

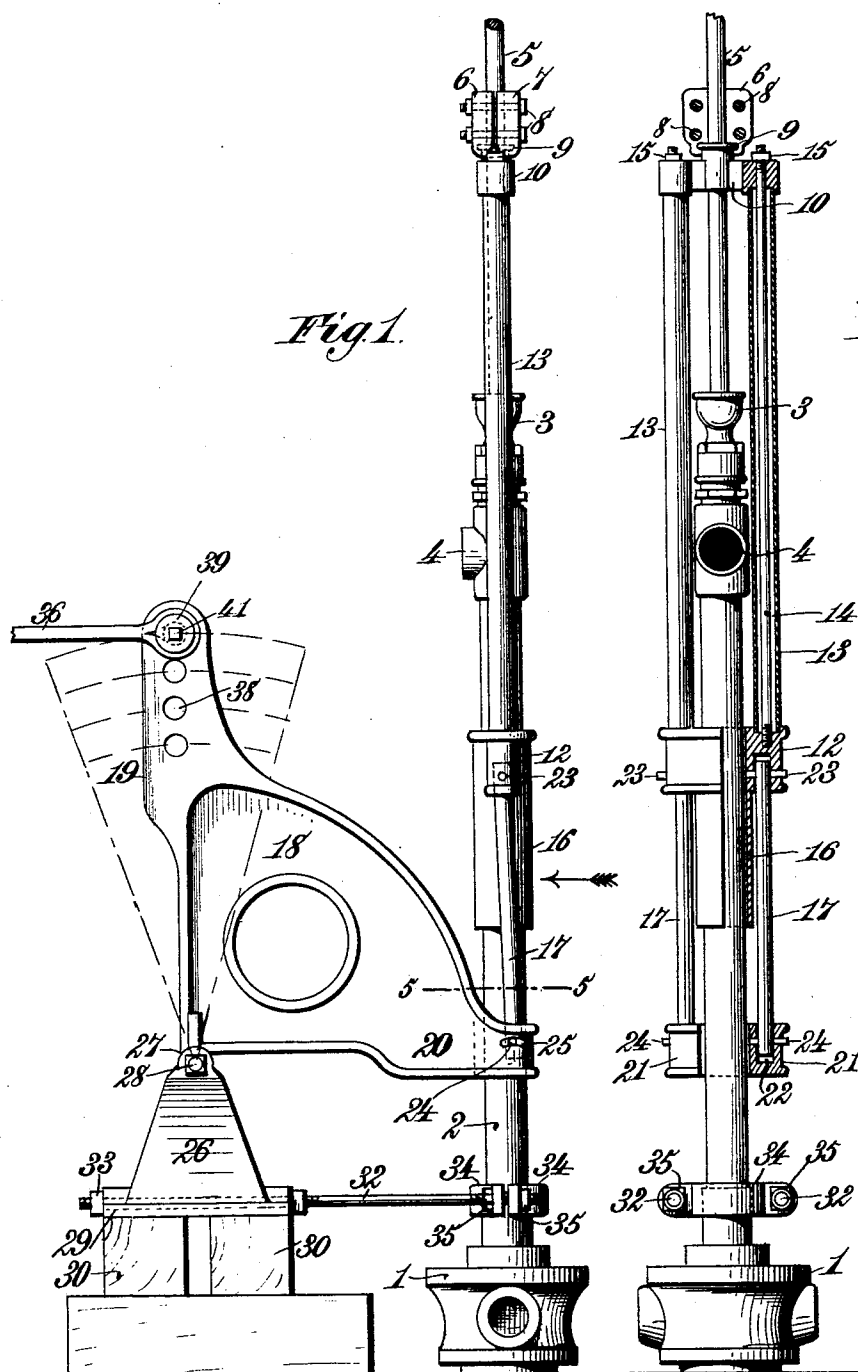
(No Model.)

2 Sheets—Sheet 1.

T. G. LANEY.
PUMPING JACK FOR OIL WELL PUMPS.

No. 586,502.

