Apr. 24, 1923. 1,453,138

C. B. HOLLIDAY

SOCKET

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Fig. 1.

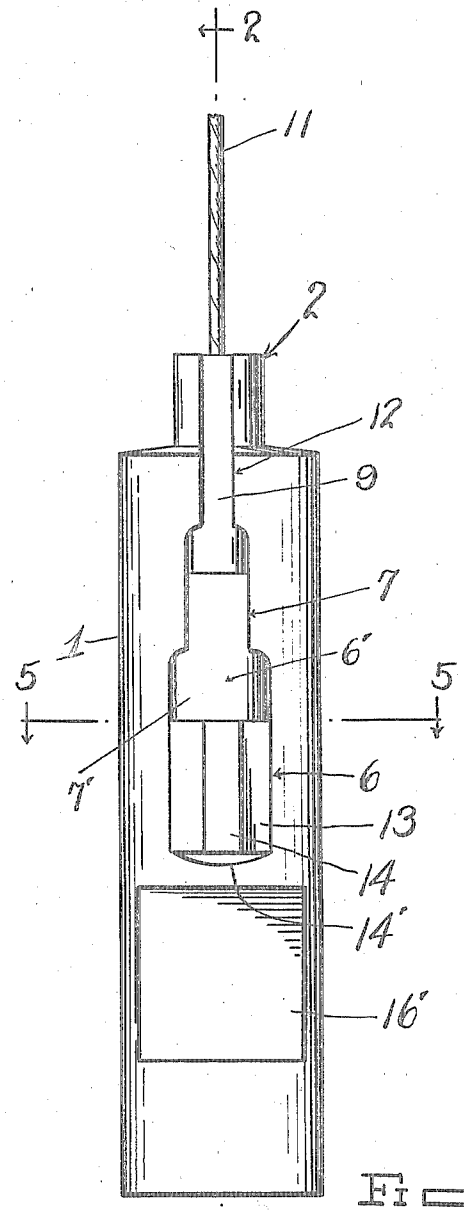


Fig. 2.

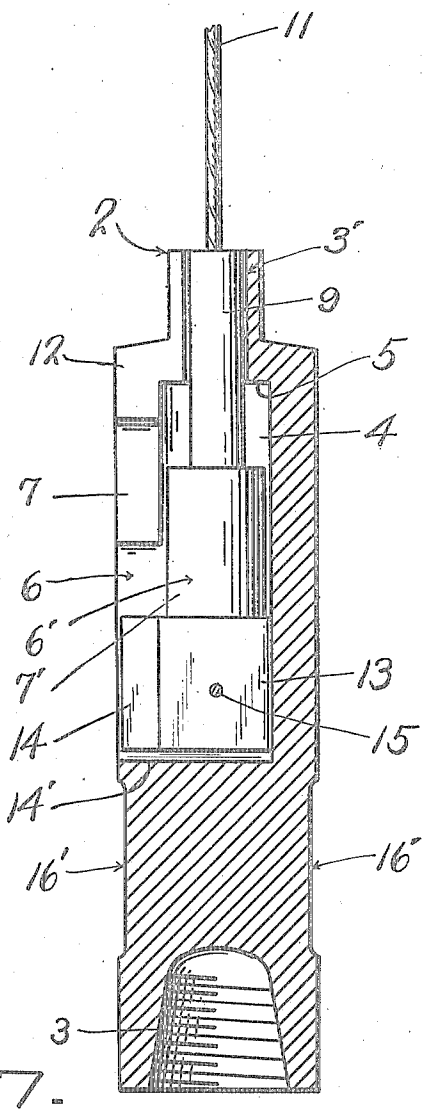
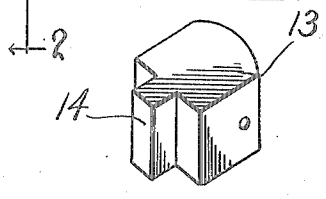


Fig. 7.



L. B. James

WITNESS:

C. B. Holliday

INVENTOR

BY Victor J. Evans

ATTORNEY

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Fig. 4.

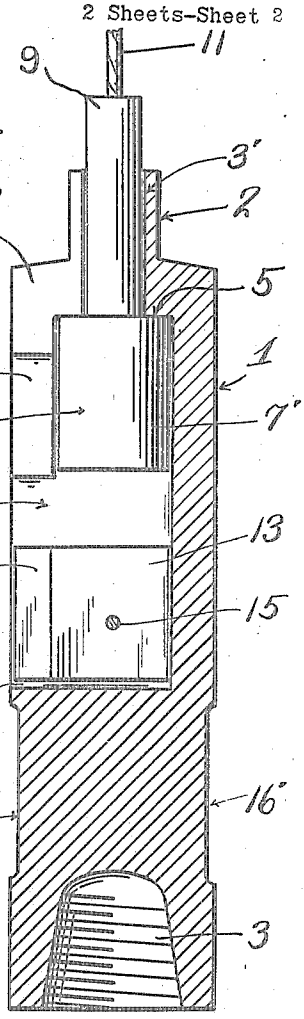


Fig. 3.

