

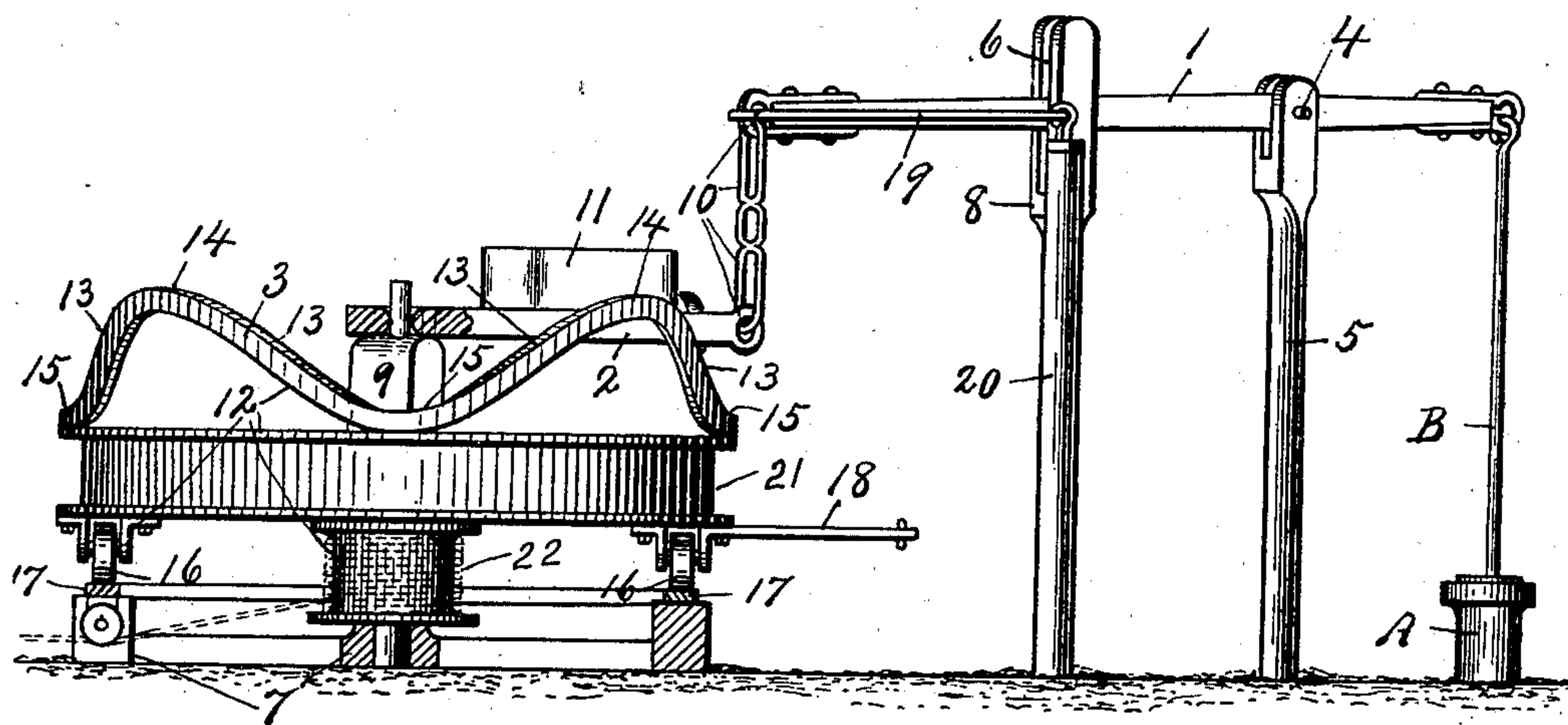
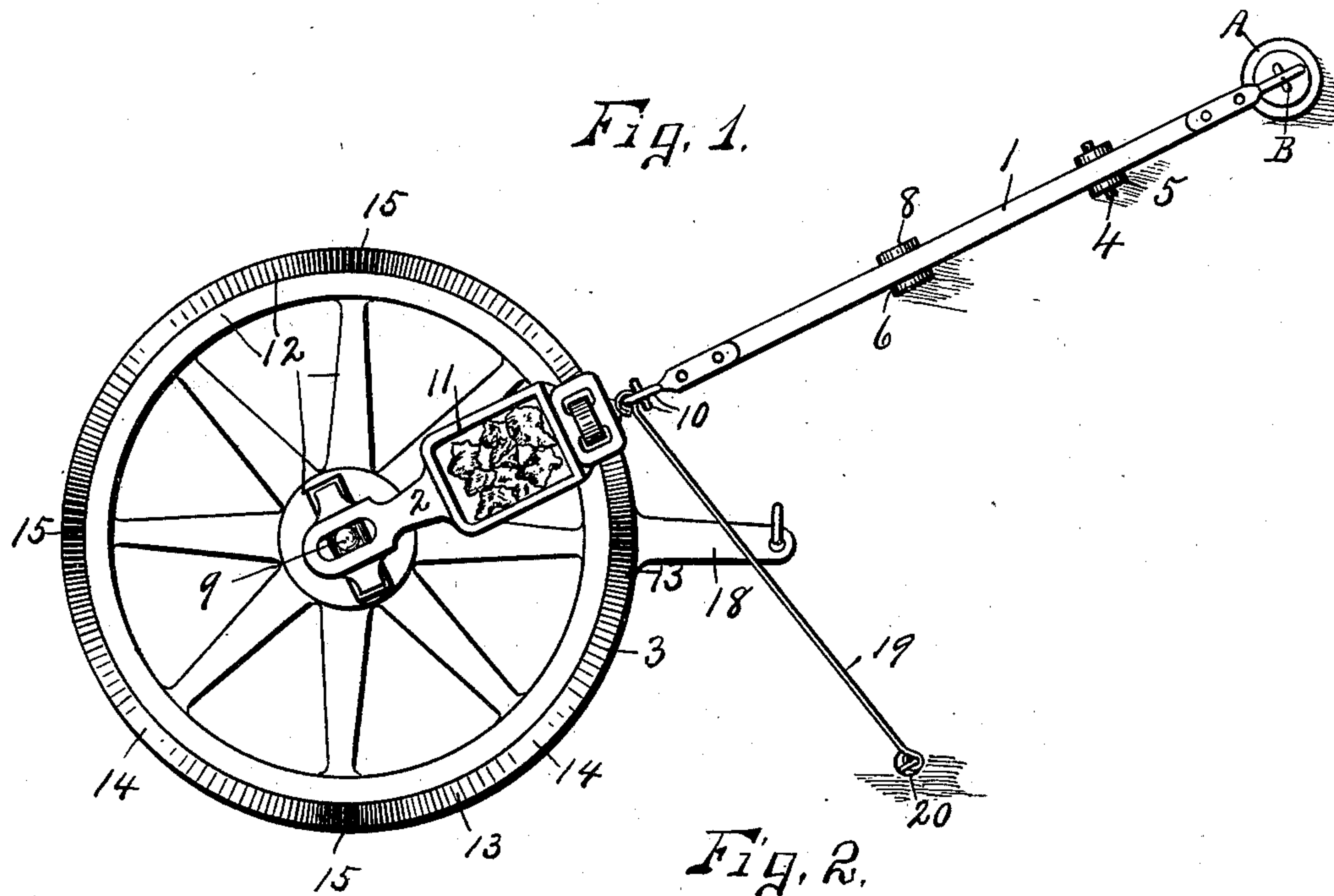
No. 671,468.

