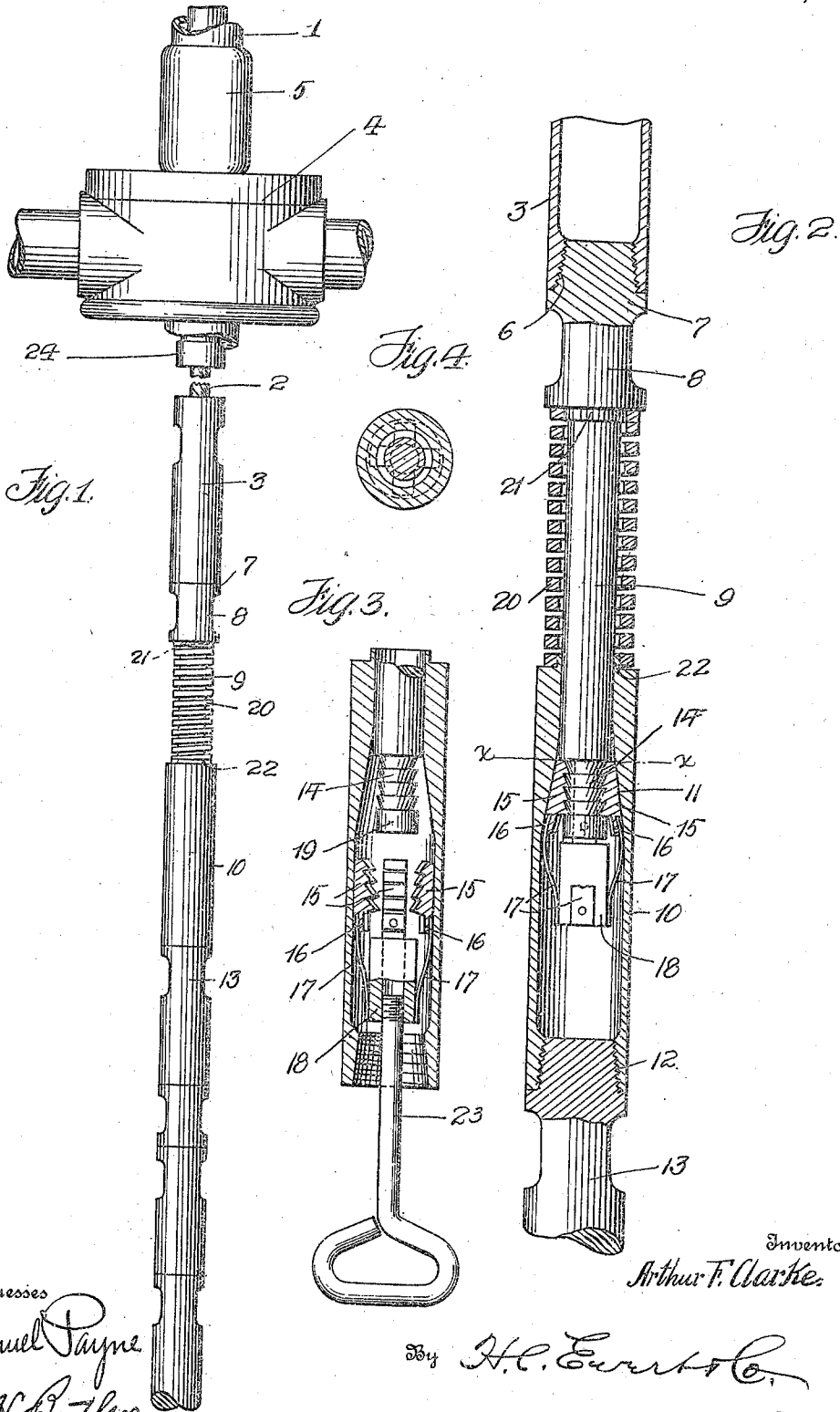


A. F. CLARKE.
 RELEASING DEVICE FOR WELL PUMPS.
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Patented Mar. 8, 1910.



Witnesses
 Samuel Payne
 R. H. Butler

Inventor
 Arthur F. Clarke.

