E. A. WATTS & I. L. DUNN.

COUPLING.

APPLICATION FILED NOV. 19, 1915.

1,190,491. Patented July 11, 1916.

Fig. 1.

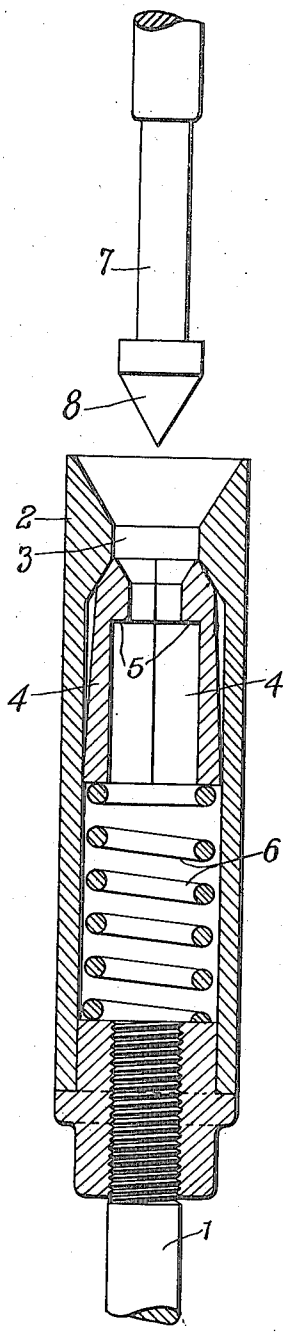
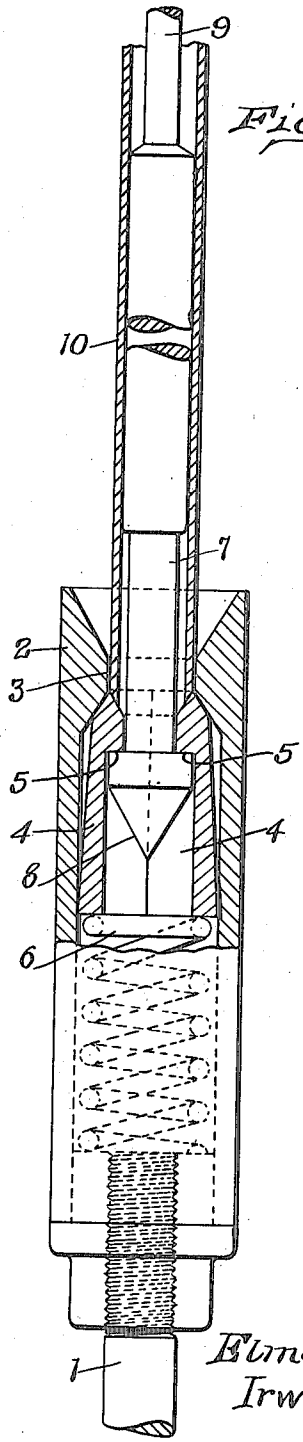


Fig. 2.



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UNITED STATES PATENT OFFICE.

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COUPLING.

1,190,491. Specification of Letters Patent. Patented July 11, 1916.

Original application filed March 8, 1915, Serial No. 12,795. Divided and this application filed November 19, 1915. Serial No. 62,273.

To all whom it may concern:

Be it known that we, ELMER A. WATTS and IRWIN L. DUNN, citizens of the United States, residing at Springfield, Clark county, and Marietta, Washington county, Ohio, respectively, have invented certain new and useful Improvements in Couplings, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to couplings for use more especially in connection with displacement pumps and is a division of application, Ser. No. 12,795, filed by us March 8th, 1915. In the displacement pump described in said application valves located at the upper portion of the pump are used to control the admission and exhaustion of compressed air for the purpose of expelling the fluid. These valves are controlled by being operatively connected through the instrumentality of a wire with a weight located in the lower chamber of the pump, said weight being operated by the rise and fall of fluid thereabout. If the wire were attached to the weight before the latter was inserted in the well it would be necessary to string the sections of the air pipe onto the wire as they were placed in position in the well, and, in the case of a deep well, this would cause a great deal of difficulty.

