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1,460,632

W. B. WIGLE ET AL

CENTERING CEMENTING SHOE

Filed June 28, 1922

Fig. 1.

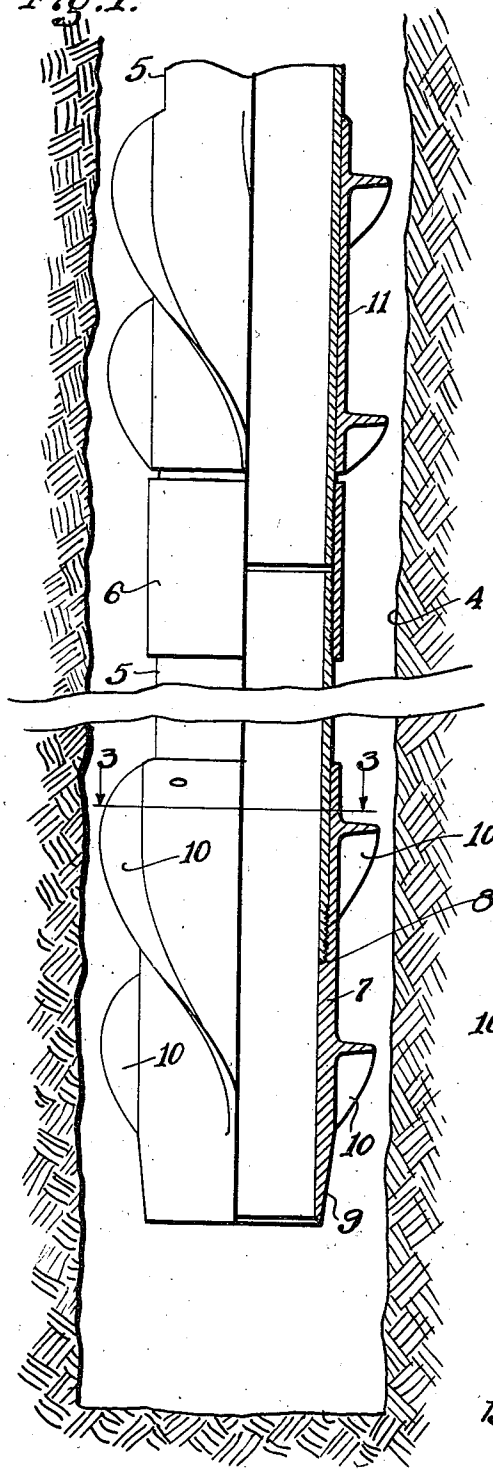


Fig. 2.

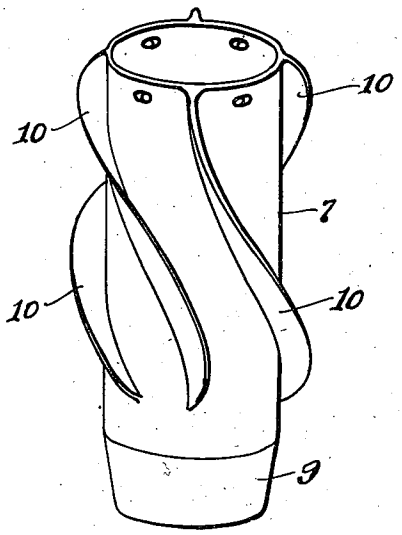
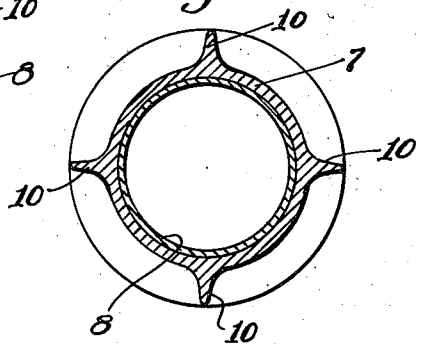


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILSON B. WIGLE AND WALTER HUGHES, OF LONG BEACH, CALIFORNIA.