Patented Apr. 9, 1901.

C. H. CLAYTON.
DRIVING DEVICE FOR PUMPS.

(Application filed Oct. 8, 1900.)

(No Model.)



WITNESSES:

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COLONEL H. CLAYTON, OF LIMESTONE, NEW YORK.

DRIVING DEVICE FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 671,468, dated April 9, 1901.

Application filed October 8, 1900. Serial No. 32,329. (No model.)

To all whom it may concern:

Be it known that I, COLONEL H. CLAYTON, of Limestone, in the county of Cattaraugus, in the State of New York, have invented new and useful Improvements in Driving Devices for Pumps, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in pumping and lifting machines, and is particularly applicable for use in connection with the drilling and operation of oil and similar wells of considerable depth in which the mechanisms employed are necessarily cumbersome and heavy.

One object of my invention is to provide a simple and practical machine which may be operated by animal or manual power for operating the pumping or drilling mechanisms of such wells, or, more technically, for lifting these mechanisms and permitting the same to descend by gravity or force for the purpose of drilling the well or pumping the oil therefrom, or for simultaneously drilling the well and pumping the oil, in which latter case the drilling mechanism is provided with the usual valve for elevating the oil during the process of drilling.

The further object of this invention is to provide means for drawing the drill or pumping mechanism from the well when desired and for speedily and economically moving any of the other parts or mechanisms used in connection with said wells.

To these ends the invention consists in the construction, combination, and arrangement of the parts of a pumping and lifting machine, as hereinafter fully described, and pointed out in the claim.

Referring to the drawings, Figures 1 and 2 are respectively top plan and side elevation of my invention, shown as operatively connected to the lifting-rods of a pump or drill mechanism.

