

C. S. LEON AND J. G. CHOPAS.
CASING PULLER FOR OIL WELLS.
APPLICATION FILED JUNE 30, 1921.

1,435,486.

Patented Nov. 14, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

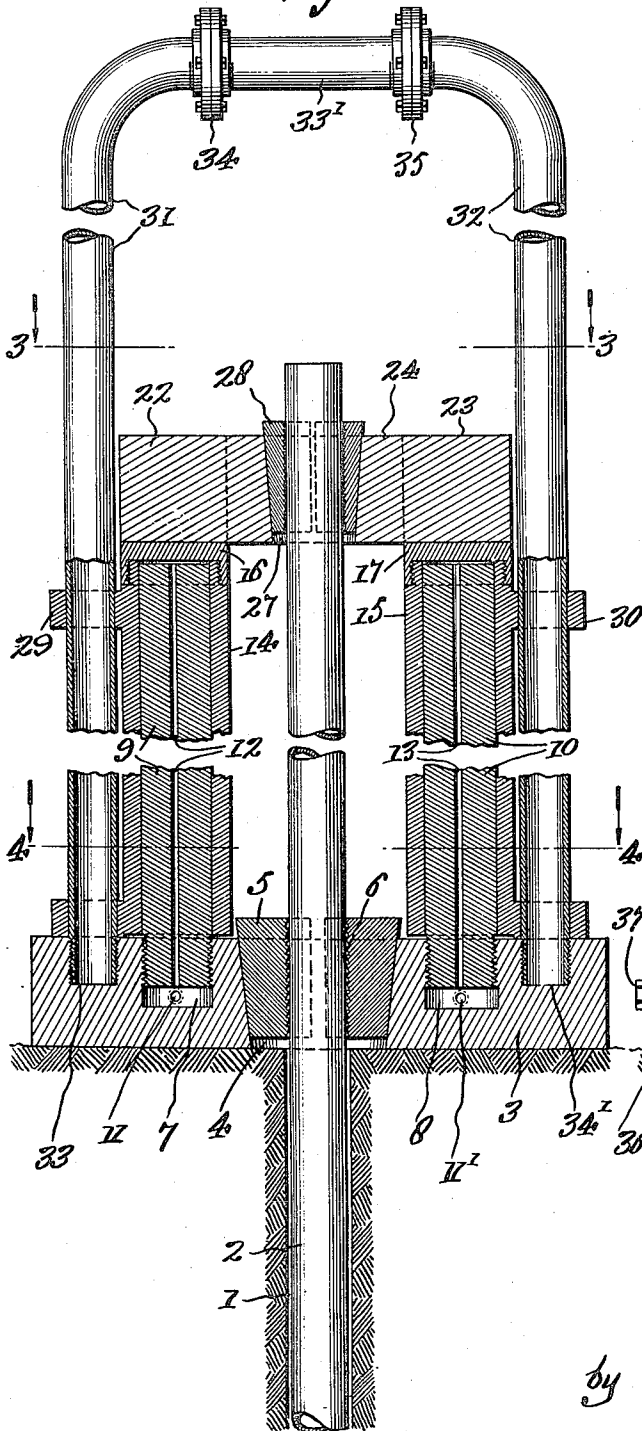
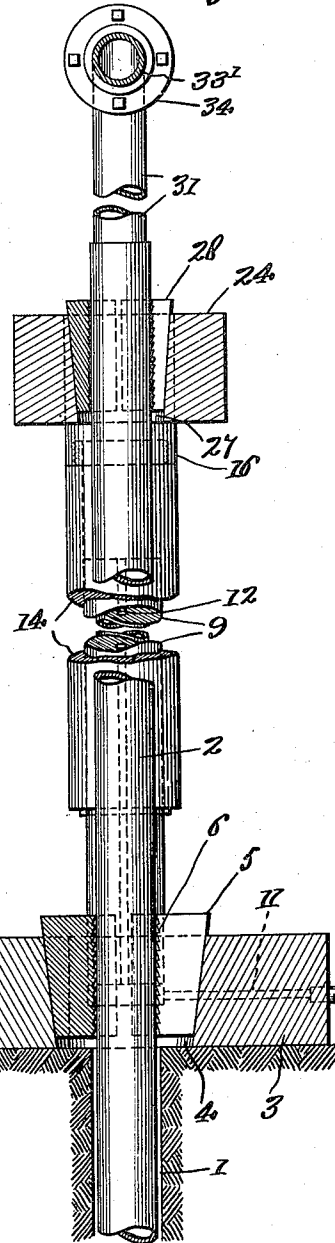


