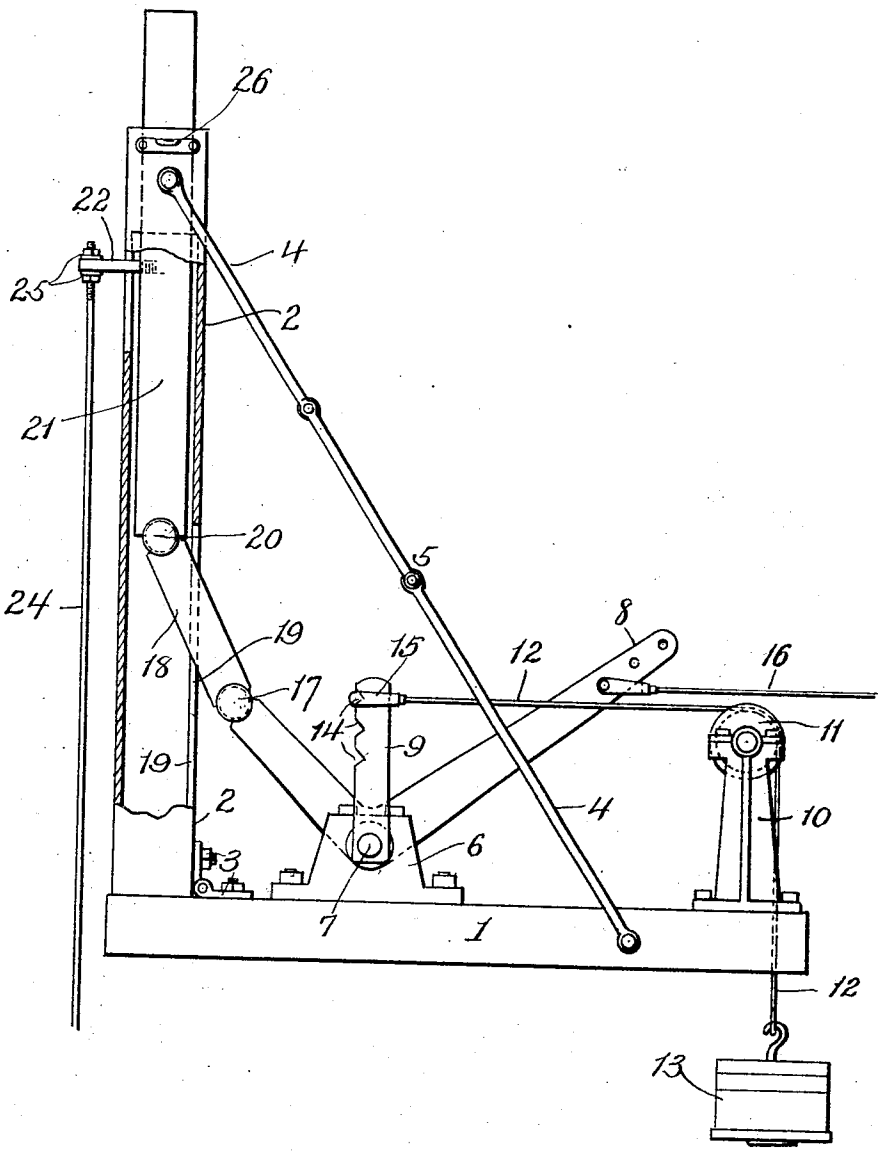
Oct. 1, 1929. A. W. FERGUSON 1,729,664

PUMP JACK

Filed March 27, 1928



Inventor

A. W. Ferguson

By Seymour & Bright

Attorneys

Patented Oct. 1, 1929 1,729,664

UNITED STATES PATENT OFFICE

ALONZO W. FERGUSON, OF DE NOYA, OKLAHOMA, ASSIGNOR OF ONE-HALF TO C. A. RAY, ONE-EIGHTH TO J. M. POPE, AND ONE-EIGHTH TO MYRTLE B. TAYLOR, ALL OF DE NOYA, OKLAHOMA

PUMP JACK

Application filed March 27, 1928. Serial No. 265,196.

This invention has for its object the provision of a simple compact and efficient mechanism for operating the sucker rod of deep well pumps and in which will be embodied means for balancing an even easy movement thereof as well as means for guiding the same and a construction which permits collapsing of the jack when the well is to be pulled. The invention is illustrated in the accompanying drawing and will be hereinafter fully set forth.

The drawing is a sectional elevation of a pump jack embodying the invention.

In constructing a jack in accordance with the invention, there is provided a base or sill 1 at one end of which there is located a hollow or tubular standard 2, the standard being hinged to the sill, as at 3, whereby it may be swung down onto the sill out of the way when the sucker rod is to be pulled from the well. To maintain the standard in its normal upright position, I provide braces 4 which are pivoted or hinged at their ends to the standard and the sill respectively, and are formed in pivotally connected sections, as indicated at 5, whereby they may be collapsed readily when the standard is to be lowered, the sections being held in alinement by any approved means when the jack is in use.

Adjacent the standard, a bearing block 6 is secured upon the sill and in said bearing is journaled a rock shaft 7 which constitutes the fulcrum for the main operating or lift lever 8, and to one end of the shaft is secured a balance arm 9. It will be noted that the operating lever is a bell-crank or angle lever with its arms approximately at a right angle to each other while the balance arm is normally upright and bisects the angle of the lever.

At the end of the sill remote from the standard is a post 10 having an idle pulley 11 mounted on its upper end, a cable 12 passing over said pulley and being attached to the arm 9 at one end while its opposite end carries a counterweight 13. The balance arm is provided with a series of notches 14 in any one of which the stirrup 15 at the end of the cable may be engaged as may be best adapted to meet any given conditions, and it will be understood that the counterweight offsets or balances the weight of the sucker rod so that the apparatus will operate easily without jerking.

The operating rod 16 is adjustably connected to one end of the lever 8 and may be actuated by any convenient motor. The opposite end of the lever is connected, by a universal joint 17, with the lower end of a pitman or link 18 which extends through a slot 19 in the adjacent side of the standard and has its upper end connected by a universal joint 20 with the lower end of a piston or reciprocatory bar 21. Said bar 21 is housed within and guided by the standard and at or near its end there is secured a carrying arm 22 which projects through and operates in a vertical slot 23 in the standard, the outer free end of the arm being formed into an eye through which the upper end of the sucker rod 24 passes, and lock nuts 25 being fitted on the rod above and below the arm to firmly secure the rod.

A level 26 may be secured on the standard to indicate when it is perpendicular in setting up the apparatus.

The operating rod 16 is reciprocated horizontally and will act directly on the lever 8 to oscillate the same. The motion of the lever will be transmitted through the pitman or link 18 to the piston 21 which will be reciprocated vertically and the carrying arm and sucker rod, of course, move with the piston, while the balance arm and counterweight follow the movement of the angle lever and rock shaft to eliminate jerking, and the universal joints at the ends of the pitman reduce wear and frictional resistance to a smooth even operation.

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

A pump jack comprising a tubular standard having vertical slots in opposite sides, a piston in the standard, a carrying arm projecting from the piston through one slot in the standard to be attached to a sucker rod, an angle lever fulcrumed at the opposite side of the standard, a pitman passing through a

slot in the standard, a universal joint connecting one end of the pitman with the lower end of the piston, a universal joint connecting the opposite end of the pitman with the lever, a post spaced from the fulcrum of the lever, an arm fixed to the fulcrum of the lever, a cable attached to said arm and running over the post, and a counterbalance carried by the cable.

In testimony whereof I have signed this specification.

ALONZO W. FERGUSON.