Mar. 20, 1923. 1,448,818

J. C. STOKES

WASHPLUG

Filed Jan. 18, 1922

Fig. 1.

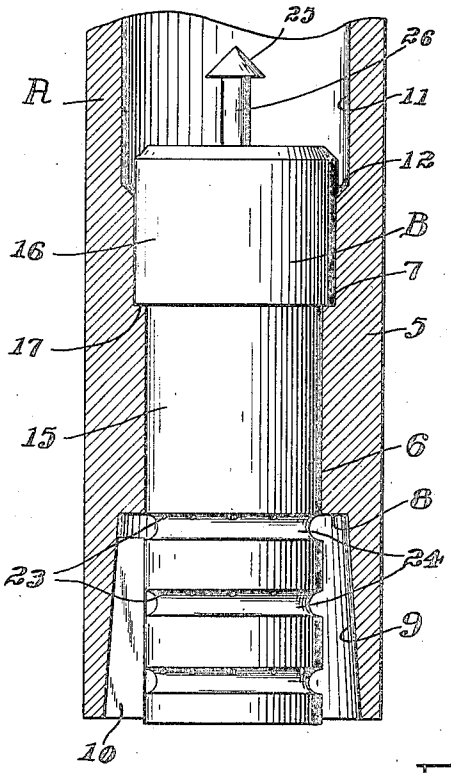


Fig. 2.

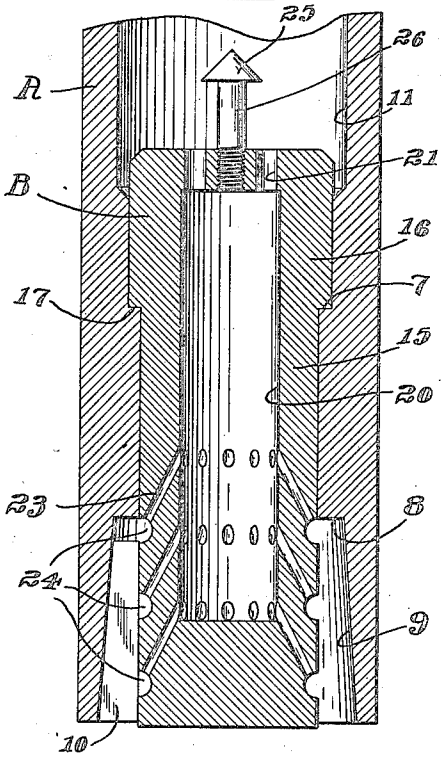
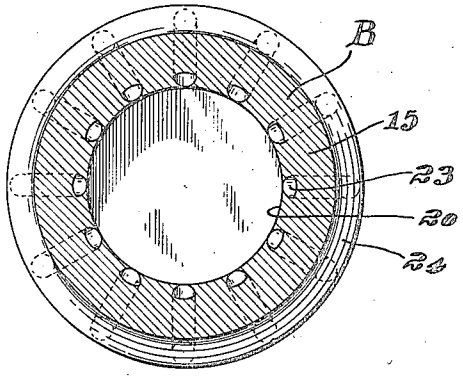


Fig. 3.



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UNITED STATES PATENT OFFICE.

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WASHPLUG.

Application filed January 18, 1922. Serial No. 530,144.

To all whom it may concern:

Be it known that I, JOHN C. STOKES, a citizen of the United States, residing at Shreveport, in the parish of Caddo and State of Louisiana, have invented certain new and useful Improvements in Washplugs, of which the following is a specification.

This invention relates to drilling apparatus used in deep well drilling and is a continuation in part of my pending application filed May 10th, 1920, Serial Number 380,371, and the primary object of the present invention is to provide a novel means for washing the tool holder when the bit carrier has been removed from the holder, in order that the collar can be kept in a cleanly condition, so that the bit will readily fit thereon.

Another object of the invention is the provision of a novel plug removably associated with the drill stem, and which is adapted to fit within the drill holder or collar, said plug having ways formed therein to direct water or other cleaning fluid against the lower surface of the tool holder or collar at all points thereof in order to effectively wash all débris therefrom.

With these and other objects in view the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, forming a part of this specification, in which drawings:

Figure 1 is a longitudinal section through the tool holder showing the washing plug associated therewith, the plug being shown in elevation.

Fig. 2 is a similar view, showing the plug in longitudinal section.

Fig. 3 is an enlarged diametric section through the improved washing plug.

Referring to the drawing, in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A indicates the drill holder and B the improved washing plug.

