No. 849,166. PATENTED APR. 2, 1907.

E. SHAUAN.

PUMPING JACK.

APPLICATION FILED NOV. 10, 1906.

2 SHEETS—SHEET 1.

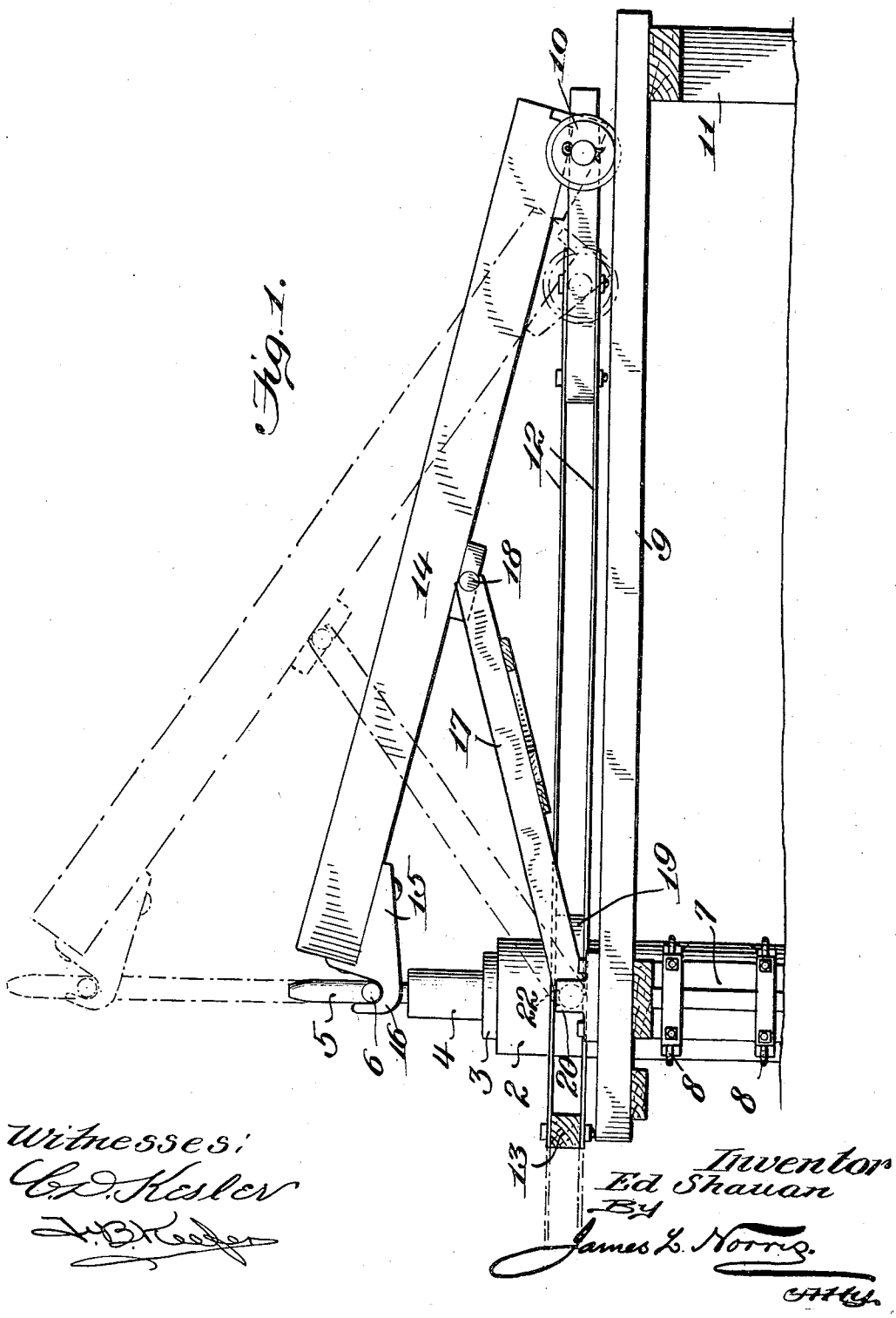

Fig. 1.

