June 16, 1925. 1,542,167

F. C. OSTHEIMER ET AL

PIPE GRIPPING DEVICE

Filed June 2, 1924

Fig. 1.

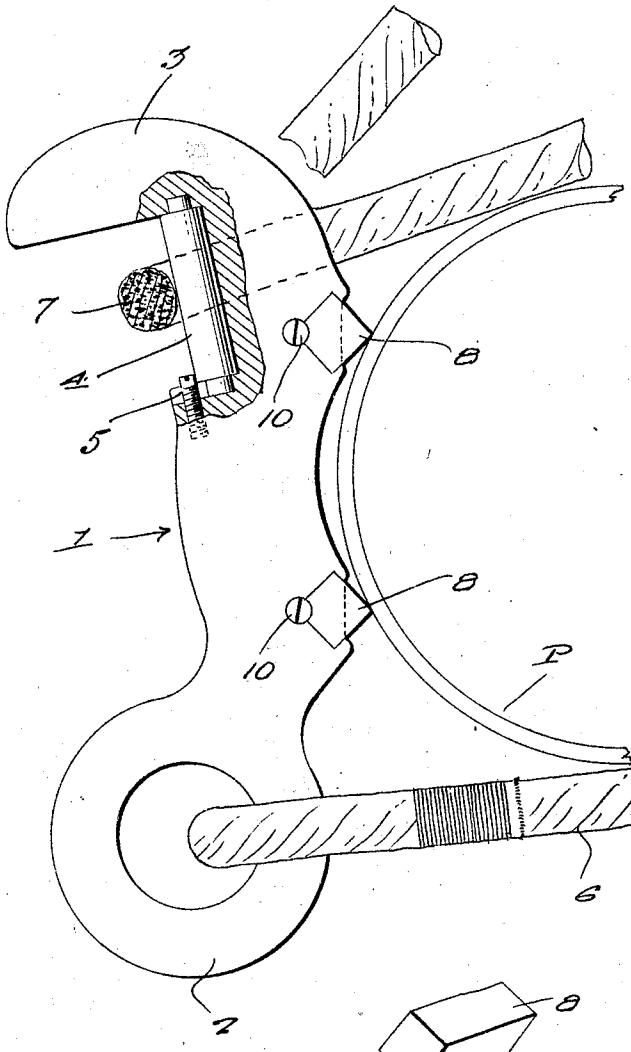


Fig. 2.

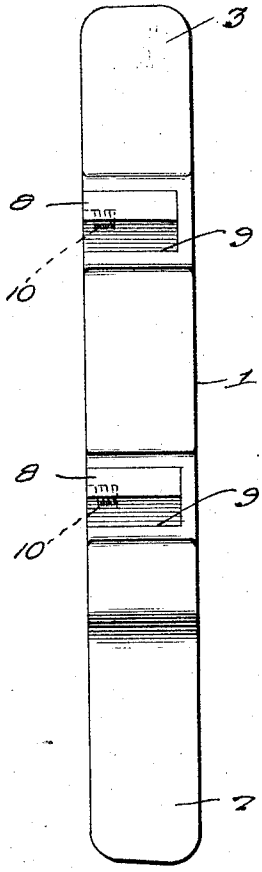


Fig. 3.

Inventors
F. C. Ostheimer
L. F. Roberson

By Clarence A. O'Brien

Attorney

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FRANK CHARLES OSTHEIMER AND LIGE FROMAN ROBERSON, OF VIRGIL, KANSAS.

PIPE-GRIPPING DEVICE.

Application filed June 2, 1924. Serial No. 717,365.

To all whom it may concern:

Be it known that we, FRANK C. OSTHEIMER and LIGE F. ROBERSON, citizens of the United States, residing at Virgil, in the county of Greenwood and State of Kansas, have invented certain new and useful Improvements in a Pipe-Gripping Device, of which the following is a specification.

This invention relates to an improved pipe gripping device of the type used for connecting and disconnecting oil well pipes.

At the present time, there is a pipe gripping device of similar nature in use. That device comprises a comparatively heavy metal casting which is in the main arcuate in shape to conform to one side of the pipe against which it is adapted to bear. That surface of the body which engages the pipe is provided with a series of transverse teeth for firmly gripping the pipe. At one end of the body there is an attaching eye for one end of a pipe encircling rope or its equivalent, while at the other end is laterally turned foot around which the free end of the rope is passed and drawn upon to tighten it around the pipe to obtain the desired grip.

Continued personal use of devices of the above named character had conclusively shown that they are defective in that the teeth become worn and ineffective in a comparatively short period of time, thus hindering an effective grip. Furthermore, since much friction exists between the so called foot and the rope when the free end of the latter is drawn upon, the action of the known tool is not rapid.

In view of the foregoing circumstances, we have evolved and produced a novel tool of the type herein described, and have embodied features in the new tool which entirely overcomes the difficulties experienced.

