(No Model.) 2 Sheets—Sheet 1.

E. R. CURTIN.

PUMPING JACK.

No. 542,873. Patented July 16, 1895.

Fig. 1.

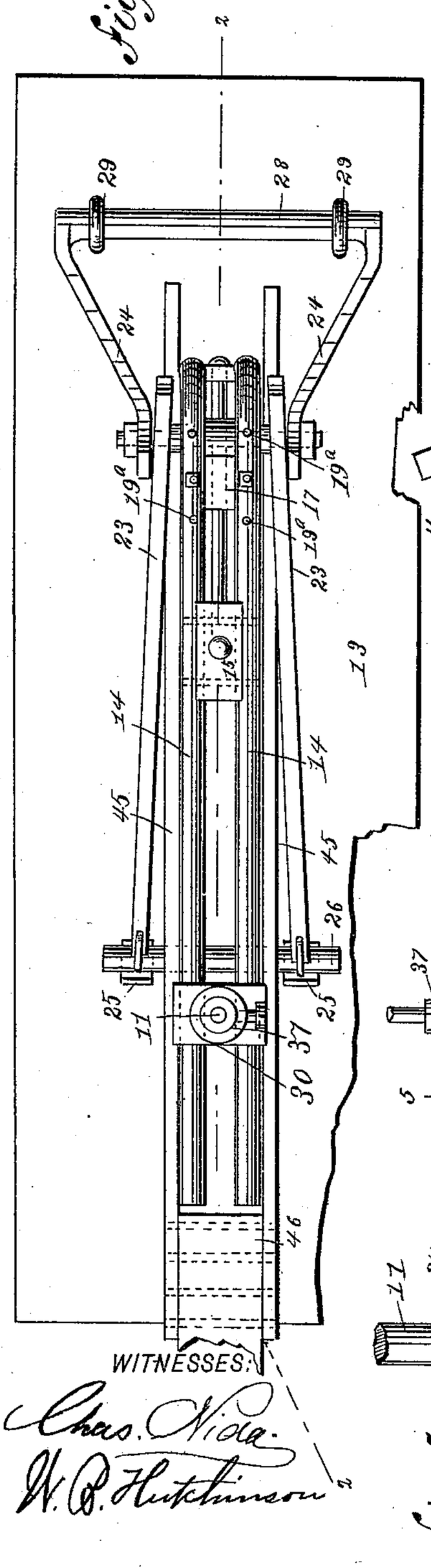


Fig. 6.