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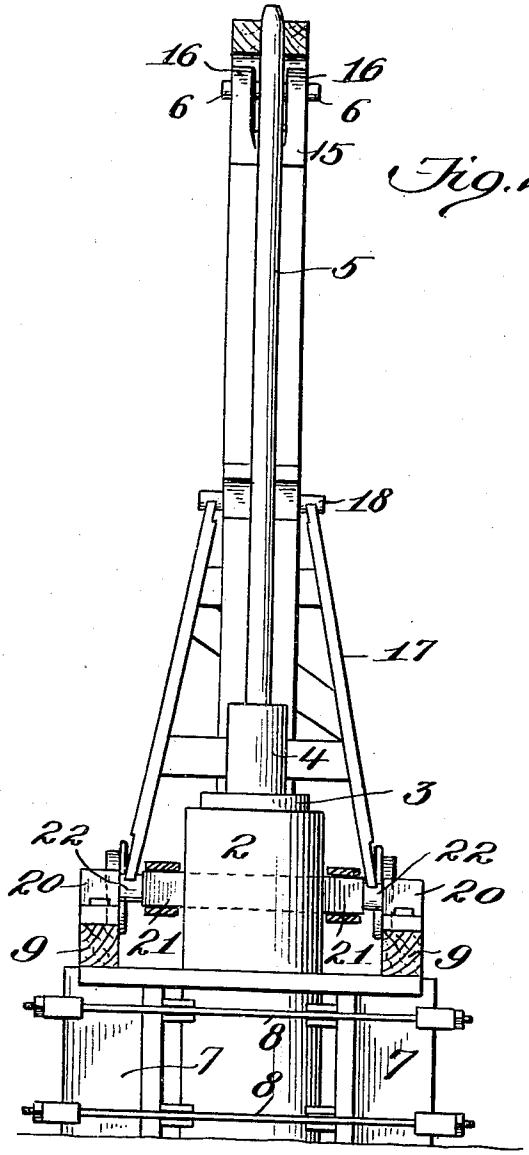

Fig. 2.

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UNITED STATES PATENT OFFICE.

ED SHAUAN, OF LIMA, OHIO.

PUMPING-JACK.

No. 849,166. Specification of Letters Patent. Patented April 2, 1907.

Application filed November 10, 1906. Serial No. 342,844.

To all whom it may concern:

Be it known that I, ED SHAUAN, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have invented new and useful Improvements in Pumping-Jacks, of which the following is a specification.

This invention relates to pumping-jacks.

A pumping-jack involving the invention possesses several advantages, one the facility and ease with which the polish-rod can be taken from or put into its working position. In fact, this result can be attained without disconnecting any of the parts.

Another advantage is the fact that the polish-rod is caused to follow a strictly straight path, so as to obviate wear on the rod or stuffing-box through which the same passes.

In the drawings accompanying and forming a part of this specification I illustrate in detail one effective embodiment of a jack including my invention, which to enable those skilled in the art to practice the invention will be hereinafter fully set forth.

In said description I will elaborate upon the advantages hereinbefore briefly alluded to and will point out fully others following the use of said jack.

Referring to said drawings, Figure 1 is a side elevation of a pumping-jack involving my invention, and Fig. 2 is a front elevation of said jack.

Like characters refer to like parts in both figures.

In the drawings the numeral 2 designates the drive-pipe, 3 the casing, and 4 the tubing, of a well, which parts may be and preferably are of the ordinary construction. A polish-rod, as 5, is vertically reciprocative in the tubing 4, and this polish-rod is represented as having near its upper end a cross-head or transverse portion 6, consisting in the present instance of two arms of similar length extending oppositely from said rod, and said arms are preferably adjustable. The particular utility of the cross-head or transverse portion 6 will be hereinafter set out. The rod, therefore, is approximately of cruciform shape. I have shown two jaws 7 as engaging the drive-pipe 2 at opposite sides thereof and held in firm relation therewith by rods, as 8, such parts constituting a clamp and the jaws constituting a suitable support for rails, as 9, shown as disposed in parallelism. The two rails 9 serve as a suitable way for a traveling carriage, as 10. The rails 9 may be supported at their rear by uprights, as 11. Said rails are preferably disposed in a level position, so that the angle they form with the polish-rod is a right angle. It is not necessary that I should provide rails as a means for supporting the carriage, nor is it necessary that the rails if they be used be upheld in the manner described. Those portions of the rails 9 along which the two wheels of the carriage 10 travel are preferably faced with iron or other metal to prevent undue wear upon the rails. From the sides of the carriage 10 there is shown as extending in a forward direction upper and lower strips 12, preferably of metal, the strips being connected to the carriage in any desirable way and the two pairs thereof being represented as connected by a cross-bar, as 13, to which the device (not shown) for reciprocating the carriage along the rails 9 may be connected.

The carriage 10 constitutes a traveling support for the lever-like beam 14, the rear end of which is jointed to said carriage in any desirable way for rocking or oscillatory movement relative to said carriage. On the forward movement of the carriage the inner end of the beam 14 is elevated, while on the opposite or return movement of said carriage said beam can drop. To the forward end of the beam 14 I have represented as suitably fastened a bracket, as 15, from which there are extended two similar hooks, as 16, in which under normal or working conditions the branches of the cross-head 6 fit, the polish-rod 5 at this time being between said hooks. The connection between the beam and rod is an easy separable one and is one of several that may be advantageously utilized for this purpose.