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

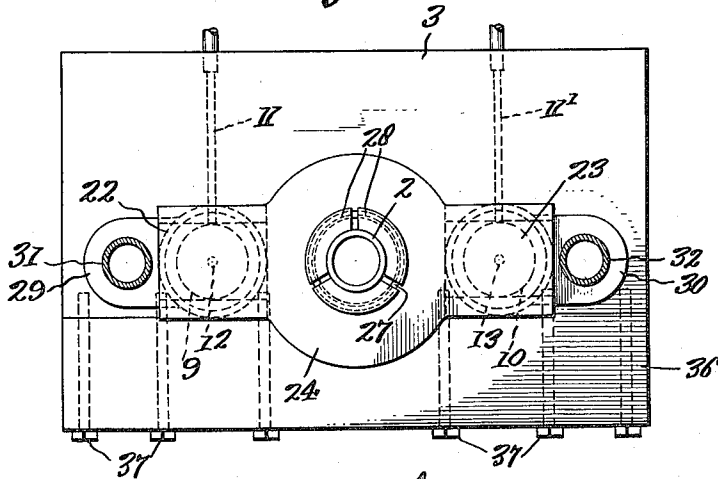


Fig. 4.

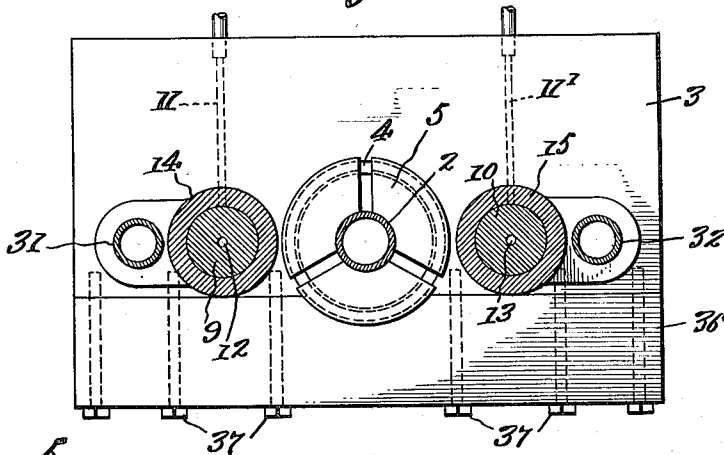


Fig. 5.

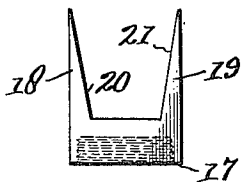


Fig. 7.

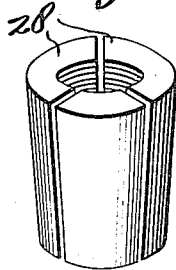
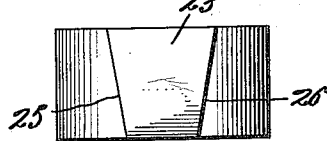


Fig. 6.



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UNITED STATES PATENT OFFICE.

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ONE-THIRD TO LEE SINGLETARY, OF OAKDALE, LOUISIANA.

CASING PULLER FOR OIL WELLS.

Application filed June 30, 1921. Serial No. 481,570.

To all whom it may concern:

Be it known that we, CREED S. LEON and JAMES G. CHOPAS, citizens of the United States, residing at Glenmora, in the parish of Rapides and State of Louisiana, have invented certain new and useful Improvements in Casing Pullers for Oil Wells; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in casing pullers for oil wells and has for an object to provide an improved casing puller of a simple and durable construction adapted to enable the quick and convenient raising of the oil well piping and to provide a construction contained within a compact space.

Another object of the invention resides in providing an improved framework associated with a foundation block and acting to guide and support the jacks which lift the well piping and to make this frame of compact yet strong construction.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Fig. 1 is a vertical sectional view through an improved casing puller, with parts shown in elevation, constructed according to the present invention;

Fig. 2 is also a vertical sectional view with parts shown in elevation taken at right angles to Fig. 1;

Fig. 3 is a horizontal sectional view taken on the line 3—3 in Fig. 1;

Fig. 4 is a similar view taken on the line 4—4 in Fig. 1;

Fig. 5 is a side view of one of the cap pieces;

Fig. 6 is an end view of the pulling block; and

Fig. 7 is a perspective view of the slip segments.

Referring more particularly to the drawings, 1 indicates an oil well and 2 the usual casing which is let down in the well.

In accordance with the invention we provide a foundation block 3 having a central opening 4 for the passage of the casing 2, such opening being made tapered with its smaller diameter at the base and being substantially wider than the casing 2 in order to admit the slip segments 5 which are provided with internal teeth 6 directed upwardly. The outer walls of the slip segments 5 are tapered to correspond to the conical face of the opening 4 in order that the weight of the tubing 2 received upon the teeth 6 will tend to carry the segments 5 downwardly and thus force the segments and the teeth into a more firm biting engagement with said casing. The arrangement is intended to hold the casing effectively against slipping down into the well.

At diametrically opposite points with respect to the central opening 4 are a pair of sockets 7 and 8 made in the foundation block and having internal screw threads at their upper portions in order to receive the lower threaded ends of the jack stems 9 and 10. As shown more particularly in Fig. 3, the foundation block 3 is provided with channels 11 and 11' which enter the sockets 7 and 8 and are connected with an outside source of hydraulic pressure. The stems 9 and 10 are formed with axial passages 12 and 13 in which to transmit the fluid from the base to the upper portion thereof.

