July 6, 1926.

1,591,109

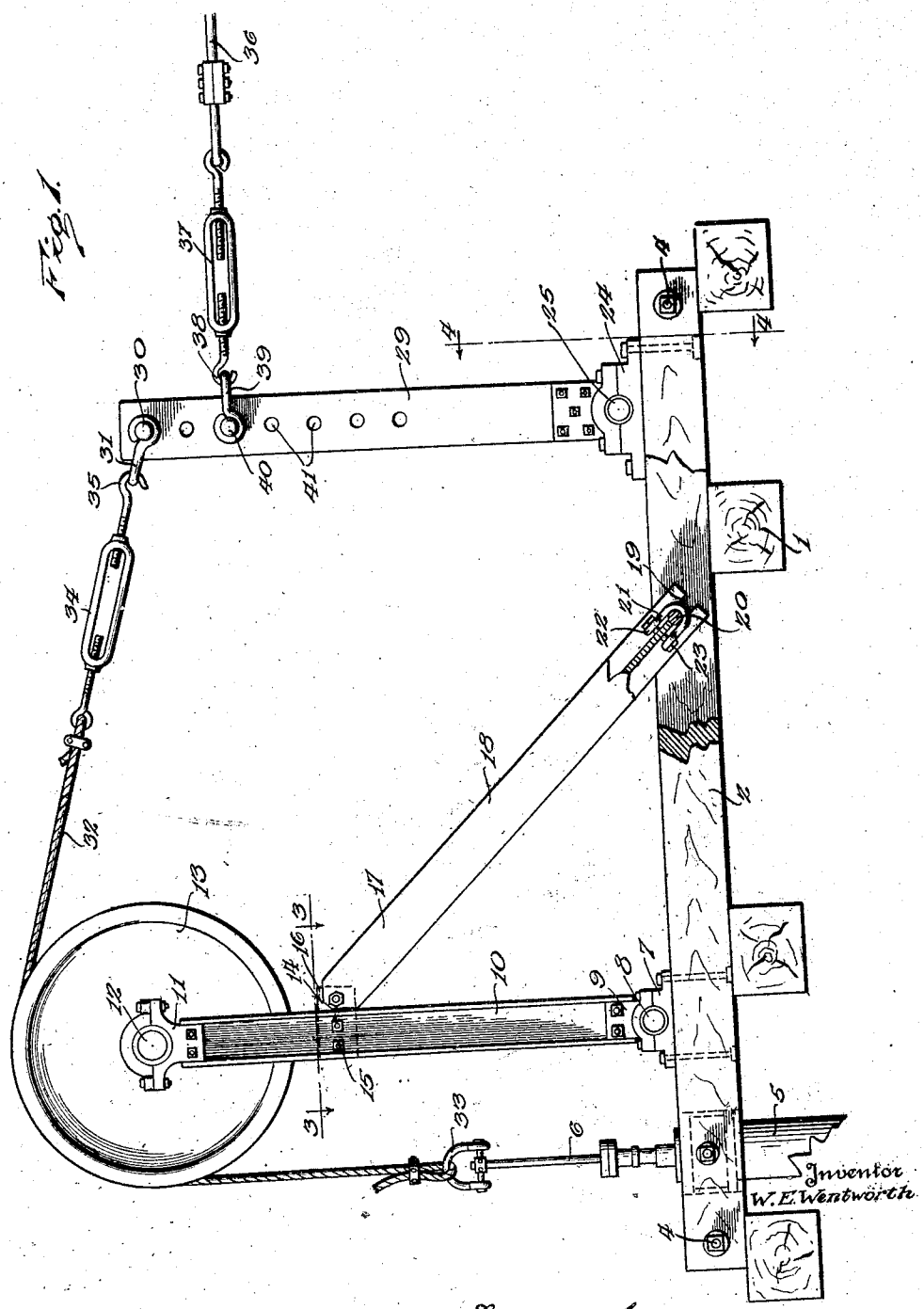
W. E. WENTWORTH

PUMP JACK

Filed Dec. 31, 1925

2 Sheets-Sheet 1

Fig. 1.



By Lacy & Lacy, Attorneys

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2 Sheets-Sheet 2

Fig. 1.