I prefer to provide for the beam 14 an oscillatory fulcrum member, which may be of any suitable nature, but which is shown as consisting of a ladder-like member 17, the sides of which converge toward the outer ends thereof, said outer ends being represented as having notches to receive the journals or studs 18, extending laterally from the beam 14, approximately at the center of the under side thereof. From the drive-pipe 2 I have represented as extending outwardly at diametrically opposite points projections, as 19, having squared outer portions, as 20, ordinarily connected suitably with the rails 9. These projections also have squared inner portions, as 21, the upper and lower sides

of which are engaged by the two pairs of strips 12 on the reciprocation of the carriage 10. The projections 19 therefore serve as guides for said strips and prevent tipping of the two-wheeled carriage 10. Said projections 19 are provided between the squared portions 20 and 21 thereof with pivot portions, as 22, which fit notches in the inner ends of the sides of the member 17 and upon which said part 17 rocks on the motion of the carriage. The distances between the cross-head 6 and studs 18 and between said studs 18 and pivot members 22 and between said studs 18 and axes of the wheels of the carriage 10 are in the present case exact, so as to assure the perpendicular movement of the polish-rod 5 on the travel of the carriage 10. By changing this distance the stroke of the beam, and necessarily that of the polish-rod, can be adjusted. As will be apparent, I provide a movable support and a floating fulcrum for the beam.

It will be assumed that the carriage 10 is back and that the beam 14, fulcrum member 17, and polish-rod 6 are down. On the movement forward of the carriage the beam is advanced therewith, and owing to the presence of the member 17 its forward end is elevated, so as to lift the polish-rod. On the backward movement of the carriage the several parts return by their own weights to their original positions. On the forward movement of the carriage, at which time the polish-rod is elevated, the latter is caused to follow strictly a perpendicular direction. It is a very simple matter to pull the rod from the well, for all that is necessary to do is to lift the same a sufficient distance to permit the beam being swung back out of the way. On the introduction of the polish-rod into the well and when the same is practically near its operative position the beam can be turned to its working relation and the polish-rod by its own weight permitted to settle in place with the branches of the cross-head 6 in the seats in the hooks 16. Should there be any break down, the polish-rod, owing to the cross-head thereon, cannot fall into the well.

What I claim is—

1. In a pumping-jack, a traveling carriage, a beam for operating the polish-rod, connected with said carriage for rocking motion relatively thereto, and a swinging fulcrum member for the beam.

2. In a pumping-jack, a traveling carriage, a beam connected with the carriage for rocking motion relatively thereto, a polish-rod operable by and separately associated with the beam, and a swinging fulcrum member for said beam.

3. In a pumping-jack, a polish-rod having a cross-head, a beam provided with hooks between which the polish-rod is located, and said hooks supporting said cross-head, a traveling carriage to which said beam is connected for rocking movement, and a swinging fulcrum member for the beam.

4. In a pumping-jack, a traveling carriage, a beam connected at one end with the carriage for rocking motion relatively thereto, a swinging fulcrum member acting against the beam between the ends thereof, and means on the beam opposite the end thereof connected with said carriage for elevating a polish-rod.

5. In a pumping-jack, a beam having means for operating a polish-rod, a movable support for the beam, and a movable fulcrum for said beam.

6. In a pumping-jack, a beam having means at one end for operating a polish-rod, and a floating fulcrum between the ends thereof, and a movable support to which the opposite end of said beam is connected.

7. In a pumping-jack, a traveling carriage, a beam connected at one end with said carriage for rocking movement relatively thereto, means upon the opposite end of said beam for elevating a polish-rod, and a swinging member supported by stationary bearings and pivotally associated with the beam between the ends thereof.

8. In a pumping-jack, a traveling carriage, a beam connected at one end with the carriage for rocking movement relatively thereto and having means at the opposite end for elevating a polish-rod, studs extending oppositely from the beam between the ends thereof, stationary pivots, and a ladder-like member, the ends of the sides of which are notched to fit said pivots and studs respectively.

9. In a pumping-jack, a horizontally-traveling carriage, a beam for operating the polish-rod in a perpendicular direction, connected with said carriage for rocking motion relatively thereto, and a swinging fulcrum member for the beam situated below the same.

10. In a pumping-jack, the combination of a polish-rod, a beam separably connected with said polish-rod for elevating the same, a traveling carriage to which the beam is flexibly connected, and a swinging fulcrum member supported for movement about a stationary axis and pivotally connected with said beam.

11. In a pumping-jack, a traveling carriage, a beam connected at one end with said carriage for rocking motion relatively thereto, and provided at the opposite end with means for separably engaging a polish-rod to move the same, and a swinging fulcrum member below the beam and engaging the latter between its ends.

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

ED SHAUAN.

Witnesses:

CHAS. F. SPRAGUE,

EUGENE T. LIPPINCOTT.