Patented July 13, 1897.



Witnesses.
Robert G. Gurratt,
Albert H. Norris.

Inventor:
Thomas G. Laney.
By *James L. Norris,*
Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

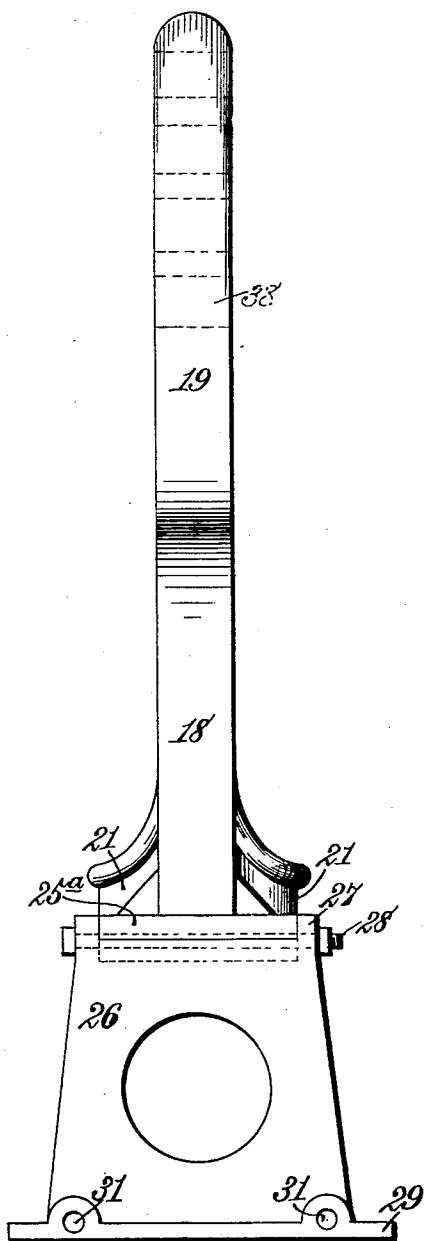


Fig. 6.

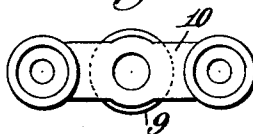


Fig. 4.

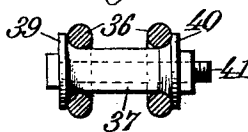


Fig. 5.

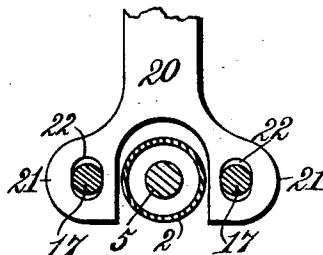
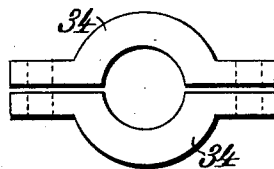


Fig. 7.



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UNITED STATES PATENT OFFICE.

THOMAS G. LANEY, OF LIMA, OHIO.

PUMPING-JACK FOR OIL-WELL PUMPS.

SPECIFICATION forming part of Letters Patent No. 586,502, dated July 13, 1897.

Application filed January 14, 1897. Serial No. 619,242. (No model.)

To all whom it may concern:

Be it known that I, THOMAS G. LANEY, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have
5 invented new and useful Improvements in Pumping-Jacks for Oil-Well Pumps, of which the following is a specification.

This invention relates to that class of pumping-jacks for oil and other wells wherein a
10 pivoted bell-crank lever is connected at one end with the polish or pump rod and at the other end with an engine or motor for the purpose of working the pumping mechanism.

The chief objects of my invention, concisely
15 stated, are to provide a solid and strong base or support for the pumping-lever of the jack, to provide novel means for connecting the pumping-lever with the polish-rod whereby the latter will be reciprocated in a perpen-
20 dicular plane with no liability of being bent or forced laterally out of plumb-line, and to provide new and improved devices whereby a polish-rod reciprocated by the pivoted lever of a pumping-jack can be axially rotated to
25 loosen or remove paraffin while it is firmly and securely held in operative connection with the pumping-lever on the downstroke of the pump.

