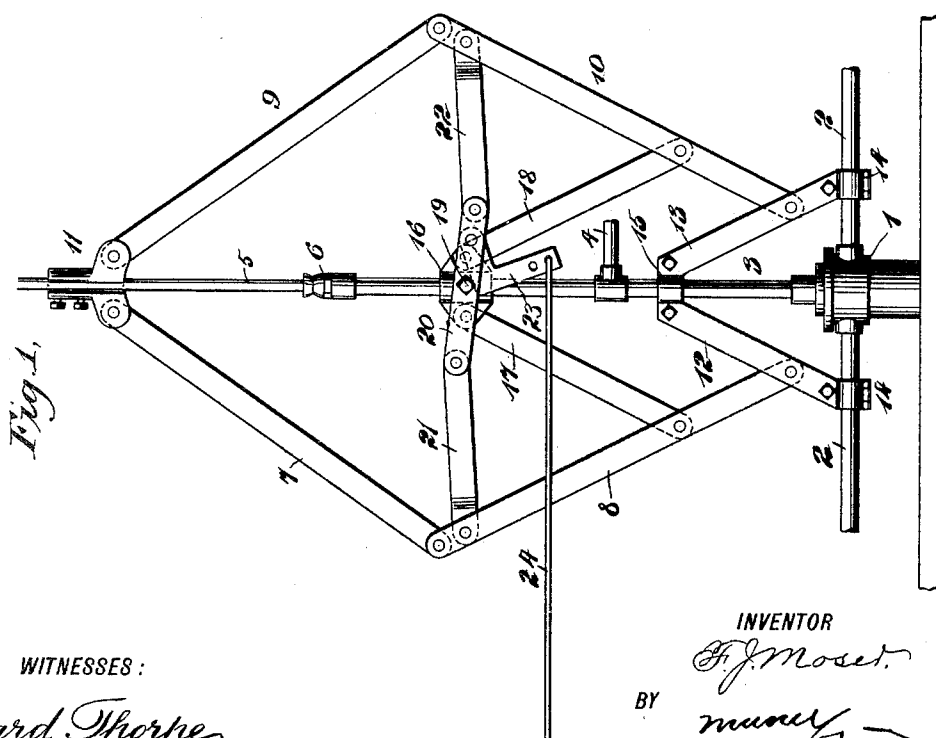
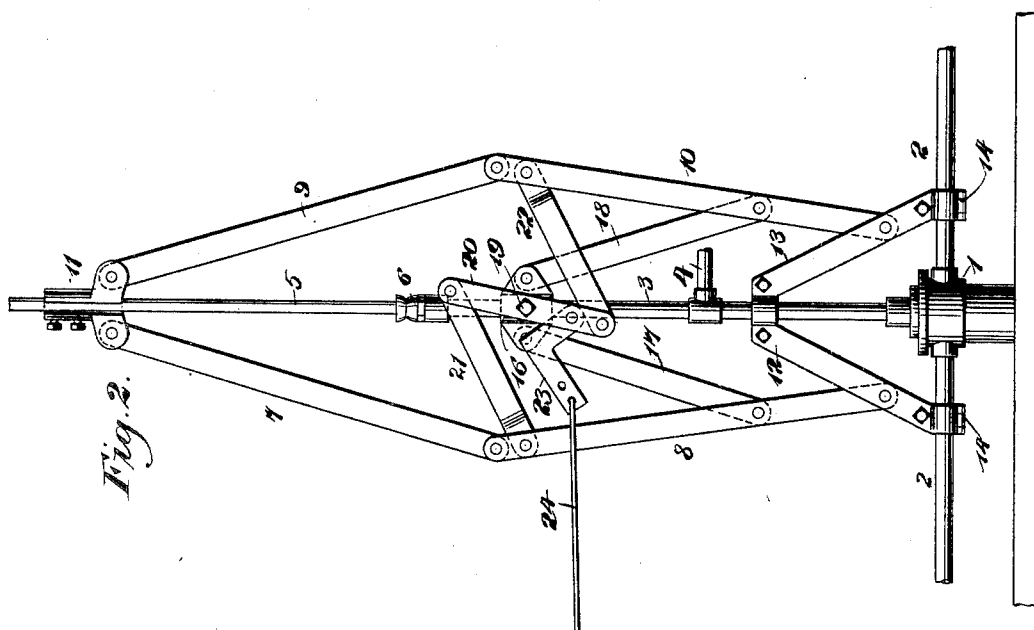


(No Model.)

F. J. MOSER.
PUMPING JACK FOR WELLS.

No. 586,860.

Patented July 20, 1897.



WITNESSES :

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FRED J. MOSER, OF KANE, PENNSYLVANIA.

PUMPING-JACK FOR WELLS.

SPECIFICATION forming part of Letters Patent No. 586,860, dated July 20, 1897.

Application filed October 12, 1896. Serial No. 608,604. (No model.)

To all whom it may concern:

Be it known that I, FRED J. MOSER, of Kane, in the county of McKean and State of Pennsylvania, have invented new and useful Improvements in Pumping-Jacks for Wells, of which the following is a full, clear, and exact description.

This invention relates particularly to devices for operating oil-well pumps where the power is applied from a distance. Objection is found in some of the pumping-jacks now in use when the connection is so made with a plunger-rod that said rod during its vertical movement is deflected laterally, which results in wearing away the stuffing-box or the packing therein to such an extent that a leak is formed.

One object of my invention is to do away with the heavy and cumbersome framework usually employed in connection with pumping-jacks; and a still further object is to provide a jack combining a maximum of strength with a minimum of weight, so that the device may be easily handled.

