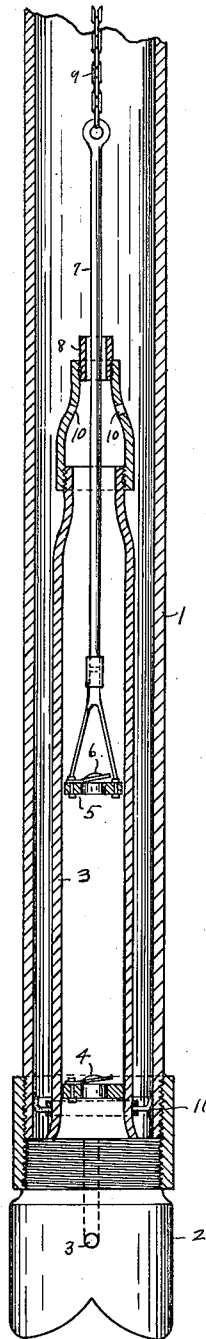


R. D. DODDS.
DEVICE FOR WITHDRAWING SAMPLES FROM WELLS.
APPLICATION FILED APR. 2, 1917.

1,247,092.

Patented Nov. 20, 1917.



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DEVICE FOR WITHDRAWING SAMPLES FROM WELLS.

1,247,092.

Specification of Letters Patent.

Patented Nov. 20, 1917.

Application filed April 2, 1917. Serial No. 159,249.

To all whom it may concern:

Be it known that I, REDUS D. DODDS, a citizen of the United States, residing at Humble, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Devices for Withdrawing Samples from Wells, of which the following is a specification.

This invention relates to new and useful improvements in a device for withdrawing samples from wells.

The object of the invention is to provide a device of the character described, to be used for obtaining samples of the formation through which the drill bit is passing as the boring of the well progresses.

In the process of boring a well it is often desirable to obtain samples of formation through which the drill bit is passing and the device herein described has been constructed for the purpose of obtaining such samples without interference with, or stopping drilling operations.

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

The figure shows a vertical sectional view of a drill stem with the device located therein.

In the drawing, the numeral 1 refers to a tubular drill stem which is in common use in rotary drilling and which is rotated from a rotary (not shown), at the top of the bore. Attached to the lower part of the drill stem is the drill bit 2 having water passages as 3 leading from the top of the bit and terminating at the sides thereof through which water may be forced from the interior of the stem to the cutting points of the bit. This drill stem and bit may be of any well known form, such as is now in common use and forms no part of the invention herein described.

The invention sought to be covered hereby, consists of the barrel 3 having the gate valve 4 near the bottom thereof, the plunger 5 equipped with the gate valve 6 and operated by the plunger rod 7 which reciprocates through a suitable bearing 8, carried by the upper end of the barrel.

As the drilling progresses, it is desirable at intervals to take samples of the cuttings

showing the formation through which the drill bit is passing. When it is desired to procure these cuttings, the barrel is let down into the drill stem by means of the cable 9 which is attached to the upper end of the plunger rod 7. The barrel descends until its lower end rests upon the drill bit, the lower end of the barrel being flared so that it will inclose the upper ends of the water passageways 3. When the barrel rests upon the drill bit the plunger 5 will continue to descend, owing to the weight of said plunger and plunger rod, the valve 6 opening to permit the fluid within the barrel to pass above the plunger. The device is then lifted from the drill stem, the plunger 5 first being elevated to the top of the barrel and filling said barrel with fluid drawn in through the passageways 3, said fluid being laden with cuttings from the bit and the water above the plunger being forced out through the openings 10 at the upper end of the barrel. A cup-shaped bushing 11 surrounds and is attached to the lower end of the barrel so as to prevent the fluid in the drill stem, around the barrel, from being drawn into the barrel as the plunger 5 ascends.

When the barrel is filled with fluid, the valve 4 closes and the device may be elevated to the surface with the fluid containing the desired formation trapped therein.

What I claim is:

1. A device of the character described, including a barrel, a fluid controlling valve controlling the entrance of fluid into said barrel, at one end, a bearing carried by the other end of said barrel, said last mentioned end being reduced and provided with fluid outlets, a plunger provided with a fluid controlling valve within the barrel, a plunger rod to which said plunger is fixed, said plunger rod operating through said bearing, and a cup-shaped bushing surrounding and attached to the lower end of the barrel.

2. The combination with a drill stem having a drill bit secured thereto, of a barrel whose lower end is flared and rests on said bit, a cup-shaped bushing surrounding and attached to the lower end of the barrel and forming a water tight joint between the barrel and stem, a fluid controlling valve controlling the entrance of fluid into said barrel at its lower end, a bearing carried



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by the other end of the barrel, said last mentioned end being reduced and provided with fluid outlets, a plunger provided with a fluid controlling valve within the barrel and a plunger rod, to which said plunger is fixed, operating through said bearing.
In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

REDUS D. DODDS.

Witnesses:

A. C. SPRINGFIELD,
E. V. HARDWAY.