May 17, 1932. J. C. LUNSFORD 1,858,744

BIT FOR DEEP WELL DRILLING

Filed March 6, 1931 2 Sheets-Sheet 1

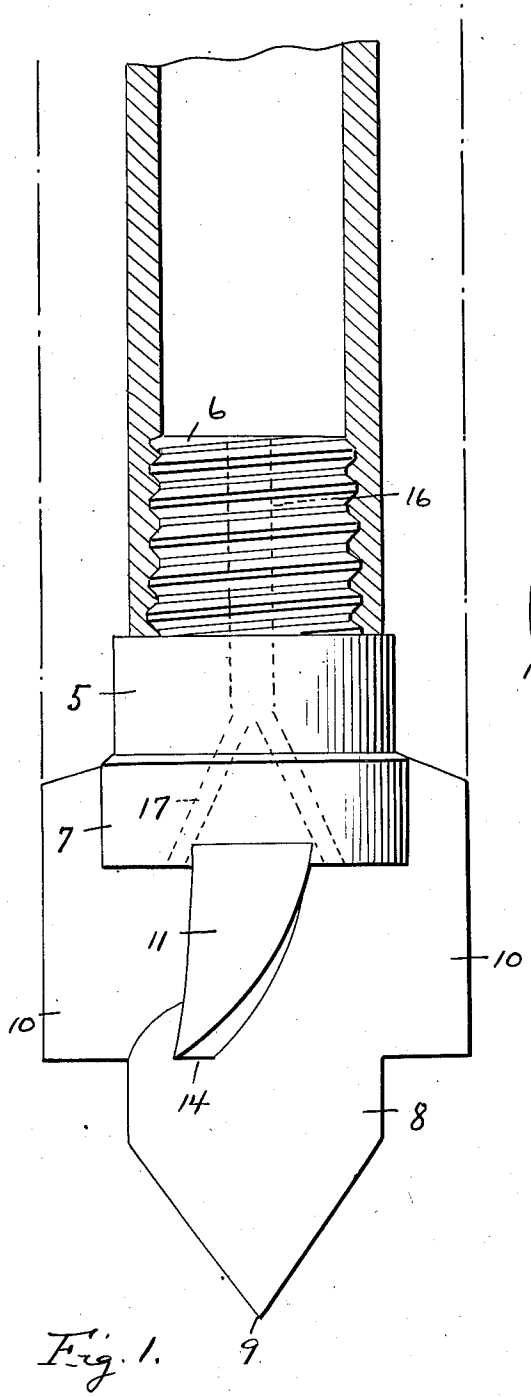


Fig. 1.

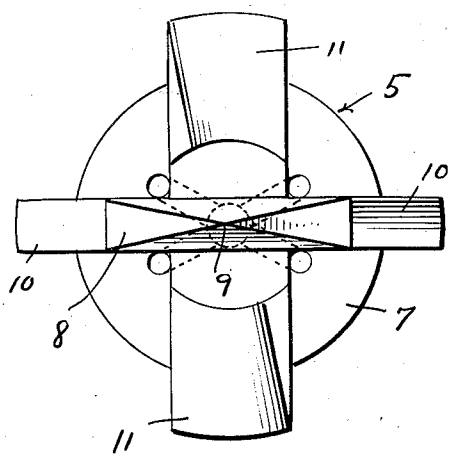


Fig. 2.

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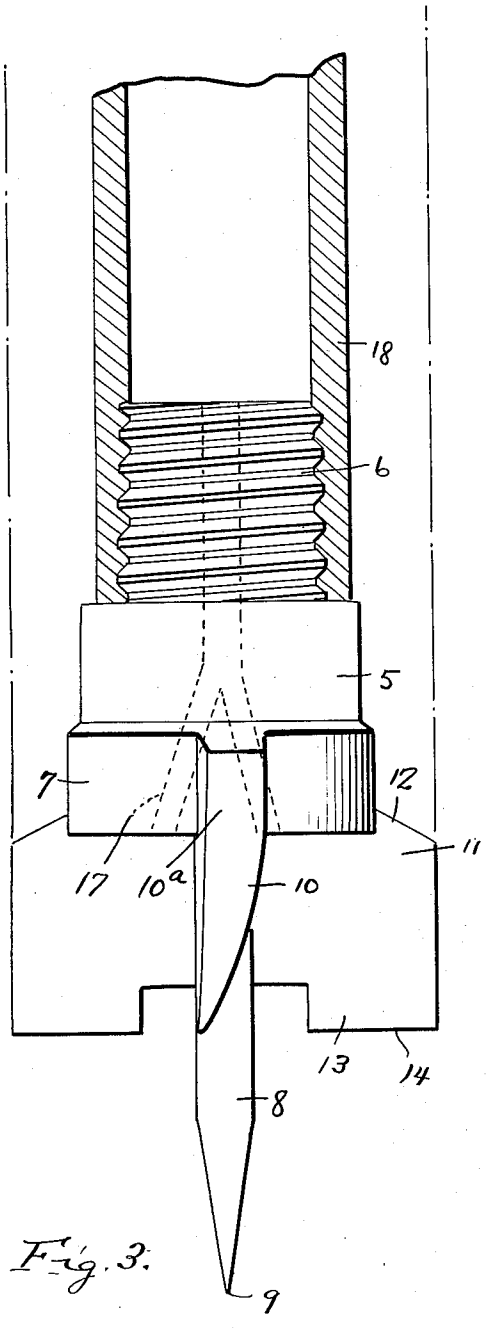


Fig. 3.