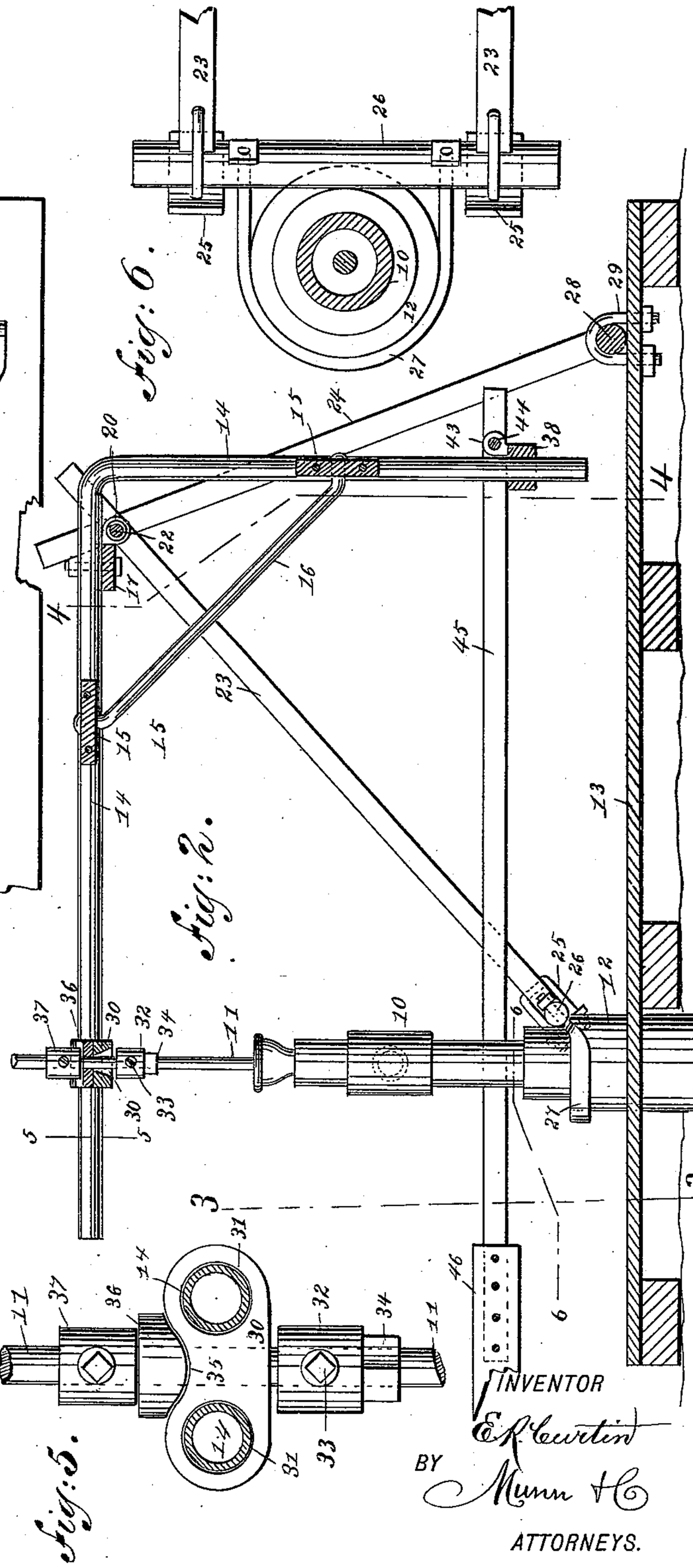


Fig. 2.

Fig. 5.

WITNESSES:

Chas. Nida.

W. B. Hutchinson

INVENTOR

E. R. Curtin

BY Munn & Co

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

E. R. CURTIN.

PUMPING JACK.

No. 542,873. Patented July 16, 1895.

Fig: 3.

