Jan. 6, 1925.

1,521,596

C. CASEY

REAMER

Filed Oct. 10, 1921

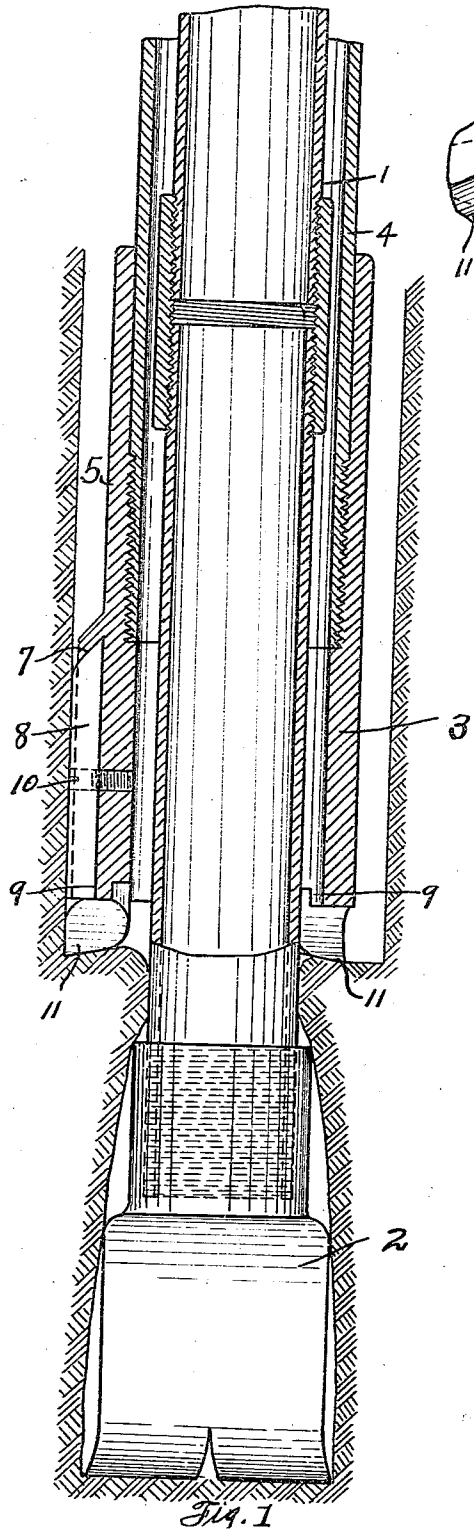


Fig. 1

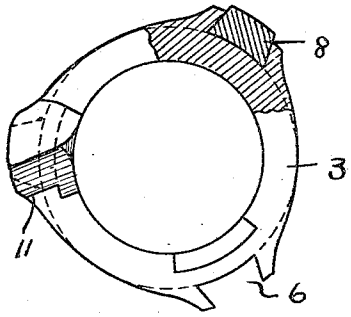


Fig. 2.

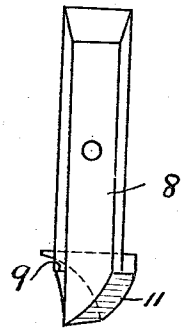


Fig. 3.

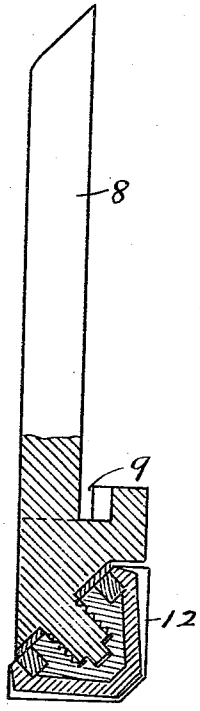


Fig. 5.

