B. MOORE AND G. O. STANSBURY.

PUMPING JACK.

APPLICATION FILED APR. 14, 1919.

1,310,365. Patented July 15, 1919.

Fig. 1.

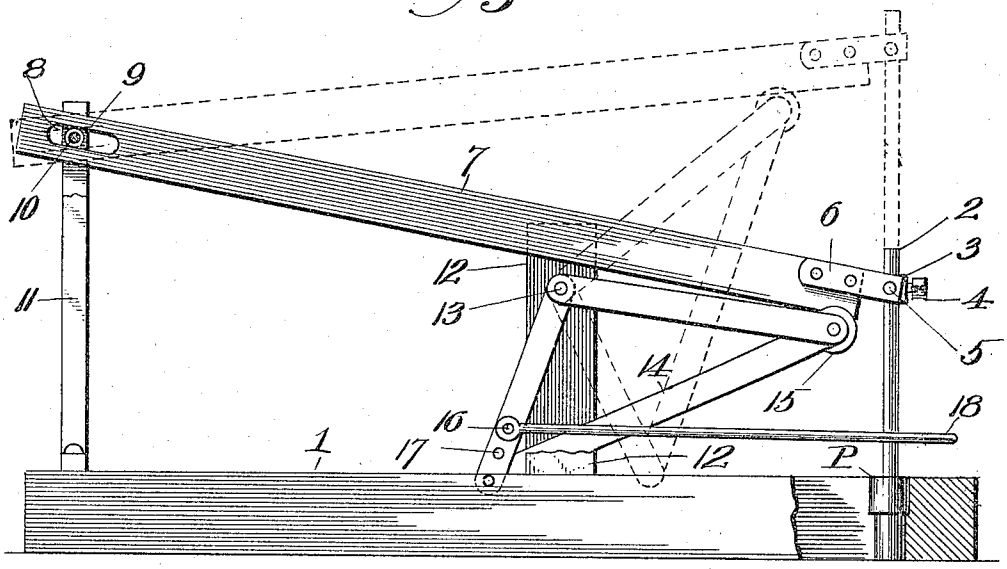
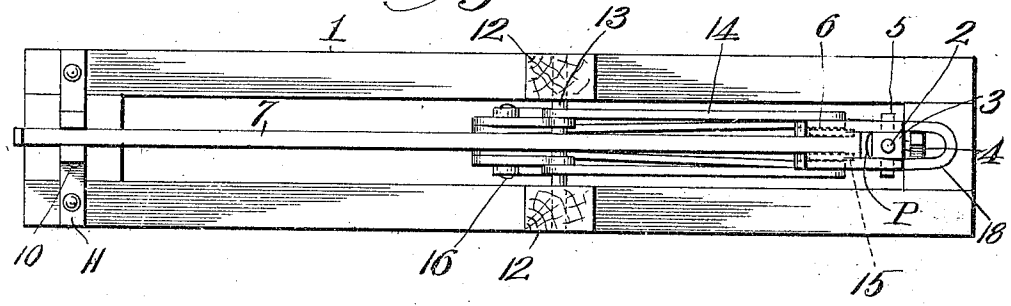


Fig. 2.



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PUMPING-JACK.

1,310,365. Specification of Letters Patent. Patented July 15, 1919.

Application filed April 14, 1919. Serial No. 289,998.

To all whom it may concern:

Be it known that we, BENTON MOORE and GARRETT O. STANSBURY, citizens of the United States, and residents, respectively, of Cherryvale, in the county of Montgomery and State of Kansas, and of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Pumping-Jacks, of which the following is a specification.

This invention relates to oil well pumping jacks and has for its object to produce a simple and efficient pumping mechanism which shall exert its greatest leverage at the beginning of the power stroke and gradually diminish such leverage to the end of such stroke, and in which practically all tendency of the lever beam to bend the piston stem or polish rod as it is generally termed, shall be avoided. A further object is to produce a pump-jack of the character outlined, which can be made and installed at low cost.