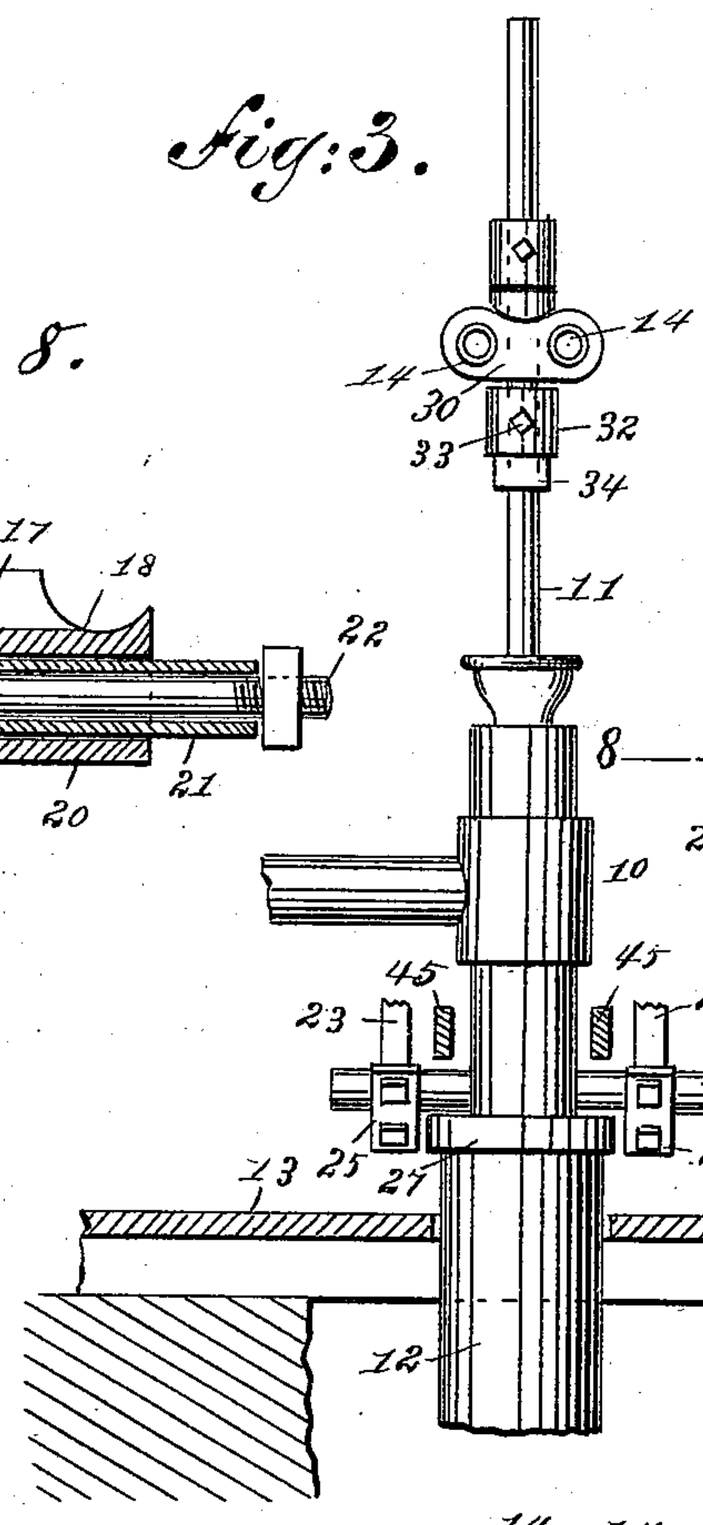


Fig: 7.

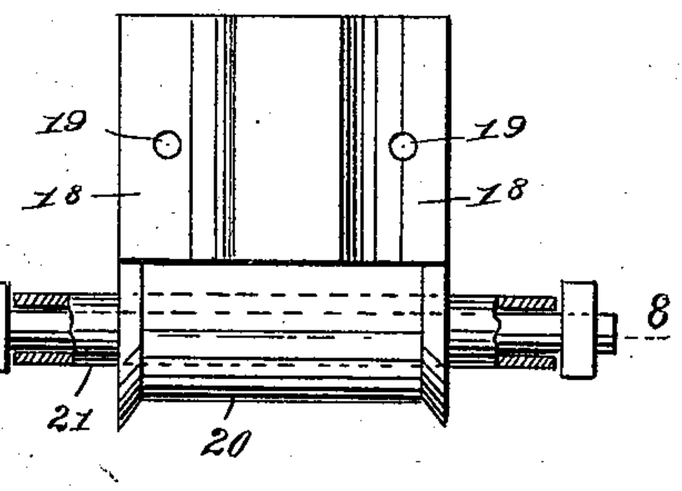


Fig: 8.

Fig: 4.

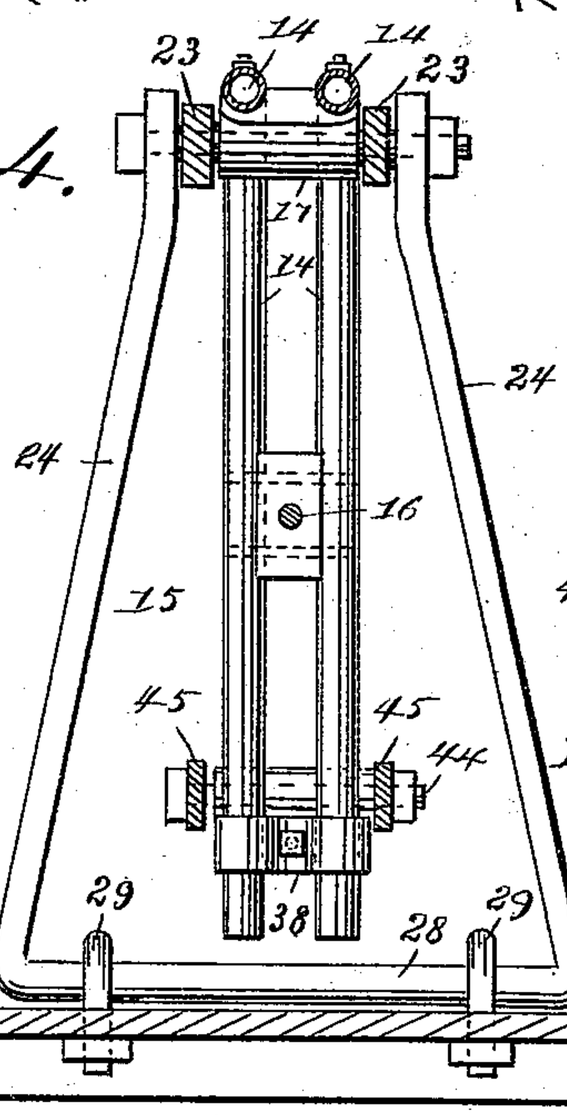


Fig: 9.

