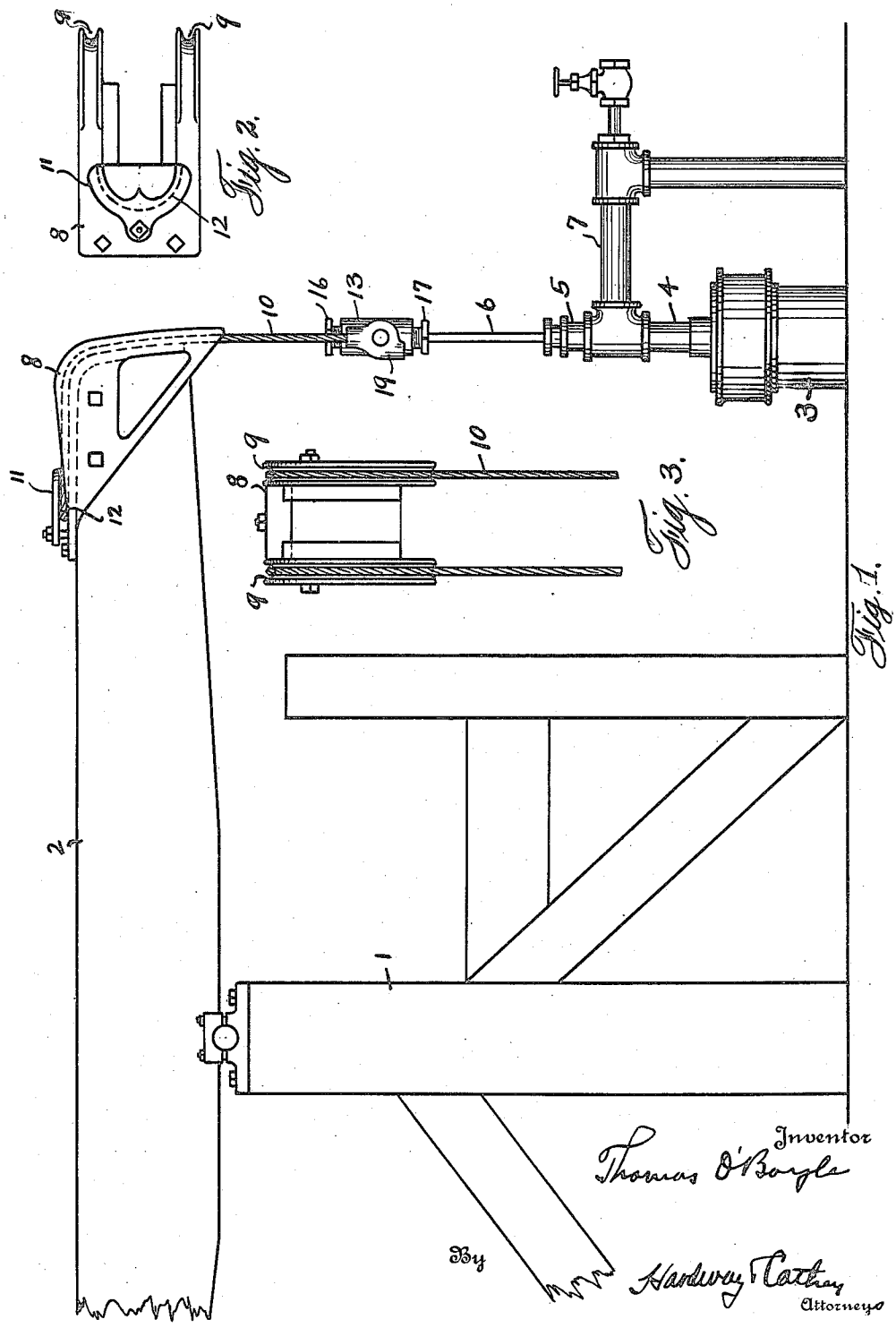
Nov. 25, 1924. 1,516,783

T. O'BOYLE

PUMPING APPARATUS

Filed Dec. 19, 1922 2 Sheets-Sheet 1



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PUMPING APPARATUS

Filed Dec. 19, 1922 2 Sheets-Sheet 2

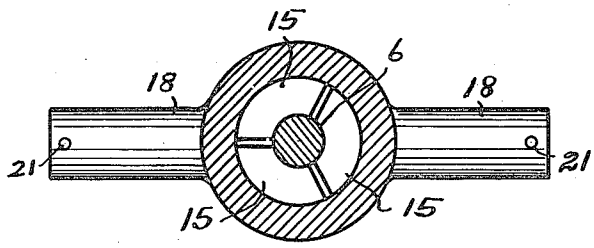


Fig. 5.