I will describe a pumping-jack embodying my invention, and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is an elevation of a pumping-jack embodying my invention, showing the same in its position on the downward stroke of the pump-rod; and Fig. 2 is an elevation showing the same in its position at the extreme upward stroke of the pump-rod.

Referring to the drawings, 1 designates the casing of a well; 2, the gas-pipes leading therefrom; 3, the well-tubing, from which an oil-pipe 4 leads, and 5 shows the plunger-rod operating through a stuffing-box 6 on the upper end of the tube 3 and connected at its lower end to the sucker-rod by any well-known means.

The invention comprises toggle-links 7 and 8 and a pair of toggle-links 9 and 10. The upper ends of the links 7 and 9 are pivotally connected, respectively, to opposite sides of a collar 11, rigidly secured to the plunger-rod 5, as here shown, by means of set-screws.

This collar 11 has oppositely-extended lugs to which the said links 7 and 9 are pivoted.

The lower ends of the links 8 and 10 are each pivotally connected to a stationary device. As here shown, this stationary device consists of rods 12 and 13, each having a coupling 14 at its lower end, adapted to be engaged around the gas-pipe 2. The rods 12 and 13 converge toward their upper ends and are clamped to the tubing 3, as indicated at 15. Mounted to slide on the tubing 3 is a collar 16, having oppositely-extended lugs to which the upper ends of fulcrumed centering-rods 17 and 18 are pivoted, said fulcrumed centering-rods diverging downward and being respectively connected pivotally to the links 8 and 10.

Fulcrumed on a stud 19, extended from the collar 16, is a rock-lever 20, and from one end of this rock-lever 20 a drawer-link 21 extends to a pivotal connection with the link 8 just below its pivotal connection with the link 7, and from the opposite end of said rock-lever 20 a drawer-link 22 extends to a pivotal connection with the toggle-link 10 just below its pivotal connection with the link 9.

Pivotally connected to the rock-lever 20, between its fulcrum-point and its pivotal connection with the link 22, is one arm of an angle-lever 23. The upper arm of this angle-lever 23 is of sufficient length to engage with the stud 19, upon which the lever 20 is fulcrumed, and the downwardly-extended arm of said lever 23 is provided with means for the attachment of a pump-line 24, extending from a distant point. This pump-line 24 may be of any of the usual constructions—such, for instance, as a cable, a rod, or a wooden bar.

In operation it is obvious that by drawing or pulling upon the line 24 by means of the usual devices the angle-lever 23, engaging with the stud 19, will rock the rock-lever 20, and this rocking of the rock-lever 20, by drawing inward the links 21 and 22, will draw the pivotal points of the respective pairs of toggle-links toward each other, and thus the rod 5 will be moved upward. When near the limit of the upward stroke, the lug 19 will move out of engagement with the toggle-lever 23, and then a direct pull from the pivotal point of said lever 23 will complete the up-

ward stroke. During the upward and downward movements of the toggle-links it is obvious that the bars 17 and 18 will move the collar 16 to cause the pump to maintain the fulcrum-point of the lever 20 at all times in a horizontal plane with the pivotal connections of the links 21 and 22 with the links 8 and 10. Upon the return of the line 24 the parts will move downward by gravity to the position indicated in Fig. 1, to be again elevated as before described.

It will thus be seen that a device embodying my invention requires no framework to rest it on or to assist in its operation, and, further, that its construction permits it to be made of suitable metal, and that it may be easily and quickly disconnected or attached to a pump.

I have described the invention as particularly adapted to oil-well pumps, but it is obvious that it may be as readily applied to water-pumps, especially where such pumps are used for irrigation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A well-pumping jack comprising pairs of toggle-links, the upper link of each pair being adapted for a swinging connection with a sucker-actuating rod, the lower link of each pair being pivoted to a device adapted to maintain a fixed position, a collar adapted to move vertically on a pump-tube, a rod having pivotal connection with said collar and also with a member of one pair of toggle-links, another rod having pivotal connection with said collar and also with a member of the other pair of toggle-links, a rock-lever fulcrumed on said collar, a link extended from one end of said rock-lever to a connection with a member of one pair of toggle-links, a link extended from the opposite end of said rock-lever to a connection with a member of the other pair of toggle-links, and an angle-lever pivotally connected to the rock-lever

and adapted to engage with the stud upon which said rock-lever is fulcrumed and also adapted for connection with an actuating device, substantially as specified.

2. A pumping-jack, comprising pairs of toggle-links, a collar adapted for engagement with a sucker-actuating rod and having oppositely-extended lugs to which the upper sections of the toggle-links are pivoted, upwardly-converging bars having clamps at their lower ends for engagement with gas-pipes leading from the well-tube, and adapted for connection at their upper ends with the well-tube, a collar adapted to move vertically on a well-tube, fulcrumed centering-rods pivotally connected at one end to said collar and at the opposite ends to the lower sections of the toggle-links, a rock-lever fulcrumed on said collar, link connections between the opposite ends of said rock-lever, and the lower sections of the toggle-links, and an angle-lever having pivotal connection with the rock-lever at a point between its fulcrum and one of its ends, the said angle-lever being adapted for engagement with the frame of the rock-lever and also being adapted for connection with an actuating rod or line, substantially as specified.

3. A pumping-jack, comprising pairs of toggle-links, a clamp or collar adapted for connection to a sucker-actuating rod, and to which the upper sections of the links are pivoted, a fixed device to which the lower link-sections are pivoted, a collar adapted for connection to a pump-tube, a rock-lever fulcrumed on said collar, links connecting the opposite ends of the rock-lever to the lower sections of the toggle-links, and an angle-lever pivoted to the rock-lever and adapted to engage near its angle with the fulcrum-point of the rock-lever, substantially as specified.

FRED J. MOSER.

Witnesses:

E. GIVEN,
AXEL PETERSON.