R. C. JONES.

RELEASE SOCKET.

APPLICATION FILED MAY 19, 1916.

1,232,928. Patented July 10, 1917.

Fig. 1.

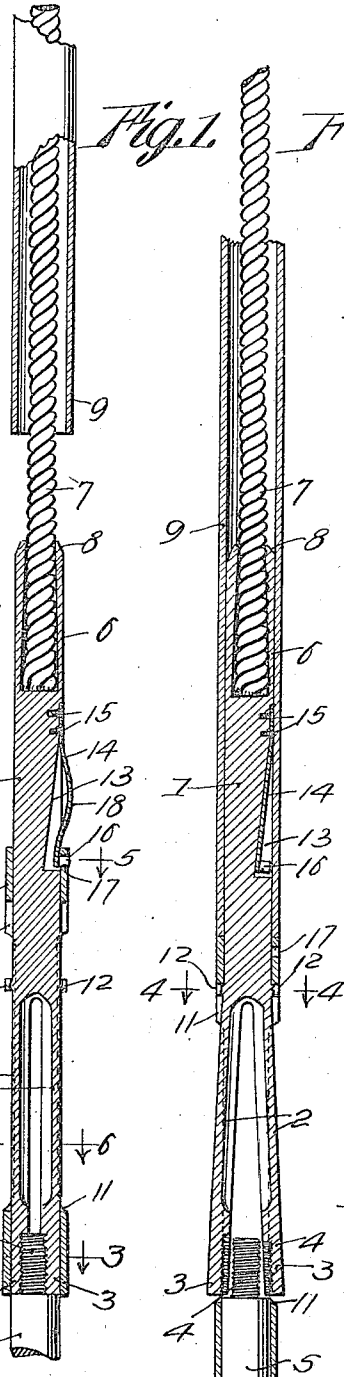


Fig. 2.

Fig. 3.

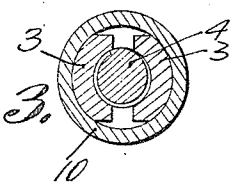


Fig. 4.

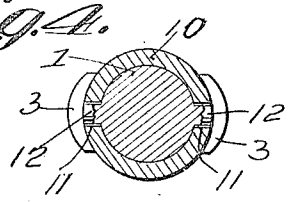


Fig. 5

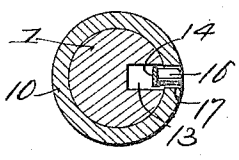
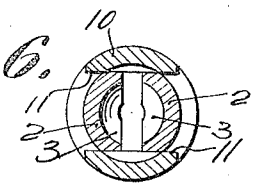


Fig. 6.



Witnesses

J. R. Jones

R. Z. Parker

Robert C. Jones,
Inventor

by C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ROBERT C. JONES, OF NEW CUMBERLAND, WEST VIRGINIA.

RELEASE-SOCKET.

1,232,928. Specification of Letters Patent. Patented July 10, 1917.

Application filed May 19, 1916. Serial No. 98,625.

To all whom it may concern:

Be it known that I, ROBERT C. JONES, a citizen of the United States, residing at New Cumberland, in the county of Hancock and State of West Virginia, have invented a new and useful Release-Socket, of which the following is a specification.

The present invention is a device for suspending the sinker of a deep well pumping outfit from a wire cable, when a wire cable is used instead of a sucker-rod, and it is the object of the invention to provide a novel and improved device for connecting the sinker with the cable which is designed to release the sinker in the event that the valves become stuck in the well by settling sand or the like, in order that the cable can be raised out of the well.

The invention has for its object the provision of a release socket for tightly holding the sinker under ordinary working conditions, and means whereby a weight dropped down the well along the cable will result in the sinker being released and detached from the socket, whereby should the valves become stuck in the well, the cable can be disconnected from the sinker and withdrawn.

It is also the object of the invention to provide a device of the nature indicated which is extremely simple, compact and inexpensive in construction, as well as being thoroughly practical and efficient for its intended purpose.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a vertical section of the device in normal position to hold the sinker.

Fig. 2 is a similar view showing the parts in position to release the sinker.

Fig. 3 is a cross section on the line 3—3 of Fig. 1.

Fig. 4 is a cross section on the line 4—4 of Fig. 2.

Figs. 5 and 6 are cross sectional views taken on the respective lines 5—5 and 6—6, of Fig. 1.

