

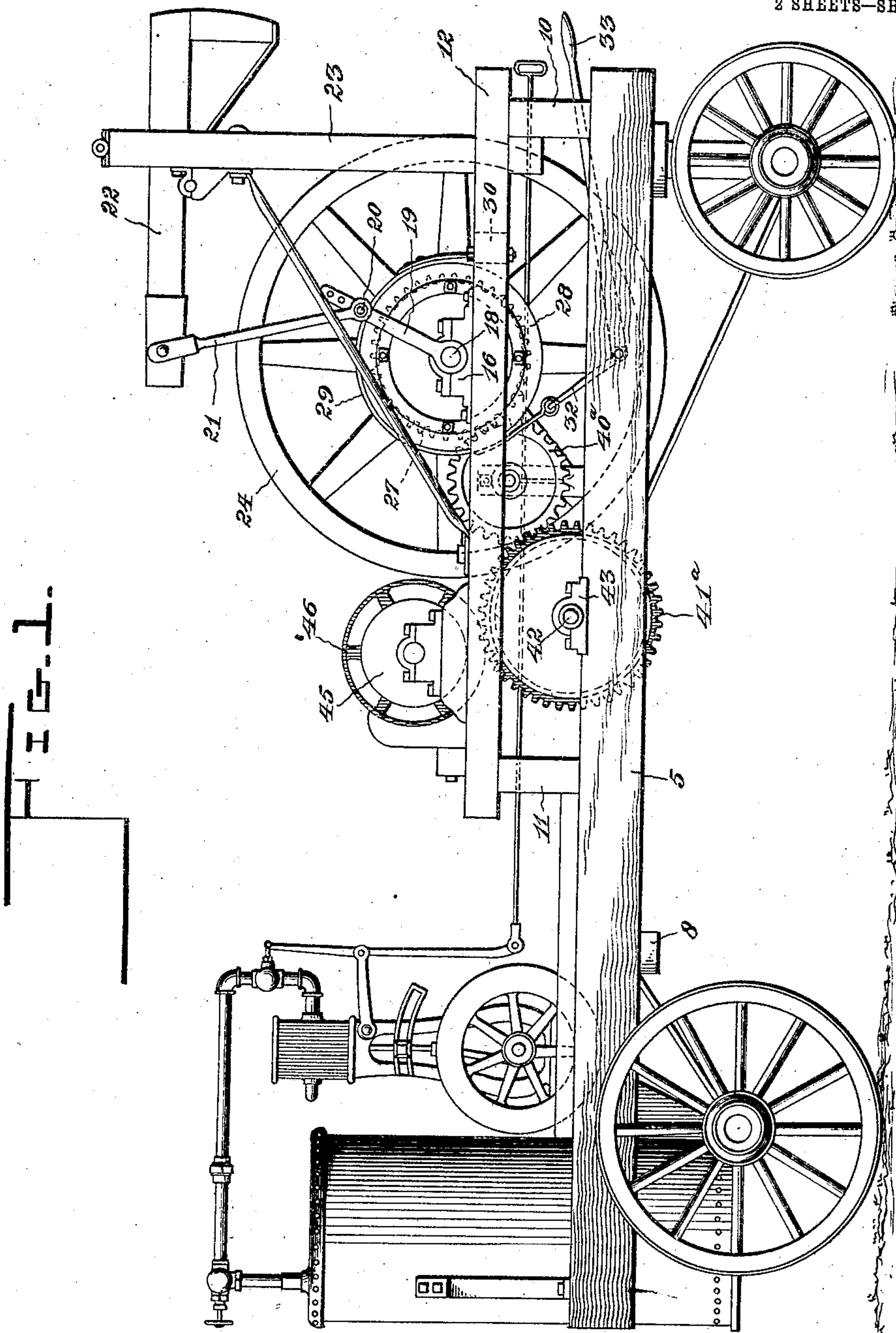
No. 733,980.

PATENTED JULY 21, 1903.

G. D. LOOMIS.
WELL DRILLING MACHINE.
APPLICATION FILED JULY 28, 1899.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

John T. Seufferwick
Geo. H. Chandler

George D. Loomis, Inventor
By *his* Attorneys,

Cash on h/o.

