

No. 831,465.

PATENTED SEPT. 18, 1906.

L. S. PARSONS.  
WELL DRILLING MACHINE.  
APPLICATION FILED FEB. 13, 1905.

4 SHEETS—SHEET 1.

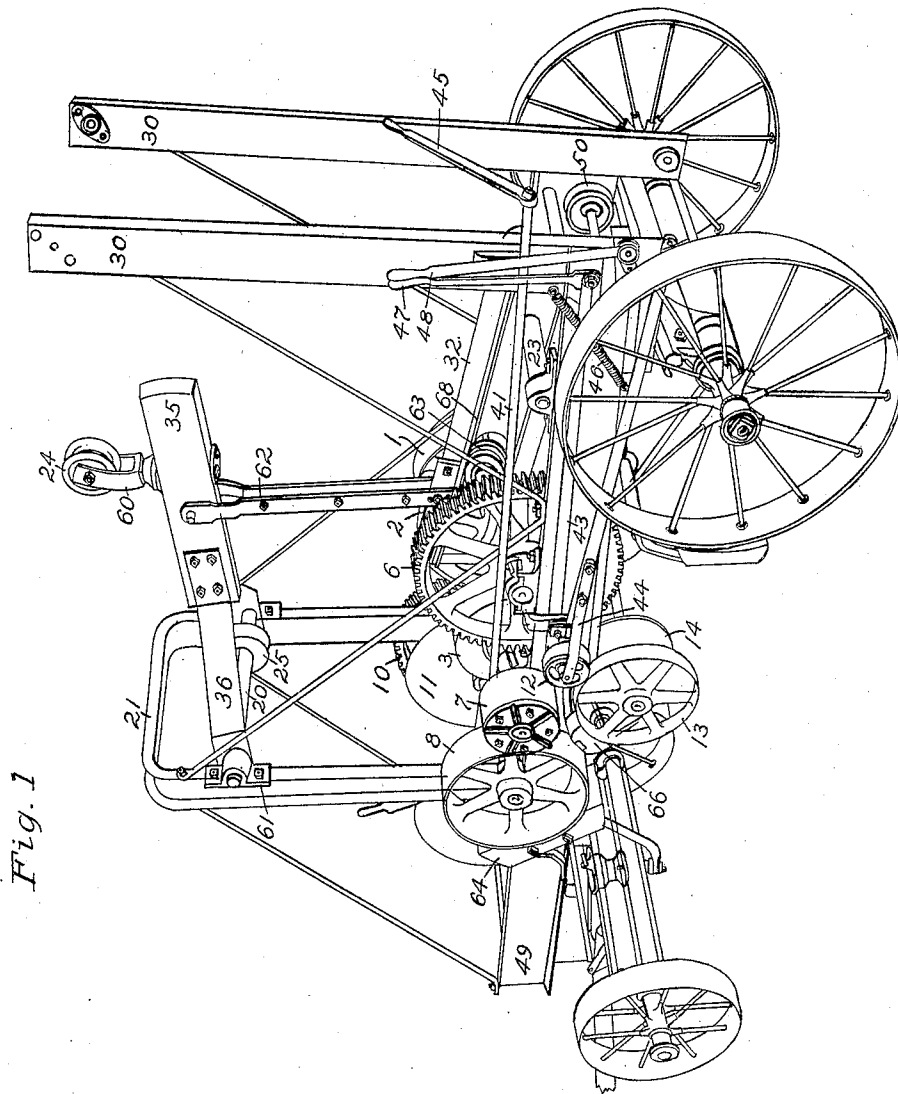


Fig. 1

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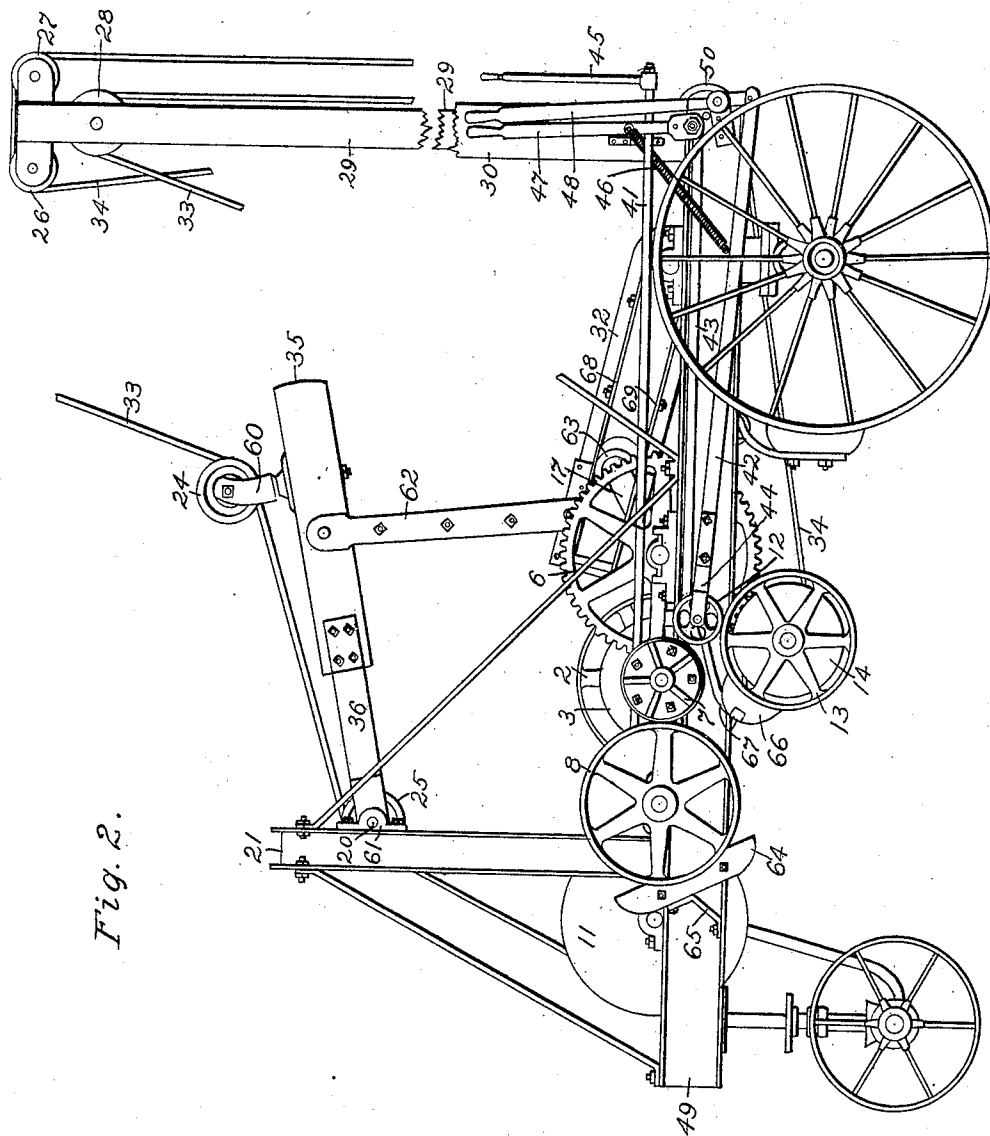


Fig. 2.