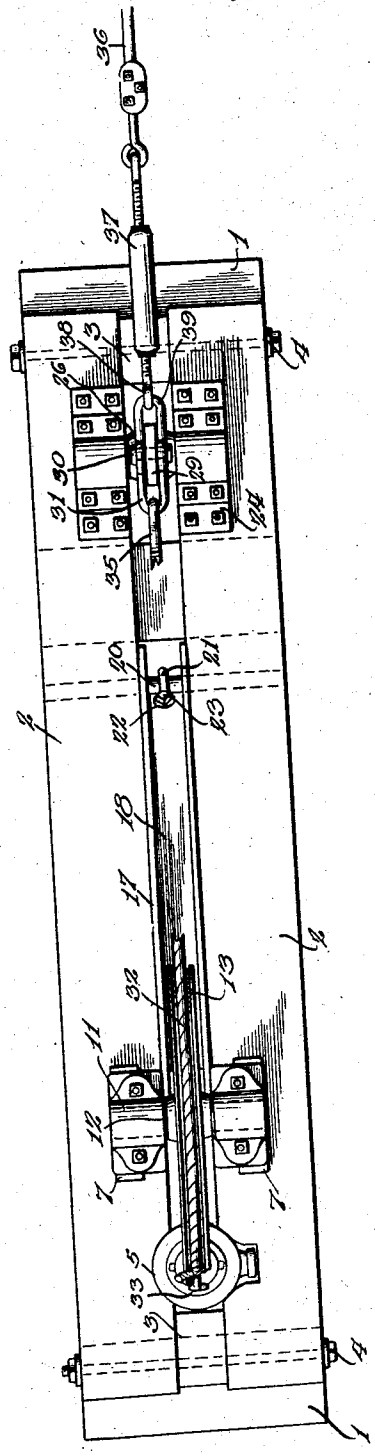


Fig. 4.

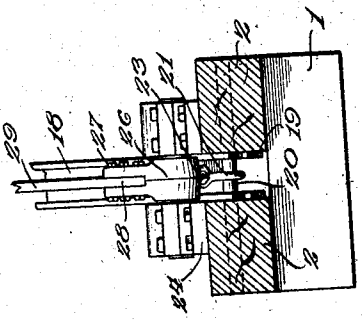
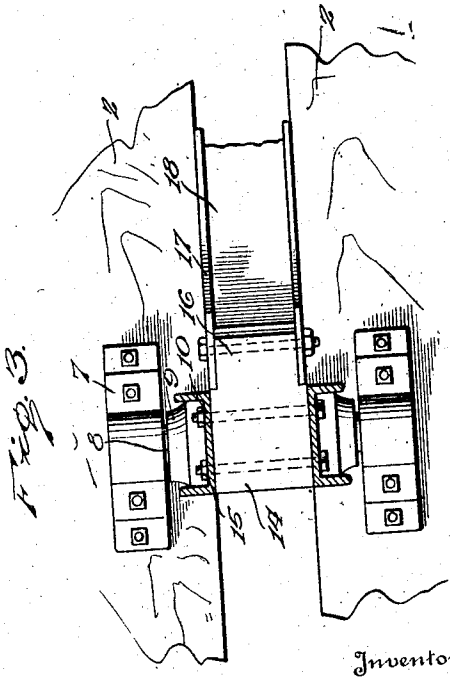


Fig. 3.



Inventor

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Patented July 6, 1926. 1,591,109

UNITED STATES PATENT OFFICE.

WILLIAM E. WENTWORTH, OF SAN ANTONIO, TEXAS.

PUMP JACK.

Application filed December 31, 1925. Serial No. 78,608.

This invention relates to improvements in pump jacks and has as one of its objects to provide a pump jack which will be simple and substantial in construction and will operate in a positive manner and not be liable to any disarrangement of its parts.

Another object of the invention is to provide a pump jack so constructed that the stroke of the pump rod may be varied as occasion requires, and with but little effort.

Another object of the invention is to so construct the jack that the supporting means for the cable pulley, while firmly braced in upright position during the operation of the jack, may be readily and quickly adjusted to lowered position when the well is to be pulled.

In the accompanying drawings:

Figure 1 is a view in side elevation of the pump jack embodying the invention, parts being broken away to better illustrate the structure.

Figure 2 is a top plan view of the jack.

Figure 3 is a horizontal sectional view taken substantially on the line 3—3 of Figure 1, looking in the direction indicated by the arrows.

Figure 4 is a vertical transverse sectional view taken substantially on the line 4—4 of Figure 1, looking in the direction indicated by the arrows.

The jack embodying the invention comprises a base structure including a number of pillow blocks 1, which support parallel spaced sills 2, spacing blocks being disposed between the ends of the sills, and bolt rods 4 being secured through the said ends of the sills and through the spacing blocks to secure the sills together in parallelism. The pump casing is indicated by the numeral 5 and the pump rod by the numeral 6, the upper end of the pump casing being received between the rear ends of the sills 2.

