

J. W. JENNINGS.
WELL DRILLING MACHINE.
APPLICATION FILED NOV. 9, 1910.

990,743.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 1.

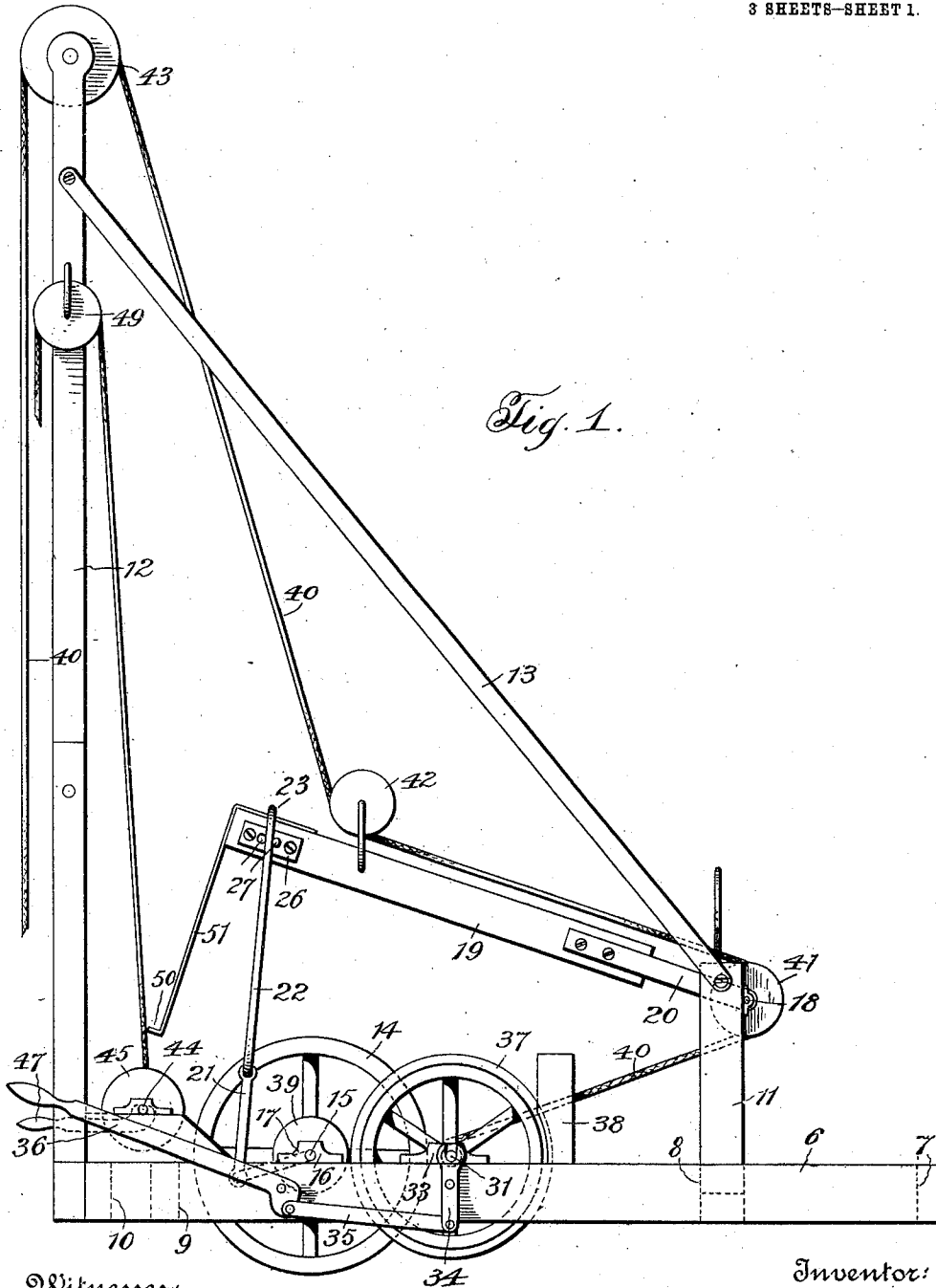


Fig. 1.

