Sept. 14, 1926. 1,599,464

W. B. FLYNN

PUMP JACK

Filed Dec. 19. 1925

Fig. 1.

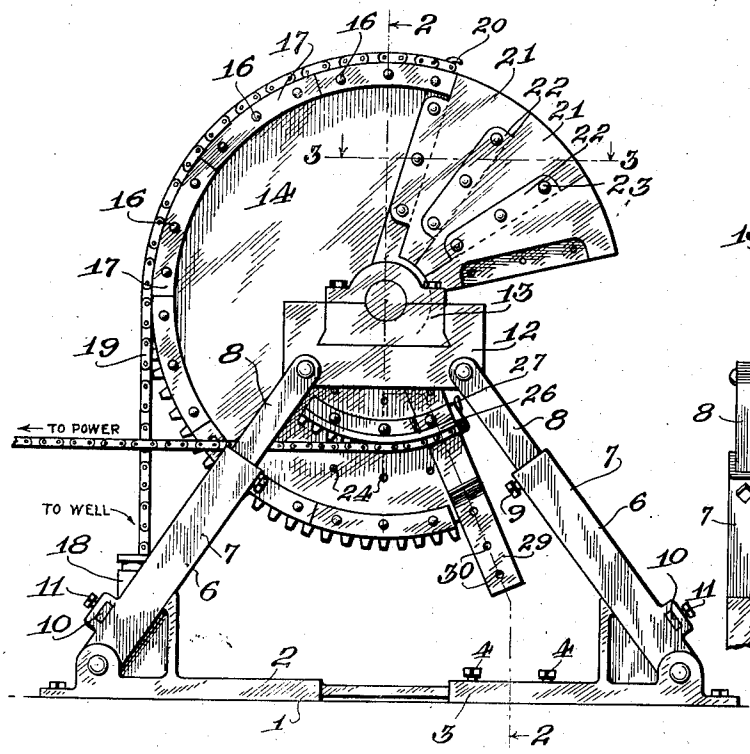


Fig. 2.

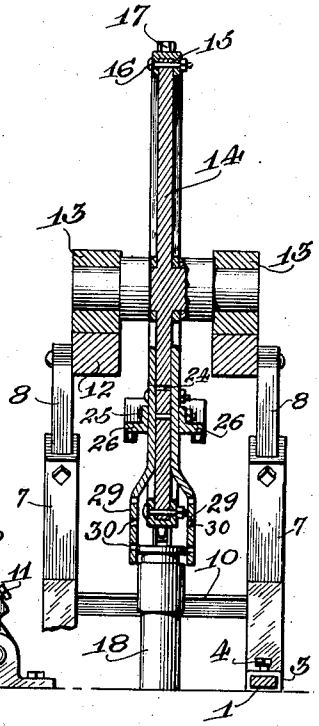
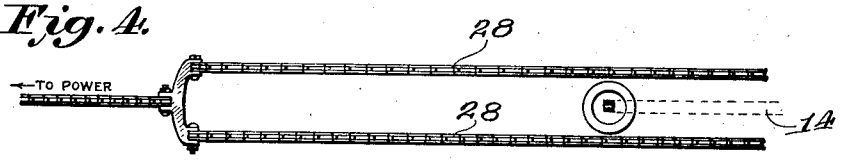


Fig. 4.



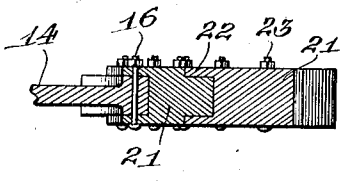


Fig. 3.

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UNITED STATES PATENT OFFICE.

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PUMP JACK.

Application filed December 19, 1925. Serial No. 76,542.

This invention relates to pump jacks and has for its object to generally improve such constructions, as well as to provide a structure by which the power is applied in a direct line with the bore of the well.

A further object of the invention consists in the provision of a pump jack including a sprocket wheel composed of a fragmental disc which provides for the disposition of sectional weights within the circumference of the disc.

Another object of the invention resides in an adjustment feature by which the stroke of the pump may be varied between wide limits.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawings; in which

Figure 1 is a side elevation of the improved pump jack in operative association with a well.

Figure 2 is a fragmentary vertical section taken on line 2—2 of Figure 1.

Figure 3 is a section taken on line 3—3 of Figure 1; and

Figure 4 is a detail plan view of the chain to the source of power.