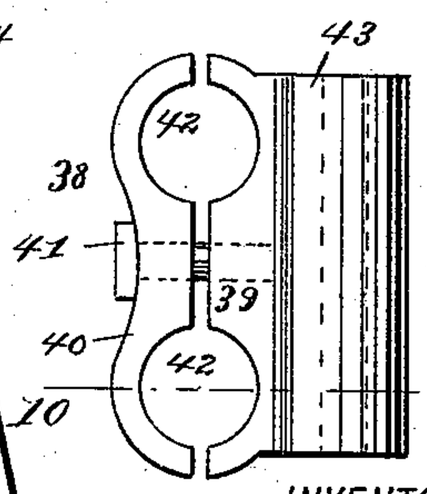
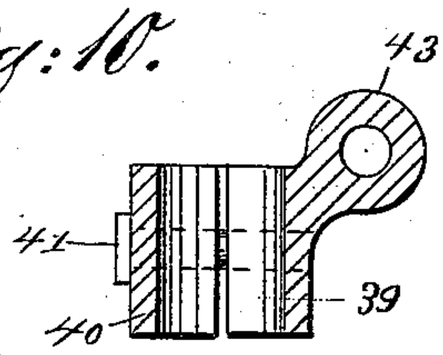


Fig: 10.



WITNESSES:

Chas. Nicla.

H. B. Hutchinson

INVENTOR

E. R. Curtin

BY

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EMMETT R. CURTIN, OF ST. MARY'S, OHIO.

PUMPING-JACK.

SPECIFICATION forming part of Letters Patent No. 542,873, dated July 16, 1895.

Application filed August 4, 1894. Serial No. 519,463. (No model.)

To all whom it may concern:

Be it known that I, EMMETT R. CURTIN, of St. Mary's, in the county of Auglaize and State of Ohio, have invented a new and Improved Pumping-Jack, of which the following is a full, clear, and exact description.

My invention relates to improvements in pumping-jacks, such as are used in applying power to pumps; and the object of my invention is to produce an extremely cheap and simple jack which may be used in connection with either water or oil wells, but is particularly well adapted for use in connection with the latter, which may be easily erected on the derrick of a well which is adapted to form a smooth working connection with the pump-rod, so as not to bend or cut the latter, which may be connected with an ordinary reciprocating-piston, which may be worked either side up, and which is very durable and strong.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

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

Figure 1 is a plan view of the pumping-jack embodying my invention, showing the same applied to a pump. Fig. 2 is a vertical longitudinal section on the line 2 2 of Fig. 1. Fig. 3 is a vertical section on the line 3 3 of Fig. 2. Fig. 4 is a vertical section on the line 4 4 of Fig. 2. Fig. 5 is a detail section on the line 5 5 of Fig. 2, showing the holder and guide connecting the pump-rod with the jack proper. Fig. 6 is a sectional plan on the line 6 6 of Fig. 2. Fig. 7 is a detail plan view, partly in section, of the saddle on which the body of the jack is fulcrumed. Fig. 8 is a cross-section on the line 8 8 of Fig. 7. Fig. 9 is a detail plan view of the clamp by means of which connection is made between the pitman and the jack, and Fig. 10 is a cross-section on the line 10 10 of Fig. 9.

I have shown the jack as applied to an ordinary pump 10, which is provided with the usual reciprocating pump-rod 11 and is connected with the drive-pipe 12 at a point above the ordinary derrick-floor 13. The body of the jack is in the form of a bell-crank formed, preferably, by two parallel pipes 14, which are arranged so that their upper arms lie horizontally and their lower ones vertically, as shown in Fig. 2, and to brace the pipes they are connected on opposite sides of their elbows by tie-plates 15, and these are connected by a brace 16 near the elbow. The bell-crank—that is, the pipes 14—is seated on a saddle 17, which is provided with longitudinal grooves 18, in which the pipes fit, and with bolt-holes 19, to receive the bolts by which the pipes are fastened to the saddle, the pipes being provided with a series of holes 19^a, as shown in Fig. 1, to receive the bolts and permit the stroke of the jack to be adjusted. The saddle is provided with a suitable box 20, in which is held a bearing-sleeve 21 to receive the bolt 22, by which the saddle is secured to the supporting-braces 23 and 24, which form, practically, the framework of the jack and which cross at their upper ends, as shown in Fig. 2.

The braces 23 extend forward and downward and are connected by clamps 25 with a cross-rod 26, which is fastened by a clip 27 to the drive-pipe 12, and the braces 24 extend downward and rearward and merge in a cross-piece 28, which is fastened by staples 29 or equivalent fastenings to the derrick-floor 13. It will be seen that the braces thus form an efficient and simple support, but it will be understood that other means for supporting the jack may be used without departing from the principle of the invention.

