

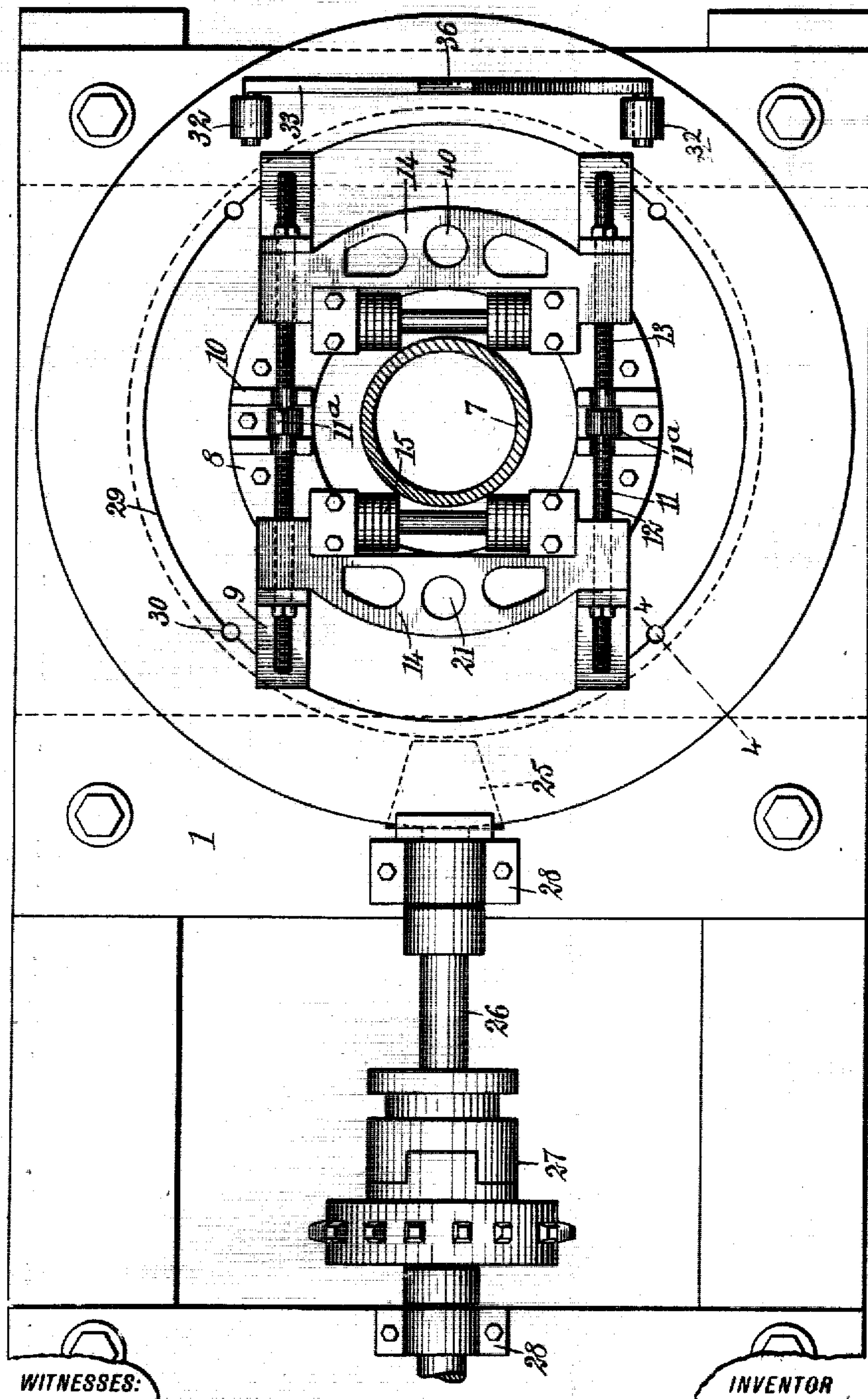
No. 812,000.

PATENTED FEB. 6, 1906.

