V. E. BENSON.

PUMPING JACK.

APPLICATION FILED JUNE 8, 1916.

1,206,405. Patented Nov. 28, 1916.
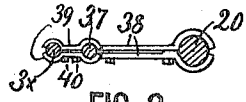


FIG. 3.

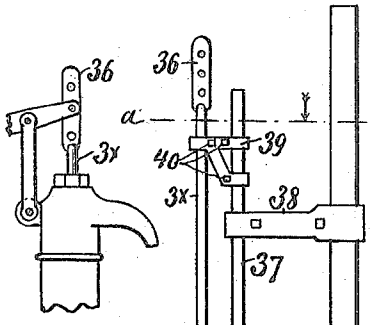


FIG. 2

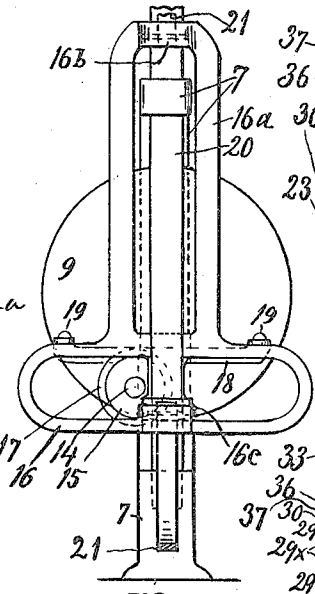


FIG. 4.

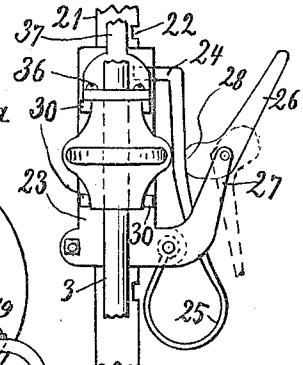


FIG. 5.

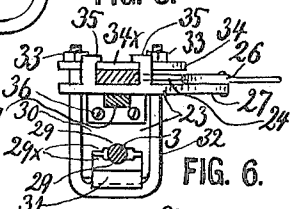


FIG. 6.

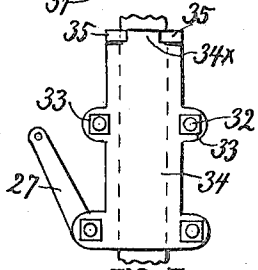


FIG. 7.

FIG. 1.

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PUMPING-JACK.

1,206,405. Specification of Letters Patent. Patented Nov. 28, 1916.

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To all whom it may concern:

Be it known that I, VICTOR E. BENSON, a citizen of the United States, residing at Dassel, in the county of Meeker and State of Minnesota, have invented a new and useful Pumping-Jack, of which the following is a specification.

My invention relates to pumping jacks, and the object is to provide a greatly improved pumping jack for operating especially well pumps of different styles, from belt and pulley power or any other power which will rotate a shaft.

In the accompanying drawing:—Figure 1 is a side elevation of my pumping jack shown as applied to the pumping rods of two different styles of pump. Fig. 2 is a side elevation of the upper portion of the style of well pump whose rod is shown in the top portion of Fig. 1. Fig. 3 is a section on the line *a—a* Fig. 1. Fig. 4 is a section on the line *b—b* Fig. 1. Fig. 5 is an enlarged front section on the line *c—c* Fig. 1. Fig. 6 is a top view of Fig. 5. Fig. 7 is a rear elevation of Fig. 5 with some parts omitted.

Referring to the drawing by reference numerals, 1 designates the platform or cover of a well provided with a pump of the type having the pump cylinder and plunger near the bottom of the well and only a water delivering pipe 2 and a pumping rod 3 extending up through the platform, the rod being usually extended directly from the plunger and operated by a hand lever 4 fulcrumed at 5 in a post 6 fixed upon the platform. This being the type of well pump most generally in use I have shown my pumping jack mainly applied thereto but will later on explain also how it may be applied to other pumps.

