E. J. AKINS.

DRILLING BIT.

APPLICATION FILED MAR. 18, 1921.

1,415,619. Patented May 9, 1922.

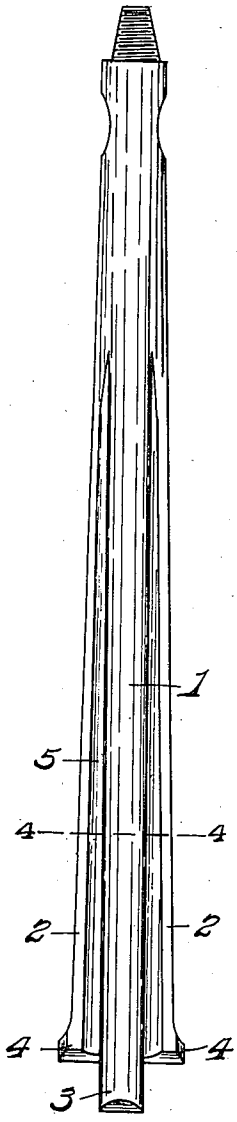


FIG. 1.

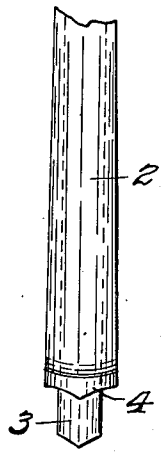


FIG. 2.

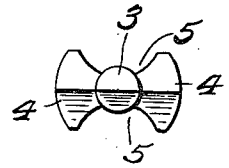


FIG. 3.

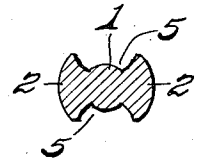


FIG. 4.

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UNITED STATES PATENT OFFICE.

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DRILLING BIT.

1,415,619. Specification of Letters Patent. Patented May 9, 1922.

Application filed March 18, 1921. Serial No. 453,361.

To all whom it may concern:

Be it known that I, EDWIN J. AKINS, a citizen of the United States of America, and resident of Moundsville, county of Marshall, and State of West Virginia, have invented certain new and useful Improvements in Drilling Bits, of which the following is a specification.

This invention relates broadly to well-drilling tools, and more specifically to a bit for well drilling.

The primary object of the invention is to provide a drilling tool, designed primarily for the drilling of oil, gas, and other deep wells, by means of which the work of drilling is facilitated and rendered much more expeditious than when performed with the prevailing ordinary forms of drills.

A further object is to provide a bit which is particularly adapted for use in drilling through hard rock strata, it being especially efficacious for rapid drilling in such strata.

In describing the invention in detail, reference is herein had to the accompanying drawings, in which—

Figure 1 is a side elevation of the invention;

Figure 2 is an elevation of a fragmentary portion of the same taken from a point at right angles to the viewpoint in Fig. 1;

Figure 3 is an end view of the same; and—

Figure 4 is a section on line 4—4, Fig. 1.

The tool which constitutes the present invention is designed to be suspended in the manner common to drills or bits of this general character, and, considered as fashioned from a shaft of substantially cylindrical cross-section and having a diameter which gradually increases downward toward its lower end, it has two opposite sides thereof flattened and then channeled from its lower end upward throughout an appropriate part of its length, so as to form a central longitudinal spine 1 and two opposite longitudinally extending wings 2 of approximately fan-shape in cross section. The spine 1, which preferably has a diameter exceeding the width of the adjacent portions of the wings 2, thus presenting ribs located in the bottoms of the channels, is prolonged at its lower end so that it projects a suitable distance, as from three to six inches, below the shoulders 4 formed at the lower ends of said wings. Said projecting end is suitably beveled or tapered and constitutes a drilling point 3 whereby a hole or socket of relatively small diameter is drilled in advance of said shoulders 4. Said shoulders 4 are enlarged somewhat and present under faces of any preferred contour, those shown in the drawings being slightly beveled.

Due to the fact that a hole of small diameter may be drilled more rapidly than a larger hole, the drilling point 3 advances much more rapidly than would a drill of the relatively much greater diameter of the head of the tool measured in the direction of its greatest width. With repeated strokes of the tool, said point produces a shallow socket in advance of the hole produced by the shoulders 4, which later then act to batter upon and break down the ledge-like walls surrounding said socket. Obviously, such breaking down or chipping away of the surrounding walls or ledge may be effected rapidly and results in the work progressing with much greater rapidity than is possible through the use of a plain blunt drill of usual form acting upon a flat or unperforated surface.

In other words, the point 3 serves as a drill, while the shoulders 4 act with respect to the hole produced by the point to ream the hole to the predetermined diameter, thus expediting the work, it being understood that reaming may be effected with greatly increased rapidity over drilling.

The channels 5 in opposite sides of the drill constitute courses through which water and slime displaced by the drill may freely course upward at each downward stroke of the latter.

The spine 1 provides stock which, in dressing the tool may be fashioned into the drilling point as the drilling end of the tool, wears back.

What is claimed is—

1. A tool for deep-well drilling, comprising a bit shaped to form a central spine of substantially cylindrical form and two diametrically opposite wings, the latter terminating in downwardly-facing shoulders, said spine being prolonged below said shoulders and constituting a drilling point of relatively small diameter.

2. A tool for deep-well drilling, comprising a bit shaped to form a central spine of substantially cylindrical form and two diametrically opposite wings, the latter being of approximately fan-shape in cross section and terminating in downwardly-facing reaming shoulders, said spine being pro-

longed below said shoulders and constituting a socket-forming drilling point of relatively small diameter, said shoulders being adapted to break down the ledge-like walls surrounding the socket produced by said point.

3. A tool for deep-well drilling, comprising a bit shaped to form a central spine of substantially cylindrical form and two diametrically opposite wings, the latter being of approximately fan-shape in cross section and terminating at their lower ends in blunt reaming shoulders, said spine being prolonged below said shoulders and constituting a socket producing point of relatively small diameter, said spine providing stock from which the point may be fashioned in dressing the tool following wear.

4. A tool for deep-well drilling, comprising a bit body which is channeled longitudinally at opposite sides to form a central web and opposite wings connected by said web, said wings terminating at their lower ends in downwardly-facing shoulders, and a centrally disposed drilling point of reduced diameter projecting below said shoulders and adapted to form in advance of the latter a centrally disposed socket of materially less diameter than that of the bore of the well being drilled, said web having longitudinal ribs projecting into said channels and, with the intermediate portion of the web, constituting stock from which the point may be fashioned in dressing the tool following wear.

5. A tool for deep-well drilling, comprising a bit body which is channeled longitudinally at opposite sides to form a central web and opposite wings of approximately fan-shape in cross section connected by said web, said wings terminating at their lower ends in beveled shoulders, and a centrally disposed drilling point of cylindrical form projecting below the level of said shoulders and adapted to form in advance of the latter a centrally disposed socket of materially less diameter than that of the well being drilled.

In testimony whereof, I affix my signature in presence of a subscribing witness.

EDWIN J. AKINS.

Witness:
H. E. DUNLAP.