The prime feature of the present invention is the provision of readily replaceable pipe gripping teeth which are so arranged as to obtain a firm grip on the pipe and are so held in place that they can be readily removed and replaced.

Another and a very important feature of the invention is the anti-friction means which is carried by one end of the tool and with which the looped end of the pipe encircling rope is engaged during the tightening operation. This anti-friction device insures free slippage of the rope and facilitates extreme tightening of the rope about the pipe.

Other features and advantages of the invention will become apparent from the following description and drawings.

In the accompanying drawing forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 discloses a side elevation of the improved tool, with a portion thereof broken away to disclose the specific construction of the anti-friction device more clearly.

Figure 2 discloses a front edge elevation of the device.

Figure 3 discloses a detail perspective view of one of the replaceable pipe gripping teeth.

In the drawings, the numeral 1 designates generally a one piece metallic body, the intermediate portion of which is somewhat arcuate in shape to conform more or less to the contour of that portion of the pipe with which it is associated. On one end, the body is formed with an integral rope anchoring eye 2, this eye being directed laterally outward with respect to the pipe P. On the opposite end of the body is a lateral extension 3 forming a guard. At the inner end of this extension and in one edge, the body is formed with a recess to accommodate an anti-friction roller 4, the reduced journals of which are rotatably received in sockets appropriately formed in the body. If desired, the lower end of the roller may be held in place by a removable retainer 5 such as shown. As is usual, one end 6 of a pipe encircling rope is anchored to the aforesaid eye, the rope being passed around the pipe and the free end thereof being looped around the roller as indicated at 7. With this arrangement it is obvious that by exerting a pull upon the free end of the rope, the intermediate portion thereof will be tightened around the body. To prevent slippage of the device surrounding the pipe during the coupling and uncoupling of the pipe sections, we provide pipe gripping teeth 8. Instead of being integral, these teeth are readily removable, the same being preferably in the form of elongated blocks, as shown more clearly in Figure 3. The front edge of the body is provided with confining pockets 9 open at one end and closed at the other end. The blocks are inserted

into these pockets through the open end and forced tightly against the closed walls at the opposite ends, being held in place by set screws 10, the heads of which are engaged therewith in the manner shown. Attention is here directed to the fact that the teeth or blocks 8 are disposed at the approximate angles indicated so that only a single edge of each block is effective. It is obvious that with this arrangement an extremely tight grip is had and furthermore, the blocks can be removed and reversed or turned to utilize the other edges thereof.

In practice, the body 1 is placed against one side of one of the pipe sections in the approximate position indicated, the outer corners of the gripping blocks then being engaged with the surface of the free end portion of the pipe. The pipe encircling rope is carried about the pipe in the usual manner and the free end thereof is brought beneath the guard 3 and looped around the roller 4, the free end being carried in a direction away from the pipe, as shown. With the rope in this position it is apparent that a pull exerted upon the free end thereof will serve to tighten the rope around the pipe and at the same time bind the teeth 8 tightly against the pipe. Thus, a firm grip on the pipe will be had, and the pipe sections can be either screwed together or unscrewed.

Some of the main features of the invention have heretofore been set forth in comparison of the new device with the old. It may be added however, that whereas the old device now in use can be used to screw a pipe only one way without reversing the tool, the new device will grip the pipe regardless of the direction of rotation without requiring removal of the tool. The grip obtained by the angularly disposed blocks is effective even when the surface of the pipe is covered with slimy oil and mud. This is not true with the tool now in use. Whereas it is usually customary to have several different sizes of tools of the old type, it is necessary to use but a single tool of the new type. The new invention is also advantageous for other reasons which need not be discussed in detail herein.

It is thought that the foregoing description when taken in connection with the drawings will enable the reader to fully comprehend the invention. It is therefore thought unnecessary to add a more lengthy description.

Although we have shown and described a specific structure, it is to be understood that minor changes coming within the scope of the adjoined claim may be resorted to if desired.

Having thus described the invention, what we claim is:—

A pipe gripping device comprising a body having an anchoring eye formed at one end, having a lateral projection formed at its opposite end constituting a rope guard, and having its intermediate portion of arcuate formation, the intermediate portion of the body being formed in its inner edge with polygonal sockets, which are closed at one end and open at the other end, substantially rectangular pipe contact blocks fitted into said sockets, retaining screws carried by the body and engaging the outer ends of the blocks to retain the latter in position, and an anti-friction roller rotatably mounted upon the outer edge of the body beneath said guard, and a pipe encircling rope anchored at one end to said eye, the intermediate portions of said rope adapted to be passed around the pipe and the free end portion thereof being adapted to be looped beneath the guard, to permit the bight portion of the loop to ride against said roller, whereby when the free end of the rope is pulled upon, the rope will be tightened about the pipe.

In testimony whereof we affix our signatures.

FRANK CHARLES OSTHEIMER.
LIGE FROMAN ROBERSON.