J. B. DUNLAP & W. D. BRYAN.

SUCKER ROD PULLER.

APPLICATION FILED AUG. 15, 1914.

1,147,080.

Patented July 20, 1915.

2 SHEETS—SHEET 1.

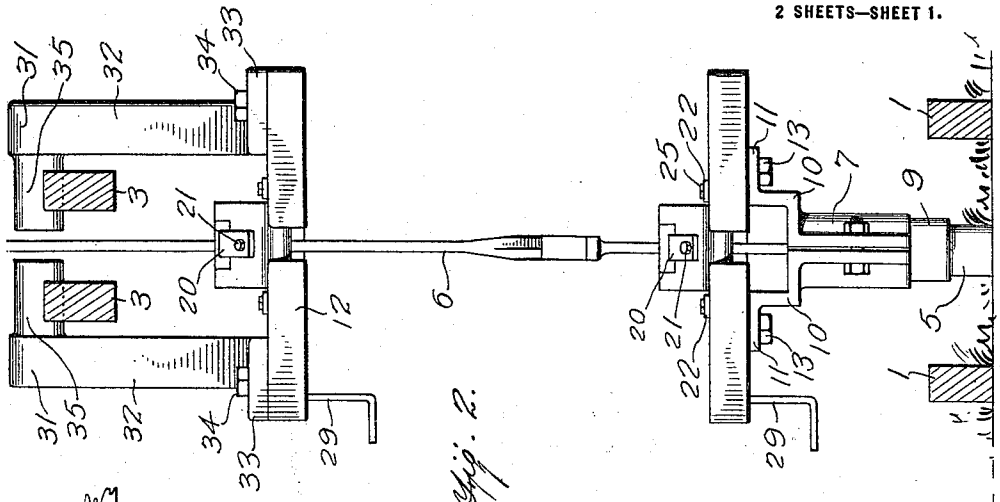


Fig. 2.

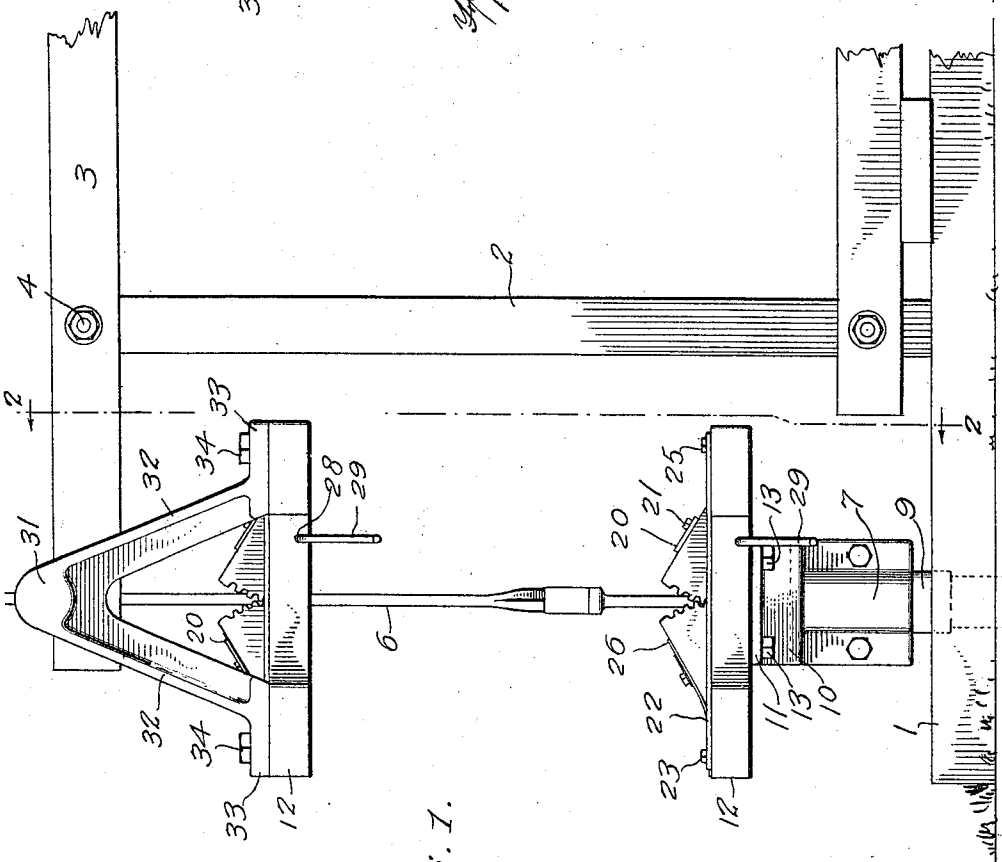


Fig. 1.

