July 1, 1930. J. R. DALLERUP 1,768,577

DRILL CUTTER MOUNTING

Original Filed Aug. 22, 1927

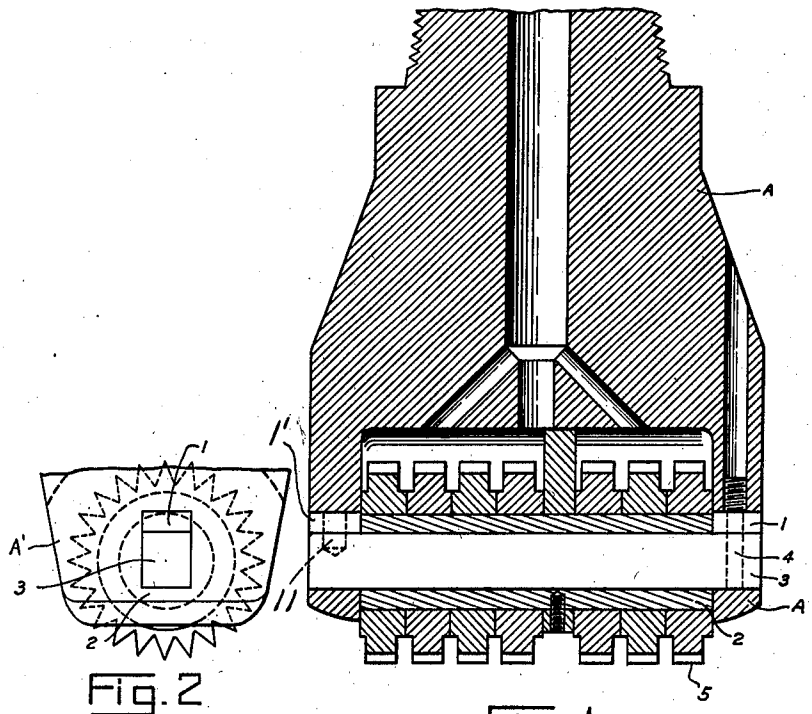


Fig. 2

Fig. 1

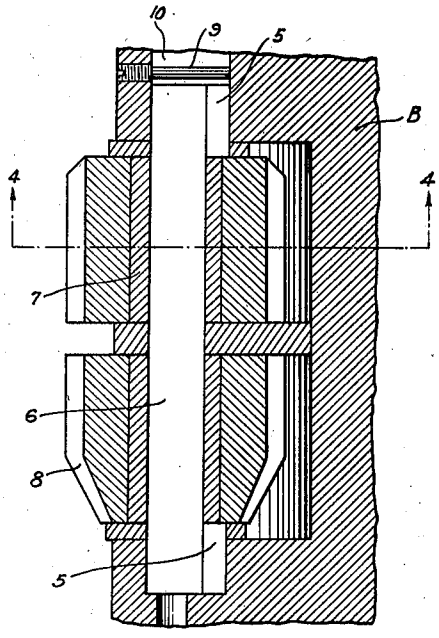


Fig. 3

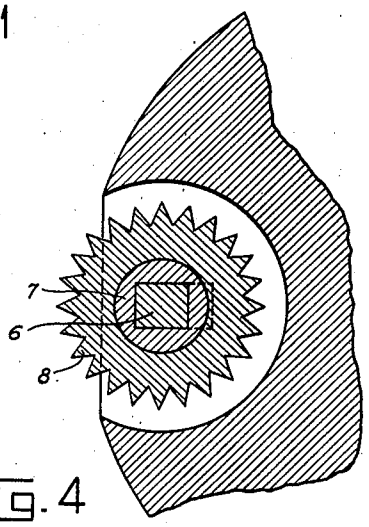


Fig. 4

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UNITED STATES PATENT OFFICE

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DRILL-CUTTER MOUNTING

Original application filed August 22, 1927, Serial No. 214,683. Divided and this application filed January 14, 1928. Serial No. 246,722.

This invention relates to drills, and more particularly to drill cutter mountings of the type disclosed in my application for Letters Patent of the United States, filed August 22nd, 1927, Serial Number 214,683, of which this is a division.

The invention has for one of its specific objects the provision of an adjustable cutter mounting whereby a cutter may be mounted in various positions in a drill head. Various other objects will hereinafter appear.

