R. A. MARNEY.

WELL DRILLING BIT.

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1,174,332.

Patented Mar. 7, 1916.

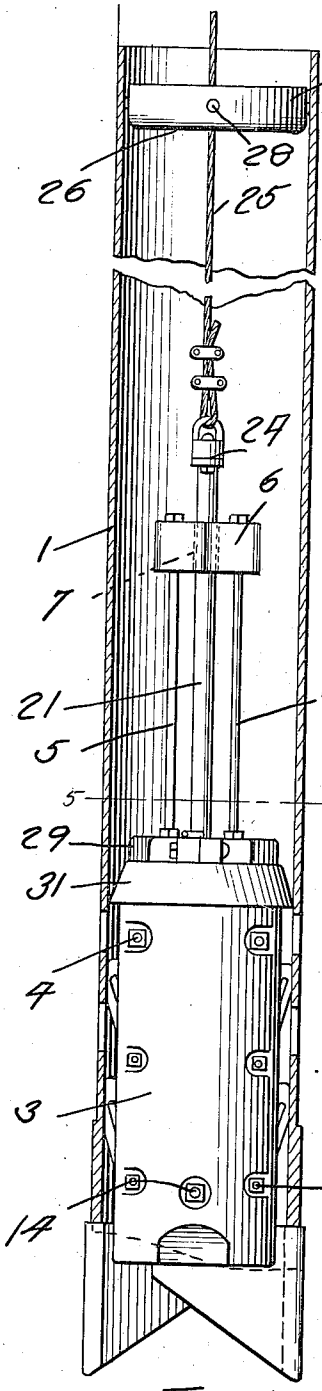


FIG. 1

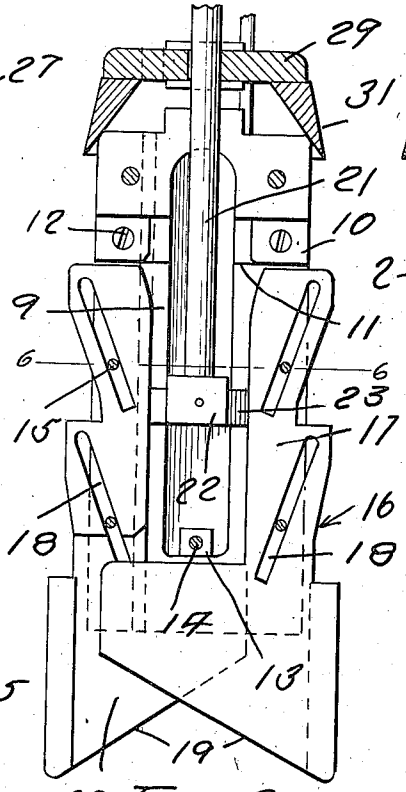


FIG. 2.

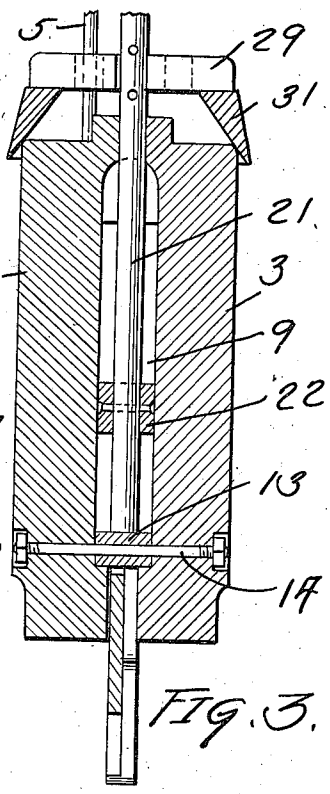


FIG. 3.

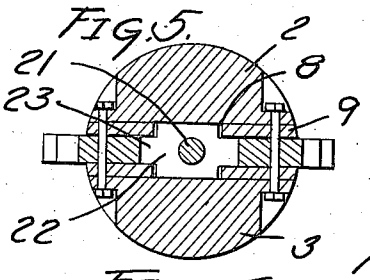
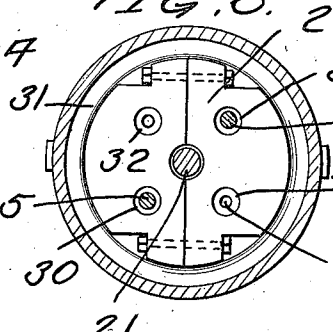


FIG. 5.

FIG. 6.



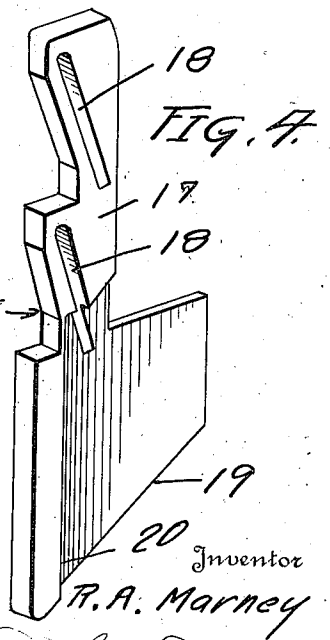


FIG. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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WELL-DRILLING BIT.

