No. 735,769. PATENTED AUG. 11, 1903.

P. HIGGINS.

HYDRAULIC DRILL.

APPLICATION FILED DEC. 17, 1902.

NO MODEL.

FIG. 1.

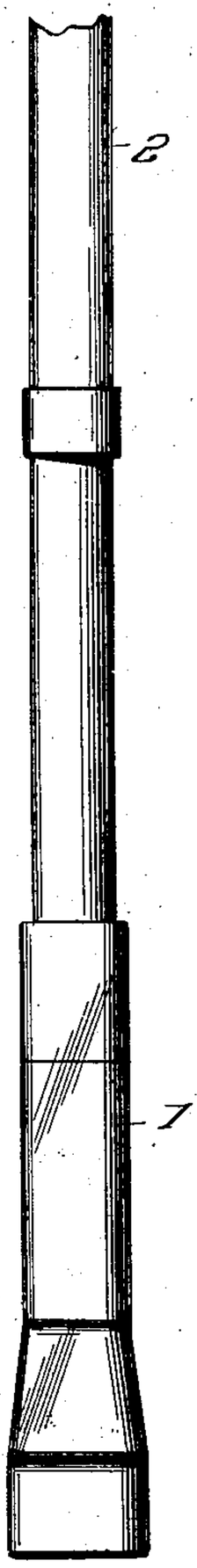


FIG. 2.

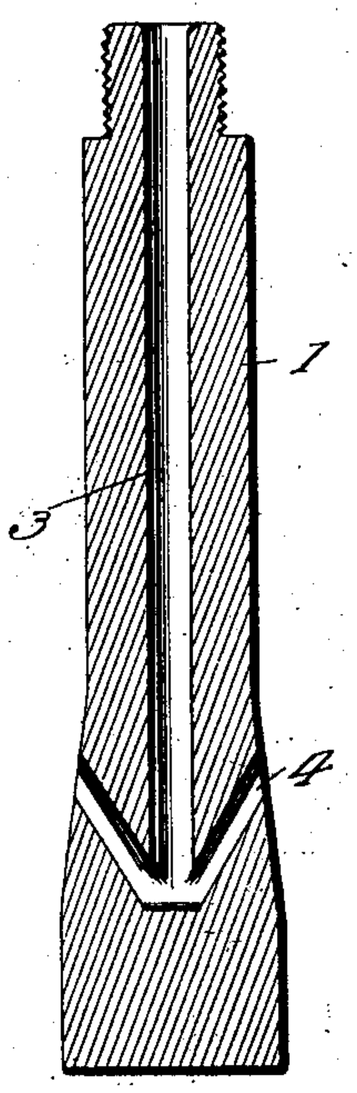
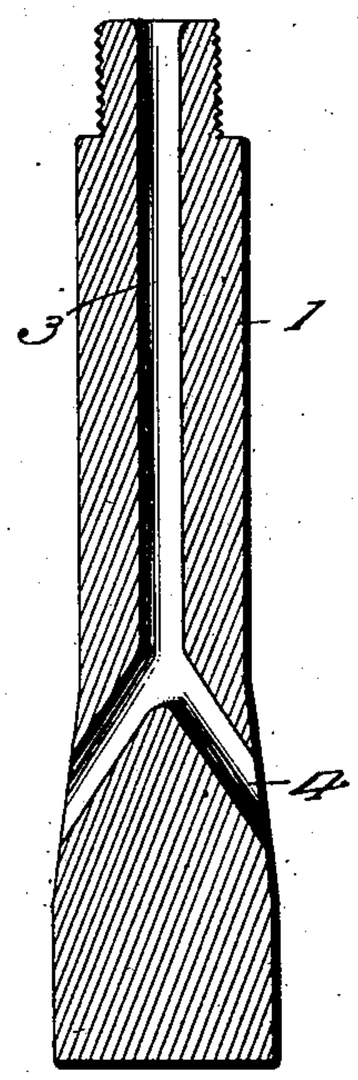


FIG. 3.



Inventor

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Witnesses

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No. 735,769. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

PATTILLO HIGGINS, OF BEAUMONT, TEXAS.

HYDRAULIC DRILL.

SPECIFICATION forming part of Letters Patent No. 735,769, dated August 11, 1903.

Application filed December 17, 1902. Serial No. 135,566. (No model.)

To all whom it may concern:

Be it known that I, PATTILLO HIGGINS, a citizen of the United States, residing at Beaumont, in the county of Jefferson and State of Texas, have invented certain new and useful Improvements in Hydraulic Drills, of which the following is a specification.

The present invention appertains to the class of drills designed for boring deep wells and in operation having a vertical reciprocatory movement imparted thereto from the surface by mechanical appliances such as generally employed in deep-well-drilling machinery, the drill being longitudinally bored to deliver the water to the bottom of the opening being formed.

This invention provides a longitudinally-bored drill having an enlarged point and lateral ducts leading from the lower end of the longitudinal opening of the drill through the sides thereof in rear of the enlarged point, said ducts inclining either upwardly or downwardly, as desired.

The invention will be more particularly set forth hereinafter and claimed and is shown in the drawings hereto attached, in which—

Figure 1 is a side elevation of a drill embodying the invention, the same being shown attached to a tubular drill-rod. Fig. 2 is a vertical central section of the drill on a larger scale, showing the lateral ducts upwardly inclined. Fig. 3 is a view similar to Fig. 2, showing the lateral ducts downwardly inclined.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The drill 1 has its point enlarged so as to provide a bore or opening of larger diameter than the body of the drill or the drill-rod, so as to permit free operation of these parts in the formation of the well. The drill-point is round and its end flat and operates by driving the strata or formation ahead of the drill as the latter descends. In the event of the formation being rock or like hard substance the same is pounded, the chips or particles being carried off by water, conveyed to the bottom of the bore or opening through the tubular drill-rod and the longitudinal opening and lateral ducts of the drill.

The drill-rod 2 is coupled to the drill in any way, and, as shown, the upper end of the drill is reduced to form a shank, which is externally threaded for reception of the coupling by means of which the union or joint is effected. The longitudinal opening 3, formed central of the drill, terminates a short distance from the end thereof, and lateral ducts 4 lead therefrom through the sides of the drill. These ducts may incline upwardly, as shown in Fig. 2, or downwardly, as shown in Fig. 3, and may be provided in any number. In the form of drill having the ducts upwardly inclined the water has an initial upward circulation imparted thereto. In the form of drill shown in Fig. 3 the water is directed downward, thereby assisting in washing away the drillings or loose particles and keeping the opening clear, thereby facilitating the operation, particularly in drilling through stone and like hard formations.

Having thus described the invention, what is claimed as new is—

A drill for deep-well boring having an enlarged point and provided with a longitudinal opening terminating a distance from the point and having lateral ducts extended outward from the lower end of the opening through the sides of the drill in rear of the enlarged point, substantially as set forth.

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

PATTILLO HIGGINS. [L. S.]

Witnesses:

GENEVIEVE MATTHEWS,

GEORGE G. WATT.