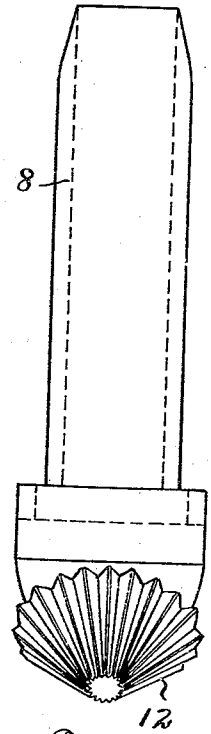


Fig. 4.

Inventor

Christopher Casey

By Hardway & Catting

Attorneys

Patented Jan. 6, 1925. 1,521,596

UNITED STATES PATENT OFFICE.

CHRISTOPHER CASEY, OF WYNNE, TEXAS.

REAMER.

Application filed October 10, 1921. Serial No. 506,926.

To all whom it may concern:

Be it known that CHRISTOPHER CASEY, a citizen of the United States, residing at Wynne, in the county of Chambers and State of Texas, has invented certain new and useful Improvements in a Reamer, of which the following is a specification.

This invention relates to new and useful improvements in a reamer.

One object of the invention is to provide a device of the character described especially designed to ream around a drill bit that may become stuck in a bore so as to free said bit, and its stem, so that the same may be withdrawn.

Another object is to provide a reamer equipped either with reaming blades, or reaming cutting rollers, said blades or rollers being detachable, if desired from the head.

With the above and other objects in view the invention has particular relation to certain novel features of construction operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein:—

Figure 1 shows the side view of a bit stuck in a well bore, showing also a vertical sectional view of the reamer in operation, in its relation to the bit.

Figure 2 shows a bottom view of the reamer, partially in section, with one of the blades removed.

Figure 3 shows a side view of one of said blades.

Figure 4 shows a side view of one of the rolling cutters employed, mounted upon a detachable anchor, and

Figure 5 shows an edge view of said anchor, showing the cutter partially in section.

Referring more particularly to the drawings the numeral 1 designates the drill stem to the lower end of which the bit 2 is attached in the usual way. Said bit is shown stuck in the bore by the caving in of the formation above as often occurs in drilling.

The numeral 3 designates a tubular reamer head which is attached to the lower end of the stem 4. As shown the upper end of the head is reduced and extended, forming the shank 5 which is internally threaded to receive the lower end of the stem 4. The head and stem, to which it is attached, are of a size to pass, over the drill stem and drill, and the lower end of the head has either blades or rollers which cut away the formation around said drill stem and bit. These blades or rolling cutters may be made detachable if desired so that they may be removed, when worn or broken, and replaced with new ones. For this purpose the head has vertical side grooves 6, spaced apart therearound, and dove tailed in cross section. The material of the head is thickened at the grooves so they will not weaken said head and the upper end of each groove is under cut, as at 7 in Figures 1 and 2. Fitted up into each groove there is an anchor 8, whose upper end is beveled to fit into the under cut upper end of the groove, said anchors being dove tailed in cross section to fit into said grooves. The lower end of each anchor has an inside under cut notch 9 to receive the adjacent lower edge of the head, which is formed to fit therein. Each anchor may be secured in place by means of a set bolt 10 or other similar securing means. The lower end of each anchor may be formed into a cutting blade 11, as shown in Figures 1, 2 and 3 or may be equipped with rotatable cutting rollers 12, of any approved design. If the bit is stuck in soft formation the cutting blades will be used but if the bit is stuck in rock or hard formation the cutting rollers will be found preferable.

What I claim is:—

A reamer including a tubular head having long vertical side grooves, dovetailed in cross section, anchors fitted into the grooves, the lower ends of the anchors being thickened, said thickened portions having arcuate notches which receive the adjacent lower edge of the head, studs carried by the lower ends of said anchors, cutters mounted on said studs, means for retaining said cutters thereon, and a tubular stem to whose lower end the head is attached.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTOPHER CASEY.

Witnesses:

E. V. HARDWAY,

W. H. DUNLEY.