H. D. BERNARD.  
ROTARY FOR OIL WELLS.  
APPLICATION FILED SEPT. 18, 1905.

2 SHEETS—SHEET 1

Fig. 1



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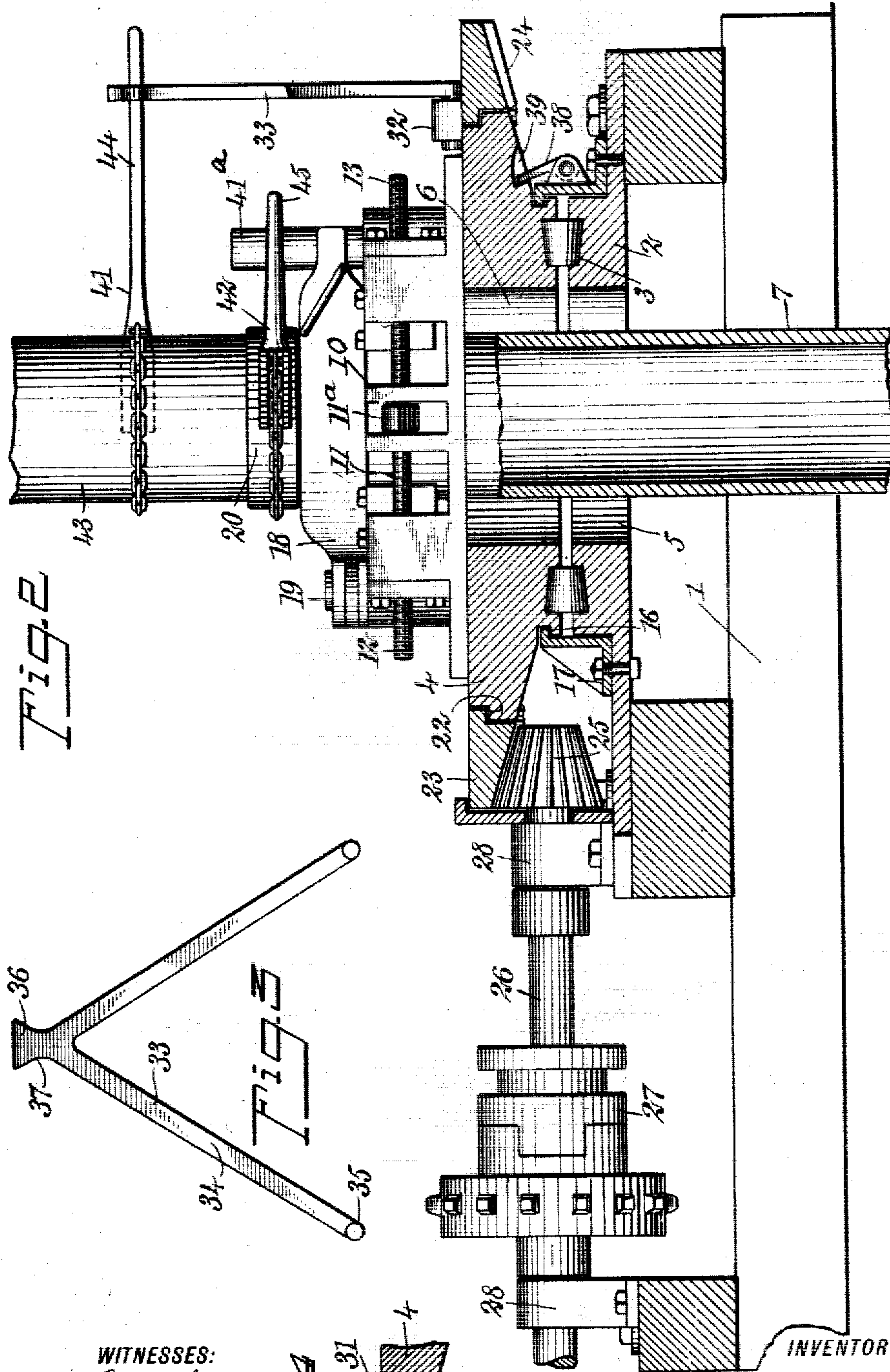


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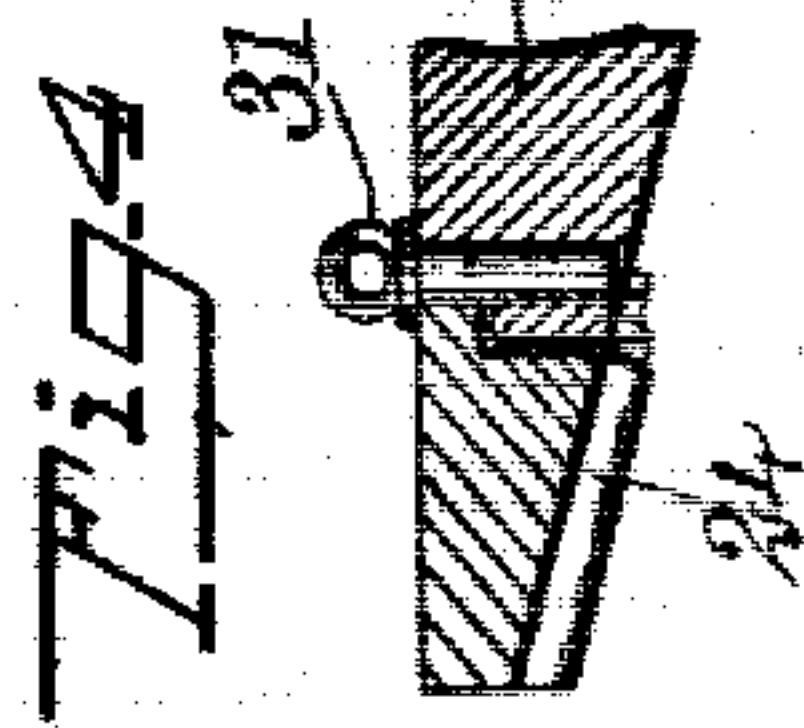
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## ROTARY FOR OIL-WELLS.