CENTERING CEMENTING SHOE.

Application filed June 28, 1922. Serial No. 571,516.

To all whom it may concern:

Be it known that we, WILSON B. WIGLE, citizen of the Dominion of Canada, and WALTER HUGHES, citizen of the United States, both residing at Long Beach, in the county of Los Angeles, State of California, have invented new and useful Improvements in a Centering Cementing Shoe, of which the following is a specification.

This invention relates to a fitting for casings to center the latter in a well hole and to permit the passage of cement thereabout without substantial hindrance.

It is the common practice to protect oil sands from the encroachment of water, when drilling wells, by setting the casing after cement has been placed between the casing and the wall of the hole. When rotary drilling is performed, there is a comparatively large difference in diameter between the hole and the casing. For various reasons, the casing seldom centers itself, and in many instances rests against the wall of the hole. If cement is placed in the space between the wall of a hole and a casing which is not centered therein, the result will be that at one point a comparatively thin wall of cement is formed or possibly no wall. This thin wall may break easily due to slippage in the strata, pressure of the strata, jarring of the tools, and numerous other reasons. The effect of cementing is thus destroyed as the water is not shut off.

The primary object of this invention is to provide a centering means which will insure a uniform spacing of the casing from the wall of the hole and will not interfere with the even flow of cement into the space between the wall of the hole and the casing.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of our invention illustrated in the accompanying drawing, in which:

Fig. 1 is a section through a well hole showing the bottom portion of a string of casing and a shoe partly in elevation and partly in section; Fig. 2 is a perspective view of the centering shoe; and Fig. 3 is a plan view of the shoe.

Referring more particularly to the drawing, 4 indicates a well hole and 5 sections of casing joined by a coupling 6 in the usual manner. The relative sizes of casing and well hole are those which would be produced by rotary drilling. It is the common practice to place a shoe upon the bottom of a string of casing, and our improved shoe is substituted therefor.

Our shoe consists of a cylindrical body 7, shouldered and internally threaded as indicated by 8 so that it may be screwed on the bottom section of casing and form a continuation of the internal wall of the well. The bottom of the shoe is shown tapered in the usual manner. Formed on the exterior of the shoe are spiral vanes 10. In the present disclosure, four vanes are shown. The vanes are spacing vanes for the purpose of holding the casing away from the wall of the hole. By reason of their pitch, there is no opportunity for the casing to approach the wall of the hole between vanes. The effect is substantially like a circular spacing vane. A circular or peripheral vane extending entirely around the shoe would obstruct the flow of cement. The cement would likewise be substantially obstructed by a great number of vanes extending longitudinally of the tube. By our construction the effect of a peripherally extending vane is secured without substantial obstruction to the flow of cement around the shoe.

On the string of casing is shown a spacing sleeve 11 consisting of a tubular body having vanes thereon similar to the vanes on the shoe. These spacing sleeves may be placed at points above the shoe as found desirable or convenient.

What we claim is:

1. A cement centering fitting for casing comprising a tubular body adapted to be mounted on the casing, said body being provided with spacing vanes projecting therefrom.

2. A cement centering shoe for casing comprising a tubular body adapted to be secured to the bottom of a string of casing, said body being provided with spacing vanes projecting therefrom.

3. A cement centering shoe for casing comprising a tubular body adapted to be mounted on the casing, said body being provided with spacing vanes having a pitch.

4. A cement centering shoe for casing comprising a tubular body adapted to be

secured to the bottom of a string of casing, said body being provided with spacing vanes having a pitch.

5. A cement centering shoe for casing comprising a tubular body adapted to be mounted on the casing, said body being provided with spiral vanes.

6. A cement centering shoe for casing comprising a tubular body adapted to be secured to the bottom of a string of casing, said body being provided with a spiral spacing vane.

In witness that we claim the foregoing we have hereunto subscribed our names this 17th day of June, 1922.

WILSON B. WIGLE.
WALTER HUGHES.