Jan. 12, 1937. W. H. McGUFFIN 2,067,329

PUMP ROD COUPLING

Filed Aug. 28, 1936 2 Sheets-Sheet 1

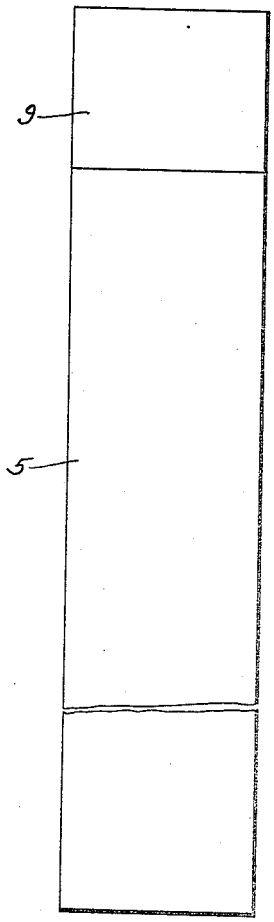


Fig. 1.

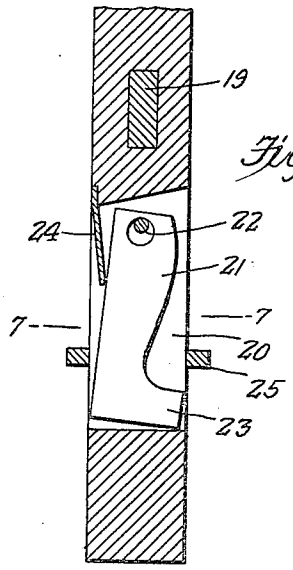


Fig. 5.

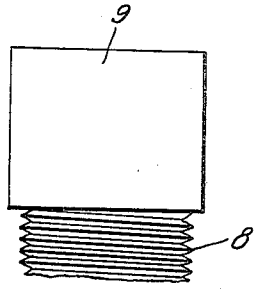


Fig. 6.

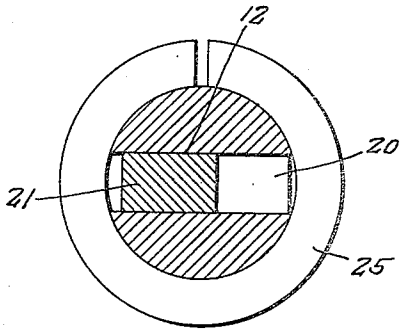


Fig. 7.

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PUMP ROD COUPLING

Filed Aug. 28, 1936 2 Sheets-Sheet 2

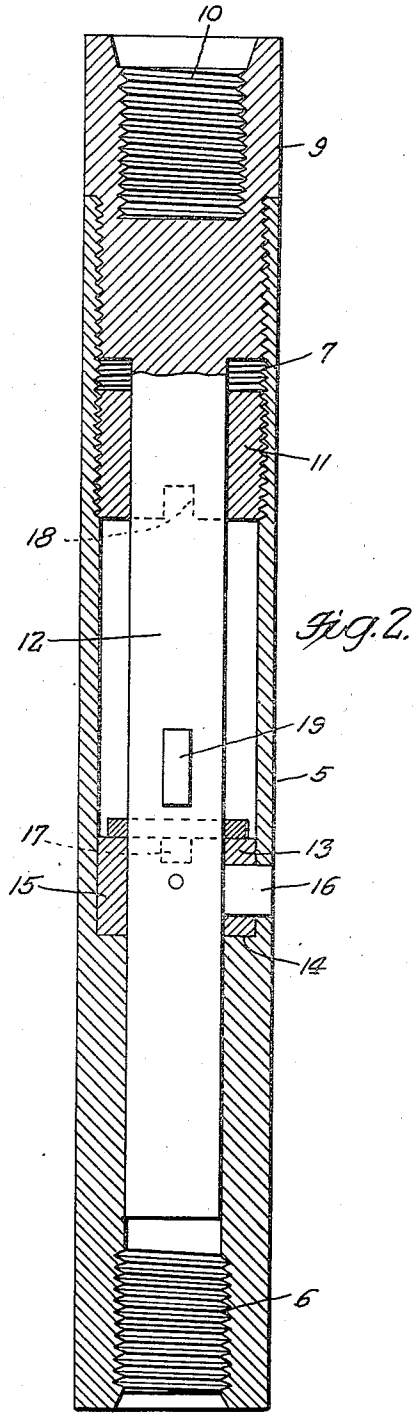


Fig. 2.

