

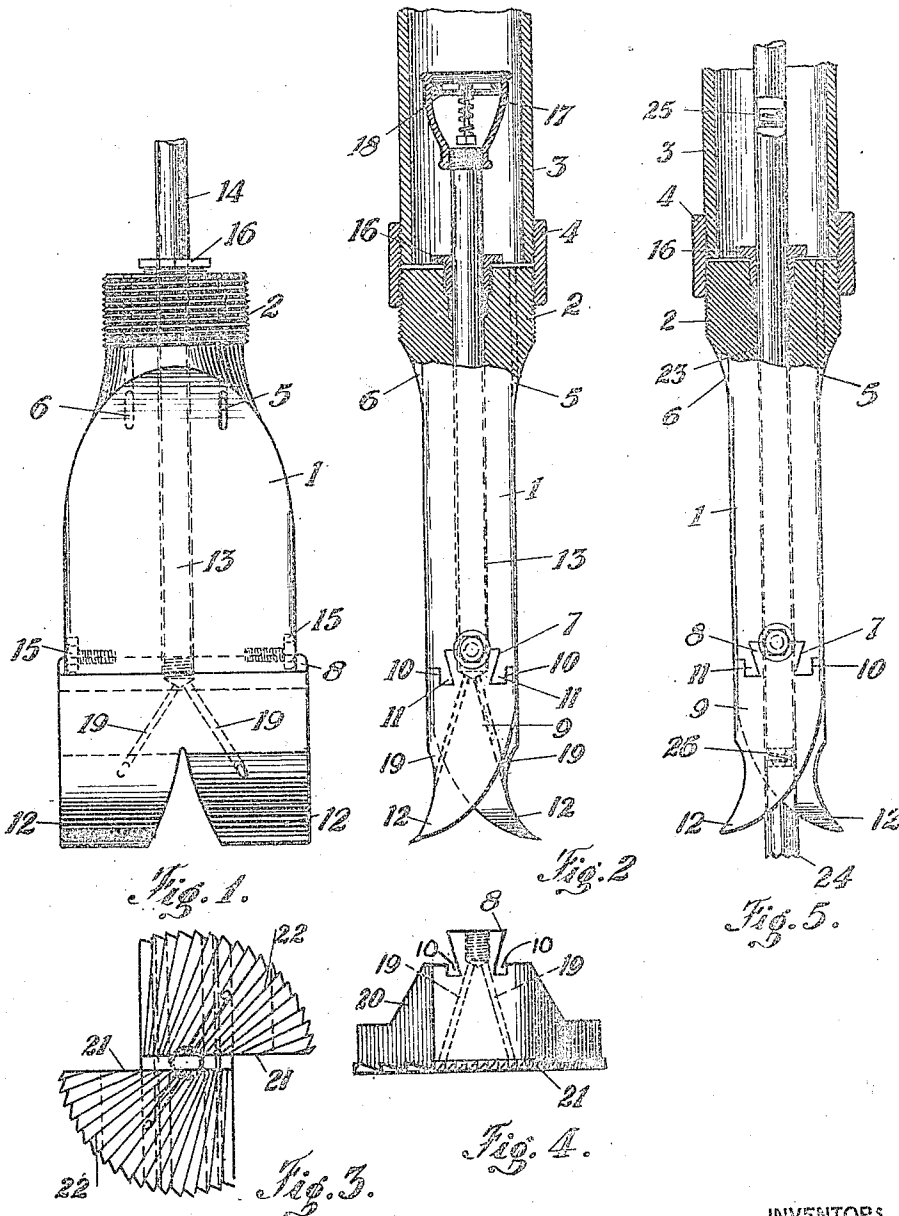
Dec. 18, 1923.

S. F. BASHARA ET AL

1,477,931

DRILL BIT

Filed Nov. 4, 1919



INVENTORS
Samuel F. Bashara.
Charles Poggi.
BY
Hardway C. Cady,
ATTORNEYS

UNITED STATES PATENT OFFICE.

SAMUEL F. BASHARA AND CHARLES PAGGI, OF HOUSTON, TEXAS, ASSIGNORS TO
TEXAS RECLAIM OIL ASSOCIATION, OF HOUSTON, TEXAS, A JOINT STOCK ASSOCIATION.

DRILL BIT.

Application filed November 4, 1919. Serial No. 335,674.

To all whom it may concern:

Be it known that we, SAMUEL F. BASHARA and CHARLES PAGGI, citizens of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in a Drill Bit, of which the following is a specification.

This invention relates to new and useful improvements in a drill bit.

One object of the invention is to provide a drill bit of the character described, which is specially adapted for use in drilling wells, by the rotary process, through any character of formation and is so designed that it may be used in drilling through soft formation, such as shale or gumbo, or through hard formations.

Another object of the invention is to provide a bit of the character described, whose cutting points are detachable and may be readily removed and replaced.

A further feature of the invention resides in the provision of a bit of the character described which is provided with water courses through which water may be supplied to the cutting points of the bit, as well as to the sides of the bit shank.

A still further feature of the invention is to provide a bit of the character described, which is adapted for use in taking samples of the formation through which the bit is passing.

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: This pipe section may be utilized as an oil container, if desired, from which oil may be fed down onto the faces and to the cutting points of the bit blades.

Figure 1, is a side elevation of the bit.