Witnesses:

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Inventor:

Joseph W. Jennings
By *Ryall Burnham*, Attorney:

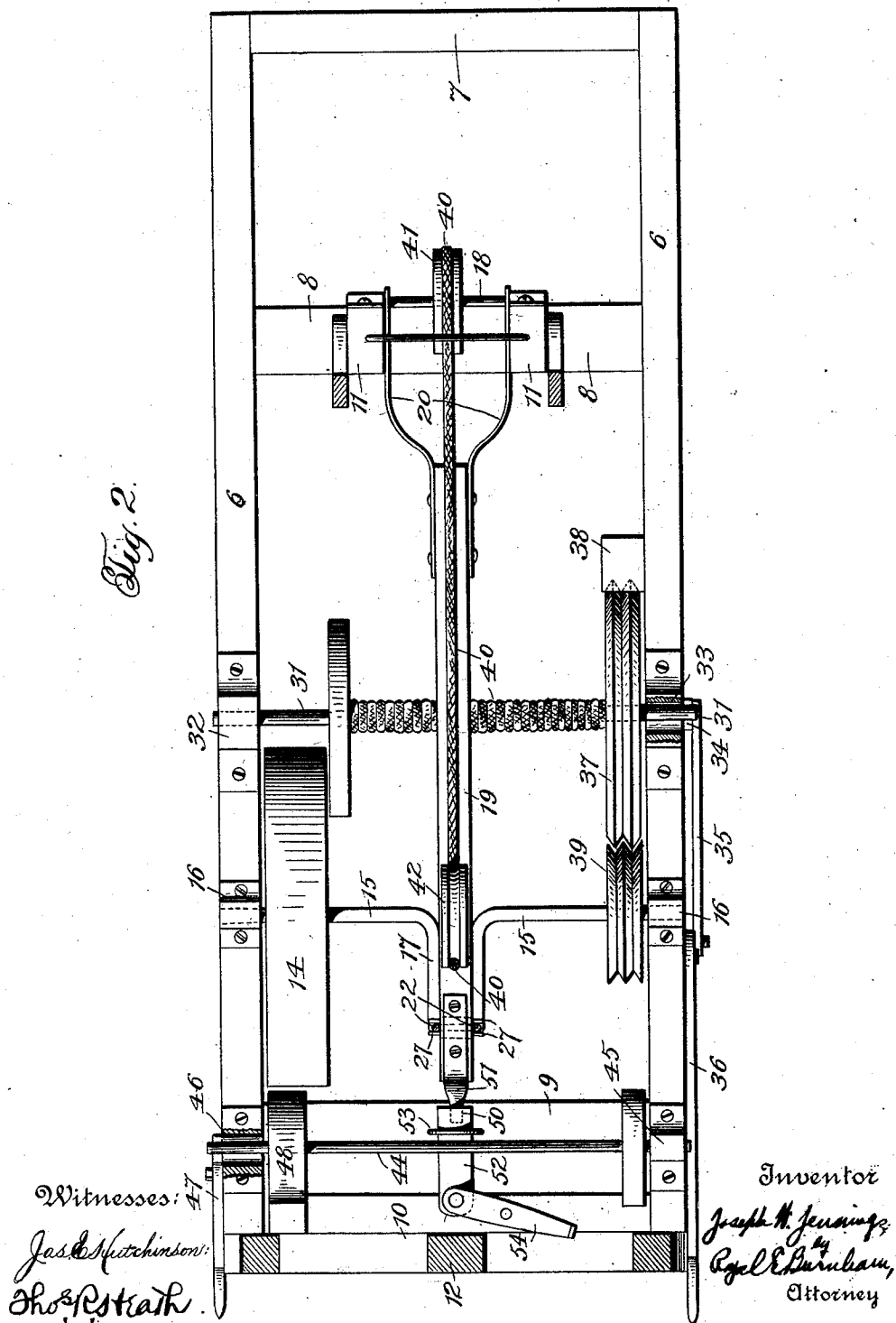
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3 SHEETS—SHEET 2.

Fig. 2.