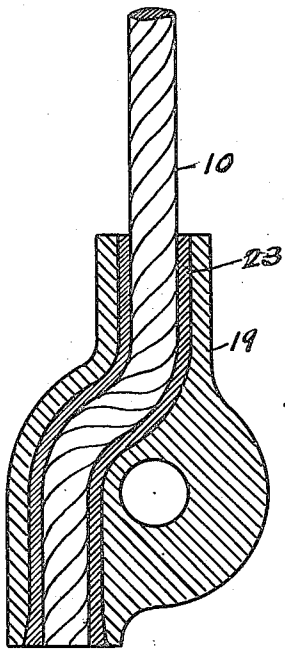


Fig. 6.

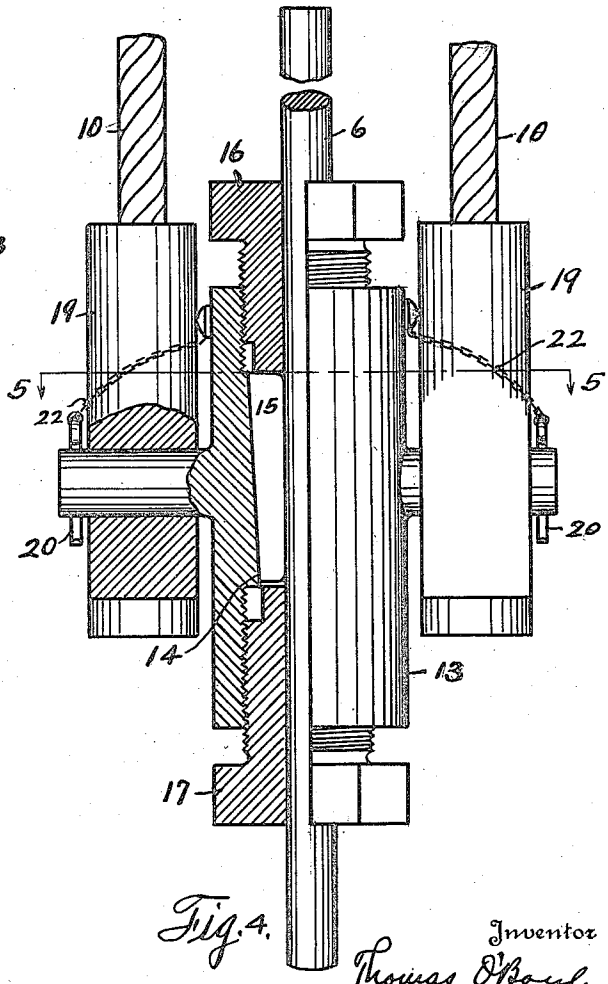


Fig. 4.

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UNITED STATES PATENT OFFICE

THOMAS O'BOYLE, OF WEST COLUMBIA, TEXAS, ASSIGNOR TO REX G. HAMAKER.

PUMPING APPARATUS.

Application filed December 19, 1922. Serial No. 607,765.

To all whom it may concern:

Be it known that I, THOMAS O'BOYLE, a citizen of the United States, residing at West Columbia, in the county of Brazoria and State of Texas, have invented certain new and useful Improvements in Pumping Apparatus, of which the following is a specification.

This invention relates to new and useful improvements in a pumping apparatus.

One object of the invention is to provide an improved type of polish rod clamp and improved means for connecting the same to the walking beam, embodying means through which an oil well pump may be operated to pump the oil from the well.

Another object of the invention is to provide an apparatus of the character described which may be easily attached to the walking beam and polish rod and quickly and easily removed for repairs or replacements.

Another object of the invention is to provide an apparatus of the character described through which an even vertical pull will be exerted on the polish rod or operating rod, of the pump, thereby preventing the bending of said rod and uneven wear of the stuffing box in which said rod has a bearing.

With the above and other objects in view the invention has particular relation to certain novel features of construction, operation, and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawing, wherein:—

Figure 1 shows a side view of a well pumping apparatus, including the walking beam.

Figure 2 shows a plan view of the end casting carried by said walking beam.

Figure 3 shows an end view thereof.

Figure 4 shows an elevation, partly in section, of the rod clamp and the rope sockets connected thereto.

Figure 5 shows a transverse sectional view of said clamp, taken on the line 5—5 of Figure 4 and,

Figure 6 shows a vertical sectional view of the rope socket.

In the drawings, the numeral 1 designates a suitable stand on which the walking beam 2 is pivoted. Said beam is rocked back and forth on its bearing in the conventional manner. The numeral 3 designates the well casing within which is the oil line 4 whose upper end is formed with a stuffing box 5 through which the polish rod 6 is reciprocated. Said rod is reciprocated upwardly by the walking beam and downwardly by gravity, and the pump down in the well is thereby operated to pump the fluid from the well from which the oil is discharged through the outlet line 7.

Bolted to the end of the walking beam there is a casting 8 formed with substantially triangular shaped side members which fit against the sides of the beam end, and these side members are formed with the arcuate grooves 9, 9 to receive the operating cable 10 and pivoted on top of the casting there is a yoke 11 formed with an arcuate grooved bearing 12 around which the cable passes. The polish rod 6 is substantially tangential with respect to the bearing grooves 9, for the reason hereinafter stated.