With these objects in view the invention consists in certain novel and useful features of construction and combinations of parts as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which:

Figure 1, is a side elevation of a pumping jack embodying the invention, certain parts being broken away to disclose features otherwise more or less hidden.

Fig. 2, is a top plan view of the pumping jack.

In the said drawing, 1 indicates a suitable bed frame built around the polish rod 2 of an oil well pump, the head of the casing thereof appearing at P, and 3 is a collar secured upon said rod by a set screw 4, and provided with oppositely projecting trunnions 5 pivotally engaged by a pair of plates or extensions 6 projecting from the front end of a lever or beam 7, the same having a longitudinal slot 8 at its rear end whereby it is slidingly fulcrumed on an antifriction roller 9, mounted on a rod 10 connecting a pair of standards 11 fastened to the bed frame 1.

At an intermediate point of the bed frame is a pair of standards 12, and connecting said standards is a pivot 13 for a triangular lever 14 underlying the lever beam 7, and provided with a grooved roller 15 engaging and receiving the lower edge of the lever beam, it being noted by reference to Fig. 1 that when the lever beam is in its lowered position the roller of the triangular lever is in engagement with the beam at the front end thereof and hence is in position at the beginning of the ensuing up stroke, to apply the greatest leverage upon the beam.

To operate the triangular lever, its rear or depending arm has a cross pin 16 engaging one or another of a series of holes 17 in said arm, and pivotally connected to said pin is a connecting rod or clevis 18, for engagement with a shackle rod or the like, not shown, whereby the triangular lever and hence the lever beam and polish rod are operated, and in this up and down swinging movement of the lever beam, which slides back and forth at its slotted end upon the roller 9, its front end where engaged with the trunnions 5 travels vertically upward and downward without imposing any appreciable lateral or bending strain on the polish rod, it being also understood that the reciprocation of the shackle rod referred to, determines the strokes of the levers and the length of movement of the polish rod.

The triangular lever as shown, is of skeleton form to give it the required stiffness against lateral movement, that is to say the sides of said triangular lever are composed of similar bars spaced apart, with the hypotenuse side connecting the front and lower ends respectively of the upper and the depending arms of said lever.

Pumping jacks constructed as shown and described have proven very successful in use and are very desirable because of their simplicity and comparative cheapness, and while the preferred construction is shown and described, it is obvious that it may be modified in minor particulars without departing from the principle of construction involved.

We claim:

1. A pumping jack comprising a fulcrum, a lever beam slidably fulcrumed thereon and pivotally connected at its front end to the polish rod of an oil well pump, a lever fulcrumed below and at a point intermediate the length of said lever beam and having a rolling engagement with the underside of the latter, and means for rocking said lever to cause it on its upward move-

ment to raise the lever beam and gradually shorten its leverage thereon during such movement.

2. A pumping jack comprising a suitable support, a fulcrum thereon, a roller journaled on said fulcrum, a lever beam having a longitudinal slot in its rear end engaging said roller, and having forwardly projecting arms at the front end pivoted to the polish rod of an oil well pump, a fulcrum below said beam and at a point intermediate the length thereof, a triangular lever pivoted on said last-named fulcrum and embodying a depending arm and a forwardly projecting arm and a roller carried at the front end of the latter and engaging the underside of said lever beam, and means connected to the depending arm for imparting rocking movement to said triangular lever.

3. A pumping jack comprising a bed frame, a guide for the polish rod of an oil well pump, a pair of standards mounted on said frame and carrying between them a roller, a lever beam having a longitudinal slot engaging said roller, and a pair of extensions projecting from its front end and pivotally connected with the said polish rod, a pair of standards upon the bed frame at an intermediate point of the length thereof, a triangular lever fulcrumed on and between said last-named standards and underlying said lever beam, a roller carried at the front end of said triangular lever and engaging the underside of said lever beam, and a link pivotally connected to said triangular lever and imparting rocking movement thereto for raising and lowering said lever beam.

In testimony whereof, we affix our signatures.

BENTON MOORE,
GARRETT O. STANSBURY.

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