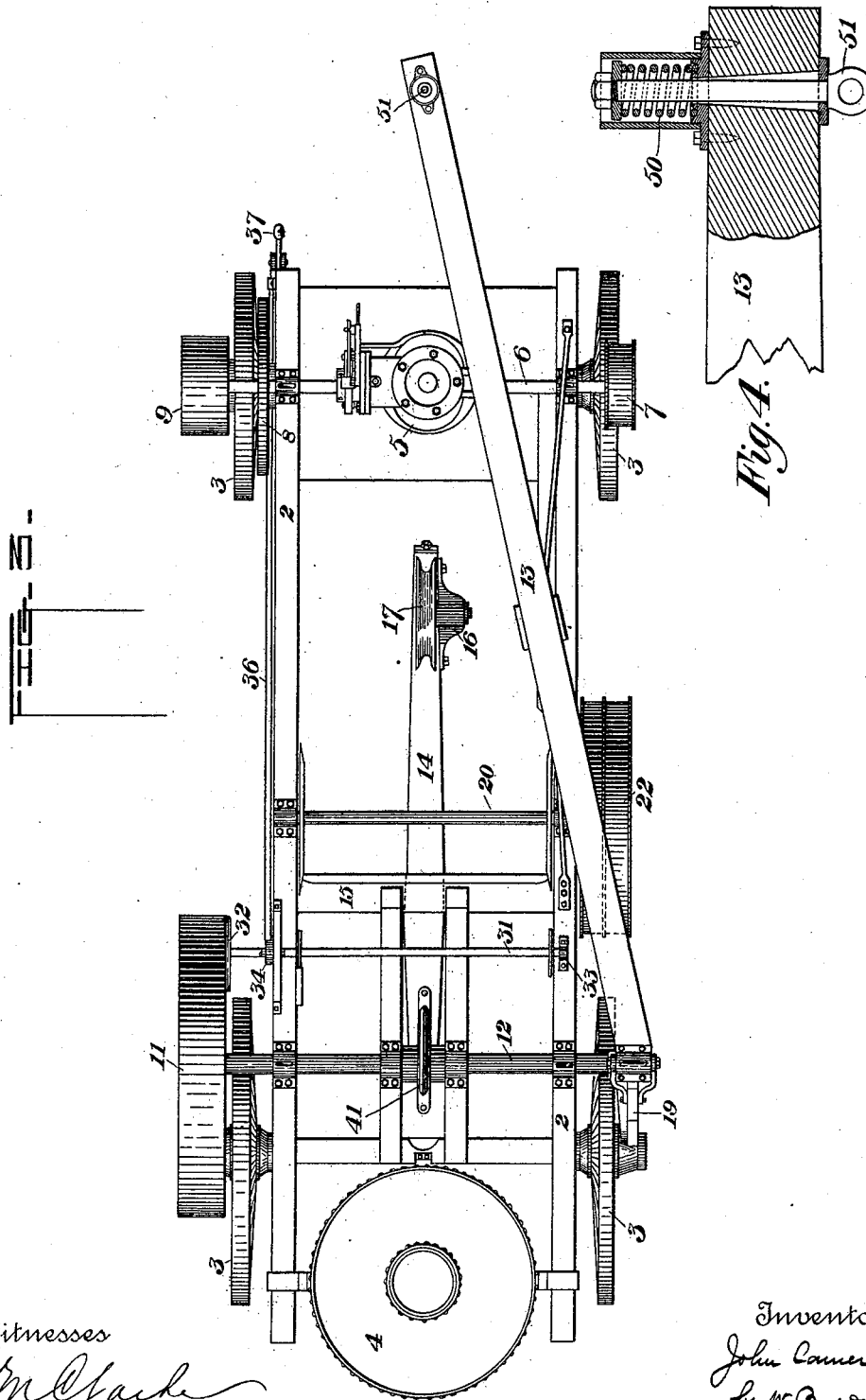
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UNITED STATES PATENT OFFICE.

JOHN CONNER, OF PITTSBURG, PENNSYLVANIA.

DRILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 523,787, dated July 31, 1894.

Application filed April 5, 1893. Serial No. 469,238. (No model.)

To all whom it may concern:

Be it known that I, JOHN CONNER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Well-Drilling Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation, partly broken away, of my improved apparatus. Fig. 2 is an elevation of the opposite side of the machine. Fig. 3 is a plan view of the same; and Fig. 4 is a detached sectional view, showing the rope connection at the end of the walking-beam.

My invention relates to the portable machines used for drilling wells, whether for oil, water, gas or other substance; and it consists in a compact and simple arrangement of the parts, together with a novel means for actuating the tools while spudding the well, all as hereinafter more fully described and set forth in the claims.

In the drawings, in which similar numerals indicate corresponding parts, 2, 2, represent the side beams of a framework supported upon the wheels 3, and carrying at one end a boiler 4, and at the other an engine 5.