Fastened on the polish rod there is a tubular shaped clamp 13 having its opposite ends internally threaded and provided with a downwardly tapering seat 14, which is provided to receive the wedge shaped slips 15 which are arcuate in cross sectional contour. These slips are held clamped against the rod by means of the clamp screw 16 which is threaded into the upper end of the clamp 13 and whose lower end abuts against said slips. Threaded into the lower end of the clamp 13 there is a release screw 17 whose upper end abuts against the lower ends of said slips. When it is desired to release the clamp from the polish rod the screw 16 may be unscrewed and the release screw 17 screwed up against the slips to release them from the polish rod. The clamp 13 has oppositely disposed lateral bearing rods 18 on which the rope sockets 19, 19 have bearings. These sockets are held against detachment by means of keys 20, 20 which are fitted through the key ways 21, 21 provided in the outer ends of said bearing rods. The keys are secured against loss by means of suitable chains 22, 22, The respective ends of the cable 10 are fastened in said rope sockets in any conventional manner, preferably by babbitt 23. It is obvious that the cable will adjust itself so that an equal pull will be exerted on each of the rope sockets, and the polish rod is substantially tangential relative to the bearing grooves 9 thus insuring a straight upward pull through the rod clamp of the rod 6.

This apparatus is practically indestruct-

ible, but in case any parts should become broken it may be quickly and easily repaired or replaced.

What I claim is:—

1. A pumping apparatus including a polish rod clamp, a rope socket pivoted to each side thereof, a walking beam casting formed with side grooves, and a yoke, a cable working through said yoke and in said grooves whose respective ends are attached to said sockets.

2. A well pumping apparatus including in combination a walking beam, an end casting secured thereto and having side grooves forming rope bearings, a yoke carried by said casting and having a groove, a polish rod clamp, rope sockets pivoted to the clamp and a cable working in said grooves and whose ends are attached to the respective rope sockets.

3. In a well pumping apparatus, an end casting for a walking beam, said casting being formed with a seat which rests on the top of the beam and arcuate side grooves forming rope bearings, a yoke arranged on the top of the casting and having a transverse groove lying in substantially a horizontal plane forming a rope bearing transversely across the top of the beam.

4. In a well pumping apparatus a polish rod clamp formed with a tubular body having a downwardly tapering seat, wedge shaped slips fitted through said seat, nuts threaded into the ends of said body and bearing against the upper and lower ends, respectively of said slips.

5. In a well pumping apparatus, a polish rod clamp including a tubular body having a downwardly tapering seat, wedge shaped slips fitted through said seat and provided to clamp said rod, nuts threaded into the respective ends of said body and abutting against the corresponding ends of said slips, lateral bearing rods carried by the body, and rope sockets pivoted on said rods.

6. In a well pumping apparatus, a polish rod clamp formed with a tubular body having a downwardly tapering seat through which the rod extends, wedge shaped slips in said seat fitted around said rod, nuts threaded into the respective ends of said body, and abutting against said slips, bearing rods carried by said body on opposite sides and bearing member pivoted on said rods and provided for the attachment of operating cables thereto.

7. A pumping apparatus including a polish rod clamp, a walking beam, a rope formed with a loop, the ends of said loop being attached to said clamp, a bearing member formed with a seat which rests on the top of the beam, and having a transverse arcuate groove forming a bearing for said loop, and disposed to retain the looped portion of the rope in an approximately horizontal plane across the top of the beam.

8. In combination, a walking beam, a bearing member formed with a seat, which rests upon the top of one end of said beam, said bearing member having a transverse arcuate groove, lying in approximately a horizontal plane, and arcuate side grooves lying in substantially vertical planes, said grooves forming rope bearings.

9. In a pumping apparatus the combination with a polish rod, of a clamp therefor, a walking beam, a bearing member on top of one end of said beam, said bearing member being formed with an arcuate groove arranged transversely across the top of the beam and forming a bearing, said groove being extended on each side and formed into substantially vertical bearings, a connecting member formed into a loop working in said bearings, and whose ends are connected to said clamp on opposite sides of said rod.

10. In a pumping apparatus, a walking beam, a bearing member formed with a seat which rests on said walking beam, and formed with an arcuate transverse groove, and also having arcuate side grooves, said grooves forming rope bearings, said polish rod being substantially tangential relative to said side grooves, a cable working in said bearings, said cable being formed with a loop which works across said beam and in said transverse groove, and whose respective ends work in said side grooves and are attached to said clamp.

11. In a pumping apparatus, an end casting for a walking beam, said casting being formed with a U-shaped groove, lying in substantially a horizontal plane and arranged on the upper side of the casting, the arms of said groove being turned downwardly, and lying substantially in a vertical plane, said groove forming a rope bearing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS O'BOYLE.

Witnesses:
GEORGE CLARK,
L. CLAAS.