Jan. 11, 1927. 1,614,407

W. H. STAINBROOK

WIRE ROPE SWIVEL SOCKET

Filed July 21, 1926

Fig. 1.

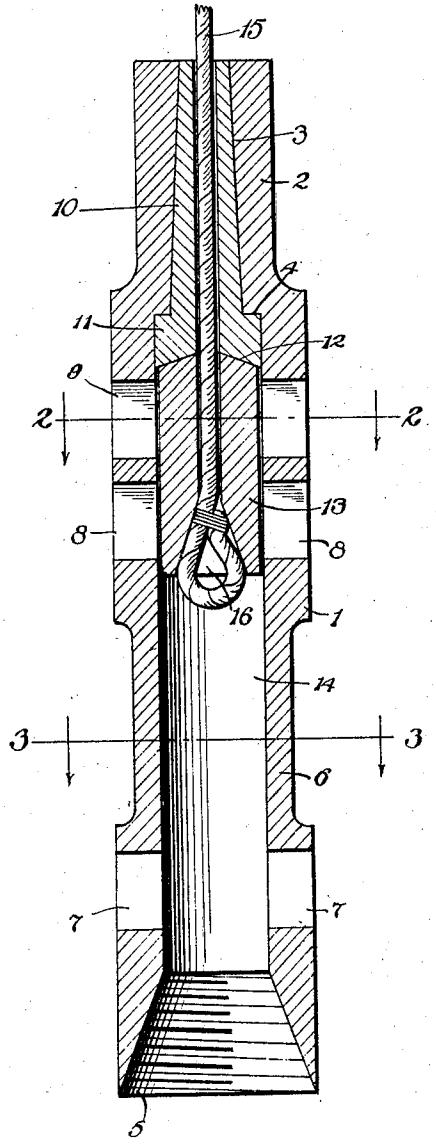
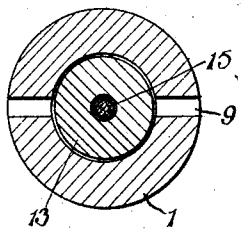


Fig. 2.



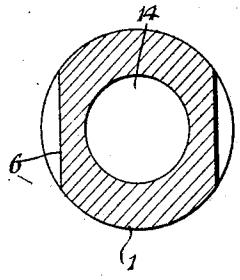


Fig. 3.

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Patented Jan. 11, 1927. 1,614,407

UNITED STATES PATENT OFFICE.

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WIRE-ROPE SWIVEL SOCKET.

Application filed July 21, 1926. Serial No. 124,002.

In the drilling of deep wells, such as artesian, oil and gas wells, the tools are connected to the operating rope or cable by a socket coupler. It is desirable that this connection should swivel and is essential in the case of wire cable being employed.

The present invention provides a socket including a swivel joint and having openings to clear itself readily of any matter which otherwise would tend to interfere with the free action of the coupler.

While the drawings illustrate a preferred embodiment of the invention, it is to be understood that in adapting the means to meet specific needs and requirements, the design may be varied and such other changes in the minor details of construction may be resorted to within the scope of the invention as claimed, without departing from the spirit thereof.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and the drawings hereto attached, in which,—

Figure 1 is a central longitudinal sectional view of a swivel socket, embodying the invention,

Figure 2 is a sectional view of the socket on the line 2—2 of Figure 1, and

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawings by like reference characters.

The socket comprises a tubular body 1, which is of uniform circular outline throughout the major portion of its length. The upper end of the body 1 is reduced, as indicated at 2, and is formed with an axially disposed tapered opening 3 having a shoulder 4 at its inner end. The lower end of the body 1 has an internally threaded tapering opening 5 for the reception of the usual pin, whereby well tools are coupled. Opposite sides of the body 1 are flat, as indicated at 6, to receive a wrench or other tool for holding the body when coupling a part thereto. A plurality of slots 7, 8 and 9, are formed in opposite sides of the body 1 and provide clearance for any matter which would have a tendency to interfere with the free action of the socket.

A tapered plug 10 of hardened tool steel obtains a snug fit within the tapered opening 3 and its inner or lower end is enlarged, as indicated at 11, to snugly fit within the opening formed axially in the body 1. The enlargement or head 11 abuts against the inner shoulder 4, thereby sustaining the end thrust imposed upon the plug 10 when the device is in operation. The lower face of the head or enlargement 11 is depressed, as indicated at 12, and receives the adjacent end of a plug 13, which correspondingly projects, thereby centering the two plugs. The plug 13 is loose within the opening 14 of the body 1 so as to turn freely. Both of the plugs 10 and 13 are formed with an axial opening to receive a wire rope or cable 15. The lower end of the opening formed in the plug 13 is enlarged, as indicated at 16 to receive the enlarged end of the wire rope 15 formed by folding the same upon itself, thereby preventing withdrawal of the rope from the plug, after being properly applied thereto.

The opening 14 extending throughout the major length of the body 1 is of uniform diameter and receives the plug 13 and the head 11 of the tapered plug 10, both plugs being placed in position by being introduced through the lower end of the opening 14. The rope 15 is fitted to the plug 13 prior to the introduction of said plug into the opening 14. The loose fit of the plug 13 within the opening 14 provides for a free turning of the plug 13, which is essential to the provision of a swivel connection between the two plugs 10 and 13. Both plugs 10 and 13 are preferably of tool steel hardened so as to resist wear and sustain the stresses to which a device of this nature is subjected when in operation.

Having thus described the invention, I claim:

A swivel socket of the character specified, comprising a tubular body open throughout its length and having slots at intervals in opposite sides and having its upper end reduced and formed with a tapered opening having a shoulder at its base, a tapered plug of hardened tool steel insertable through the lower end of the body and fitted within the tapered opening thereof, and having its lower end enlarged to abut

against the said inner shoulder and having the lower face of the enlargement made concave, and a second plug also insertable through the lower end of the body and loose within the opening thereof and having its upper end convex, both plugs having an axial opening and the opening in the lower plug being enlarged at its lower end to receive an enlargement at the lower end of the rope passing through the openings of the two plugs.

In testimony whereof I affix my signature.

WILLIAM H. STAINBROOK. [L. S.]