WITNESSES

L. H. Schmidt

A. E. Francis

INVENTORS

JOSEPH B. DUNLAP,

WILLIAM D. BRYAN,

BY Munn & Co.

ATTORNEYS

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

J. B. DUNLAP & W. D. BRYAN.

SUCKER ROD PULLER.

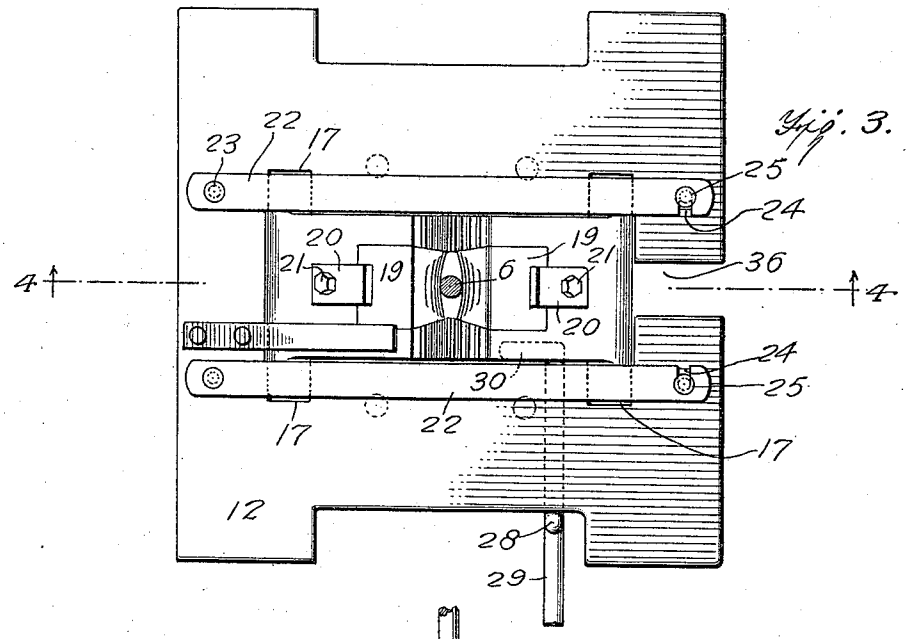
APPLICATION FILED AUG. 15, 1914.

1,147,080.

Patented July 20, 1915.

2 SHEETS—SHEET 2.

Fig. 3.



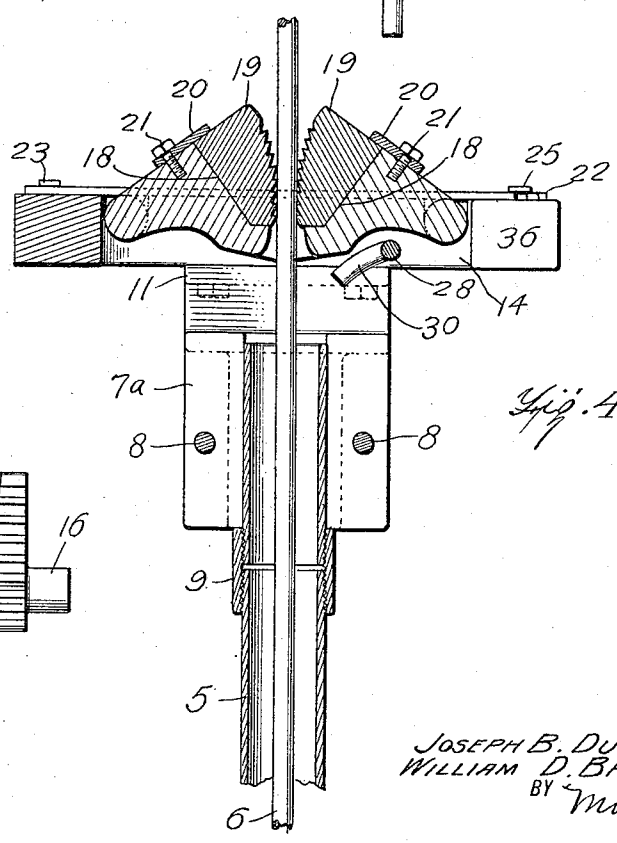


Fig. 5.

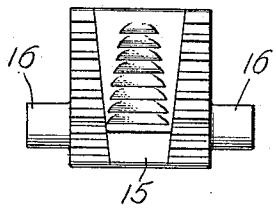


Fig. 4.