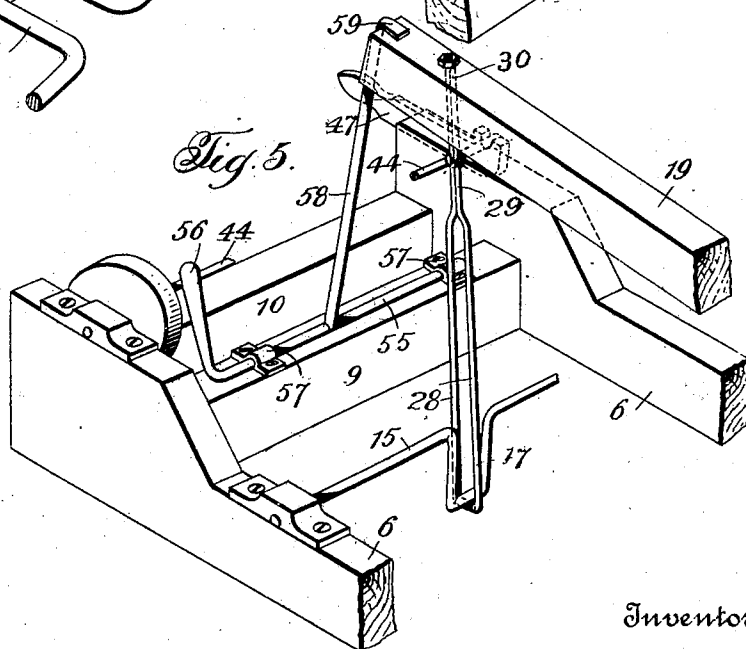
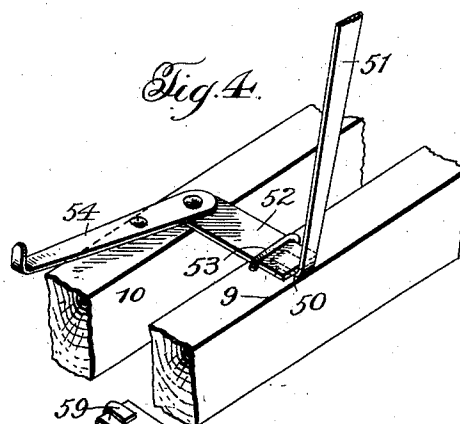
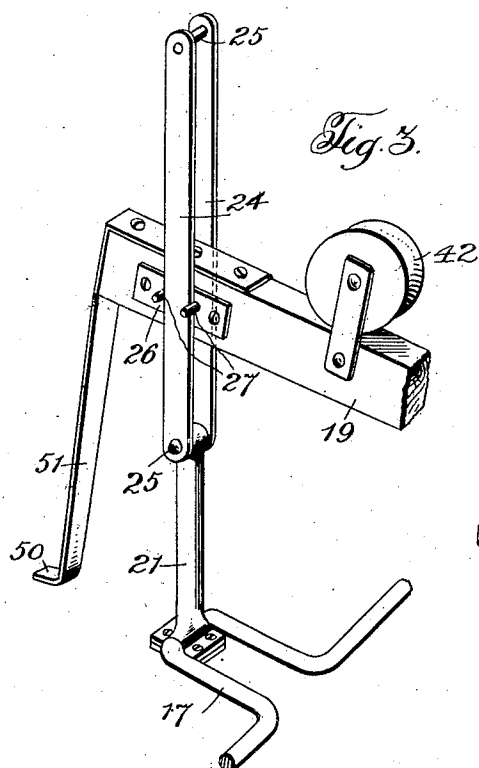


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3 SHEETS—SHEET 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH W. JENNINGS, OF QUINTON, OKLAHOMA.

WELL-DRILLING MACHINE.

990,743.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed November 9, 1910. Serial No. 591,455.

To all whom it may concern:

Be it known that I, JOSEPH W. JENNINGS, a citizen of the United States, residing at Quinton, in the county of Pittsburg and State of Oklahoma, have invented certain new and useful Improvements in Well-Drilling Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

It is an object of this invention to provide a well-drilling machine in which the drill-operating crank is positioned in the center, and in which frictional transmission means are employed in place of the usual gears between the operating parts.