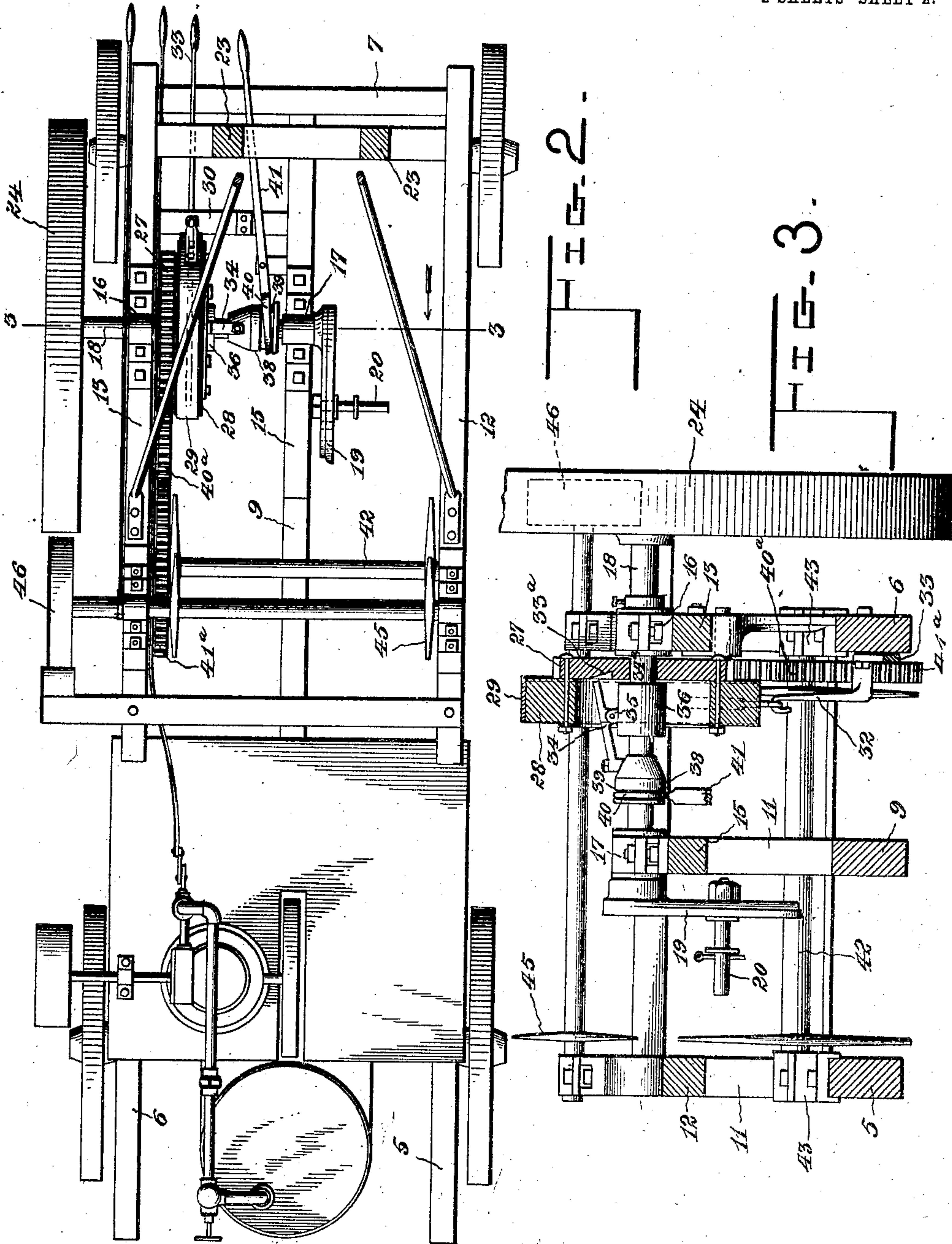
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By His Attorneys,

Cashow & Co.

No. 733,980.

Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

GEORGE DUDLEY LOOMIS, OF TIFFIN, OHIO.

WELL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 733,980, dated July 21, 1903.

Application filed July 28, 1899. Serial No. 725,409. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DUDLEY LOOMIS, a citizen of the United States, residing at Tiffin, in the county of Seneca and State of Ohio, have invented a new and useful Well-Drilling Machine, of which the following is a specification.

This invention relates to well-drilling machinery, and has for its object to provide a compact structure in which the main drive-pulley, the main crank, as also the hoisting-wheel and brake mechanism; will be mounted upon a single shaft, thus occupying a minimum of space and working together without the intervention of gearing.

The invention consists, generally stated, of a main shaft having a main drive-pulley fixed thereto and carrying also a drill and spud-operating crank, a brake-drum, and means for communicating motion from the shaft to an adjacent rotatable body, clutching mechanism being also arranged to alternately clutch and release the brake-drum and the motion-transmitting means with respect to the shaft. Adjacent the main shaft and adapted to receive motion therefrom are the usual rope-drum and sand-drum, as also a derrick, in which is mounted a walking-beam or a pulley to receive the spudding-rope. While there is shown a motor in the form of an engine, it will be readily understood from the following description that any other power may be employed.

In the drawings forming a portion of this specification, and in which similar numerals of reference designate corresponding parts, Figure 1 is a side elevation showing a machine embodying this invention. Fig. 2 is a plan view of the machine. Fig. 3 is a vertical section on line 3-3 of Fig. 2 and showing portions in elevation.

Referring now to the drawings, I employ a frame which comprises side sills 5 and 6, having end cross-beams 7 and 8, connected with which latter is an intermediate beam 9. Upon the sills 5 and 6 and at one end thereof are uprights 10, and in the rear thereof are additional uprights 11, the uprights of the sill 5 having a connection 12 above and parallel with that sill, while the uprights of the sill 6 have a connection 13 above and parallel with that sill. A beam or connection

15 is supported above and parallel with the intermediate sill 9, said connections 12, 13, and 15 lying in a common horizontal plane. Upon the connections or beams 13 and 15 are fixed bearings 16 and 17, respectively, in which is journaled the main drive-shaft 18, having at one end and between the beams 12 and 15 a crank 19, provided with a wrist-pin 20, adapted for connection with a pitman 21, pivotally connected with one end of a walking-beam 22, rockingly journaled upon a derrick 23, supported upon the front end of the frame of the machine. At the opposite end of the shaft 18 and exteriorly of the inclosure of the sills is a main drive-pulley 24, from which the mechanism may be driven.