In carrying out the invention, there is provided a vertical elongated socket member 1 of circular cross section, and provided at its lower end with a pair of depending spring tongues 2 provided at their lower ends with complementing threaded jaws 3 providing the socket proper. Said tongues 2 are resilient and swing apart when released. When the jaws 3 are moved toward one another they are adapted to receive and grip the threaded shank or terminal 4 at the upper end of the sinker 5, which sinker is usually used in oil or deep well pumping outfits when a wire cable instead of a sucker rod is used. The upper terminal of the member 1 is provided with a tapered socket 6 receiving the lower terminal of the wire cable 7, and the lower terminal of said cable is anchored within the socket 6 by filling said socket with Babbitt metal or equivalent material, although the cable can be secured to the member 1 in any suitable manner.

The upper end of the member 1 is tapered, as at 8, whereby a tubular weight 9 dropped down the cable 7 is properly guided onto the member 1. This tubular weight 9 is preferably a piece of pipe of suitable length.

In order to hold the jaws 3 in position to support the sinker 5 therefrom, a slip sleeve 10 is fitted snugly upon the member 1 for vertical sliding movement thereon, and the lower end of said sleeve 10 normally surrounds the jaws 3 and holds them in gripping relation with the threaded stem or terminal 4 of the sinker. The sleeve 10 is provided with diametrically opposite elongated longitudinal slots 11 slightly wider than the tongues 2, and of such extent than when the sleeve 10 is moved downwardly, the slots 11 permit the tongues 2 to spring outwardly within the slots 11, as seen in Fig. 2. The member 1 is provided with diametrically opposite outstanding lugs 12 projecting within the slots 11 and located at the upper basal ends of the tongues 2, and these lugs 12 limit the downward movement of the sleeve 10.

The socket member 1 is provided with a vertical recess 13 for accommodating a downwardly projecting leaf spring 14 which has its upper basal end secured by means of screws 15 or otherwise to the member 1 within the upper end of the recess 13, and

said leaf spring is provided at its lower free end with an outstanding lug 16 normally engaging outwardly within an aperture 17 with which the sleeve 10 is provided adjacent its upper end. The sleeve 10 is thus supported by the leaf spring or latch 14, with the lower portion of said sleeve 10 surrounding the jaws 3 and holding them in engagement with the stem 4 of the sinker. The leaf spring or latch 14 is curved or bulged outwardly between its ends, as at 18, so as to project from the member 1, in order that when the tubular weight 9 slips downwardly upon the member 1, it forces the spring 18 back into the recess 15, thus withdrawing the latch 16 from the aperture 17, and releasing the sleeve 10. The leaf spring or latch is thus moved to releasing position before the lower end of the weight 9 strikes the upper end of the sleeve 10.

In operation, the slip sleeve 10 is normally in the position illustrated in Fig. 1, and is supported by the latch 14, whereby the jaws 3 are held in gripping relation with the sinker, and this will securely connect the sinker with the cable 7. Should the valves or other structure suspended from the sinker become stuck in the well from any cause whatever, the sinker can be released, to enable the cable to be withdrawn from the well. This is accomplished by placing the tubular weight 9 upon the cable at the upper end of the well, and permitting said weight to drop down the well. Said tubular weight is guided by the cable, and when the weight 9 reaches the release socket it moves downwardly onto the same, as seen in Fig. 2, the lower end of the weight 9 in striking the latch 14 moving it inwardly to releasing position, whereby to remove the lug 16 from the aperture 17. Immediately after the latch is released, the weight 9 impinges upon the upper end of the slip sleeve 10 and forces it downwardly. The downward movement of the sleeve 10 is limited by the lugs or stops 12, and when said sleeve is moved downwardly, it is brought to a position whereby the slots 11 permit the tongues 2 to spring apart, as seen in Fig. 2, thus separating the jaws 3 and releasing the stem 4. The sinker 5 is now detached from the socket member 1, and the cable 7 can be raised without interference.

Having thus described the invention, what is claimed as new is:

1. A device of the character described embodying a member having means for suspending an object in a well, said means being releasable to disengage the object, and means carried by said member for maintaining the aforesaid means in position to hold said object, in combination with a weight movable downwardly onto said member to move the second mentioned means to releasing position, the second mentioned means when operated by the falling weight releasing the first mentioned means to disengage it from the object.