The invention contemplates a novel connection between the actuating-crank and the walking-beam, whereby the beam may be held out of operation and the stroke of the drill discontinued without stopping the actuating portion of the machine. A latch is provided for holding the walking-beam out of operation.

Generally, the purpose of the invention is to improve the details of well-drilling machines, to reduce the number of parts, to lessen friction, and to provide a machine which shall be at all times reliable in operation.

When read in connection with the description herein, the details of construction and arrangement of parts contemplated by this invention will be apparent from the accompanying drawings, forming part hereof, wherein an embodiment of the invention is disclosed, for purposes of illustration.

While the embodiment of the invention shown in the drawings is preferred, it is to be understood that the several instrumentalities of which the invention consists can be variously organized, without departing in the least from the nature and spirit of the invention, and that it is not the intention to be necessarily limited to the precise delineation of the invention herein in interpretation of the claims hereinafter.

Like reference-characters refer to corresponding parts in the several views of the drawings, of which—

Figure 1 is a side view; Fig. 2 is a plan view, with certain parts shown in section; Fig. 3 is an enlarged view of a form of connection between the crank and walking-beam; Fig. 4 is a detail view of the walking-beam latch; and Fig. 5 is a view of alternative forms of connection between the

crank and walking-beam and of walking-beam latch.

Having more particular reference to the drawings, 6 designates side members and 7, 8, 9, and 10 cross-sills of the frame of the machine; 11 posts rising from the sill 8; 12 the mast; and 13 brace-arms extending from near the top of the mast to the posts 11.

The machine is driven, by an engine and belt not shown, through the instrumentality of a bull-wheel 14 over which the belt passes. The bull-wheel is fast on a main shaft 15, journaled in bearings 16 on the frame members 6, and this shaft is formed with a crank 17 located centrally between the frame members 6. A shaft 18 on the posts 11 has one end of a walking-beam or drill-actuating member 19 pivotally secured thereto by means of straps 20. The other or free end of the walking-beam is reciprocated by the crank 17 of the shaft or driving member 18 by means of a suitable connection.

In order to permit the walking-beam to be held out of operation without stopping the main shaft, this connection includes a rod 21 journaled at its lower end on the crank and having its upper portion formed of an elongated loop or slide 22 which is movable astride of the walking-beam. The loop or slide may be formed of a continuous rod 23 passing over and under and on each side of the beam and connected to the rod 21, as shown in Figs. 1 and 2, or it may comprise side straps 24 connected at their upper and lower ends by pins 25, as shown in Fig. 3. The beam has on each side a wear-plate 26, on which the rod 23 or the straps 24, as the case may be, slide, to prevent wear of the beam. Pins or other suitable projections extend from these plates and form guides for the rod or straps, which are movable between two such pins or projections on each side of the beam.

Instead of the forms of connection between the walking-beam and crank shown in Figs. 1, 2, and 3, the invention also contemplates a form such as shown in Fig. 5, wherein the crank is in a loop 28 forming part of the connection. The material of the loop is contracted at the top to form a shank 29, which has pivotal connection with a member 30 on the walking-beam.

A winding-shaft 31 is journaled on the side members 6, on one end in a fixed bearing 32 and on the other end in a slide-bearing 33. The slidable end of the shaft is en-

gaged by a forked end of an arm 34 pivoted on the side member, and this arm is connected by a rod 35 to a lever 36 pivoted on the side member and extending to the drilling end of the machine. A friction-wheel 37 is fixed to the shaft 31 near its slidable end, and this wheel is capable of being brought into engagement, on movement of the shaft in one direction or the other through the instrumentality of the arm 34, with a brake-shoe 38 fixed to the side member on one side of the wheel and with a friction-wheel 39 on the main shaft 15 on the other side. A drill-rope 40 is capable of being wound on and unwound from shaft 31, and it passes over sheaves 41, 42, and 43, on the shaft 18, on the walking-beam, and on top of the mast 12, respectively, down to the drill, which latter is not shown.