The engine-shaft 6, which extends across the front portion of the machine beneath the steam cylinder, carries at one end a small pulley 7, and at the other a fly-wheel 8 and a belt-wheel 9. This wheel 9 is connected by a belt 10 with the large belt-wheel 11 upon the cross-shaft 12, which is arranged to actuate either the walking-beam 13, or the spudding-beam 14.

The spudding-beam is pivoted to the cross-beam 15, as shown in Fig. 1, and carries at its front end an arm 16 to which is pivoted a pulley 17, beneath which the rope carrying the tools passes.

An eccentric upon the shaft 12 is encircled by a strap 41 (Fig. 3), which is connected to and actuates the spudding-beam. At the opposite end of the shaft 12 to that of the wheel 11 is carried the crank 18, to which the link 19, depending from the walking-beam 13, may be pivotally attached, a series of holes being provided in the crank to allow adjustment of the stroke. The walking-beam, which ex-

tends from the crank at an angle to the side-beams, as shown in Fig. 3, is pivotally supported upon the post 21, and terminates in front of the central portion of the machine. In order to give spring to the tool-rope, a spring 50 is connected with the eye-bolt 51 at the end of the walking-beam 13, the temper screw being connected with the eye of the bolt. This spring should be of sufficient tension to support the weight of the rope and tools.

Between the pulley 7 and a double rimmed wheel 22 upon the bull-wheel shaft 20, extends the loose belt 23, and around the second rim of this wheel extends the brake-band 24, the two ends of which are secured to the two arms of the bell-crank lever 25, the lower arm of this lever being connected by a link 26 with a second bell-crank lever 27, the arm 28 of which is extended to form a handle for working the brake. Beneath the arm 28 is pivoted the lever 29 carrying at its end, beneath the belt 23, a pulley 30, by means of which the belt 23 may be tightened so as to communicate a rotary motion to the bull-wheel shaft.

In the rear of the bull-wheel shaft is pivoted the sand reel shaft 31, carrying at its outer end the friction-wheel 32, which may be brought into contact with the inner portion of the rim of the wheel 11 and rotated thereby. The shaft 31 passes at one end through the swiveled bearing 33, and at the other end through a bearing carried in the swinging link 34, which is pivoted at 35, and is pivotally connected at its lower end with the long rod 36, which connects with the lever 37.

Between the uprights 38 at the front of the machine is pivoted the swinging mast 39, which carries the sheave 40 for the cable, and when not in use this mast may be swung into horizontal position, as in Fig. 1, for convenience in transportation.

The operation of the device is obvious. In starting a well, the walking-beam is disconnected from its crank, and the spudding-beam is employed; and as this beam is oscillated, it moves the pulley at its front end and raises and lowers the tools correspondingly.

To feed the tools, the brake-lever and tightening pulley are employed, and when a considerable depth is attained, the spudding-

beam is disconnected and the walking-beam employed. Owing to the spring 50, increased force or effect is given to the blow of the tool.

The advantages of my apparatus will be apparent to those skilled in the art.

The device is simple, compact and cheap. It combines means for drilling deep or shallow wells, and the actuating handles are all at the front end of the machine within easy reach of a single operator. The arrangement of the spudding-beam gives a quicker movement than formerly, and I intend to claim the same broadly, independently of the other elements shown.

Many changes may be made in the form and arrangement of the parts without departure from my invention, since

What I claim is—

1. In drilling apparatus, a wheeled vehicle carrying a pivoted mast, a spudding beam, and a walking-beam, each supported independently of the mast and arranged to actuate successively the same working cable; substantially as described.

2. A wheeled vehicle carrying a pivoted mast, an engine, bull-wheel, and two swinging beams pivoted independently of the mast and arranged to successively actuate the same working cable; substantially as described.

3. A wheeled vehicle carrying a pivoted mast, an engine, bull wheel, a spudding beam pivoted below the bull-wheel and having act-

uating connections with a rear shaft, and a walking-beam pivoted independently of the mast and arranged to be connected to the same rear shaft; substantially as described.

4. In drilling apparatus, a wheeled vehicle carrying a pivoted mast a spudding beam and a walking beam, each supported independently of the mast, said vehicle having an engine, a shaft driven thereby, and having a wheel belted to a shaft arranged to drive the swinging rope actuating beam, said shaft having also a pulley connected by a loose belt to the bull-wheel and means for tightening said belt; substantially as described.

5. In drilling apparatus, a wheeled vehicle carrying a pivoted mast, a spudding beam and a walking beam, each supported independently of the mast, said vehicle having at its front end an engine whose shaft is belted to a rear shaft arranged to actuate the walking-beam, a sand reel having a friction wheel, and means for forcing the same into contact with a belt wheel upon said rear shaft, a bull-wheel, and adjustable connections between it and the engine-shaft; substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN CONNER.

Witnesses:

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W. B. CORWIN.