By H. C. Ewert & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

ARTHUR F. CLARKE, OF BUTLER, PENNSYLVANIA.

RELEASING DEVICE FOR WELL-PUMPS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR F. CLARKE, a citizen of the United States of America, residing at Butler, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Release Devices for Well-Pumps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to releasing or let-go devices for use in connection with the sinker rods of pistons of oil or other wells and the object thereof is to provide means in a manner as hereinafter set forth whereby the line cables can be conveniently released from the sinker rods of the pistons when occasion so requires. It is frequently desirable to release the line cables from the pistons, due to the fact that the pistons become fast owing to sand and other substances, and it is therefore necessary to release or remove the pistons to repair them, but heretofore the removal of the pistons has occasioned considerable inconvenience owing to the releasing of the cable lines.

By the device hereinafter set forth, the operator is enabled to coil the line at the derrick, the tubing may then be withdrawn, the necessary repairs made to the piston, the tubing returned to the well and the line cable readily coupled to the sinker rod of the piston.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In describing the invention in detail, reference is had to the accompanying drawings wherein like references denote corresponding parts throughout the several views, in which,

Figure 1 is a side elevation of a portion of a pumping attachment for oil wells showing the adaptation therewith of a releasing or let-go device in accordance with this invention. Fig. 2 is a vertical sectional view of the releasing or let-go device in accordance with this invention showing the same in its normal or holding position. Fig. 3 is a

like view with the releasing or let-go device 55 illustrated in a released position, and Fig. 4 is a section on the line X X of Fig. 2.

Referring to the drawings in detail, 1 denotes the tubing of the well broken away at each end through which extends the line cable 2 preferably of wire. The cable 2 at its lower end is connected in a socket formed by a cylindrical member 3. The foregoing are of known construction. The tube 1 is supported by the casing head 4 in a known manner, the casing head 4 is provided with a packing gland 5 secured to the casing 4 and slidably connected upon the tubing 1, whereby leakage is prevented.

The cylindrical member 3 at its lower end 70 is formed with interior threads 6 with which engages a protuberance 7 formed at the top of the body portion 8 of the thrust member of the releasing device. The latter is formed of a movable upper section which is the thrust member and the stationary lower section which is the coupling member. The thrust member is furthermore provided with an integral depending extension 9 which projects into a stationary member formed of a cylindrical body portion 10 which is hollow and having the inner face thereof gradually decreasing in diameter from a point at one side of the center of the side thereof to the upper end thereof, the gradually decreasing portion of the inner face of the body portion 10 being indicated by the reference character 11. The inner face of the member 10 at the lower end thereof is formed with screw threads 12 to which is connected a sinker rod 13. The extension 9 at its lower end is formed with a series of threads or annular teeth 14 adapted to engage with a series of resiliently supported toothed coupling elements 15 consisting of short arms each having its inner side provided with teeth and each having its lower end formed with a lug 16 attached to an upwardly extending grooved flat spring 17, the latter being fitted at its lower end to a vertically extending interiorly threaded cylindrical supporting member 18. The lower end of the extension 9 at the terminus of the angular teeth has a circular disk 19 which is adapted when the coupling elements are in an operative position to engage the bottom of coupling elements 15, as shown in Fig. 2. Surrounding the extension 9 and interposed

between the body portion 8 and the top of the body portion 10 is an extensible and tractable coiled spring 20 the function of which is to normally maintain the coupling elements 15 in the reduced portion of the inner face of the body portion 10 so as to couple the thrust member of the releasing device with the stationary member. The extension 9 at its upper end is formed with a boss 21 and the member 10 at its top is provided with an inner flange 22, and the spring 20 at its upper end surrounds the boss 21 and the spring 20 at its lower end surrounds the flange 22.

The member 18 is adapted to be engaged by a screw threaded handle 23 for the purpose of adjusting the coupling elements 15 to operative position when it is desired to couple the extension 9 to the member 10. The handle 23 is screw threaded and detachably engages with the threads of the member 18. The coupling elements 15 are disposed at right angles with respect to each other, which is clearly seen in Fig. 4.