Bearings 7 are mounted upon the sills 2 adjacent the pump casing, and a short shaft 8 is journaled at its ends in these bearings and has loosely mounted upon it a head 9 to which are secured the lower ends of spaced uprights 10 preferably of channel iron. Each of the uprights 10, at its upper end, supports a bearing, indicated by the numeral 11, and a shaft 12 is mounted at its ends in these bearings and rotatably supports a sheave 13. A block 14 is disposed between the uprights 10 and secured in place by blots 15, and the block has a projecting boss 16 which is received between the side flanges 17 of an I-beam 18, the web of which beam at its upper end is cut away to accommodate the said boss. The beam 18 constitutes a brace for the uprights 10 and the side flanges 17 of the beam, at its lower end, are formed with recesses 19 adapting the beam at its said end to straddle a cross rod 20 mounted at its end portions in the sills 2 and extending at its intermediate portion between said sills. The engagement of the lower end of the I-beam 18 with the rod 20 serves, of course, to prevent forward tilting of the uprights 10 under ordinary conditions, and in order to prevent rearward tilting of said uprights, a U-shaped clip 21 is engaged with the rod 20 and provided with eyes 22 through which is secured a bolt 23 passing also through the web of the I-beam 18. It will be evident at this point, that the brace 18 serves effectually to maintain the uprights 10 rigidly in an upright position but that by removing the bolt 23 and the U-clip 21, the lower end of the brace 18 may be disengaged from the rod 20 and the brace moved forwardly, permitting the uprights 10 to swing in a corresponding direction about the shaft 8 as a center and thus assume a lowered position, carrying with them the sheave 13, and giving clearance at the time of pulling the well.

Bearings 24 are mounted upon the sills 2, and a shaft 25 is mounted in the said bearings and supports, at its intermediate portion, a head 26 comprising sections between which is clamped, by bolts 27, the lower end 28 of a swinging post 29. This post is, in this manner, supported for swinging movement in a forward and rearward direction and a bolt 30 is secured through the upper end of the post and has connected to it the side members of a U-clip or yoke 31. The numeral 32 indicates a cable which is passed over the sheave 13 and connected at one end, by a yoke 33, to the upper end of the pump rod 6, and the other end of this cable is connected to one end of a turnbuckle 34, the turnbuckle being provided at its other end with a hook 35 which is engaged with the yoke 31, connection being, in this manner, established between the swinging post 29 and the pump rod 6, so that when swinging motion is imparted to the said swinging post, up and down reciprocatory motion will be imparted to the pump rod 6 through the medium of the cable 32. At this point it

will be understood that instead of the sheave 13 and cable 32, a sprocket and a chain might be employed with advantage.

The numeral 36 indicates the usual rod line which extends to the source of power and which, in the present invention, is connected at its end to one end of a turnbuckle 37, the other end of the turnbuckle being provided with a hook 38 engaged with a yoke 39 which straddles the swinging post 29 and is connected thereto by a bolt 40 which is interchangeably engageable through a series of openings 41 formed in a vertical line in the said post 29, it being understood that by varying the point of connection of the bolt 40 with the said swinging post, the extent of swinging movement of the post may be varied so as to vary the stroke imparted to the pump rod 6.

The turnbuckles 34 and 37 serve as a means whereby the vertical position of the pump rod may be adjusted.

From the foregoing description of the invention, it will be seen that there is provided an extremely simple and yet very substantial pump jack construction which will operate in a positive manner and with great efficiency.

Having thus described the invention, what I claim is:

1. In a pump jack, a base structure, an upright mounted thereon for tilting movement, a brace pivotally connected at its upper end with the upright, a rod mounted upon the base structure, the said brace having its lower end formed to straddle the said rod, means separably connected with the brace and coacting with the rod to hold the lower end of the brace in engagement therewith, whereby to normally support the upright rigidly in upright position, a wheel rotatably mounted upon the upright, an upright post mounted at its lower end upon the base structure for movement toward and from the first mentioned upright, a flexible connection connected at one end to the post and trained over the wheel, means at the other end of the connection for attachment of the same to a pump rod, and means connected to the said post for imparting swinging movement thereto.

2. In a pump jack, a base structure, an upright mounted at its lower end for angular movement, a fixed element upon the base structure in spaced relation to the upright, a brace pivotally connected with the upright and having its lower end engaged with the said fixed element, means separably connected with the said lower end of the brace and coacting with the fixed element to hold the brace connected with said element whereby by disconnecting the lower end of the brace from the fixed element, the upright may be permitted to assume a lowered position, a wheel rotatably mounted upon the upper end of the upright, an upright post mounted at its lower end for swinging movement toward and from the upright, a flexible connection connected at one end to the post and trained over the wheel, means at the other end of the connection for attachment of the same to a pump rod, and means connected to the post for imparting swinging movement thereto.

In testimony whereof I affix my signature.

WILLIAM E. WENTWORTH. [L. S.]