1,174,332. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed October 12, 1915. Serial No. 55,477.

To all whom it may concern:

Be it known that I, ROBERT A. MARNEY, a citizen of the United States, residing at Alma, in the county of Ellis, State of Texas, have invented certain new and use Improvements in Well-Drilling Bits; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a well drilling bit.

An object of the invention resides in the provision of a bit which may be readily withdrawn from the well in a comparatively short time, when it is desired to sharpen the cutters.

A further object of the invention resides in so constructing the device that the cutters will be withdrawn to a position within the body portion of the bit, automatically, upon the raising of the bit from the well casing.

With these and other objects in view, such as will appear as my description progresses, my invention comprises the combination and arrangement of parts as set forth in and falling within the scope of the appended claims.

In the drawing: Figure 1 is an elevational view of my device showing the same in position in a well casing, the latter being shown in section; Fig. 2 is an elevational view with one of the sections of the bit body removed; Fig. 3 is a sectional view taken longitudinally of the body and looking at right angles to Fig. 2; Fig. 4 is a perspective view of one of the cutters; Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 1 showing the gasket carrying member, and Fig. 6 is a section on line 6—6 of Fig. 2 showing the position of the cutter spreading block.

Referring to the drawing by reference characters wherein like parts are indicated by like characters throughout the several views: In the drawing I have illustrated a portion of a well casing 1 in order to show how my device coöperates therewith. The bit includes a body portion comprising sections 2 and 3, which sections are secured together by suitable bolts 4 at their upper and lower ends. Extending upwardly from each of the sections 2 and 3 is a rod 5 which is secured to a substantially rectangular block 6, which block is provided with a centrally located opening 7. The sections of the body of the bit are cut out to form chambers 8, which chambers are completed by plates 9. These plates are held in spaced relation by blocks 10 which are secured to shoulders 11 on the sections by countersunk screws 12. The lower ends of the plates are held in spaced relation by a block 13 which is mounted upon a bolt 14, which bolt extends through each of the sections and is secured thereto. Extending between and penetrating each of the plates 9 is a pair of pins 15 on which cutters 16 are mounted. These cutters 16 include shanks 17 which are provided with a pair of diagonally disposed slots 18, through which slots the pins 15 extend. The lower ends of the cutters are beveled, at 19, the bevels extending in opposite directions. These cutters are dished out at 20 so that one will have a portion lying within the other, this dishing out being necessary because of the fact that the cutters overlap.

When the body portion of the bit is lowered into the well the lower ends of the cutters 16 will strike the bottom of the well and the cutters will be forced upwardly on the pins 15. The riding of these cutters on the pins will force the cutters outwardly from the body portion into operative positions and in order that they may be maintained in these positions, I have provided an operating rod 21 which extends upwardly through the opening 7 in the block 6 and the lower end of which is located in the chamber 8. Secured to this lower end of the rod is a block 22 which is provided with a pair of reduced outwardly extending wings 23, which wings lie between the plates 9 and are adapted to move between the inner edges of the cutters so that the latter will be maintained in their extended positions above described. Secured to the upper ends of the rod 21 by a swivel connection 24, is a cable 25 which passes through the plate 26. This plate is provided with a flange 27 in which a plurality of set screws 28 are mounted. The plate is adapted to be inserted in the upper end of the well casing and to be held in such position by the set screw.

Secured to the rod 21 is a collar 29 which is provided with a pair of openings 30, through which the rods 5 extend. A gasket 31 is secured to this collar and is adapted

to bear against the inner face of the well casing. This collar 29 is provided with a pair of openings 32 which register with similar openings 33, which openings extend longitudinally through the sections 2 and 3 of the body portion so as to allow the escape of liquid through the body portion.

From the foregoing description it will be seen that when the member 22 is dropped downwardly between the cutters that they will be held spread apart into operative position and when the cable is pulled so as to lift the device from the well casing, said member 22 will be drawn from between the cutters to allow them to move together within the limits of the body portion.

While I have illustrated and described a particular embodiment of my invention, it has merely been for the sake of convenience and I do not wish to be limited to that particular embodiment as it is obvious that numerous changes may be made in the details of construction without departing from the spirit of the invention or exceeding the scope of the appended claims.

What I claim is:—

1. In a well drilling bit, the combination with a body portion made in two sections and having a chamber therein, of cutters mounted in said body portion, and adapted to extend therefrom, a block operable in said chamber to maintain the cutters in their extended positions, a rod connected to said block and means carried by the body portion for supporting said rod.

2. In a well drilling bit, the combination with a body portion having movable cutters thereon, of a pair of rods extending upwardly from the body portion, a block mounted on the upper ends of said rods, a collar slidably mounted on the rods and having a gasket thereon and means for raising and lowering said collar and simultaneously controlling said cutters.

In testimony whereof, I affix my signature, in the presence of two witnesses.

ROBERT A. MARNEY.

Witnesses:

A. C. HERNEY,

E. C. HAWKINS.