The manner in which the device operates is as follows: As has been stated, when it is necessary to release the cable line from the piston when it becomes choked through the medium of sand or other substances, the releasing of the piston from the cable line is had in the following manner, the section of pipe which is indicated by the reference character 24 is dropped from the top of the hole, sliding over the cable line, the section of pipe will impart a blow to the member 3 to shift it downwardly thereby compressing the spring 20, the extension 9 of the thrust member will then telescope within the body portion 10, carrying down therewith the coupling elements 15. When they are shifted over that portion of the inner face of the member 10 which gradually decreases in diameter, the coupling elements owing to the fact that the tension is released upon the springs 17, will project from the teeth 14 whereby the extension 9 will be released, as shown in Fig. 3. After the release of the extension 9 from the coupling members 15, the spring 20 will be allowed to expand, the expanding of the spring 20 will force the extension 9 upwardly and clear of the elements 15 which frees the thrust member from the stationary member of the releasing device, this action enables the operator to coil the line at the derrick, the tubing can then be withdrawn, the necessary repairs made to the piston, the tubing returned to the well, the coupling elements positioned properly to engage the teeth of the extension 9, and the device will then be as shown in Fig. 2.

By using the device in the manner as hereinbefore set forth, it obviates the necessity when the piston becomes fast in the piston barrel of drawing the tubing up one joint

at a time and pulling it over a full length of the line, which is a very tedious and costly operation.

What I claim is:

1. A releasing device for the cable line of an oil well comprising a stationary member, a thrust member adapted to extend in said stationary member, means within the stationary member and engaging said thrust member for detachably connecting said members together, and means interposed between the two members for normally maintaining the thrust and stationary members coupled.

2. A releasing device for the cable line of an oil well comprising a thrust member adapted to be connected to the line, a stationary member having the thrust member normally extending therein, said thrust member having that portion extending in said stationary member provided with teeth, a shiftable coupling means arranged within the stationary member and adapted to detachably engage said teeth for detachably coupling the thrust member to the stationary member, and means for normally maintaining said thrust and stationary members coupled.

3. A releasing device for the cable line of an oil well comprising a stationary member, a thrust member adapted to extend in said stationary member, means within the stationary member and engaging said thrust member for detachably connecting said members together, means interposed between the two members for normally maintaining them coupled together, and means for shifting the connecting means to engagement with the thrust member.

4. A releasing device for the cable line of an oil well comprising a thrust member adapted to be connected to the line, a stationary member having the thrust member normally extending therein, said thrust member having that portion extending in said stationary member provided with teeth, a shiftable coupling means arranged within the stationary member and adapted to detachably engage said teeth for detachably coupling the thrust member to the stationary member, means for normally maintaining said thrust and coupling members coupled, and means for shifting said coupling means to engagement with the teeth of the thrust member.

5. A releasing device for the cable line of oil wells comprising a thrust member having a toothed extension and a stationary member adapted to receive said toothed extension, a shiftable means within said stationary member adapted to engage said toothed extension of the thrust member for coupling the members together, and means interposed between said members for normally maintaining said members in coupled position.

6. A releasing device for the cable line of oil wells comprising a thrust member having a toothed extension and a stationary member adapted to receive said toothed extension, a shiftable means within said stationary member adapted to engage said toothed extension of the thrust member for coupling the members together, means interposed between said members for normally maintaining said members in coupled position.

7. A releasing device for the cable line of oil wells comprising a stationary member, a thrust member having an extension projecting into said stationary member, shiftable means arranged within said stationary member and engaging said extension for detachably connecting the members together, and

means interposed between said members for normally maintaining said members coupled.

8. A releasing device for the cable lines of oil wells comprising a stationary member, a thrust member having an extension projecting into said stationary member, a spring controlling means arranged within said stationary member and engaging said extension for detachably coupling the two members together, and means for normally maintaining said members coupled.

In testimony whereof I affix my signature in the presence of two witnesses.

ARTHUR F. CLARKE.

Witnesses:

E. M. HUBER,
D. D. CONNELLY.