A slush-spool shaft 44 is journaled on side members 6, on one end in a fixed bearing 45 and on the other end in a slide-bearing 46. The slidable end of the shaft is engaged by a forked end of a hand-lever 47, pivoted on the side member, by which the shaft may be moved to bring a friction-wheel 48 thereon into and out of engagement with the bull-wheel or with the belt thereon, whereby a slush-rope, wound on the shaft and passing over a sheave 49 on the mast, may be operated.

The machine being in operation, the walking-beam is drawn down by means of its looped connection with the center crank as the crank takes a down turn, thus pulling the drill, through the operation of sheave 42, upwardly; and, on the up turn of the crank, the walking-beam will be raised by the weight of the drill, operating through rope 40. When it is desired to discontinue the stroke of the drill, the projecting foot 50 of an arm 51 depending from the free end of the walking-beam is caught under the end of a slidable latch 52 on the down stroke of the beam, whereby the beam is held down and out of operation. The crank then continues to revolve, as the looped connection, which is sufficiently long for its ends not to actuate the beam when held down, will slide back and forth over the beam or over the crank, as the case may be, dependent upon the form of connection employed. The latch 52 is reciprocable to and from engagement at one end with the foot 50 under a guide 53 on the cross-sill 9, and at its other end it is pivotally connected with a hand-lever 54 pivoted on the cross-sill 10. If desired, the arm 51 and latch 52 and their associated parts may be dispensed with, and there may be substituted therefor a pivoted latch of the form shown in Fig. 5. This latch includes a shaft 55, having a handle 56, journaled in bearings 57 on the cross-sill 9, and an arm 58 extending upwardly therefrom and having on its free end an offset

59. When it is desired to discontinue stroke of the drill, arm 58 is swung to cause its offset to engage over the top of the free end of the walking-beam and thus hold the beam down out of operation. When it is desired to release the beam, the arm 58 is swung away from the beam. Movement of the arm 58 is effected by rocking the shaft 55 by movement of its handle 56.

It will be seen that the drill-rope may be paid out as the drill works down by slightly withdrawing the friction-wheel 37 from the brake-shoe 38, but not enough to engage the friction-wheel 39. When it is desired to withdraw the drill, the friction-wheel 37 is then brought into engagement with the friction-wheel 39 and the drill-rope wound on the shaft.

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

1. In a well-drilling machine, a drill-rope actuating member, a driving member therefor, and a connection between said members arranged to draw said drill-rope actuating member in one direction and capable of sliding on one of said members when said drill-rope actuating member is held in fixed position.

2. In a well-drilling machine, a drill-rope actuating member, a driving member therefor, and a connection between said members arranged to draw said drill-rope actuating member in one direction and comprising a looped portion capable of sliding movement on one of said members when said drill-rope actuating member is held in fixed position.

3. In a well-drilling machine, a shaft having a crank thereon, a walking-beam, and a connection between said crank and beam arranged to draw said beam in one direction and comprising a looped portion capable of sliding movement on the beam when the latter is held in fixed position.

4. In a well-drilling machine, a shaft having a crank thereon, a walking-beam, a connection between said crank and beam arranged to draw said beam in one direction and comprising a looped portion capable of sliding movement on the beam when the latter is held in fixed position, and a guide on said beam for said looped portion.

5. In a well-drilling machine, a crank-shaft member, a walking-beam member, and a connection between said members comprising a rod connected to one of them, and a slide on said rod in engagement with and capable of sliding movement on the other of said members.

6. In a well-drilling machine, a shaft having a crank thereon, a walking-beam, and a connection between said crank and beam comprising a rod connected to the crank, and a slide on said rod in engagement with the beam, said slide being arranged to draw the

beam in one direction and to have sliding movement on the beam when the latter is held in fixed position.

7. In a well-drilling machine, a crank-shaft member, a walking-beam member, and a connection between said members comprising a rod journaled at one end to one of them, and straps connected together at each end and connected to the rod and forming a loop capable of sliding movement on the other of said members.

8. In a well-drilling machine, a shaft having a crank thereon, a walking-beam, and a

connection between said crank and beam comprising a rod journaled at one end to the crank, and straps connected together at each end and connected to the rod and forming a loop capable of sliding movement on said beam.

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

JOSEPH W. JENNINGS.

Witnesses:

W. E. McKINNEY,

J. T. BROCKMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
