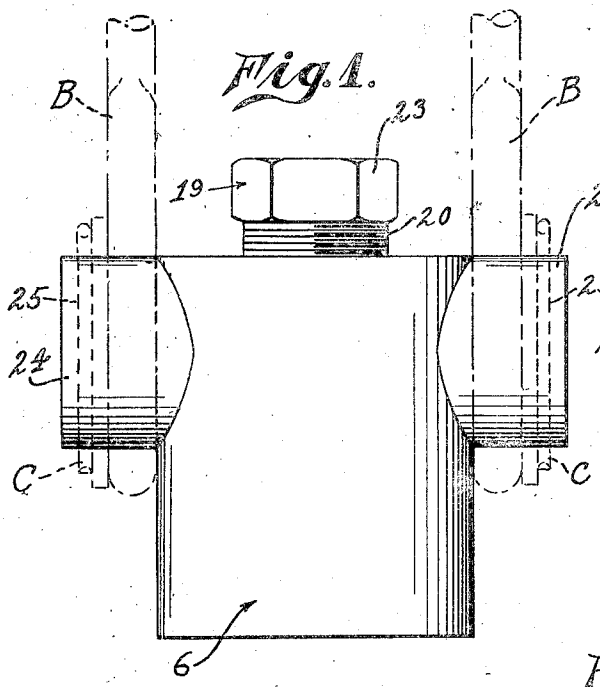
Jan. 10, 1928. 1,655,734

R. R. McWILLIAMS

ROD GRIP OR CLAMP

Filed March 30, 1927

Fig. 1.



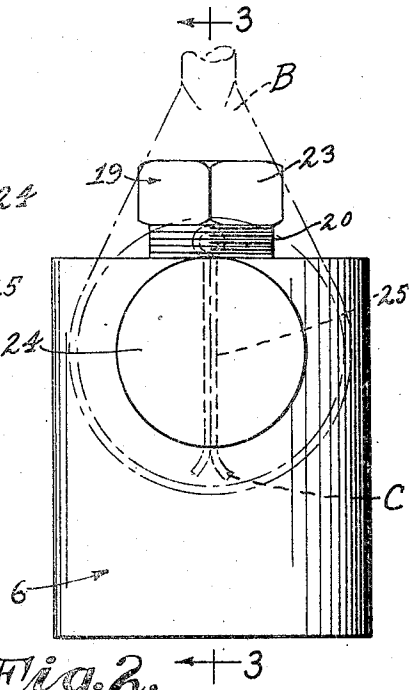


Fig. 2.

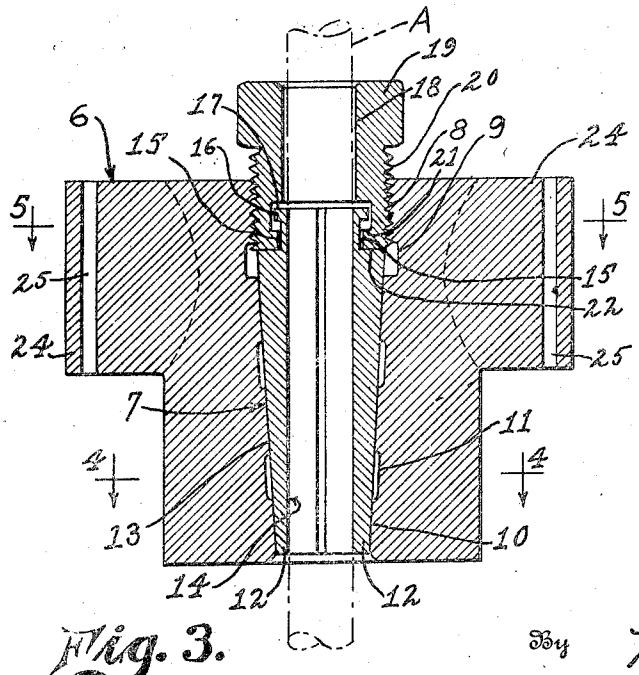


Fig. 3.

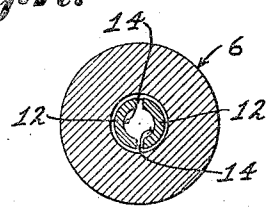


Fig. 4.

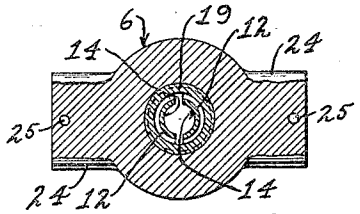


Fig. 5.

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UNITED STATES PATENT OFFICE.

ROBERT RILEY McWILLIAMS, OF ORCUTT, CALIFORNIA.

ROD GRIP OR CLAMP.

Application filed March 30, 1927. Serial No. 179,411.

This invention relates to rod grips or clamps of the type employed, for example, on polish rods, sucker rods and the like in the operations of pumping deep wells and installing and pulling sucker rods.

It is important in the art relating to the pumping of oil wells and in drilling said wells and maintaining the production thereof that the tools employed be absolutely reliable in performing the functions for which they are intended. This is especially the case with tools of this character because breakage thereof may result in loss of life or, at least, in such injury to the well as to produce waste of time and labor in repairing the damage.

An object of this invention is to provide a construction that is reliable when in use so as to avoid the difficulties mentioned above.

In tools of this character, simplicity of construction and operation are of importance for the reason that quickness of operation is often a primary consideration. Accordingly, another important object of the invention is simplicity of construction and operation.

Other objects and advantages will appear in the subjoined detailed description.

The accompanying drawings illustrate the invention:

Figure 1 is a side elevation of a rod grip or clamp constructed in accordance with the provisions of this invention.