The preferred embodiment of the invention is illustrated by the accompanying drawing, in which Fig. 1 is a fragmentary side elevation of a bit head; Fig. 2 is a fragmentary detail side view at right angles to Fig. 1; Fig. 3 is a fragmentary side elevation illustrating the mounting of a reamer in the side of a reamer body; and Fig. 4 is a section on the line 4—4 of Fig. 3.

Referring specifically to Figs. 1 and 2 of the drawings, the bit head is indicated at A, and has the usual cross roller cutter recess in the bottom thereof and depending bearing projections A′. Said projections support the ends of pin 3. Pin 3 has a sleeve or bushing 2 thereon, and cutters 5 are revoluble on said bushing.

This invention provides means whereby the axis of rotation of said cutters may be adjusted so that said cutters will project the desired distance below said head.

The ends of pin 3 are substantially rectangular in cross section, and each of the bearing openings in the depending projections A′ is adapted to receive one end of pin 3 and one of the gibs indicated by 1 and 1′. One of these gibs may be made integral with pin 3.

As shown, the parts are so disposed that the cutters will be held in their lowermost position. To so adjust the parts that the cutters will be held in their uppermost position, it is necessary only to move the gibs 1 and 1′ so that they will be under the ends of pin 3. The gib 1 and the adjacent end of pin 3 are bored for the reception of retaining set screw 4. The gib 1′ and the other end of the pin 3 may be detachably connected together by a peg 11, which is preferably driven through the gib 1′ into the pin 3, as shown.

To increase the diameter of a well bore, it is now the custom to remove the original reaming cutters from the head, and to mount larger cutters in the place thereof, the bit heads now in use being so constructed that cutters of various sizes may be mounted therein. And at times it is necessary to remove the original cutters and to mount smaller cutters in the place thereof, to permit the passage of the bit through a pipe casing of a comparatively small internal diameter. It is, therefore, necessary for the driller to have on hand reaming cutters of various sizes.

This invention provides a mounting which renders unnecessary the use of cutters of more than one size, an embodiment thereof being illustrated in Figs. 3 and 4 wherein the reamer body as indicated at B has a rounded recess in which the reamer cutters 8 are mounted.

The pin having ends non-circular in cross section is indicated at 6, the gibs at 5, the retaining set screw at 9, the bushing at 7, and the reamer cutters at 8.

The position in which the reamers are held is advantageous for various reasons, of which the ability to cut a hole of a great diameter may be mentioned. Should it become desirable to pass the reamer assembly through a pipe casing of a comparatively small internal diameter, the gibs may be placed on the outside of pin 6. It will be understood that the pin 6 is removable through the opening 10.

It is not necessary that the intermediate portions of the pins 4 or 6 be noncircular in cross section.

I claim:

1. In a drill, a head having a bearing, a pin, a gib, said pin and gib being supported in said bearing, and a cutter supported by said pin, said gib being movable to vary the position of said cutter with respect to said head.

2. In a drill, a head having a bearing, a pin, said pin being non-circular in cross-

section, and a gib, said pin and gib being supported in said bearing, and a cutter supported by said pin, said gib being movable to vary the position of said cutter with respect to said head.

3. In a drill, a head having a pair of bearings, a pin, the ends of said pin being non-circular in cross-section, and a pair of gibs, each of said bearings supporting one of the ends of said pin and one of said gibs, and a cutter supported by said pin, said gibs being movable to vary the position of said cutter with respect to said head.

4. In a drill, a head having a pair of bearings, a pin and a pair of gibs, each of said bearings supporting one end of said pin and one of said gibs, and a cutter supported by said pin, said gibs being movable to vary the position of said cutter with respect to said head.

5. In a drill, a head having a recess and a bearing opening communicating with said recess, a pin, a gib, said pin and gib being supported in said bearing, and a cutter supported by said pin, said gib being movable to vary the position of said cutter with respect to said head.

6. In a drill, a head having a recess and a bearing opening communicating with said recess, a pin, a gib, said pin having an end non-circular in cross-section, said end and said gib being supported in said bearing, and a cutter supported by said pin, said gib being movable to vary the position of said cutters with respect to said head.

7. In a drill, a reamer body having a recess in the side thereof, and a bearing opening communicating with said recess, a pin, a gib, said pin and gib being supported in said bearing opening, and a reamer cutter supported by said pin, said gib being movable to vary the position of said cutter with respect to said body.

In witness whereof, I hereunto affix my signature.

JOHN R. DALLERUP.