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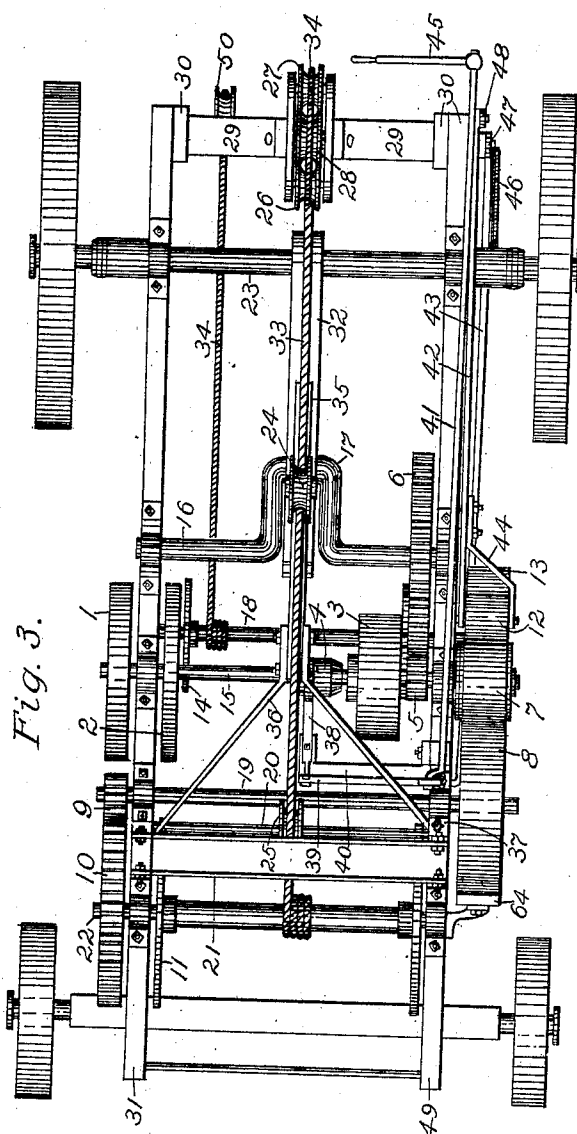


Fig. 3.

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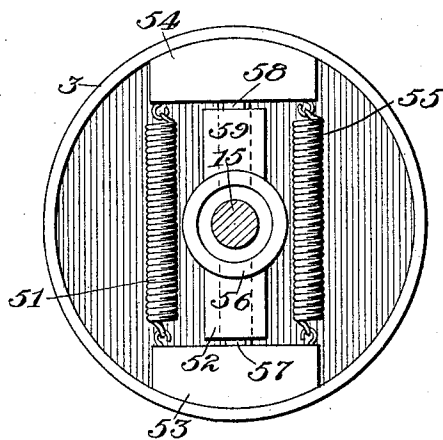
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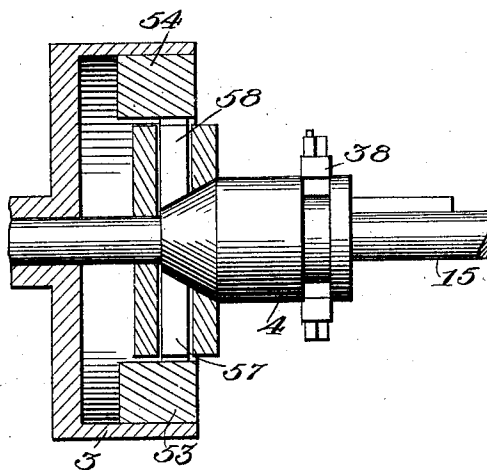
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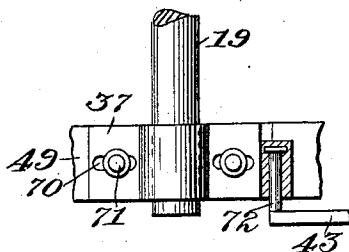
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

LOVANE S. PARSONS, OF WATERLOO, IOWA, ASSIGNOR TO KELLY & TANEYHILL COMPANY, OF WATERLOO, IOWA.

## WELL-DRILLING MACHINE.

No. 831,465.

Specification of Letters Patent.

Patented Sept. 18, 1906.

Application filed February 13, 1905. Serial No. 245,357.

*To all whom it may concern:*

Be it known that I, LOVANE S. PARSONS, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Well-Drilling Machines, of which the following is a specification.