WITNESSES

L. H. Schmidt

A. E. Brown

INVENTORS

JOSEPH B. DUNLAP,
WILLIAM D. BRYAN,
BY Munn & Co.

ATTORNEYS

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH B. DUNLAP AND WILLIAM D. BRYAN, OF TULSA, OKLAHOMA.

SUCKER-ROD PULLER.

1,147,080. Specification of Letters Patent. Patented July 20, 1915.

Application filed August 15, 1914. Serial No. 856,974.

To all whom it may concern:

Be it known that we, JOSEPH B. DUNLAP and WILLIAM D. BRYAN, citizens of the United States, and residents of Tulsa, in the county of Tulsa and State of Oklahoma, have made certain new and useful Improvements in Sucker-Rod Pullers, of which the following is a specification.

Our invention is an improvement in sucker rod pullers, and has for its object to provide a device of the character specified for pulling a sucker rod from a well casing, wherein a plurality of gripping mechanisms is provided one of which may be attached to the well casing and the other to the pumping jack, and wherein the said devices are arranged to grip the sucker rod alternately.

In the drawings: Figure 1 is a side view of the improved puller, Fig. 2 is a section on the line 2—2 of Fig. 1 looking in the direction of the arrows adjacent to the line, Fig. 3 is a top plan view of the lower clamping device, Fig. 4 is a section on the line 4—4 of Fig. 3 looking in the direction of the arrows adjacent to the line, and Fig. 5 is a front view of one of the gripping jaws.

The present embodiment of the invention is shown in connection with an ordinary pumping jack, comprising a base 1, standards or uprights 2, and levers 3 which are pivoted to the tops of the standards, as indicated at 4. The pumping jack is shown arranged near the upper end of the well casing 5, and the sucker rod 6 is shown as extending into the casing.

A clamping device is provided for engaging the upper end of the well casing, the said device comprising opposed curved plates 7 and 7ª which fit around the upper end of the well casing, and are clamped thereon by means of bolts and nuts 8. At their lower end the sections rest upon a union 9 which connects two sections of well casing, and above the well casing each of the sections is provided with an angular extension 10. These extensions each consist of a horizontal and a vertical portion, and the vertical portions are offset outwardly from the planes of the plates, and the said portions are approximately parallel. Each of the said portions is provided with an outwardly extending flange 11. The gripping devices are alike, as far as concerns the gripping mechanism proper. The said devices differ only in the manner of their support, the lower being supported by the well casing, and the upper by the levers 3. Each of the said gripping devices comprises a base plate 12, and the base plate of the lower gripping device is connected with the flanges 11 by means of bolts 13, and the said plate 12 is provided with a central opening 14, in which is arranged the gripping mechanism to be described. The said mechanism comprises a pair of substantially triangular jaws 15 each of which is provided at one angle with oppositely extending journal pins 16, and the said pins engage notches or recesses 17 in the upper face of the plate at the ends of the central opening 14. The jaws are thus mounted to rock on the journal pins, and each jaw is recessed on the face opposite to the angle provided with journal pins, as indicated at 18, to receive the hardened face plate 19. These face plates are seated in the recesses, and are held in place by means of locking plates 20.

The locking plates 20 are held to the bodies of the gripping jaws, by means of screw bolts 21, the said bolts being passed through openings in the plates, and into engagement with threaded openings in the gripping jaws. The inner adjacent faces of the face plates 19 are roughened transversely, as shown, as are also the faces of the jaws 15 adjacent to the said facing plates.

The journal pins of the gripping jaws are held in place by means of latch plates 22, each of which is pivoted to the plate 12 at one end, as indicated at 23, and the other end is provided with a recess 24 in one side edge, which is adapted to engage a headed pin 25 to hold the latch plate in place over the journal pin. The plates 22 are arranged to swing outwardly away from each other, the recesses 24 being in the inner edges of the said plates. The plates engage beneath the heads of the pins, which thus prevent upward movement of the free ends of the plates. A plate spring 26 is secured to the base plate 12 adjacent to one gripping jaw, and near one of the latch plates 22, by means of bolts or rivets 27, and the said spring bears at its free end against the upper face of the gripping jaw, acting normally to force the said jaw downward.

A rod or shaft 28 is journaled in the base plate below the gripping jaw remote from the spring 26, and the said rod or shaft is

provided at its outer end with a crank 29, for permitting the shaft to be oscillated. The inner end of the shaft is provided with an angular lug 30 for engaging beneath the adjacent gripping jaw to swing the same upwardly out of engagement with the sucker rod 6. The upper gripping mechanism is precisely the same as the lower, and it is supported by hangers from the lever 3.