2. A device of the character described embodying a member having means for suspending an object in a well, said means being releasable to disengage it from the object, means carried by said member for holding said means in engagement with the object, and means carried by said member for holding the second mentioned means in position to hold the first mentioned means engaged with the object, in combination with a weight movable downwardly onto said member, the second and third mentioned means being so arranged that the third mentioned means is first operated by the falling weight to release the second mentioned means, the weight then moving the second mentioned means to release the first mentioned means.

3. A device of the character described embodying a member having means for suspending an object in a well, said means being releasable to disengage the object, and a member movable on the first mentioned member and arranged when in one position to hold said means in engagement with the object, and when in another position to release said means whereby it disengages itself from the object, the second mentioned member being adapted to be operated by a falling weight to move it from its first mentioned to its second mentioned position.

4. A device of the character described comprising a member having releasable means for suspending a member in a well, a second member movable relative to the first mentioned member and arranged to hold said means in operative position when the second member is in one position, the second member being adapted to be moved by a falling weight to release said means, and a latch device for holding said members in position with said means in operative position, said latch device being arranged to be released by the falling weight before the second mentioned member is operated upon thereby.

5. A device of the character described embodying a member having separable jaws for gripping an object to hold it in suspension, and means carried by the first mentioned member for holding said jaws normally in gripping position, in combination with a weight adapted to drop into engagement with said means for releasing the jaws and allowing them to disengage the object.

6. A device of the character described comprising a member having separable gripping jaws for holding a member within a well, a movable member assembled with the aforesaid member and arranged when in one position to hold said jaws in gripping position and when in another position to

release said jaws, the second mentioned member being adapted to be moved to second mentioned position by a falling weight, and a latch device for holding the second mentioned member in its first mentioned position relative to the first mentioned member and adapted to be released by the falling weight before it acts upon the second mentioned member.

7. A device of the character described comprising a vertical socket member having separable jaws at its lower end, and a slip sleeve upon said member adapted when raised to hold the jaws in gripping position and when lowered to release the jaws, in combination with a weight adapted to drop onto said sleeve for moving it from its raised to its lowered position.

8. A device of the character described comprising a vertical socket member having a pair of separable gripping jaws at its lower end, a slip sleeve upon said member adapted when raised to hold said jaws in gripping position and when lowered to release said jaws, and releasable latch means for holding said sleeve raised relative to said member.

9. A device of the character described comprising a vertical socket member having spring tongues at its lower end provided with gripping jaws, said tongues tending to spring apart, and a slip sleeve upon said member adapted when in raised position to hold said jaws in gripping position, said sleeve having slots permitting said tongues to spring apart when the sleeve is moved downwardly relative to said member.

10. A device of the character described comprising a vertical member having separable spring tongues at its lower end provided with gripping jaws, a slip sleeve slidable upon said member and adapted when in raised position to hold said jaws in gripping position, said sleeve having slots permitting said tongues to spring apart when the sleeve is lowered, means for limiting the downward movement of said sleeve, said member having a recess at the upper end of said sleeve, and a downwardly projecting leaf spring secured to said member and movable within said recess, the leaf spring having a lug at its lower free end, said sleeve having an aperture for receiving said lug when the sleeve is raised relative to said member, said spring having an outwardly curved portion projecting from said member.

11. In combination, a cable, a device suspended therefrom having releasable gripping means for suspending a member within a well, and means carried by said device for holding the aforesaid means in gripping position and operable when moved downwardly to release said gripping means, and a tubular weight movable down the cable and onto said device to operate the second mentioned means.

12. In combination, a cable, a socket member suspended therefrom and having releasable gripping means for suspending a member within a well, a member slidable upon the aforesaid member and adapted when in raised position to hold said gripping means in operative position and when moved downwardly to release said gripping means, means for holding the second mentioned member in raised position relative to the first mentioned member, and a tubular weight movable downwardly along the cable and onto the first mentioned member, the last mentioned means and second mentioned member being so arranged that said last mentioned means is moved to releasing position by the tubular weight after which said weight impinges against the second mentioned member and moves it downwardly.

13. In combination, a cable, a socket member suspended therefrom and having separable gripping jaws, a slip sleeve upon said member adapted when raised to hold said jaws in gripping position, said slip sleeve having slots to permit of the separation of the jaws when said sleeve is moved downwardly, a latch carried by said member for holding said sleeve in raised position relative thereto, and a tubular weight movable downwardly along the cable and onto said member, said latch and sleeve being so arranged that when the weight moves downwardly upon said member it first releases the latch and then strikes the sleeve.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ROBERT C. JONES.

Witnesses:
T. M. COCHRAN,
C. G. ALLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."