Upon the shaft 18 and adjacent the beam 13 is loosely mounted a gear-wheel 27, bolted to the inner face of which is a brake-drum ring 28, a brake-band 29 lying in engagement with the outer periphery of said drum and having one end fixed to a cross-piece 30 intermediate the beams 13 and 15 and the other end pivotally connected with the end 32 of a bell-crank lever, the operating-handle 33 of which extends forwardly and beyond the front end of the machine. The inner face of the gear 27 within the inclosure of the ring 28 forms a clutch element and for this purpose is provided with a recess 33^a, which is adapted to receive at times the end of a lever 34, pivoted to ears 35, carried by a hub 36, which is fixed upon the shaft 18. A collar 34^a upon the shaft intermediate the gear 27 and the bearing 16 prevents lateral displacement of the gear 27 in one direction, while the hub 36 prevents similar displacement in the opposite direction.

In order to engage and disengage the lever 34 with respect to the recess 33^a, said lever has its outer end turned downwardly and in the path of a second hub 38, loosely mounted upon the shaft 18 and having its end adjacent said lever formed frusto-conical. This hub 38 has a peripheral groove 39, in which is seated a ring 40 upon the end of a lever 41, which extends forwardly and beyond the front end of the machine. Thus as the hub 38 is moved to the right of Fig. 3 it will press the adjacent end of the lever 34 outwardly and will move the opposite end of said lever to engage the recess 33^a in the gear 27. Also it will be seen

that if the lever be in engagement with the gear 27 and be then removed therefrom after contributing motion to said gear if it be then desired to retard or stop the movement of the gear such operation may be accomplished by operation of the lever 33 to draw the brake-band 29 tightly against the brake-drum.

Meshing with the gear 27 is a pinion 40^a, which in turn meshes with a gear 41^a upon one end of a shaft 42, journaled in bearings 43 upon the sills 5 and 6, and which shaft carries the drum for the spudding and drilling ropes. These gears and pinion are in constant engagement, and thus if during the drilling operation it is desired to take up a portion of the rope it is only necessary to engage the lever 34 with the gear 27, when said gear will rotate with the shaft 18 and will transmit motion thereof to the spudding-drum to cause it to wind in the rope. On the other hand, if it is desired to pay out the rope such paying out may be accomplished without stopping the machinery and may be regulated from the lever 33 and may be stopped entirely.

It will be noted that the several levers for operating the different parts of the mechanism project outwardly of the forward end of the machine and are thus in a position to be manipulated by the operator standing at the drill-rope. There is shown in the present instance also a sand-drum 45, which is adapted for the usual purpose of a drum of this nature and has a friction-wheel 46 at one end which is adapted to be brought into engagement with the adjacent periphery of the driving-pulley 24 when it is desired to operate the rope carried thereby.

It will be seen from the foregoing description that the present invention accomplishes in an efficient manner the objects for which it is designed, that the working parts are compact, and that the mechanism is simple in the extreme.

It is apparent that, if desired, the diameters of the gears 27 and 41^a may be increased

to that extent sufficient to permit them to mutually engage, thus eliminating the pinion 40^a; also, that various other modifications may be substituted, and that any proportions may be observed and material used without departing from the spirit of the invention.

Having thus described the invention, what is claimed is—

1. In a well-drilling machine, the combination of a bull-wheel shaft having a pulley 24 and a crank, said pulley and said crank being fixed to said shaft, a walking-beam, a pitman to connect the latter to the wrist of said crank, whereby the walking-beam may be driven directly from said bull-wheel shaft, a gear 27 loose on said bull-wheel shaft, a brake for said gear to arrest rotation thereof, a drill-rope reel driven by said gear, a clutch to lock said gear to said bull-wheel shaft, and a sand-rope reel having a shiftable pulley 46 adapted to be engaged with and driven by said pulley 24, substantially as described.

2. In a well-drilling machine, the combination of a bull-wheel shaft, a pulley 24 and a crank fixed to said shaft, a gear 27 loose on said shaft, and having a notch 33^a, said shaft having a fixed hub 36, a shiftable hub 38, loose on said shaft, and having a tapered friction-face, a lever to shift said shiftable hub, a lever 34 fulcrumed on said fixed hub, engaged by said tapered friction-face of said shiftable hub and adapted to engage the said notch 33^a and thereby lock said gear 27 to said shaft, a walking-beam, a pitman to connect the latter to the wrist of said crank and thereby drive said walking-beam from said bull-wheel shaft, and a drill-rope reel driven by said gear 27, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE DUDLEY LOOMIS.

Witnesses:

HARRY TAGGART,
GEO. A. ROHN.