Barrels 14 and 15, forming part of the jacks, surround and slip over the stems 9 and 10 and are reduced and screw-threaded at their upper portions in order to receive cap pieces 16 and 17 which are removable by unscrewing. One of the cap pieces is shown in Fig. 5 in which the same is illustrated to be provided with a pair of upstanding prongs 18 and 19 having inclined inner faces 20 and 21 converging downwardly. Slots are thus formed between the prongs 18 and 19 of the cap pieces with tapered walls. These slots are intended to receive the extension pieces 22 and 23 formed on a pulling block 24. In Fig. 6 we have illustrated an end view of the pulling block showing the tapered character of the extensions. These extensions are provided with inclined walls 25 and 26 which accurately fit the walls 20 and 21 of the cap pieces so that the pulling block 24 is held firmly in place by the weight of the casing 2. In the pulling block 24 is an opening 27 also of a tapered character to receive the upper

end of the casing 2 and slip segments 28 which are provided with internal teeth adapted to bind against the pipe.

The barrels 14 and 15 are provided with guides 29 and 30, being preferably two in number for each barrel, one at the upper and one at the lower end, and these guides surround sections 31 and 32 of a framework which has its lower ends screw-threaded in sockets 33 and 34' made in the foundation plate 3 in diametric alinement with the sockets 7 and 8 and outside thereof. The framework is preferably composed of three sections, the side sections 31 and 32 which rise vertically from the foundation block 3, and a third section 33' lying horizontally and being united with the mutually curved upper ends of the sections 31 and 32 as by the heavy flange couplings 34 and 35. The sections of the framework are preferably of tubing or piping in order to secure the necessary strength and at the same time have a desirable lightness and to economize as much as possible upon material.

The foundation block 3 is preferably composed in part of a section 36 secured as by bolts 37 to the main body of the block 3. The section 36 contains in part the opening 4 and such section may be removed in order to withdraw the block 3 from about the casing or the section 36 may be adjusted to provide a larger or smaller opening.

In use, the apparatus is initially in substantially the position shown in Fig. 1, wherein it is shown to be in connection with a casing 2 which it is desired to withdraw upwardly from the well 1. Water under pressure is introduced from a suitable source under the control of the operator into the conduits 11 and 11' to the lower portions of the jacks. Here the water enters the sockets 7 and 8 and rises through the passages 12 and 13, acting beneath the cap pieces 16 and 17 and thus elevating the barrels 14 and 15. The barrels are guided in their upward movement by the guides 29 and 30. The pulling block 24 is thus raised, and due to the tapered segments 28 which bind against the casing, such casing is also elevated.

Due to the upward inclination of the lower teeth 6 in the slip segments 5, these segments will readily permit the raising of the pipe, but after raising, such slip segments 5 will effectively hold the pipe against returning downwardly into the well. As soon as the jacks have been moved upwardly to a desired extent or to their full extent, the operator may allow the water to escape from the jacks, and by virtue of their weight they will expel the water and return to their initial lower position as shown in Fig. 1. This action is repeated and the casing is withdrawn from the well.

It is obvious that various changes and modifications may be made in the details of

construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modification being restricted only by the scope of the following claims.

What is claimed is:—

1. A casing puller for oil wells comprising a foundation extending about the well, jacks mounted thereon, a pulling block removably supported upon the jacks, means carried by the pulling block for lifting the piping but adapted to release the same on the downward movement of the pulling block, and a frame also erected on the foundation and adapted to guide the movement of the jacks, substantially as described.

2. A casing puller for oil wells comprising jacks including cap pieces, a pulling block having reduced ends removably fitting in said cap pieces, and means associated with the pulling block for engaging with a well pipe, substantially as described.

3. A casing puller for oil wells comprising a foundation, a pair of jacks mounted thereon, barrels for the jacks, removable cap pieces for the barrels having tapered slots therein, a pulling block having extensions tapered to correspond with the tapered slots in the cap pieces and adapted to fit therein, and means carried by the pulling block for yieldably engaging with the well piping, substantially as described.

4. A casing puller for oil wells comprising a foundation block having a pair of sockets therein and an opening to receive the well pipe, means in the opening to engage with and support the pipe, a pair of jacks including stems fitted at their lower ends into said sockets, barrels for the jacks, cap pieces for the barrels, and a pulling block removably associated with said cap pieces and adapted to raise the piping, substantially as described.

5. A casing puller for oil wells comprising a foundation block having a central opening and pairs of sockets at opposite sides thereof, jacks having stems with their lower ends fitted in one pair of the sockets, barrels fitted over the stems of the jack, a pulling block removably associated with said barrels and adapted to raise the well piping, and a framework composed of tubular material bent substantially U-shaped and inverted having its lower ends fitted in the other pair of sockets in the foundation plate and secured therein, the frame being composed of side sections and a connecting piece at the top for the side sections with heavy flange unions to connect the sections, and guides extending from the barrels and engaging with said side sections of the frame, substantially as described.

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