June 4, 1929. O. S. SHAW 1,716,245

TUBING ANCHOR

Original Filed April 6, 1925

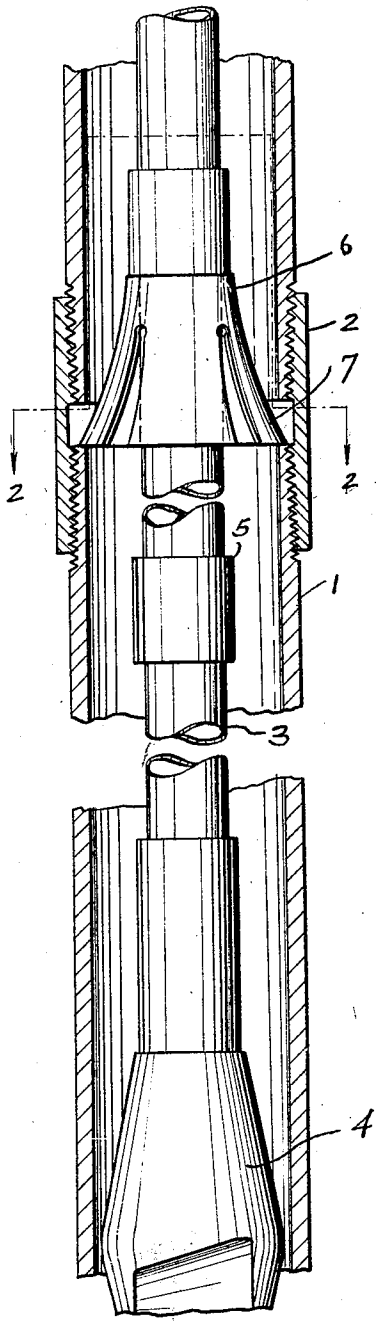


Fig. 1.

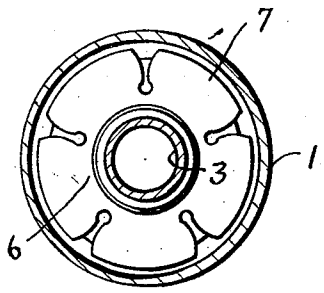


Fig. 2.

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UNITED STATES PATENT OFFICE.

OTHO S. SHAW, OF PORT ARTHUR, TEXAS.

TUBING ANCHOR.

Original application filed April 6, 1925, Serial No. 21,134. Divided and this application filed August 24, 1925. Serial No. 52,209.

This invention relates to new and useful improvements in a tubing anchor.

The subject matter of this invention has been divided out of my pending application on well drilling apparatus, filed April 6, 1925, Serial No. 21,134.

One object of the invention is to provide a device of the character described whereby a pipe or tubing may be anchored, in suspended position, in a well bore.

Another object of the invention resides in the provision of an anchor, of the character described, embodying novel means for sustaining the drill stem and bit, or other tubing, in a well bore, when it becomes necessary to do so, as, for example, when it becomes necessary to add additional joints, or sections, to the upper end of the well casing.

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

Figure 1 shows a side elevation of the anchor, as applied to the drill stem, and

Figure 2 shows a cross sectional view taken on the line 2—2 of Figure 1.

Referring now more particularly to the drawings, wherein like numerals of reference designate, similar parts in each of the figures, the numeral 1 designates the well casing, which is composed of joints connected by couplings, as 2. The numeral 3 designates a drill stem to the lower end of which a drill bit, as 4, is attached. The stem 3 is made up of a plurality of sections, connected by couplings, as 5.

The anchor consists of an annular collar 6, having the downwardly diverging yieldable fingers 7, all forming a spider-like support for the drill stem.

In under reaming, or drilling, it is necessary, from time to time to add an additional joint to the upper end of the casing, as the casing is lowered into the bore. When it is desired to add this additional casing joint the drill stem is pulled upwardly, withdrawing the bit up into the lower end of the casing. The upper joint of the stem is then broken out. The coupling at the upper end of the remaining stem is then removed and the annular collar is fitted over the stem and said coupling replaced. The upper end of the anchor supports said collar and the fingers, 7, of the anchor rest upon the upper end of the casing. This anchor, in its preferred form, as shown, is downwardly flared, or bell shaped, with its sides slitted vertically and formed of strong flexible material.

The drill stem is thus supported while an additional section is added to the upper end of the casing 1. The drill stem is then pulled upwardly, the anchor contracting and passing up through said added section of the casing. The casing is then forced downwardly in the bore, in the usual way until its upper end reaches the ground surface, and if necessary the other joints may be added, as before stated, until the casing reaches the bottom of the bore. The anchor is then removed and the drill stem connected up for drilling, and lowered into the bore and drilling then proceeds in the usual way.

What I claim is:—

1. An apparatus of the character described including the combination with an outer pipe, of an inner pipe, the outer pipe being composed of sections whose adjacent ends are spaced apart, an outside coupling connecting said adjacent ends, an external shoulder on the inner pipe, a bell-shaped anchor fitted around the inner pipe and on the upper end of which the said shoulder rests but is freely movable between said outer pipe sections, the lower end of said anchor being flared and formed into fingers and resting upon the upper end of the lower section of the outside pipe.

2. An apparatus of the character described including the combination with an outer pipe, of an inner pipe, the outer pipe being composed of sections whose adjacent ends are spaced apart, an outside coupling connecting said adjacent ends, an external shoulder on the inner pipe, a bell-shaped anchor fitted around the inner pipe and on the upper end of which the said shoulder rests, the lower end of said anchor being downwardly flared and forming fingers and resting upon the upper end of the lower section of the outside pipe, said lower end of said anchor being contractable to permit the anchor to pass through the outer pipe while elevating or lowering the inner pipe.

3. An apparatus of the character described including the combination with an

outer pipe, of an inner pipe, the outer pipe being composed of sections whose adjacent ends are spaced apart, an outside coupling connecting said adjacent ends, an external shoulder on the inner pipe, a bell-shaped anchor fitted around the inner pipe and on the upper end of which the said shoulder rests, the lower end of said anchor being flared and formed into fingers and resting upon the upper end of the lower section of the outside pipe, the lower end of the anchor being slitted to permit it to contract to permit it to pass through the upper section of the outer pipe when the inner pipe is being withdrawn from the outer pipe.

In testimony whereof I have signed my name to this specification.

OTHO S. SHAW.