No. 812,000.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed September 18, 1905. Serial No. 378,525.

*To all whom it may concern:*

Be it known that I, HORACE D. BERNARD, a citizen of the United States, and a resident of Beaumont, in the county of Jefferson and State of Texas, have invented a new and improved Rotary for Oil-Wells, of which the following is a full, clear, and exact description.

This invention relates to pipe-rotaries such as used in sinking oil-wells.

The object of the invention is to produce a rotary of this class which will enable the application of power in the screwing together or unscrewing of the pipe-sections which constitute the casing of the well.

The invention consists in the construction and combination of parts to be more fully described hereinafter and definitely set forth in the claims.

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

Figure 1 is a plan showing a rotary to which my invention has been applied, the pipe being shown in section and portions of the view being broken away, as will appear. Fig. 2 is a vertical central section of the lower portion of the mechanism shown in Fig. 1, the upper portion thereof being shown in elevation. Fig. 3 is a side elevation of a bracket which constitutes a feature of the invention. Fig. 4 is a section taken substantially upon the line 4-4 of Fig. 1.

Referring especially to Figs. 1 to 4, inclusive, 1 represents a wooden framework, which is rigidly attached in any suitable manner to the floor of a derrick. Upon this framework the bed-plate 2 of the rotary is rigidly secured, the upper face of this bed-plate being preferably provided with conical rollers 3, upon which rests the rotary table 4. The bed-plate and the rotary are both preferably of circular form and provided with central openings 5 and 6, which are in alinement, as shown in Fig. 2. Through these openings the pipe or well casing 7 passes upwardly. Upon the upper face of the table 4 a slide 8 is rigidly attached. The body of this slide is of annular form, as shown, and provided with oppositely-disposed projecting feet 9, which project beyond the edges of the table, as indicated, and for a purpose which will be

stated hereinafter. At diametrically opposite points the slide is provided with upwardly-projecting ears 10, in which adjusting-screws 11 are rotatably mounted, said screws having hexagon heads 11<sup>a</sup> and oppositely-disposed extensions 12 and 13, which are oppositely threaded, as indicated. These extensions pass through jaws 14, with which they are in threaded engagement, and they afford means for adjusting these jaws in or out, as will be readily understood. Near their middle points the jaws 14 are provided with clamping-wheels 15, which are adapted to engage the pipe, as indicated most clearly in Fig. 1.

On the under side of the table 4 its outer diameter is reduced, as shown, and at this point it is provided with a circumferential groove 16, and this groove is engaged by the extremities of brackets or clips 17, the function of which is to hold the table in position as it rotates. These clips are preferably bolted, as shown, to the bed-plate. The pipe 7 is supported upon an elevator 18, the leaves of which are pivoted together at 19 and are adapted to fold against the sides of the pipe beneath the collar or union 20, as shown in Fig. 2. This elevator rests upon the upper side of the jaws 14, and its pivot-pin passes down through an opening 21, which is formed in the left-hand jaw, as shown in Fig. 1.

The outer edge of the table 4 is formed with a rabbet 22, and upon its edge there is rotatably mounted a correspondingly-rabbeted ring 23. The under surface of this ring is formed with bevel gear-teeth 24, so that it constitutes a bevel-gear meshing with a pinion 25, the said pinion being rigidly carried upon a horizontal driving-shaft 26. It should be understood that this shaft 26 may be driven from the engine or other prime mover. It includes a clutch 27, which enables the driving of the pinion to be discontinued at will. This shaft is suitably mounted in bearings 28, fixed upon the upper sides of the framework 1, as indicated.

Referring to Fig. 1, in the circular joint 29, which is formed between the ring 23 and the table 4, I provide a plurality of openings 30, which are located so that a portion of the opening is formed in the ring and a portion in the table. These openings are preferably four in number and are adapted to receive removable pins 31, such as illustrated in



Fig. 4. In this view the pins are represented in position, a small portion of the edge of the rotary being represented in section. When these pins are in position, as shown in Fig. 4, it of course is evident that when the pinion 25 rotates the rotation imparted to the ring 23 is also imparted to the rotary table 4. This would be the relation of the parts when the rotary is being used simply as a rotary.