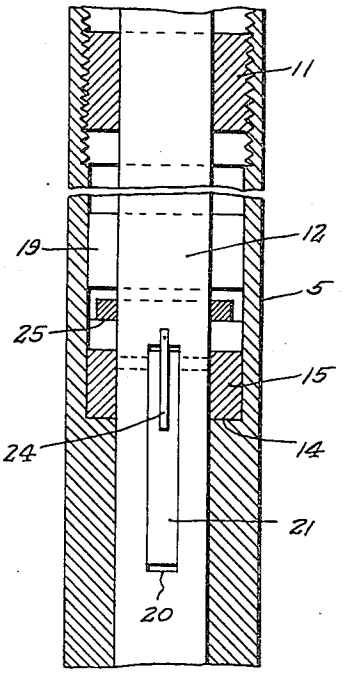


Fig. 3.

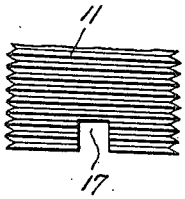


Fig. 4.

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UNITED STATES PATENT OFFICE

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PUMP ROD COUPLING

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Application August 28, 1936, Serial No. 98,385

4 Claims. (Cl. 255—28)

The present invention relates to rod couplings for use in connection with cleaning sand from oil and water wells.

The purpose of the present invention is to conserve time and labor in removing the rods of a well that extend from the lift pump above the ground down to the cylinder and pump proper. After the cylinder in a well becomes affected with sand it requires the removal of the cylinder, rods and tubing from the well in order to remove the sand therefrom. In removing the cylinder it is necessary to first attempt to remove the rod and with the ordinary right-hand threads the uppermost rod usually unscrews instead of the bottom one that is connected to the cylinder.

In order to overcome this objection I provide a double socket forming the subject matter of the present invention which is placed on the last connection of the rod in the well immediately above the cylinder and is provided with lefthand threaded connections permitting the inner member of the socket to be removed without disconnecting a single rod within the well by so doing. This construction will permit the well operator to first remove his rods and then remove the tubing without having the trouble of attempting to remove the tubing and rods at the same time which usually causes a great deal of damage to the rods as the connections of the rods and the joints of the tubing do not generally coincide.

A further object of the present invention is to provide an instrument that is capable of also being used for the purpose of connecting rods that become disconnected in the well without the necessity of removing the rods from the well. Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout and in which:—

Figure 1 is a side elevational view of the coupling showing the inner and outer sections connected together.

Figure 2 is a vertical longitudinal sectional view therethrough.

Figure 3 is a fragmentary longitudinal sectional view showing the position of the latch member.

Figure 4 is a detail of the upper threaded locking plug.

Figure 5 is a fragmentary longitudinal sectional view through the stem showing the latch member mounted therein.

Figure 6 is a fragmentary side elevational view of the upper end of the inner member of the coupling and Figure 7 is a transverse sectional view taken substantially on a line 7—7 of Figure 5.

Referring now to the drawings in detail, wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention, the numeral 5 designates the outer tubular member of the rod coupling, internally threaded at its lower end as at 6 for threadedly attaching to a pipe or rod section and also internally threaded at its upper end, as indicated at 7 for threadedly receiving the reduced threaded section 8 of the inner rod coupling member 9. The inner rod coupling member 9 projects outwardly from the upper end of the member 5, the outer end of the inner member being of a uniform diameter with the outer member 5.

The inner rod coupling member 9 is of a solid construction and at its upper end is formed with a threaded recess 10 for attaching to an upper rod section. The threaded connections 7 and 8 of the outer and inner members of the coupling are lefthanded, or opposite to that of the threads 6 and 10 usually employed for connecting rod or pipe sections.

A locking plug 11 is externally threaded and also provided with lefthanded threads for threaded engagement within the upper end of the outer rod member 5. The locking plug 11 is provided with a bore through which a stem 12 depending from the head 9 of the inner coupling member is inserted.