The connection between the pipes 14 and the pump-rod 11 is by means of a holder 30, which is held on the rod, having a relatively large central hole 30^a to permit the holder to oscillate, as shown in Fig. 2, and the holder is provided near opposite ends with holes 31 to receive the pipes 14, and thus when the pipes are moved up and down they slide through the holder which rocks on the rod 11, and the latter is vertically reciprocated.

The under side of the holder 30 is flat and rests on a collar 32, which is secured to the shaft by a set-screw 33 and has a wrench-head 34 thereon, the object of which is to enable the collar and rod 11 to be turned conveniently in case the rod becomes clogged with paraffine. The top of the holder 30 is dishing, as shown at 35, and fits against a washer

36, which is convex on its under side and is held in place by a collar 37 above it.

The connection between the pipes 14 and the working-pitman is by a clamp 38, which is shown best in Figs. 9 and 10, and which is fastened to the lower end of the pipe, as shown in Figs. 2 and 4. This clamp comprises oppositely-arranged jaws 39 and 40, which are held together by a bolt 41 and which are provided with sockets 42 to fit the pipes 14. The clamp 38 is provided with a box 43, which should be fitted with the sleeve similar to the sleeve 21, above described, and which receives the bolt 44, by which the clamp is held to the rods 45, which connect with the pitman 46, these rods extending parallel with the floor 13, and the pitman being reciprocated in the customary manner. It will be seen that when the pitman is reciprocated the pipes 14 will oscillate on their fulcrum, which is the bolt 22, and the upper arm or ends of the pipes, moving up and down as they do, will impart a similar movement to the pump-rod 11, thus working the pump. If it is necessary or desirable the jack may be worked the other side up—that is to say, the vertical members of the pipes 14 may point upward instead of downward, and the pitman may be connected to them and the jack worked in the way indicated.

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

1. The combination with the bell crank, of a pump-rod holder having a bearing through which the outer end of the horizontal member of the bell crank freely slides, a vertical enlarged opening through which the pump rod freely passes, and upper and lower pump rod collars between which the holder is held and adapted to receive the up and down thrust of said holder, substantially as described.

2. The combination, with the pump having the usual pump rod, of the oscillating bell crank formed of parallel pipes connected together, and a holder held loosely on the pump rod and provided with holes to receive the pipes of the bell crank, substantially as described.

3. The combination, with the pump having the usual pump rod, of the oscillating bell crank formed of parallel pipes connected together, the holder and guide held loosely on the pump rod and provided with holes to receive the pipes of the bell crank, the clamp secured to the lower end of the bell crank, and the pitman connected to the clamp, substantially as described.

4. As an improved article of manufacture, a pumping jack, comprising an oscillating bell crank formed of parallel angular members, a saddle bolted to the bell crank near the elbow and pivoted on a suitable support, a clamp at the lower end of the bell crank to connect with a pitman, and a holder and guide to slidably connect the bell crank with a pump rod, the said holder having parallel holes through which the bell crank members freely slide, a central vertical enlarged aperture for the pump rod and upper and lower pump rod collars to receive the up and down thrust of the holder substantially as described.

5. The combination, with the bell crank formed of parallel pipes, of the saddle grooved to fit the pipes and provided with a box to receive a pivot pin, substantially as described.

6. In a pumping jack, the combination, with the bell crank formed of parallel pipes connected together, of the saddle grooved to fit the pipes, the box on the saddle, the crossing braces mounted on suitable supports, and the pivot pin or fulcrum extending through the braces and the saddle box, substantially as described.

7. In a pumping jack, the bell crank formed of parallel angular members, provided with tie plates at opposite sides of their angles, inclined braces secured to said braces, and an adjustable bearing bolted adjustably to said members adjacent to their angles, substantially as described.

8. The combination with the bell crank formed of parallel angular members secured together, and provided at their angles with an adjustable bearing saddle, of the two jaws bolted to the lower ends of the two perpendicular members of the bell crank and having sockets on their inner faces receiving said members, the outer jaw being provided with a transverse box, the pitman rods at opposite ends of the box and a bolt extending through the said rods and box, substantially as described.

9. The combination, with the pump, having the usual pump rod and the bell crank formed of parallel pipes, of the holder loosely mounted on the pump rod and provided with holes to fit the pipes on the bell crank and with a concave side, a convex washer on the pump rod to fit the concavity of the holder, and guide, and collars above and below the holder, substantially as described.

EMMETT R. CURTIN.

Witnesses:
H. H. FENTON,
H. E. HENDERSON.