My invention relates to well-drilling machines; and the objects of my invention are these: to provide improved means for controlling the sand-bucket-rope drum, to furnish a proper friction-clutch for use in connecting the driving mechanism with the mechanism for operating the drill-rope drum and the treadle-beam, and to also provide antifriction-bearings for use with an improved crank-actuated walking-beam, besides otherwise simplifying and strengthening the construction of the machine. These objects I have accomplished by the mechanism which is hereinafter described and claimed and which is illustrated in the drawings, in which—

Figure 1 is a perspective view of my improved well-drilling machine. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the same. Fig. 4 is a front elevation of the friction-clutch, and Fig. 5 is a vertical section of the friction-clutch. Fig. 6 is a detail view of the movable bearing 37.

Similar reference-numerals refer to similar parts throughout the several views.

The framework of the machine 31 49 may be of any suitable construction and is supported by the front and rear wheeled axles, as is usual in this class of machines.

29 is a vertical mast secured at its lower end to uprights 30 on the rear end of the frame 31 49 and is provided at its upper end with two small sand-bucket-rope sheaves 26 27, while directly thereunder is the larger sheave 28 for the drill-rope.

1 is a drive-wheel, and 2 is a fly-wheel, both mounted on the transverse shaft 15, and the shaft 15 may be driven from any suitable source of power. A sleeve carrying a friction-clutch 3, a pinion 5, and a friction-wheel 7 is rotatably mounted on the opposite end of the shaft 15, and the friction-clutch is thrown into and out of engagement with the sleeve 4 by means of the hand-lever 45, by which the rod 41 is partially rotated, causing the levers 39 38 to move the sleeve 4 into contact with the clutch. The contact of the

cone-shaped face of the clutch with the inner ends of the studs 57 58 causes them, with their brake-blocks 53 54, to move outward from the bearings 52 59 and engage the inner periphery of the friction-drum 3. Tension-springs 51 55 tend to keep the brake-blocks inwardly retracted when the sleeve 4 is out of engagement with the inner ends of the studs 57 58.

16 is a transverse shaft furnished with a crank 17 and is driven by means of a gear-wheel 6, the teeth of the latter engaging with the teeth of the pinion 5. An antifriction-roller 63 is rotatably mounted on said crank 17 and furnishes to the lever 32 a vertical vibratory motion. The roller 63 plays with in the forked outer end of the lever 32 against the hardened bearing-surfaces of the plates 68 69. The inner or rear end of the lever 32 is mounted on a shaft 23, extending transversely across the frame. A connecting-rod 62 serves to communicate vertical vibratory motion from the lever 32 to the lever 35, the latter having a bifurcated front end 36, whose extremities are mounted on the ends of a shaft 20, set in bearings 61 transversely on the upper portion of the upright 21.

A bracket 60, carrying a sheave 24, is mounted on the rear or free end of the lever 35, and as the lever 35 reciprocates the sheave thereon when it moves downward exerts a pull on the drill-rope 33, which passes under it, tending to lift the drill-tool up to be then dropped again. The drill-rope 33, whose one end is attached to the drum 11, is let out in the following manner: The friction-clutch 3 having been thrown into engagement causes the rotation of the friction-wheel 7, mounted on the same shaft 15, whose contact with the outer periphery of the wheel 8 rotates it with its shaft 19 and pinion 9. The latter rotates the gear-wheel 10 on the shaft 22, and with it the winding-drum 11, the drill-rope 33, which passes over the sheaves 25 and 28 and under the sheave 24, thus being gradually unwound. That end of the shaft 19 opposite to the pinion 9 is set in a movable bearing 37. This bearing has slots 70, which permits it to move longitudinally past the bolts 71 in either direction. When desired to cease unwinding the drill-rope 33, the bearing 37 may be slightly shifted to the front against the fixed brake-block 64, the latter being supported on a

bracket 65, attached to the frame. The bearing 37 is shifted by means of the shifting-bar 43 and hand-lever 47. 18 is a shaft set transversely across the frame, and on it is mounted a drum 14, on which is wound the sand-bucket rope 34. When it is desired to unwind the sand-bucket rope 34, an idler 12 is by means of the forked rod 44 42 and hand-lever 48 pushed against the friction-wheel 7 and wheel 13, the latter being mounted on the outer end of the shaft 18. When it is sought to stop the movement of the sand-bucket rope 34, the idler 12 is pulled away out of contact with the wheels 7 and 13, a branch 67 of the rod 42, having a terminal brake-block 66, drawing said brake-block into contact with the periphery of the wheel 13. Sheaves 25 50 are transversely slidable.

