May 20 , 1924. 1,494,693

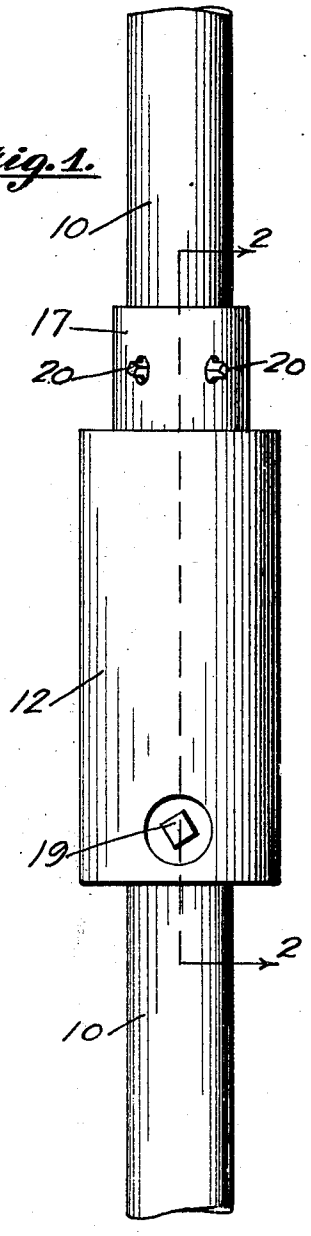
P. LOI

COLLAR PROTECTOR FOR ROTARY DRILL PIPES

Filed Aug. 22 . 1921

Fig. 2.

Fig. 1.



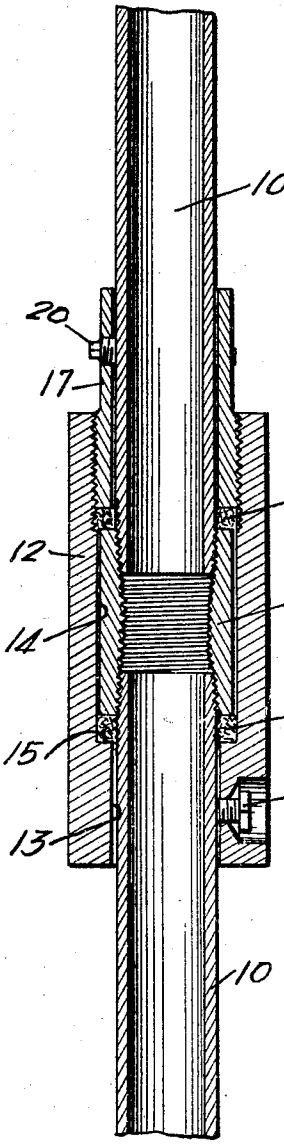
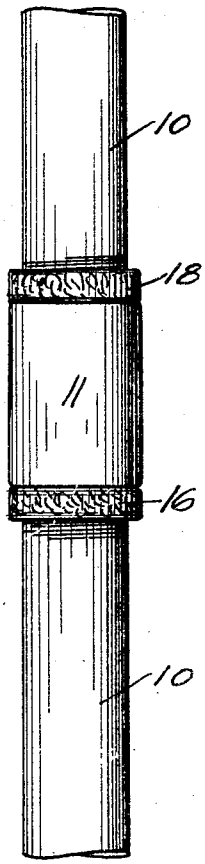


Fig. 3.



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Patented May 20, 1924. 1,494,693

UNITED STATES PATENT OFFICE.

PETER LOI, OF MARICOPA, CALIFORNIA.

COLLAR PROTECTOR FOR ROTARY DRILL PIPES.

Application filed August 22, 1921. Serial No. 494,338.

To all whom it may concern:

Be it known that I, PETER LOI, a citizen of the United States, residing at Maricopa, in the county of Kern and State of California, have invented new and useful Improvements in Collar Protectors for Rotary Drill Pipes, of which the following is a specification.

My invention relates generally to drilling apparatus, and more particularly to protecting devices for the collars or nipples that are utilized for connecting rotary drill pipe sections to each other; the principal object of my invention being to provide a relatively simple, practical and inexpensive protecting device in the nature of a sleeve that may be easily and quickly applied to rotary drill pipe sections, and which will, when properly applied, wholly enclose the connecting collar or nipple and protect the same against wear while in operation.

It will be understood that the connecting collars or nipples of rotary drill pipe sections are subject to rapid wear as a result of contact with the well casing or the wall of the drill hole, and when the collars or nipples become worn to a certain degree they will expand under the weight of the lower portion of the drill pipe, thereby permitting a section of said pipe to become detached from the upper section, and as a result much time and labor is involved in "fishing" and removing the broken section.

It is the purpose of my invention to provide simple means which, when applied for use, will prevent wear of the collars or connecting nipples and consequently eliminate the dropping of the lower portion of the drill pipe and likewise eliminating the time labor and expense involved in the "fishing" operations.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view of a portion of a rotary drill pipe, and showing my improved collar protecting device in position thereupon.

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is an elevational view of the adjacent ends of two sections of drill pipe connected by the usual collar or nipple, and with packing rings arranged at the ends of said collar or nipple.

Referring by numerals to the accompanying drawings which illustrate a practical embodiment of my invention, 10—10 designate sections of rotary drill pipe, the end portions thereof being externally threaded in order that they may be seated in the ends of an internally threaded collar or nipple 11, and which manner of coupling rotary drill pipe sections is now in general use.

The protecting device contemplated by my invention includes a sleeve 12, the opening 13 through the lower portion of which is of such size as to receive one of the drill pipe sections 10, and the opening 14 in the upper portion of said sleeve being of such size as to accommodate the collar or nipple 11. Obviously the opening 14 is larger in diameter than the opening 13, thereby forming within the lower portion of said sleeve 12 an annular horizontally disposed shoulder 15, and when the device is applied for use, a packing ring or gasket 16 of fibrous material, leather, or rubber is positioned on the shoulder 15 and serves as a seat for the lower face of the corresponding collar or nipple 11. The upper portion of opening 14 in the sleeve 12 is internally threaded in order to receive the externally threaded lower portion of a short tube section 17, and interposed between the lower end thereof and the upper edge of the collar or nipple is a packing ring or gasket 18 of fibrous material rubber, or leather.

When the tubular member 17 is screwed into sleeve 12, the packing rings 16 and 18 are compressed against the ends of the collar or nipple 11, thereby effectually preventing sand and the like from entering the joints between the ends of the drill pipe sections 10 and the collar 11, and which sand, if permitted to enter, would very rapidly cut the threads so as to permit the joints to open and the parts to separate.

Sleeve 12 is secured to one of the drill pipe sections 10 by one or more set screws, such as 19, and which latter are seated in the lower portion of said sleeve, and the upper portion of the protecting device is secured to the upper drill pipe section 10 by set screws, such as 20, that pass through the upper portion of tubular member 17.

Thus it will be seen that I have provided a relatively simple and practical protecting device for the connecting collars or nipples

of rotary drill pipe sections which device may be easily and cheaply produced and which is very effective in performing its intended functions.

It will be understood that minor changes in size, form and construction of the various parts of my improved drilling apparatus may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claim.

I claim as my invention:

The combination with a pair of rotary drill pipe sections and the connecting collar therefor, of a protecting device comprising a pair of detachably connected tubular members applied to the pipe sections and enclosing the connecting collar, packing rings arranged between the parts of the protecting member and the ends of the drill pipe connecting collar, and means for securing the tubular members of the protecting device to the drill pipe sections with which they are associated.

In testimony whereof I have signed my name to this specification.

PETER LOI.