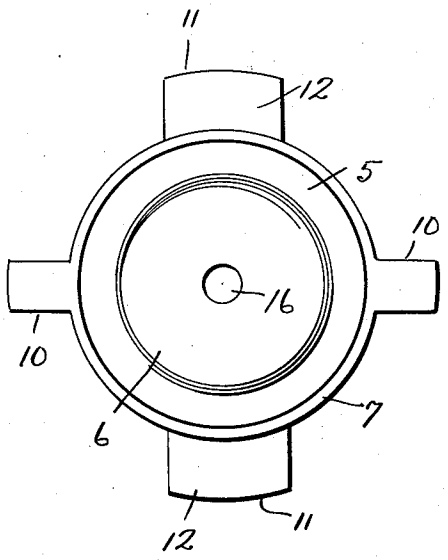


Fig. 4.

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1,858,744

UNITED STATES PATENT OFFICE

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BIT FOR DEEP WELL DRILLING

Application filed March 6, 1931. Serial No. 520,674.

This invention relates to certain new and useful improvements in bits, having more particular reference to that type of bit especially used for deep well drilling.

More particularly, it is an object of this invention to provide a bit of the character above mentioned, that will insure the drilling of a hole of uniform diameter, will be very unlikely of becoming clogged with mud and other sticky substances with which it may come into contact, and further to provide a bit which can be readily and easily secured to the end of the drill string.

Other objects and advantages of the invention will become apparent from a study of the following description, taken in connection with the accompanying drawings wherein:

Figure 1 is an elevational view of the bit.

Figure 2 is a bottom plan view thereof.

Figure 3 is a view similar to Figure 1, the bit being rotated a half a turn with respect to Figure 1.

Figure 4 is a top plan view of the bit.

Referring in detail to the drawings, it will be seen that my improved bit comprises a body or head 5 provided at its upper end with a threaded pin 6. Adjacent its lower end, the body 5 is thickened to provide an annular shoulder 7. Integral with the body 5 and extending axially therefrom to terminate a substantial distance from the end of shoulder 7 is a pilot 8, the shank of which merges into a point 9.

Projecting radially from the shank of the pilot 8 are reamer blades 10 and 11. The reamer blades 11 have inclined surfaces or faces 12 merging into the shoulder 7 adjacent the lower end of the shoulder. The reamer blades 10 are provided with upwardly extending projections 10*a* integral with and projecting radially from the shoulder 7.

Each of the reamer blades 10 and 11 at its lower end is provided with an extension 13 laterally spaced with respect to the pilot 8, and said extensions 13 terminate in cutting edges 14. The extensions 13 terminate short of the point 9 of the pilot 8.

The pin 6 has a bore 16 extending inwardly and axially thereof, and the bore 16 inwardly of the body or head 5 merges into branch bores 17 that open at the bottom of head 5 in alternate relation with respect to the blades 10 and 11, the bore 16 and branches 17 thereof providing a conduit through the bit for water pumped through the piping 18 of the drill string, the water passing through bore 16 and its branches 17 to discharge on to the front and rear faces of the blades 10 and 11 for washing off mud, and other adhesive substances that are likely to adhere to the faces of the blades.

In actual practice, the stem 6 is threaded into the lower end of the lowermost tool rod or pipe of the well drill string designated generally by the reference character 18, and the bit is rotated in the usual manner for boring purposes.

During operation of the bit, the pilot 8 will act as a guide to aid in the drilling of a straight hole, and will also keep the bit from untoward movement or "jumping".

The reamer blades 10 and 11 following in the wake of the pilot 8 will insure the cutting or boring of a hole of uniform diameter. The reamer blades are maintained free of accumulation by the water pumped thereto and directed against the faces of the blades through the medium of the branches 17.

Thus it will be apparent that I have devised a drilling bit, wherein all the parts are integral one with the other, providing for a strong and durable bit capable of boring into relatively hard earth formation, and which will require but a small amount of attention and resharpening.

Even though I have herein shown and described the preferred embodiment of the invention, it is to be understood that the same is susceptible of changes, modifications and improvements coming within the scope of the appended claim.

Having thus described my invention, what I claim as new is:

A rotary drilling bit comprising a substantially cylindrical body provided adjacent its lower end with a circumferentially extending shoulder, a pilot blade extending from the body at the last named end thereof and terminating in a point, said blade

being laterally extended as it approaches said end of the body to provide oppositely extending reamer blades, additional reamer blades projecting from relatively opposite sides of the pilot blade in alternate relation to the first mentioned reamer blades, and having inclined upper edges arranged in a plane below the upper edges of the first named reamer blades, and the first named reamer blades having upper inclined edges merging into the upper surface of said shoulder.

In testimony whereof I affix my signature.

JAMES C. LUNSFORD.