Figure 2 is an elevation of Figure 1 from the right or left of said figure.

Figure 3 is a vertical section on the line indicated by 3—3, Figure 2.

Figure 4 is a reduced transverse section on the line indicated by 4—4, Figure 3.

Figure 5 is a reduced transverse section on the line indicated by 5—5, Figure 3.

There is provided a body 6 having a vertical bore extending from top to bottom thereof. The bore comprises a lower comparatively long tapered portion 7, an upper screw threaded portion 8 and an intermediate enlarged portion 9 connecting the portions 7, 8.

The tapered portion 7 is reduced downwardly and preferably has its wall consisting of alternating finished and unfinished surfaces 10, 11 respectively.

Adapted to fit in the bore portion 7 are slips 12 which have tapered external faces 13 to fit the tapered finished faces 10 of the bore of the body 6. Each slip in cross section is somewhat less than semi-circular and is provided with a straight groove 14 extending longitudinally thereof. The grooves 14, when the slips 12 are in place in the body 6, together form a bore adapted to accommodate a rod or cable A as shown in Figure 3. The grooves 14 are somewhat less than semi-circular so that there will be a clearance between the edges of the slips when the slips are in engagement with the rod A.

The upper portions of the slips 12 have external recesses 15 which terminate upwardly in outwardly projecting shoulders 16, said shoulders being formed by the under face of external flanges 17. The upper end portions of the slips 12 are accommodated in a bore 18 of an externally threaded bushing or nut 19. The external threads 20 of said bushing engaging the screw threaded bore portion 8. The bore 18 is provided with an inwardly projecting annular shoulder 21 which is below the shoulders 16 and is spaced from the shoulders 16 when the rod A is in place between the slips 12.

At their lower ends the recesses 15 are terminated by outwardly projecting shoulders 22 adapted, when the nut 19 is screwed inwardly, to be engaged by the inner end of said nut so as to force the slips 12 downwardly and thus wedge said slips into secure gripping engagement with the rod A. The nut 19 is provided with a wrench seat 23.

In some instances, the invention will be manufactured as above described, and in other instances, the body 6, as illustrated, will be provided with suitable means for connecting said body with a bail or other suspending device. A bail B is indicated in broken lines in Figures 1 and 2. In this instance, the body 6 is provided with laterally extending circular bosses 24 for the bail B. The bosses 24 are provided with holes 25 to receive cotter pins indicated in broken lines at C.

The invention operates as follows:

Assuming that the rod A is gripped as shown in Figure 3, to release the same, the nut 19 will be turned to screw it upwardly, thus urging the shoulder 21 against the shoulders 16 so as to pull the slips upwardly and relieve the wedging action, thus loosening them upon the rod. The grip or clamp may then be slipped off or may be slipped to different positions along the rod or entirely off of said rod, as desired.

To again grip the rod, the nut 19 will be turned to screw it downwardly thus forcing

the inner end of the nut against the shoulders 22 so as to cause a wedging action upon the slips, thus forcing said slips securely against the rod A. It will be noted that, because of the shoulders 16, 22 projecting outwardly from the slips and the shoulder 21 projecting inwardly from the bushing, the slips can be forced inwardly to as great a degree at their upper ends as at their lower ends, so that they will engage the rod or cable A uniformly from end to end of the grooves 14.

To entirely detach the slips 12, as may be desirable to repair or replace them, the nut 19 will be unscrewed from the body 6 and the slips may then be removed one at a time, since they may be closed together so that the flanges 17 will pass through that portion of the bore 18 that lies below the shoulder 21.

Since the operation of tools of this character in connection with the pumping and drilling of deep wells and the operations of maintaining production of said wells is well understood in the art to which this invention relates, a description of the specific operation of the invention in connection with oil wells is unnecessary as the various operations are well understood in that art.

It is to be understood that the screw threads 8, 20 constitute a preferred form of cooperating means on the body and bushing to move the bushing inwardly and outwardly; that the shoulders 16, 21 constitute a preferred form of cooperating means on the slips and bushing to force the slips toward the larger end of the tapered bore portion when the bushing is moved outwardly; that the shoulders 22 and the inner end of the bushing constitute a preferred form of cooperating means on the slips and bushing to force the slips toward the smaller end of the tapered bore portion when the bushing is moved inwardly, and that in these respects the invention is not limited to the particular means illustrated and described herein.

I claim:

1. A rod grip or clamp comprising a body provided with a tapered bore portion, externally tapered slips fitting said bore portion and provided with outwardly projecting spaced shoulders, and a bushing screwed into the body and provided with an inwardly projecting shoulder engageable beneath one of the first mentioned shoulders when the bushing is screwed outwardly, the inner end of the bushing engageable with the other of the first mentioned shoulders when the bushing is screwed inwardly.

2. A rod grip or clamp comprising a body provided with a lower tapered portion reduced downwardly and with an upper screw threaded portion and with an intermediate enlarged portion connecting the tapered and threaded portions, slips provided with tapered external faces to fit the tapered bore portion, and slips provided with longitudinal grooves which together form a bore adapted to accommodate a rod, the upper portions of the slips provided with external recesses terminated upwardly in shoulders, a bushing having threaded engagement with the screw threaded bore portion of the body, said shoulders projecting into the bore of the bushing and the bore of the bushing provided with a shoulder engageable beneath the first mentioned shoulders when the bushing is screwed outwardly, the recesses terminated downwardly in shoulders engageable by the inner end of the bushing when said bushing is screwed inwardly.

Signed at Santa Maria, Calif., this 1st day of March, 1927.

ROBERT RILEY McWILLIAMS.