To accomplish these objects my invention
30 involves the features of construction, the combination or arrangement of parts, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

35 Figure 1 is a side elevation of my improved pumping-jack in operative connection with the polish-rod of an oil-well pump. Fig. 2 is a sectional side elevation looking in the direction of the arrow, Fig. 1. Fig. 3 is a detail elevation of the pumping-lever and its
40 base or support. Fig. 4 is a detail view showing the device by which the pull-rods are connected with the pumping-lever. Fig. 5 is a detail sectional plan view taken on the line
45 5, Fig. 1. Fig. 6 is a detail plan view of the cross-head, to which the polish-rod is connected by a clamp; and Fig. 7 is a detail plan view of the sectional clamp for connecting the tubing with the base or support of the pump-
50 ing-lever through the medium of tie-bolts.

In order to enable those skilled in the art

to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the head of the
55 well-casing, from which rises to a suitable height the tubing 2, having near its upper end a stuffing-box 3 and a lateral outlet 4, designed to connect with an oil-tank. The polish-rod 5 of the pumping mechanism ex-
60 tends through the stuffing-box and is rigidly clamped at its upper portion between two clamp-sections 6 and 7, united through the medium of bolts 8 and constructed on their
65 inner sides with semicircular grooves to receive a circular enlarged head 9, rising from the center of a cross-head 10, the construction being such that the clamp can turn on the
70 cross-head, and, as the clamp grips the polish-rod, the latter can be axially rotated in the cross-head for the purpose of loosening or removing paraffin.

The ends of the cross-head 10 are rigidly connected with a ring or collar 12 through the medium of vertical tubes 13 and tie-bolts
75 14, which pass through the tubes and are suitably connected to the cross-head and to the ring or collar. As shown, the lower ends of the tie-bolts 14 are screwed directly into the collar or ring, while their upper ends are se-
80 cured to the cross-head by screw-nuts 15. The collar or ring 12 is susceptible of sliding vertically upon the tubing 2 and is preferably constructed with a sleeve-like portion 16, which materially aids in guiding the collar
85 or ring in its reciprocating motions on the tube. The ring or collar is connected by rigid rods 17 with one arm of a bell-crank lever 18, pivoted at its angle, as will hereinafter appear, and comprising two arms 19 and 20, which in
90 the normal position of the lever project, respectively, vertically and horizontally. The horizontal arm 20 is bifurcated or forked to provide two opposite members 21, having vertical sockets 22 formed therein. These
95 sockets are preferably oblong in cross-section to permit the necessary motions of the rigid rods 17, as will hereinafter appear. The upper ends of the rods 17 are pivotally connected with the ring or collar 12 through the me-
100 dium of transverse pivot-pins 23, and the lower ends of the rods are connected with pins

24, which project through segmental slots 25, formed laterally through the members 21, all in such manner that while the bell-crank lever moves in the arc of a circle the rigid rods 17 will practically operate to move the ring or collar 12 in a perpendicular plane upon the tubing 2, and through the rigid connections of this ring or collar with the cross-head 10 the polish-rod will be positively reciprocated in a right line with no danger or liability of being bent, forced, or moved laterally out of perpendicularity.

The bifurcated or forked construction of the horizontal arm 20 of the bell-crank lever permits the required motions of the latter while it embraces the tubing 2.

The angle of the bell-crank lever is formed integral or constructed with a cylindrical pintle 25^a, which seats into a semicircular pintle-socket formed in the top portion of a hollow casting 26. This casting is provided at its top portion with vertical ears or lugs 27, between which the ends of the pintle portion 25^a of the lever fit and by which the lever is held against displacement. A bolt 28 passes through the pintle portion 25^a of the lever and through the ears or lugs 27 for the purpose of holding the lever in operative connection with the casting. This casting constitutes a solid and strong base or support for the lever, and at its bottom portion it is constructed with a base-plate 29, designed to rest upon a timber foundation, as at 30. The base portion of the casting is constructed with two opposite parallel bolt-holes 31, through which tie-bolts 32 extend. The tie-bolts are secured at one end to the casting by screw-nuts 33, and at their other ends they are connected with a clamp-ring composed of two sections 34, rigidly clamped upon the tubing 2 by screw-nuts 35, applied to the tie-bolts 32. The tie-bolts serve to rigidly connect the casting 26 with the tubing 2, and by this means the casting is firmly braced and held during the rocking motion of the pumping-lever in operating the polish-rod.