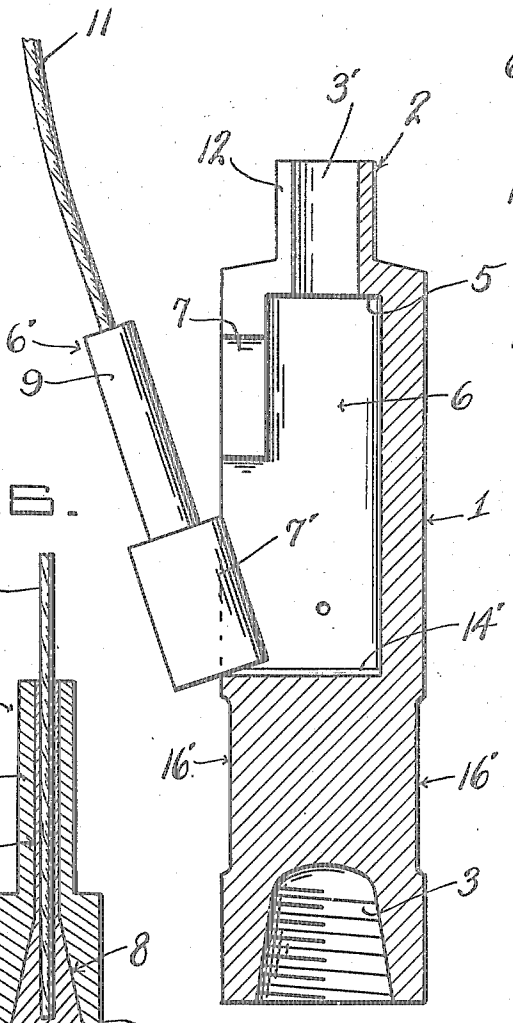
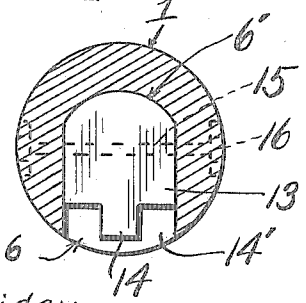


Fig. 6.

Fig. 5.



L. B. James.

WITNESS:

C. B. Holliday INVENTOR

BY Victor J. Evans

ATTORNEY

Patented Apr. 24, 1923. 1,453,138

UNITED STATES PATENT OFFICE.

CUSTER B. HOLLIDAY, OF CHARLESTON, WEST VIRGINIA.

SOCKET.

Application filed February 20, 1922. Serial No. 538,052.

To all whom it may concern:

Be it known that I, CUSTER B. HOLLIDAY, a citizen of the United States, residing at Charleston, in the county of Kanawha and State of West Virginia, have invented new and useful Improvements in Sockets, of which the following is a specification.

An object of this invention is to produce an efficient swivel rope socket for well tubes wherein the swivel may be readily removed from the socket when the drill rope is changed from one string of tools to another.

A further object is to provide a wire line rope socket and a swivel thereof which will be effectively secured in the socket for supporting the drilling rope, but which likewise may be readily removed therefrom to permit the drilling rope being changed from one string of tools to another without cutting the rope or unscrewing the socket.

The foregoing, and other objects which will present themselves as the nature of the invention is better understood, may be accomplished by a construction, combination and operative association of parts such as is disclosed by the drawings which accompany and which form part of this specification.

In the drawings:—

Figure 1 is a front elevation of the improvement.

Figure 2 is a sectional view on the line 2—2 of Figure 1.

Figure 3 is a view illustrating the manner in which the swivel is inserted in or removed from the socket.

Figure 4 is a sectional view substantially similar to Figure 2, but showing the position of the swivel in the socket when the neck of the socket is engaged by a "combination" socket.

Figure 5 is a sectional view on the line 5—5 of Figure 1.

Figure 6 is an elevation of the swivel.

Figure 7 is a plan view of the percussion block.

The body of my improved socket is substantially of the ordinary construction and is indicated by the numeral 1. The body has at one of its ends a reduced extension forming a neck 2 and its opposite end provided with a threaded opening 3, commonly known as the box for the pin of other tools. The neck 2 is provided with a rounded bore 3′ which communicates with the bore 4 of the socket, the bore 4 being of a greater area than the bore 3′ whereby a shoulder 5 is provided between these bores.

From one of its faces, the socket 4 is provided with an opening 6 which communicates with the bottom of the bore 4, and the said face, in a line with the opening 6 has a vertically arranged slot 7 which also communicates with the bore 4, but which terminates a suitable distance below the shoulder 5.