Referring to the drawings in greater detail the numeral 1 indicates a pair of base members which are formed of extensible sections 2 and 3 which are rendered adjustable by means of the set screws 4. These base members 1 are placed above the well structure and have pivoted to the ends thereof as indicated by numeral 5 the upwardly inclined beams 6 which are composed of the extensible sections 7 and 8 which may be secured in adjusted position by means of set screws 9. The beams 6 on the adjacent ends of the base members 1 are connected by means of the horizontally disposed rods 10 which are adjustably attached to the beams by means of set screws 11. Bearing blocks 12, which form supports for the bearings 13 of the gear wheel about to be described, are carried on the upper ends of the beams 6 as clearly disclosed on Figure 1 of the drawings.

The wheel 14 which forms an essential part of the invention may be made of wood or other suitable material, and is in the form of a fragmental disc. In the present embodiment of the invention the oscillating member 14 is shown as provided with a plurality of bolt holes 15 adjacent its periphery for the reception of bolts 16 which detachably secure the toothed segments 17 to the periphery thereof. These segments are placed in series on the disc 14 and may extend around the entire periphery thereof, which as shown, is slightly more than a semi-circle. Obviously, the segments 17 instead of overlapping the disc as shown might have a web thereof inserted in a groove in the periphery of the disc, or secured in any other desired manner.

The well with which the pump jack is connected is indicated by the numeral 18, and the pump rod thereof is attached to one end of a chain 19, the opposite portion of the chain meshing with the teeth of the segments 17 and having its free end engaged over the hook 20 formed on the remote end of the upper segment 17.

A partial counter-balance for the polish rod and related parts of the well will of course increase the efficiency of operation of the pump and it is for the accommodation of these weights that the disc 14 is partly cut away. The sectional weights which are indicated by the numeral 21 are sector-shaped and are provided with flanges 22 by which they may be secured to the disc or to each other by means of the bolts 23. These elements 21 have their outer ends rounded to conform to the contour of the disc 14 and it will be understood that their number may be varied so as to provide a proper ratio between the weight of the pump apparatus and the weight of the counter-balance.

In a mechanism for operating a pump rod it is desirable that adjustments be available whereby the stroke of the rod may be varied to suit the particular well. To this end I have provided the disc 14 with a plurality of bolt holes 24 which receive bolts 25 shown in Figure 2 and which rigidly clamp the toothed segments 26 to the opposite sides of the disc 14. Only a single segment 26 is attached to each side of the disc, and the ends of the segments remote from the source of power are provided with hooks 27 which receive the free ends of the double operating chain 28, the adjacent portion of the chain meshing with teeth of segment 26 and the remote end thereof being associated with a source of power (not shown). To vary the throw of the disc 14 and consequently the stroke of the pump rod it will be apparent that the segments

26 may be moved toward or from the periphery of the disc as may be necessary. To provide a further adjustment of the pump stroke especially where a very short stroke is necessary, I have provided a pair of radially-extending bars 29 which are fixed to opposite sides of the disc 14. These bars are provided with apertures 30 by means of which the chain 28 may be secured. Obviously, if the adjustments of the segment 26 are not sufficient for the purpose at hand then the chain 28 may be moved beyond the periphery of the disc to any one of the adjustments 30.

From the foregoing description taken in connection with the accompanying drawing it will be seen that the pump jack disclosed herein is comparatively inexpensive in construction; gives a direct pull on the polish rod; provides a compact and efficient means for varying the weight of the counter-balance; and that the segment 26 and radially-extending bars 29 permit an adjustment of the power stroke between wide limits.

In accordance with the patent statutes I have described what I now believe to be the best embodiment of the invention; but I do not wish to be understood thereby as limiting myself or the scope of the invention, as many changes and modifications may be made without departing from the spirit of the invention; all such I aim to include in the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. A pump jack for wells including a wheel supported over a well, said wheel comprising a fragmental disc, a plurality of sectional weights detachably mounted in the cut-out portion of said disc, and means operatively connecting said wheel with the well pump.

2. A pump jack for wells including a wheel supported over a well, said wheel comprising a fragmental disc, a plurality of sectional weights detachably mounted in the cut-out portion of said disc, toothed segments detachably secured to the rim of said fragmental disc, and a chain connected to the well pump and in mesh with the teeth of said segments.

3. A pump jack for wells including a wheel rotatably mounted over a well, means operatively connecting said wheel with the well pump, a radially adjustable toothed segment mounted on the wheel, a chain engaging said toothed segment and connected to a source of power, and a radially-extending bar extending beyond the periphery of said wheel and forming an additional anchoring means for said chain.

4. A pump jack for wells including a wheel rotatably mounted over a well, means operatively connecting said wheel with the well pump, a radially adjustable toothed segment mounted on the wheel, a chain engaging said toothed segment and connected to a source of power, and a radially-extending apertured bar extending beyond the periphery of said wheel and forming an additional anchoring means for said chain.

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