The vertical arm 19 of the pumping-lever is connected by pull-rods 36 with an engine or motor (not shown) for the purpose of rocking the lever. The ends of the pull-rod encircle a sleeve 37, arranged in any one of a series of circular holes 38, provided in the vertical arm of the lever. The series of holes 38 render it possible to adjust the connection of the pull-rods with the lever for the purpose of varying the strokes of the latter and enabling it to make longer or shorter strokes to suit the conditions required. The sleeve 37 is formed at one end with an enlarged head 39 and is provided at the other end with a detachable enlarged head 40, held in place by a bolt 41 passing through the sleeve. By this construction it is possible to fit the sleeve through eyes formed in the ends of the pull-rods and then to apply the head 40 and bolt 41, so that the pull-rods are securely connected with the lever through the medium of a piv-

otal connection which secures easy and perfect motion of the parts.

When the pumping-lever is rocked by the pull-rods, a reciprocating motion is imparted to the polish-rod, and in the operation of the parts the rigid rods 17 oscillate to and fro, first to one side and then to the other side of a perpendicular line, these motions being rendered possible by the pivotal attachment of the upper ends of the rods and the pin-and-slot connection of the lower ends of the rods with the pumping-lever.

The interlocking connection between the clamp-sections 6 and 7 and the cross-head 10 effectually prevents the disengagement of the clamp from the cross-head on the downstroke of the polish-rod. Inasmuch as the head 9 of the cross-head is circular and fits circularly-shaped grooves in the clamp-sections 6 and 7 and rigidly clamps the polish-rod it is possible to axially rotate the latter by simply rotating the clamp-sections by any suitable means. I do not, however, confine myself to rotating the polish-rod by acting upon the clamp-sections, as it is possible to rotate the polish-rod by first loosening the nuts of the bolts 8, so that the polish-rod can be turned independent of the clamp-sections.

The semicircular pintle-socket in which the pintle portion 25 of the pumping-lever seats is adapted to contain a supply of lubricating material, and the same remarks apply to the vertical sockets 22 in the bifurcated or forked end of the lever.

Having thus described my invention, what I claim is—

1. The combination with the polish-rod, and tubing of a well-pump, of a collar or ring slidable on the tubing, rigid connections between the collar or ring and the polish-rod, rods pivoted at their upper ends to the collar or ring and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one provided with segmental slots in which said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.

2. The combination with the polish-rod, and tubing of a well-pump, of a cross-head connected with the polish-rod, a collar or ring slidable on the tubing, rods connecting the cross-head with the collar or ring, rods pivoted at their upper ends to the collar or ring and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one provided with segmental slots in which said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.

3. The combination with the polish-rod, and tubing of a well-pump, of a collar or ring slidable on the tubing, rod connections between the collar or ring and the polish-rod, rods pivoted at their upper ends to the collar or ring and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one bifurcated to embrace the tub-

ing and provided with segmental slots in which the said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.

5 4. The combination with the polish-rod, and tubing of a well-pump, of a clamp secured to the polish-rod and rotatable for axially turning the polish-rod, a cross-head mounted on the polish-rod and to which said
10 clamp is swiveled, a collar or ring sliding on the tubing, connections between the cross-head and the collar or ring, a pumping-lever having two lever-arms, pivotal connections between one of the lever-arms and said collar
15 or ring, and a pull-rod connected with the other lever-arm, substantially as described.