It is the object, therefore, of our invention to provide means whereby the connection between the wire and the weight may be made after the weight is in position.

In the accompanying drawings, Figure 1 is a vertical section through the coupling device; and Fig. 2 is a view of the coupling, partly in section, showing the separating device.

The weight above mentioned has secured to its upper end a rod 1 to which is secured a coupling member comprising a tubular casing 2 and having at its upper end an inwardly extending annular shoulder 3, the upper and lower faces of which are beveled. Arranged within the tubular casing 2 is a series of jaws 4 having their upper ends beveled on both the inner and outer sides and provided with inwardly extending shoulders 5 which, when the several jaws are in engagement one with the other, constitute an annular shoulder. A spring 6 is confined in the casing and exercises an upward pressure on the jaws 4, causing the beveled upper ends thereof to engage the beveled shoulder 3 which forces them inward. Coöperating with this coupling member is a second coupling member which comprises a shank 7 having at its lower end a tapered head 8 which is provided at its upper end with a squared shoulder. This head is of such a diameter that it will pass through the opening in the upper end of the casing 2 and its tapered end will engage the tapered inner end of the jaws 4. The weight of the coupling is sufficient to overcome the tension of the spring 6 and the jaws will be forced downward and as they move away from the beveled shoulder 3 they will be spread apart to permit the head 8 to pass between the same. As soon as the shoulder of the head has passed the shoulder 5 of the jaws 4 the spring 6 will again move the jaws upward against the beveled shoulder 3, closing them by the shank 7 with the shoulder 5 in opposed engagement with the shoulder of the head 8, thus firmly connecting the two coupling members, and, inasmuch as the second coupling member is secured to a wire 9, it will be apparent that the wire is likewise in this manner connected with the weight. The size of the casing 2 relative to the pipe in which it is mounted is such that when the arrow-like coupling member drops down to the pipe its tapered end necessarily enters the upper end of the casing. In order that the coupling members may be separated to permit the removal of the wire without the removal of the weight a sleeve 10 may be placed about the wire and allowed to move along the same into the well. This sleeve is of such a diameter that it will enter the upper end of the casing 2 and has its lower end beveled to engage the beveled edges of the jaws and force the same apart, the weight of the sleeve being sufficient to compress the spring 6 and thus permit the head 8 of the upper coupling member to be withdrawn from the casing 2.

While we have shown and described one embodiment of our invention it will be understood that this has been chosen for the purposes of illustration only, and that we do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus fully described our inven-

tion, what we claim as new and desire to secure by Letters Patent, is:—

1. A coupling of the character described comprising a tubular casing open at one end and provided adjacent the open end with an inwardly extending annular shoulder beveled on its inner side, a plurality of jaws mounted within said casing, provided with inwardly extending shoulders and having their ends beveled inside and outside, a spring tending to hold said jaws in engagement with said beveled shoulder, a coöperating coupling member comprising a shank with an enlarged head forming a shoulder, said head being tapered away from said shank and being of such size that it will pass through the opening in the end of the casing, whereby the shoulders on the jaws will engage the shoulder of the coupling member.

2. A coupling of the character described comprising a tubular casing having an opening at one end, an inwardly extending annular shoulder beveled on its inner side, a plurality of jaws mounted within said casing provided with squared inwardly extending shoulders and having their ends beveled to coöperate with the beveled shoulder of said casing, a spring tending to hold said jaws in engagement with said beveled shoulder, and a coöperating coupling member comprising a shank with an enlarged head forming a squared shoulder adapted to coöperate with the shoulders on the jaws.

3. In a coupling member, a tubular casing having a beveled shoulder at its upper end, a series of jaws mounted in said casing having their upper ends beveled to engage said beveled shoulder, a spring tending to hold said jaws in engagement with said beveled shoulder, and a second member adapted to be connected with a wire and having a tapered head and a reduced portion above said head, said head being adapted to engage said jaws, force the same away from said beveled shoulder and separate them to permit said head to move into operative engagement therewith, and a sleeve adapted to move along said wire and to engage said jaws to move them away from said shoulder and to separate them to permit said head to be withdrawn.

In testimony whereof, we affix our signatures.

ELMER A. WATTS.
IRWIN L. DUNN.