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

1. In a well-drilling machine, the combination with a frame, the drive-shaft and friction-wheel thereon, of a sand-bucket-rope drum mounted in said frame and having a friction-wheel mounted on one end of its shaft, an idler-wheel adapted to contact with both said friction-wheels, a brake-block adapted to contact with the friction-wheel on the sand-bucket-rope-drum shaft, and means for causing said idler-wheel to contact with said friction-wheels and simultaneously release said brake-block from the friction-wheel on the shaft of the sand-bucket-rope drum.

2. In a well-drilling machine, the combination with a frame, of the drive-shaft mounted therein, a slidable sleeve on said drive-shaft, a friction-clutch adapted to be engaged by said sleeve, means for causing said sleeve to engage said friction-clutch, a pinion and a friction-wheel connected to said friction-clutch, a drill-rope drum mounted on a shaft in said frame, a shaft set parallel with said drill-rope-drum shaft and having one end mounted in a slidable bearing, a friction-wheel on said shaft, gearing between said shaft and the shaft of said drill-rope drum, a brake-block attached to said frame, means for shifting the friction-wheel on said movable shaft against or away from said brake-block, a crank bearing-shaft mounted in said frame, a gear-wheel on said crank-shaft intermeshing with said pinion, an anti-friction-roller on said crank, a bifurcated lever pivoted in said crank and adapted to be reciprocated by said crank, a secondary lever pivoted in said frame, a sheave thereon, a connecting-rod between said levers, a slid-

able sheave in said frame, a mast in said frame provided with a sheave at its upper end, and a drill-rope extending from said drum over said slidable sheave under the sheave on said secondary lever and over the sheave at the upper end of said mast.

3. In a well-drilling machine, the combination with a frame, of the drive-shaft mounted therein, a slidable sleeve on said drive-shaft, a friction-clutch adapted to be engaged by said sleeve, means for causing said sleeve to engage said friction-clutch, a pinion and a friction-wheel connected to said friction-clutch, a drill-rope drum mounted on a shaft in said frame, a shaft set parallel with said drill-rope-drum shaft and having one end mounted in a slidable bearing, a friction-wheel on said shaft, gearing between said shaft and the shaft of said drill-rope drum, a brake-block attached to said frame, means for shifting the friction-wheel on said movable shaft against or away from said brake-block, a crank bearing-shaft mounted in said frame, a gear-wheel on said crank-shaft intermeshing with said pinion, an anti-friction-roller on said crank, a bifurcated lever pivoted in said crank and adapted to be reciprocated by said crank, a secondary lever pivoted in said frame, a sheave thereon, a connecting-rod between said levers, a slidable sheave in said frame, a mast in said frame provided with a sheave at its upper end, and a drill-rope extending from said drum over said slidable sheave under the sheave on said secondary lever and over the sheave at the upper end of said mast, a sand-bucket-rope drum mounted on a shaft in said frame and having a friction-wheel mounted on one end of said shaft, an idler-wheel adapted to contact with the friction-wheel on sand-bucket-rope-drum shaft and to the friction-wheel connected to the shaft of the friction-clutch a brake-block adapted to contact with the friction-wheel on said sand-bucket-drum shaft, means for forcing said idler-wheel into contact with said friction-wheels and simultaneously releasing said brake-block, a transversely-slidable sheave in the rear part of said frame, small sheaves in the top of said mast, and a sand-bucket rope extending from said sand-bucket-rope drum under said slidable sheave and over and about the small sheaves set in the upper part of said mast.

Signed at Waterloo, Iowa, this 31st day of December, 1904.

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Witnesses:

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