

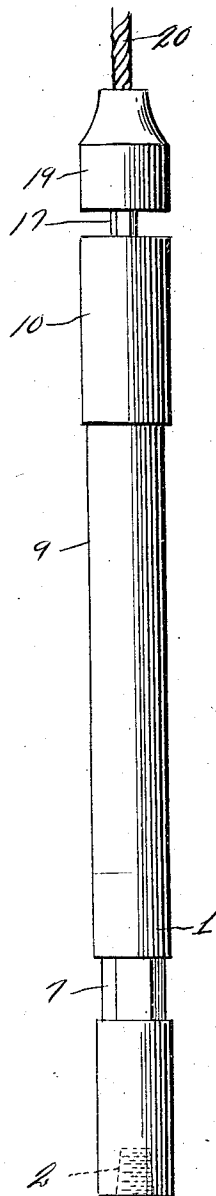
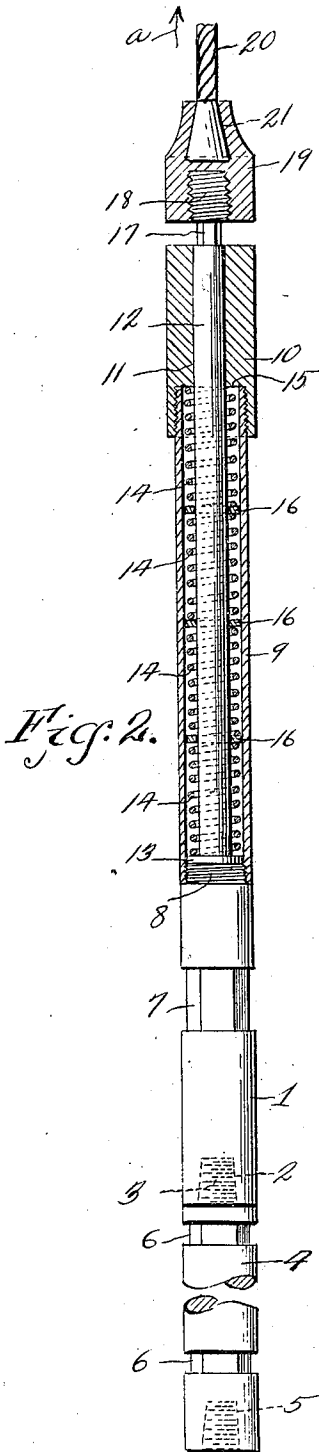
Nov. 20 , 1923.

1,474,701

E. C. ARCHIBALD

SPRING ROPE SOCKET

Filed April 6, 1920



Inventor

E. C. Archibald

By *James W. Martin*

Attorney

UNITED STATES PATENT OFFICE.

EUGENE C. ARCHIBALD, OF COUNCIL BLUFFS, IOWA.

SPRING ROPE SOCKET.

Application filed April 6, 1920. Serial No. 371,703.

To all whom it may concern:

Be it known that EUGENE C. ARCHIBALD, a citizen of the United States, residing at Council Bluffs, in the county of Pottawattamie and State of Iowa, has invented certain new and useful Improvements in Spring Rope Sockets, of which the following is a specification.

The invention relates to spring rope sockets and has for its objects to provide a socket of this character, which is used in drilling whereby when the bit which is carried by the socket head strikes rock or a solid surface the solid rebound of the vertical shaft will be taken up. Also to provide spring means whereby the sudden jerk on the cable will be taken up during the operation of the drill thereby preventing the breaking of the cable, which is a common defect in the structures now in use.

A further object is to provide a bit holder for the reception of a bit, which holder has threaded to its upper end a cylindrical casing in which casing a reciprocating shaft is disposed and normally held in engagement with the top of the bit holder by means of coiled springs interposed between a flange of the shaft and a casing head through which the shaft extends, said shaft having secured to its upper end a cable socket for the reception of a cable, the springs forming means whereby a sudden jerking upon the cable will cause the compression of the springs and consequent taking up of the jerk upon the cable, thereby preventing the breaking of the cable.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:—

Figure 1 is a side elevation of the bit holder showing the cable connection thereto.

Figure 2 is a vertical sectional view through the bit holder casing and cable connection, showing the springs disposed within the casing.

Referring to the drawings, the numeral 1 designates a bit holder and 2 a bit receiving socket therein. However, the socket 2 may receive a threaded portion 3 of an extension

4, which extension may receive the bit in the threaded socket 5. The extension 4 is provided with wrench engaging portions 6 for the reception of a wrench when assembling the extension in connection with the bit holder. The bit holder 1 is cylindrical and is provided with a wrench engaging portion 7 for the reception of a wrench so that the holder may be rotated when assembling the parts. The upper end of the bit holder 1 is provided with a reduced threaded cylindrical extension 8, on which extension the lower end of the cylindrical casing 9 is threaded. Threaded on the upper end of the casing 9 is a casing head 10, which head is provided with a centrally disposed bore 11 in which is vertically slidable a shaft 12. The lower end of the shaft is provided with a head 13 which is normally maintained in engagement with the threaded extension 8 of the bit holder 1 by means of coiled springs 14, which are interposed between the head 13 and the bottom surface 15 of the casing head 10. Springs 14 have interposed between their adjacent ends, washers 16 which maintain the springs spaced, and at the same time form means whereby two or more springs may be used so that the compression of the springs will be substantially uniform throughout their length. By providing two or more springs the binding of the coils upon the shaft 12 is obviated, which would not be the case where a single spring of great length is used.

The shaft 12 is provided with a wrench engaging portion 17, by means of which the shaft will be prevented from rotation when its threaded end 18 is screwed into the cable head 19, to which cable head the cable is secured by soldering the cable end in the socket 21.

The operation is as follows: When a sudden pull is imparted to the cable 20 in the direction of the arrow *a* the shaft 12 will move upwardly in the bore 11, thereby causing the head 13 to move upwardly in the casing 9, thereby compressing the springs 14, which springs will take up the sudden jerk and prevent the snapping of the cable 20. The springs being of sufficient strength to cause the casing 9 and bit holder 1 to immediately move upwardly after the initial jerk until the head 13 of the shaft 12 is again in engagement with the threaded extension 8, so that as the cable 20 is again moved downwardly the bit holder 1 and the

bit carried thereby will upon impact have the full force or weight of the device as a whole and the springs 14 will be out of operation.

5 From the above it will be seen that a bit holder and cable socket is provided wherein the cable 20 will be obviated and one wherein the action of the parts is positive, and efficient.

10 The invention having been set forth what is claimed as new and useful is:—

A bit holder and cable connection therefor comprising a casing carried by the upper end of the bit holder, a head carried by the
15 upper end of the casing, a shaft slidable in

the head and disposed within the casing, a head carried by the lower end of the shaft and engaging the bit holder, a coiled spring surrounding the shaft and interposed between the casing head and shaft head, the upper end of the shaft above the casing head being provided with a reduced wrench engaging portion, said shaft above the wrench engaging portion being enlarged and threaded and a cable socket threaded on the threaded portion of the shaft and spaced from the upper end of the casing head. 20 25

In testimony whereof I affix my signature.

EUGENE C. ARCHIBALD.