5 5. The combination with the polish-rod, and tubing of a well-pump, of a two-part clamp secured to the polish-rod, a cross-head
20 held between the parts of the clamp and in which the polish-rod is susceptible of axial rotation, a collar or ring slidable on the tubing, connections between the cross-head and the collar or ring, a pivoted pumping-lever
25 having two lever-arms, connections between one of the lever-arms and the sliding collar or ring, and a pull-rod connected with the other lever-arm, substantially as described.

6 6. The combination with the polish-rod, and tubing of a well-pump, of a two-part clamp secured to the polish-rod, a cross-head
30 secured between the two parts of the clamp and in which the polish-rod is susceptible of axial rotation, a collar or ring slidable on the tubing, rigid rod connections between the collar or ring and the cross-head, rods pivoted
35 at their upper ends to the collar or ring, and having lateral pins at their lower ends, a pivoted pumping-lever having two lever-arms, one bifurcated to embrace the tubing and
40 provided with segmental slots in which said lateral pins work, and a pull-rod connected with the other lever-arm, substantially as described.

45 7. The combination with the polish-rod, and tubing of a well-pump, of a two-part clamp secured to the polish-rod, a cross-head having a central portion held between the two parts
50 of the clamp, a collar or ring slidable on the tubing, rod connections between the cross-head and the collar or ring, rods pivoted at their upper ends to the collar or ring, a pumping-lever having two lever-arms, pivotal connections between one of the lever-arms and
55 the said pivoted rods, and a pull-rod connected with the other lever-arm, substantially as described.

8 8. The combination with the polish-rod, and tubing of a well-pump, of a pivoted bell-crank lever having two lever-arms, one of
60 which is provided with a plurality of orifices arranged one above another, a sleeve constructed to fit any one of said orifices, pull-rods engaged with the ends of the sleeve, and

connections between the other lever-arm and the polish-rod, substantially as described. 65

9. The combination with the polish-rod, and tubing of a well-pump, of a cross-head connected with the polish-rod, a collar or ring
70 slidable on the tubing, connections between the cross-head and the collar or ring, rods pivoted at their upper ends to the collar or ring, a pivoted bell-crank lever having two lever-arms, one of which is provided with a plurality of orifices arranged one above another, a sleeve constructed to fit any one of
75 said orifices, pull-rods engaged with the ends of the sleeve, and connections between the other lever-arm and the said pivoted rods, substantially as described. 80

10. The combination with the polish-rod, and tubing of a well-pump, of a lever-support having a pintle-socket in its top portion and bolt-holes in its base, tie-bolts engaging said
85 bolt-holes and connected with the tubing, a foundation on which the said lever-support is mounted, a bell-crank lever having a pintle portion at its angle seated in the pintle-socket, a bolt connecting the pintle portion of the lever with the lever-support, connections
90 between one arm of the lever and the polish-rod, and a pull-rod connected with the other lever-arm, substantially as described.

11. The combination with the polish-rod, and tubing of a well-pump, of a lever-support
95 having a pintle-socket and upwardly-projecting ears or lugs at its top portion, and bolt-holes in its base, a two-part clamp mounted on the tubing, tie-bolts engaging the bolt-holes of the lever-support and connected with
100 said two-part clamp, a foundation on which the lever-support is mounted, a bell-crank lever having a pintle portion at its angle seated in the pintle-socket between said ears or lugs, a bolt passing through the ears or
105 lugs and the pintle portion of the lever, rod connections between one arm of the lever and the polish-rod, and pull-rods adjustably connected with the other arm of the lever, substantially as described. 110

12. The combination with the polish-rod, and tubing of a well-pump, of a pivoted bell-crank lever having two lever-arms, one provided with a plurality of transverse orifices,
115 a sleeve constructed to fit in one of said orifices and having a detachable head at one end, a bolt for securing said head in position, pull-rods engaged with the ends of the sleeve, and connections between the other lever-arm and the polish-rod, substantially as described. 120

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

THOMAS G. LANEY.

Witnesses:

M. J. SANFORD,
W. T. COPELAND.