Figure 2, shows an edge view thereof,

Figure 3, shows a point view of a modified form of the bit,

Figure 4, shows a side view of the cutting point employed in said modified form and,

Figure 5, shows a side elevation of the bit as modified for the purpose of taking samples during the process of drilling.

Referring now more particularly to the drawings wherein like numerals of reference designate similar parts in each of the figures,

the numeral 1 designates the shank of the bit which is somewhat flattened at its lower portion, but whose upper portion is formed into a cylindrical outwardly threaded neck 2, provided for its attachment to the drill stem 3, said bit being attached to the stem by means of the ordinary coupling 4. Water courses 5 and 6 extend down from the upper end of the shank and discharge water on to the opposite side thereof for the purpose of keeping said shank cleansed of the formation, which may have a tendency to adhere thereto.

The lower end of the shank has a transverse dove tail groove 7 cut therethrough to receive a correspondingly shaped rib 8, carried by the upper end of the blade section 9, and the upper end of said section 9 may be formed smooth on each side of said rib 8 or may be provided with transverse grooves 10, 10, which conform in shape to and are adapted to receive the interlocking dove tailed ribs 11, 11 carried by the lower end of the shank and which are arranged parallel with and on opposite sides of the groove 7.

In the form shown in Figures 1 and 2, the blade section 9 has the oppositely curved cutting blades 12, 12, whose rear sides are convex and whose forward sides are concave, said blades being thus formed so that they will not readily become dull.

The shank of the bit has a central bore 13 therethrough provided to receive the pipe section 14, whose lower end is threaded into an internally threaded socket in the rib 8, thereby anchoring the blade section 9 against lateral movement and threaded into opposite sides of the lower end of the shank, there are the set screws 15, 15, whose heads are countersunk and abut against the respective ends of the rib 8, to further anchor said blade section to the shank 1.

Surrounding the pipe section 14 there is the gland 16 which is threaded into said shank, and secured to the upper end of said section 14 in a valve casing 17, confined within which is the back pressure valve 18, so constructed as to admit fluid downwardly into the pipe section 14 but to close against the escape of fluid upwardly therefrom.

The blade section 9 is provided with water courses 19, 19, which lead from the lower end of the pipe 14 and discharge on to the concave sides of the cutting blades 12.

From an inspection of Figure 2 it is apparent that the cutting edges of the blades 12, project out laterally beyond said water courses 19, so as to protect them against becoming clogged up with the formation while the bit is being used in "spudding," that is while being raised and dropped, in the well known manner, to "spud" through gumbo and similar formations. Furthermore, while drilling, the valve 18 will prevent the passage of a fluid up through the pipe section 14 and will thereby prevent any considerable amount of material from passing up into the water courses 19 and clogging the same.

When the device is used for drilling through rock or other hard substances, the form of cutting point shown in Figures 3 and 4 will be used. This will be attached to the shank, 1 in the same manner as the blade section 9. This form of cutting point embodies the section 20 and the opposing fan shaped abrading blades 21, 21, whose under faces are formed with radiating cutting teeth 22, which abrade away the bottom of the bore, the outer ends of said teeth projecting out slightly beyond the section 20, so as to ream out the bore as the drilling progresses.

In Figure 5, a modified form is shown for taking samples of the formation wherein the blade section 9 is formed with a central bore aligned with the bore of the shank. A core barrel 23 is fitted through said bores and its lower end projects down between the blades and is formed into a shoe 24. This shoe forms a sample core, which passes up into the barrel 23. The upper and lower ends of said barrel have the valves 25 and 26, the former of which prevents water from entering the barrel from above but permits the escape of water from the top end of the barrel, as the same is forced out by the core entering the barrel and the latter of which will close against, and sever a core of soft formation, and serves to retain said core in the barrel while the device is being withdrawn from the bore.

As shown in the drawings the blade section may be wider, if desired, than the shank. In fact the same shank may be used for different widths of cutting blades so

that bores of different sizes may be bored with the same shank by using blade sections of different dimensions.

What we claim is:

1. A drill bit, including a shank whose lower end is provided with a transverse dovetailed groove, said shank having a bore extending from the upper to the lower end thereof, a blade section whose upper end is formed with a transverse rib to conform in shape to and fitting in said groove, said blade section having ducts leading downwardly therethrough, which form a continuation of the bore of the shank.

2. A drill bit, including a shank, having a central bore, extending from the upper to the lower end thereof and whose lower end is provided with a transverse groove, a blade section, formed with cutting blades, whose upper end is provided with a transverse rib, conforming in shape to and fitting into said groove and a tubular member extending through said bore, whose lower end is threaded into said blade section.

3. A drill bit including a shank having a central bore extending therethrough, a blade section detachably secured to the lower end of said shank, a tubular member within said bore whose lower end is secured to said blade section, said blade section being provided with water courses there-through which communicate with said tubular member, through which water may be discharged to the cutting points of the bit.

4. A drill bit including a shank whose lower end is provided with a transverse dovetailed groove, a blade section whose upper end is provided with a transverse rib, conforming in shape to and fitting within said groove, and set screws threaded into opposite sides of said shank and whose heads are countersunk therein and fit against the respective ends of said rib.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

SAMUEL F. BASHARA.
CHARLES PAGGI.

Witnesses:

A. A. STERLING,
GEO. KOURY.