A represents the casing of an oil-well, and B is a lifting-rod movable in the well and having its lower end provided with any ordinary form of valve or drill, (both valve and drill not illustrated,) which is reciprocally movable in the well in the usual manner for pumping or drilling. My invention is designed to effect this reciprocal movement in

the most economical manner and, as seen in the drawings, consists, essentially, of a walking-beam or lever 1, having one end connected to the lifting-rod B, a weighted arm 2 or its equivalent connected to the opposite end of the beam for automatically rocking said beam in one direction, and a rotary cam-track 3 for controlling the position of the weighted arm and walking-beam and rocking said beam in the opposite direction. This walking-beam or rocking lever may be of any desired form or length, is supported a sufficient height above the ground to permit the passage of a horse or other animal thereunder, and is pivotally connected at 4 to an upright standard 5 in such manner that one of its arms, as the one connected to the weighted arm 2 is of greater weight and length from the pivot 4 than the arm connected to the lifting-rods of the pump, which, together with the weights, elevate the lifting-rod B and the parts connected thereto. The longer arm of the walking-beam usually extends toward the axis of revolution of the rotary track 3, is guided in a vertical slot 6 in the upper end of an upright standard 8, and its free end terminates above the track 2 in proximity to the vertical plane of its periphery. The weighted arm 2 may also be of any desired form or construction and is supported at one end upon an upright standard 9, which forms the axis of the rotary track 3, its other end being loosely connected to the adjacent end of the walking-beam 1 by one or more links 10, and provided with a receptacle 11 for receiving variable quantities of ore or other heavy material, which is designed to substantially counterbalance the weight of the lifting-rods and the pumping or drilling fixtures attached thereto.

The means for intermittently elevating the weighted end of the arm 2 and the adjacent end of the beam 1 for forcing the pumping mechanism downwardly into the well preferably consists of a circular track 3, mounted on a turn-table 12 and provided with a series of upwardly-inclining cam-faces 13, united to each other for forming a continuous circular track, having a series of elevations 14 and depressions 15 alternating with each other. The turn-table 12 is preferably held in position by the upright standard 9, projecting upwardly from a suitable base 7 and supporting rollers

or wheels 16, which are journaled on the lower face of the turn-table 12 and ride upon a circular tramway 17, forming a portion of the base 7. The track 3 is suitably secured to the turn-table 12, is revoluble with said turn-table, and, together with the weighted ends of the arm 2 and the walking-beam 1, serves to reciprocate the lifting-rods B and the pumping mechanism connected thereto.

Any desired power may be employed for revolving the turn-table 12; but I preferably use animal or manual power for this purpose, this being the most available and economical and may be readily shifted from one well to another with but slight expense and loss of time, thereby obviating the necessity of costly machinery and expensive removals of such machinery from one well to another. When such animal power is used, I provide the turn-table 12 with a projecting tongue 18, to which a horse or other animal may be attached and caused to travel in a circular path for effecting the desired rotation of the turn-table 12 and track 3.

In order that the adjacent ends of the walking-beam 1 and the weighted arm 2 may be additionally held from lateral movement during the rotation of the turn-table 12, I provide a brace-bar 19, having one end loosely connected to an upright post 20 at one side of the path of movement of the animal and its other end loosely connected to one of the links 10, said brace being arranged sufficiently high to clear the animal's head.

It is frequently desirable to draw the lifting-rods and pumps from the wells and to lift or convey other heavy and cumbersome mechanisms used in the operation of oil-wells, and for this purpose I provide the turn-table 12 with one or more cable-drums 21 and 22 of unequal size, the upper drum 21 being adapted for light and quick work and the lower drum 22 being considerably smaller and used

for the heavier work. When these drums are employed for lifting the rods from the wells, a cable is suitably secured at one end to the periphery of one of the drums, as indicated by dotted lines, Fig. 2, and its other end is passed over elevated idlers usually supported on a derrick in proximity to the well and secured to the rods B. The drums are then rotated for winding up the cable and drawing the rods upwardly, it being understood that the portions of the cable in proximity to the drums are so supported as not to interfere with the travel of the horse or other animal which rotates the turn-table.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be noted that the leading features of my invention consist in providing a weight or its equivalent for causing the lifting-rod B to move in one direction and one or more cams for causing said rods to move in the reverse direction.

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

A pumping and lifting machine comprising a reciprocally-movable pump-rod, a walking-beam having one end connected to said rod and its other end weighted, and a turn-table provided with a series of cam-faces arranged one in advance of the other and a non-revoluble rock-arm pivotally supported at one end and having its other end supported by the cam-faces and connected to the weighted end of the walking-beam for transmitting motion thereto.

In witness whereof I have hereunto set my hand this 11th day of September, 1900.

COLONEL H. CLAYTON.

Witnesses:

H. E. CHASE,

MILDRED M. NOTT.