The lower portion of the outer coupling member 5 is reduced as more clearly illustrated in Figure 2 of the drawings to provide a shoulder 14 upon which is seated a locking collar 15 and retained in position within the member 5 by a pin 16 extending laterally through aligned openings in the collar and the wall of the member 5. The opposed edges of the locking members 11 and 15 are formed with notches 17 and 18 respectively and the portion of the stem 12, normally positioned between the locking members 11 and 13 is provided with a pair of laterally extending lugs 19 positioned at diametrically opposite sides of the stem. The projections 19 are of proper size for seating within the notches 17 and 18 of the locking member whereby it will be apparent that upon the removal of the headed end 9 of the inner coupling member and withdrawing the inner member the lug 19 will become seated in the notches 18 of the upper locking member 11 whereby said locking mem-

ber may be removed from the outer member 5 of the coupling.

The lower portion of the stem 12 is formed with a slotted opening 20 within which a latch member 21 is pivotally supported upon a pin 22, said latch member being of a size to be entirely confined within the opening of the stem. The lower end of the latch member is provided with a lateral extension 23 and a leaf spring 24 is secured to the stem and projects within the slotted opening 20 for engaging with the rear edge of the latch member for projecting the lateral end 23 outwardly of the slotted opening.

A split ring 25 is slidable on the stem 12 adjacent the latch member and is engageable with the latch member to retain the same in a retracted position within the slotted opening 20 during the assembling of the parts. The latch member 21 is positioned below the locking collar 13 when the parts are in assembled position, as clearly illustrated in Figure 2 of the drawings, and after the inner coupling member 9 has been unscrewed and the stem 12 partly retracted, the latch member will engage the notches 17 of the locking member to prevent the parts from turning. In view of this construction it will be apparent that if one of the rods in the well is disconnected and contact is made and the entire string of rods are then screwed to the right for the purpose of drawing them up, the operator can pull the section 9 up about one-half inch and then drop the same down to cause an engagement of the latch member and the well can then be pumped or the entire string of rods pulled out without necessitating removal of the tubing.

It is obvious the invention is susceptible of various changes in construction without departing from the spirit of the invention or the scope of the appended claims.

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

1. A rod coupling comprising inner and outer coupling members having lefthanded threaded connections, righthanded threads on the respective opposite ends of the assembled coupling members, a locking member threaded in the outer coupling member and cooperating means between the inner coupling member and the locking member for manipulating the locking member into and out of threaded engagement with the outer coupling member.

2. A rod coupling comprising inner and outer coupling members having lefthanded threaded connections at one end, righthand threads on the respective opposite ends of the assembled coupling members for attaching the coupling to the sections of a pump rod, a locking member having lefthanded threaded engagement with the outer coupling member and inwardly of its connection with the inner coupling member, said locking member having a bore therein, a stem on the inner coupling member slidably inserted in said bore and cooperating means between the stem and the locking member for manipulating the locking member into and out of threaded engagement with the outer coupling member.

3. A rod coupling comprising inner and outer coupling members having lefthanded threaded connections at one end, righthand threads on the respective opposite ends of the assembled coupling members for attaching the coupling to the sections of a pump rod, a locking member having lefthanded threaded engagement with the outer coupling member and inwardly of its connection with the inner coupling member, said locking member having a bore therein, a stem on the inner coupling member slidably inserted in said bore and cooperating means between the stem and the locking member for manipulating the locking member into and out of threaded engagement with the outer coupling member, a locking collar within the outer coupling member and positioned inwardly of said locking member, said locking collar having notches formed in one end thereof and a latch member carried by the stem engageable with said notches for securing the parts against rotation.

4. A rod coupling comprising inner and outer coupling members having lefthanded threaded connections at one end, righthand threads on the respective opposite ends of the assembled coupling members for attaching the coupling to the sections of a pump rod, a locking member having lefthanded threaded engagement with the outer coupling member and inwardly of its connection with the inner coupling member, said locking member having a bore therein, a stem on the inner coupling member slidably inserted in said bore and cooperating means between the stem and the locking member for manipulating the locking member into and out of threaded engagement with the outer coupling member, a locking collar fixedly secured within the outer coupling member inwardly of said locking member, said locking collar also having a bore therethrough for receiving the stem and a spring projected latch member pivotally carried by the stem and engageable with the locking collar upon a partial retraction of the inner coupling member to secure the parts against rotation.

WM. H. McGUFFIN.