Each of the hangers is approximately V-shaped, comprising a body 31 and arms 32 extending at an acute angle from the body with respect to each other. At its free end each arm 32 is provided with a foot 33, which is connected to the base plate of the upper gripping device by means of bolts 34. The body 31 of each of the hangers is provided with an inwardly extending journal pin 35, and each of the said journal pins is journaled in a notch or recess in the upper edge of the adjacent lever 3. It will be noticed from an inspection of Figs. 3 and 4 that a slot 36 leads from the central opening of each of the base plates 12 at the end adjacent to the shaft 28.

In operation, the clamping devices are arranged as shown in Fig. 1, the lowermost device being supported by the flanges 11 of the extensions 10, while the uppermost is supported by the hangers from the levers 3. At the beginning of the pulling movement, the lowermost gripping jaws are clamped on the sucker rod. The jaws of the upper device are lifted by means of the crank 29, and the ends of the levers 3 remote from the gripping devices are moved to lower the upper gripping devices. When it has been lowered the crank 29 is moved in a direction to cause the gripping jaws to engage the sucker rod. The jaws of the lower device are now lifted by means of the crank 29, and the rod is pulled upward by means of the uppermost gripping device. When it has been lifted as high as possible, the jaws of the lower device are engaged with the rod, and a new grip is obtained on the rod by the upper device. A succession of movements as described will finally complete the operation.

We claim:

1. A sucker rod puller, comprising a plurality of gripping devices, each consisting of a plate having a central opening, gripping jaws arranged in the opening, each of the said jaws being approximately triangular and having at one angle a pair of oppositely extending journal pins, the base plate having recesses in its upper face at the corners of the opening for receiving the journal pins, a latch plate pivoted to the base plate at each side of the central opening and at one end thereof, each plate having a recess in its inner edge at the opposite end, headed pins on the base for engagement by the notches, means for lifting one of the jaws, a spring pressing the other jaw downward, and hangers connected with the base plate of one of the said devices, said hangers having inwardly extending journal pins for the purpose specified.

2. A sucker rod puller, comprising a plurality of gripping devices, each consisting of a plate having a central opening for receiving the sucker rod, gripping jaws pivoted in the opening for swinging movement into and out of the plane of the plate, means in connection with one plate for connecting the plate to the upper end of a well casing, and means in connection with the other plate for suspending the same from a pumping jack.

3. A sucker rod puller, comprising a plate having a central opening, a pair of gripping jaws arranged in the opening, each jaw having a pair of oppositely extending journal pins, and the plate having recesses in its upper face at the corners of the opening for receiving the journal pins, a latch plate pivoted to the plate at each side of the central opening and at one end thereof, each plate having a recess in its inner edge at its free end, and headed pins on the base for engagement by the recesses to hold the latch plates over the journal pins.

4. A sucker rod puller, comprising a plate having a central opening, gripping jaws arranged in the opening and pivoted to the plate, each jaw having a vertical recess in its engaging face, and the engaging face of the jaw being rough on each side of the recess, and a block held in each recess, each block being roughened at the said face, and means for detachably holding each block in the recess.

5. A sucker rod puller, comprising a plate having a central opening, gripping jaws arranged in the opening and pivoted to the plate, each jaw having a recess in its engaging face and the engaging face of the jaw being rough on each side of the recess, and a block held in each recess, each block being roughened on its engaging face, and means for detachably holding each block in the recess.

6. A sucker rod puller, comprising a plate having a central opening, gripping jaws arranged in the openings and pivoted to the plate, each jaw having a recess in its engaging face and a block held in each recess, each block having a roughened engaging face, and means for detachably holding each block in the recess.

7. A sucker rod puller, comprising a plate having a central opening, gripping jaws pivoted in the opening, a shaft pivoted beneath the plate at one of the jaws and having a crank at its outer end and an angular portion at its inner end for engaging the jaw to lift the same, a spring secured to the upper face of the plate adjacent to the other

jaw and engaging the jaw to normally press the said jaw downward.

8. A sucker rod puller, comprising a plate having a central opening, gripping jaws pivoted in the opening, a shaft pivoted beneath the plate at one of the jaws and having a crank at its outer end and an angular portion at its inner end for engaging the jaw to lift the same.

JOSEPH B. DUNLAP.
WILLIAM D. BRYAN.

Witnesses:
PETER DEICHMAN,
JOHN YOUNG MURRY.

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