In order to enable power to be employed for screwing the sections of pipe together or unscrewing the same, at a suitable point on the ring 23 I provide oppositely-disposed lugs 32. These lugs afford means for mounting a bracket 33, the construction of which is very clearly shown in Fig. 3. The bracket comprises a pair of diverging legs 34, the lower extremities whereof are formed with laterally-projecting spurs 35, and these spurs are received in lateral openings formed in the lugs 32, as will be readily understood. In this way the bracket is removably supported in an upright position upon the ring, as indicated in Fig. 2. The upper portion of the bracket is formed into a head 36, said head having a reduced neck, so that oppositely-disposed recesses or notches 37 are formed at this point.

Arrangement is made for locking the table 4 to the bed-plate. For this purpose a pawl 38 is provided, which is preferably pivoted to one of the brackets 17, as indicated in Fig. 2, and the upper extremity of this pawl is adapted to be thrown into a recess 39, formed on the under face of the table, as indicated. In this way the table may be locked against rotation in either direction.

One of the jaws 14 opposite that to which the elevator 18 is attached is formed with an opening 40, which is similar to the opening 21, referred to above. In this opening 40 a removable pin 41<sup>a</sup> is placed, which projects upwardly beyond the elevator, as indicated. I then apply chain-tongs or pipe-tongs 41 and 42. The tongs 41 are applied to the section 43 of the pipe, which is to be unscrewed. As indicated in Fig. 2, these tongs are applied at such a height that the lever 44 thereof may occupy one of the notches 37 upon the bracket 33. To the collar 20 the chain-tongs 42 are applied, and the lever 45 thereof is disposed against the pin 41<sup>a</sup>.

With the parts arranged as described the pins 31 would be withdrawn, so as to enable the ring 23 to be rotated without rotating the table 4. The table having been locked by means of the pawl 38, the pinion 25 would be driven so as to rotate the ring 23 in the proper direction. The bracket 33 in this way is made to exert a force against the chain-tongs 41 in a direction to unscrew the pipe-section 43 from the collar 20. The collar 20 and the section of pipe therebelow is held against rotation by the chain-tongs 42, which come

against the pin 41, as will be readily understood. This pin of course resists the rotation of the tongs and is itself fixed, because it is carried by one of the jaws attached to the table. If the upper pipe-section is to be screwed on instead of unscrewed, the levers 44 and 45 would simply be applied on the opposite sides of the bracket 33 and the pin 41.

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

1. In a pipe-rotary in combination, a rotatable table, means for fixing the same against rotation, a rotatable ring mounted on said table, a bracket carried by said ring and adapted to engage pipe-tongs attached to the pipe, and means for rotating said ring.

2. In a pipe-rotary in combination, a rotatable table, a rotatable ring carried thereby, means for locking said ring and said table together, means for locking said table against rotation, and a bracket carried by said ring and adapted to engage pipe-tongs attached to the pipe.

3. In a rotary in combination, a rotatable table having an opening through which a pipe may pass upwardly, a rotatable ring mounted on said table, a bracket carried by said ring, pipe-tongs adapted to be engaged by said bracket when attached to said pipe, a second pipe-tongs adapted to be attached to said pipe, and means for securing said second pipe-tongs against rotation.

4. In a rotary in combination, a rotatable table, means for locking the same against rotation, said table having a central opening through which a pipe may pass upwardly, a rotatable ring mounted on said table, means for locking said ring to said table, said ring having lugs upon the upper face thereof, and a bracket attached to said lugs and projecting upwardly from said ring, said bracket presenting notches on the opposite sides thereof adapted to engage the pipe-tongs.

5. In a rotary in combination, a bed-plate, a table rotatably mounted thereupon, means for locking said table against rotation on said bed-plate, a ring rotatably mounted on the edge of said table, said table and said ring having openings formed in the joint therebetween, and removable pins adapted to occupy said openings to lock said ring to said table, a member carried by said ring and adapted to engage pipe-tongs attached to a pipe passing up through said table, and a second member projecting upwardly to receive a second pipe-tongs attached to the pipe nearer to said table and fixed upon said table.

6. In a pipe-rotary in combination, a bed-plate, a table rotatably mounted thereupon, said table and said bed-plate having alining openings through which a pipe may pass upwardly, said table having a circumferential groove, clips projecting into said groove and



securing said table to said bed-plate, means  
for locking said table against rotation, a ring  
rotatably mounted on said table, a bracket  
carried by said ring and adapted to engage a  
5 pipe-tongs applied to said pipe, and a fixed  
member projecting upwardly from said table  
and adapted to engage a second pipe-tongs  
attached to said pipe nearer to said table.

In testimony whereof I have signed my  
name to this specification in the presence of 10  
two subscribing witnesses.

HORACE D. BERNARD.

Witnesses:

GEO. W. WHITE,  
HAT. G. LAND.