Either upon or near the platform of the well I place the main frame 7 of the jack. In said frame is journaled a shaft 8 carrying at its front end an internally toothed gear 9, which is driven by a pinion 10 fixed on a shaft 11 having a tight pulley 12 and a loose pulley 13. Fixed in the large gear 9 is a pin 14 carrying an antifriction roller 15 (best shown in Fig. 4) which operates in a yoke 16 in which it is retained by having a flange 17 guided by an angular strip 18 secured by screws 19 upon the yoke. Said yoke has a slotted upward extension 16^a with bearings 16^b 16^c sliding on a post 20, which is fixed in the main frame 7.

Secured to the bearings 16^b, 16^c are the ends of a flat vertical bar 21 having in one edge notches 22. Slidable on said bar 21 is a crosshead 23, which carries a dog 24 formed of a spring 25 which tends to hold the dog beyond the notches 22 in the rod, but the crosshead also carries on an arm 27 a cam lever 26 by which the dog may be engaged with the notches and held in such engagement by the pressure of the spring against a flat portion 28 of the cam (see Fig. 5). By said means the crosshead may be adjusted to any desired place on the rod 21 according to the height of the pump rod to be operated. For more exact adjustment to the stroke of the pump the crosshead is adjustably secured to the pump rod 3 by placing the latter, if it is round, in semicircular notches 29 (see Fig. 6) of projections 30 of the crosshead and of a clamping piece 31 which is drawn toward the rod by a clip 32 having nuts 33 at the back of a plate 34, which preferably has an upward extension 34^x engaged by hooks or lugs 35 of the cross head. If the pump rod is flat, it is not placed in the notches 29 but in the angular notches 29^x in Fig. 6.

From the foregoing description it will be readily understood that whenever the shaft 11 is rotated by its pulley 12 or other means the pump rod 3 will be reciprocated up and down acording to the stroke of the pin 14 in the wheel 9, which stroke is made to correspond to the stroke of the pump to be operated.

If the pump be of the type shown in Fig. 2 the access to the rod 3^x will be considerably higher up than on the rod 3 in Fig. 1. To overcome this difficulty I secure upon the cross head by bolts 36 a post 37 and clamp on to said post a guide 38 slidable on the main post 20. To said post 37 the pump rod 3^x is secured by two clamp members 39 and bolts 40. When this attachment 37, 38, 39 is used, the clamping member 31 is of course out of commission, since the two kinds of pump are never operated simultaneously.

What I claim is:

1. In a pumping jack and mounted in a suitable frame, a drive shaft having a pinion, an internally-toothed gear driven by said pinion and having a crank pin with an antifriction roller on same, a yoke guided to reciprocate up and down in the frame and operated by said roller, a vertically disposed bar carried by the yoke, a cross-head adjust-

ably secured on the bar and means for adjustably securing a pump rod to the cross head, said antifriction roller having an annular flange moving along the yoke and the yoke having a guiding ledge taking over the flange of the roller to prevent separation of the roller and the yoke.

2. In a pumping jack, the combination with a main frame and a main post fixed in the same, of a yoke slidable on the post and means for reciprocating the yoke on the post, a cross-head carried by the yoke and having clamping means for securing a pump-rod to it; a secondary post removably secured to the cross-head and having a guide slidable on the main post and clamping means at the upper end of the secondary post for engaging the pump rod of a pump having a hollow post about it so it cannot be attached at a lower point.

3. In a pumping jack, the combination with a vertically reciprocated yoke, of a vertical rod carried by the yoke and having indentures, a cross head slidable on said rod and having a dog adapted to engage in the indentures, a spring tending to withdraw the dog, a cam lever arranged to press and hold the dog in engagement and means for securing a well pump rod to the cross-head.

4. In a pumping jack, the combination with a vertically reciprocated yoke of a vertical rod carried by the yoke and having indentures, a cross-head slidable on said rod and having a dog adapted to engage in the indentures, a spring tending to withdraw the dog, a cam lever arranged to press and hold the dog in engagement, and means for securing a well pump rod to the cross head, said rod securing means comprising meeting jaws having adjacent notches for gripping a flat rod and segmental notches for gripping a round rod and a clip forcing said jaws toward each other.

In testimony whereof I affix my signature.

VICTOR E. BENSON.

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