The swivel is indicated by the numeral 6′, the same having a rounded body portion 7′ provided with a flared bore 8 and a reduced extension or neck 9 provided with a bore 10 that communicates with the flared bore 8. The swivel is of a size approximately equalling the distance between the lower wall of the opening 6 and the upper wall of the slot 7, and the body 7′ of the swivel is of a thickness slightly less than the width of the opening 6, the neck of the said swivel being of a thickness slightly less than the width of the slot 7. By such arrangement, it will be noted that the swivel may be readily inserted in the bore 4 of the socket 1. The swivel has arranged therein, in the usual manner, the wire line 11. From the upper end of the slot 7 the socket 1 and the neck 3 thereof are provided with a slot 12, the distance between the parallel walls of which being greater than the thickness of the wire line 11, and it will be thus noted that both the swivel and the wire line can be arranged in the bore of the socket.

When the swivel is received in the bore of the socket I pass through the opening 6 and into the bore a block 13. This block is of a sufficient thickness to prevent the neck 9 of the swivel entirely passing out of the bore 3′ of the neck 2 of the socket, and as the block 13 receives the force of impact from the swivel I will refer to the same as a percussion block. The percussion block has a central flange or extension 14 that is received between the walls of the opening 6. The percussion block, of course, rests upon the lower wall 14′ of the bore 4, and likewise on the lower wall of the opening 6, and passing through openings in the socket and through an opening in the percussion block there is a bolt 15. This bolt is engaged by a nut 16, and preferably is pro-

vided with spaced openings whereby cotter pins or like nut locking elements may be arranged thereon.

After the wire line 11 has been set in the swivel 6′ the swivel and wire line are moved laterally through the openings and slots as previously described. The swivel will, as previously inferred, rest on the percussion block when the latter is received in and secured to the socket. When so arranged, the outer end of the neck 9 of the swivel will be flush with the outer end of the neck 2 of the socket. This permits of the neck 2 being engaged by what is known as a "combination" socket. The fishing socket, in raising, would contact with the neck of the rope socket, enough to break its hold if the neck of the swivel were not extended into the neck of the rope socket. When the weight of tools is on the wire line the neck of the swivel extends through the neck of the socket, and the shoulder between the body and neck of the swivel will contact with the shoulder 5 between the bores of the socket and the neck therefor.

The socket, above the box box 3 has its sides flanged, as at 16′, the flattened surfaces providing wrench holds.

Two sockets will be required on a well, one for each string of tools. When it is required to change from one string of tools to the other, it is only necessary to remove the bolt 15, and thereafter remove the percussion block when the swivel and the wire line may be taken from one socket and received in the socket for the other string of tools.

With my improvement, it will be noted that a great saving of time and labor in changing the swivel from one to another socket is obtained. All of the sockets now in use with which I am acquainted, require "screwing up and unscrewing" to make the change from one string of tools to another which, of course, requires a large amount of labor and a still larger amount of time. With my socket, it is not necessary to use the large tool wrenches required on the ordinary sockets, as no joints are broken when removing the swivel from the socket. Also, it is to be noted that the wire line is not cut when the swivel is removed from the socket, and it is thought that the foregoing description, when taken in connection with the drawings will fully set forth the construction, operation and advantages of the improvement to those skilled in the art to which this invention relates.

Having described the invention, I claim:—

1. The combination, a wire line rope socket having a neck extension and having an interior bore communicating with a restricted bore in the neck, said socket having an opening communicating with the lower portion of the bore, a slot between the upper wall of the opening which also communicates with the bore of the socket, and a second slot in a line with the first mentioned slot but narrower than the former communicating with the said first mentioned slot, the bore of the socket and extending through the neck, a wire line swivel comprising a body and a neck, said body and neck being respectively of sizes to be passed into the bore of the socket through the opening of the first mentioned slot, and the line carried by the swivel designed to be passed into the socket through the last mentioned slot, and a removable block partially closing the opening and received in the bore of the socket after the swivel is arranged therein.

2. The combination, a wire line socket having a neck and having a bore inward of the said neck and said neck having a restricted bore communicating with the bore of the socket, said socket having one of its sides provided with an opening in a line with the inner wall of its bore and having a slot from the outer end of the opening also communicating with its bore, said socket from the last mentioned slot having a restricted slot which communicates with its bore and which extends through the neck of the socket, a wire line swivel comprising a body portion and a reduced neck, said body and neck being of a size to pass into the bore of the socket through the opening in the first mentioned slot and the line carried by the swivel being of a size to be passed through the socket in the last mentioned slot, a percussion block seated in the socket and in the opening, removable means securing the percussion block in the socket, and said percussion block being of a thickness whereby the swivel, when resting thereon will have its neck disposed approximately flush with the outer end of the neck of the socket.

In testimony whereof I affix my signature.

CUSTER B. HOLLIDAY.