The tool holder A is of the type illustrated, described and claimed in the pending application above referred to and includes the cylindrical body 5 having an annular flange 6 formed on the inner surface thereof adjacent to its lower end, which forms the upper and lower shoulders 7 and 8. The inner surface of the cylindrical body 5 adjacent to its lower end is flared outwardly as at 9, for the reception of the bit blades of the tool (not shown). This flared portion 9 is also provided with ribs or stops 10, for the bit blades. The upper inner surface of the cylindrical body 5 above the annular shoulder 7 is enlarged in diameter as at 11, which forms a shoulder or inclined seat 12.

The improved plug B includes a cylindrical body 15, the upper end of which is provided with an enlargement 16, which provides a shoulder 17. The shoulder 17 is adapted to fit upon the shoulder 7, when the plug is lowered within the tool holder A and this shoulder limits the downward movement of the plug B in the tool holder and prevent the seeping of water and débris carried therewith up through the tool holder and by the plug. The upper end of the cylindrical body 15 is provided with an interior chamber 20. The upper end of the body 15 is provided with a plurality of openings or ports 21 which communicate with the upper end of the chamber and permits the water or other cleaning fluid to be forced into the chamber. The body 15 adjacent to its lower end is provided with a plurality of superimposed rows or angularly arranged and downwardly and outwardly inclined ports 23 which form means for directing the water or other cleaning fluid to all points of the inner surface of the tool holder at the lower end thereof. When the plug B has been placed in position, as shown in Figures 1 and 2 the well pumps (not shown) are started at a high pressure, which forces the water through the ports 21 into the interior chamber 20 and out through the ports 23 against the inner side of the tool holder, which effectively washes all débris therefrom.

The body 15 adjacent to the terminals of the downwardly and outwardly inclined ports 23 is provided with annular grooves 24 and it can be seen that these grooves communicate with the lower ends of the inclined ports 23. The provision of these grooves facilitates the boring of the inclined ways or ports 23 in the body 15. The plug B at the upper end thereof is provided with a conical head 25 and stem 26, which is adapted to be engaged by a suitable hoisting and releasing mechanism. It can be seen that it is merely necessary to lower the hoisting ap-

paratus into engagement with the conical head 25, when it is desired to lower the plug within the tool holder.

The wash plug B is of exceptionally simple and durable construction and can be readily associated with the tool holder when so desired and forms an effective means for keeping the tool holder free from débris in order that the bit blades may have a good fit therein.

Changes in details may be made without departing from the spirit or scope of this invention, but what I claim as new is,

I claim:

1. In a drill apparatus, a tool holder, a plug slidably associated with the tool holder, an interior water receiving chamber formed in the plug, an outwardly extending port communicating with said chamber arranged to direct a spray of water on the inner lower face of said holder.

2. In a drill apparatus, a tool holder, a removable plug associated with the tool holder, means carried by the plug for preventing the seeping of water and the like between the plug and holder, an interior water receiving chamber formed in said plug, inlet ports communicating with the upper end of the chamber, and a plurality of outlet ports communicating with the chamber and arranged to direct sprays of water from said chamber on the inner surface of said tool holder.

3. In a drill apparatus, a tool holder, a removable plug associated with the tool holder, means formed on the plug for engaging the holder to limit the downward movement of the plug therein and to prevent the seeping of water and the like past the plug and holder, an interior water receiving chamber formed in the plug, a plurality of inlet ports communicating with the upper end of the chamber, and a plurality of outlet ports communicating with said chamber and arranged in annular formation for diverting sprays of water from said chamber to the inner surface of said holder.

4. In a means for washing tool holder, the combination with a tool holder having an inner annular shoulder, of a removable washing plug including a cylindrical body having an annular shoulder arranged to engage the shoulder formed on the tool holder, an interior chamber formed in said plug, inlet ports formed in the upper end of the plug and communicating with the upper end of the chamber, outlet ports arranged in annular formation communicating with the chamber and extending downwardly and outwardly therefrom to direct sprays of water against the inner surface of the tool holder.

5. A washing plug for drill stems comprising a cylindrical body having an interior chamber formed therein, a plurality of inlet ports formed in the upper end of the chamber, a plurality of annular rows of downwardly and outwardly inclined outlet ports formed in the plug adjacent to the lower end thereof and communicating with the chamber.

6. A washing plug for drill stems comprising a cylindrical body, a conical head and stem carried by the upper end of the body, the body having an interior chamber formed therein, a plurality of inlet ports formed in the upper end of the body around said conical head and stem and communicating with the upper end of the chamber, the body having formed therein adjacent to its lower end a plurality of annular grooves, and upwardly and inwardly extending outlet ports formed in the body adjacent to the lower end thereof communicating respectively with the grooves and with the interior chamber.

JOHN CREIGHTON STOKES.