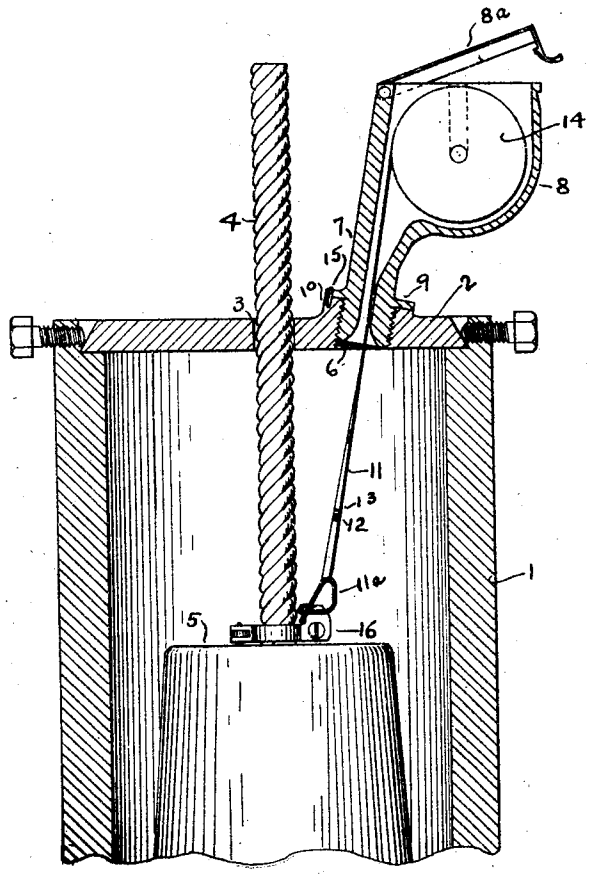
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MEASURING TAPE

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MEASURING TAPE.

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This invention relates to well drilling apparatus, and more particularly to measuring means whereby the depth of a hole drilled can be accurately measured without danger of interference with the operation of the drilling apparatus.

The use of an ordinary tape to measure the depth of a hole drilled must necessarily be attended by a danger of the tape becoming tangled up in the drilling apparatus, and thus impairing the operation thereof.

It is the object of this invention to provide a soluble tape which, after it has been used to measure the depth of the hole, will be dissolved by the water and oil with which it comes in contact.

A further object of the invention is to provide means whereby soluble tape may be attached, for example, to the head of a bit, and to provide means to support and house a spool by which the tape is carried.

Various other objects and advantages will be apparent in the following description.

The accompanying drawings illustrate the invention as used in connection with certain oil well drilling apparatus, the figure being a side elevation thereof partly in section.

Referring specifically to the drawings: 1 indicates a casing such as is commonly used in oil-well drilling and the like, said casing having a control head 2. The control head 2 serves to prevent the escape of oil and gas, after the same has been encountered in drilling. Control head 2 has substantially in the center thereof a bore 3 through which cable 4 passes in its movement up and down. Cable 4 has a bit head 5 secured to the lower end thereof.

An inclined screw-threaded bore 6 is formed in control head 2 to alternately receive extension 7 of casing 8, and a plug, not shown, to be used when casing 8 has been removed. Extension 7 has an annular flange 9 which engages an inclined raised portion 10 on control head 2. A pin 15 may be driven through an opening in flange 9 and into a hole in raised portion 10, to lock the two together.

Casing 8 has a hinged cover 8^a, as shown, to prevent the entry of moisture into said casing, whereby soluble tape 11 is kept dry.

Spool 14 carries a soluble tape 11, the end of said tape having a loop 11^a secured to a clamp 16 on cable 4. The tape may be made of a water and oil soluble material such as paper or the like. Tape 11 has suitable marks 12 thereon at predetermined distances apart, and has numerals 13 thereon indicating the number of said marks progressively.

The operation of the above described measuring device is as follows:

When it is desired to ascertain the depth of a hole drilled, the plug, not shown, is removed from bore 3 and extension 7 screwed therein. Tape 11 is then attached to cable 4 immediately above the top of bit head 5, by the clamp shown. And when the bit is lowered into the hole for the purpose of performing a further drilling operation, it carries with it the tape 11, the movement downward of bit head 5 causing the rotation of spool 14 and the unwinding therefrom of the tape. When bit head 5 has reached the bottom of the hole, casing 8 may be withdrawn from control head 2.

The depth to which the bit has descended, or, in other words, the depth of the hole, can be accurately ascertained by reading the tape at the part thereof adjacent the control head. The tape is then broken at said part. The screw-threaded plug, not shown, may be then inserted in bore 6 to prevent the escape of gas and oil.

The portion of the tape below the part where the tape is broken, having performed its function, will, in a very short time, be dissolved by the water and oil in the hole. All danger of interference by the tape with the operative parts of the bit head are thereby eliminated.

Various uses of my invention may be made without departing from the scope of the claims hereinafter appearing.

This invention provides a soluble measuring tape. Many uses thereof will appear to those skilled in various arts, and it is to be understood that the drawing is only illustrative of its use in connection with a particular drilling apparatus, and that it may be used in connection with various other devices and apparatus, which it is unnecessary to enumerate here.

I claim:

1. In well drilling apparatus, a soluble tape whereby the depth of a well may be measured.

2. In well drilling apparatus, a soluble tape and an element attached to said tape and adapted to be lowered in a well, said tape being adapted to measure the depth to which said element descends in said well.

3. In well drilling apparatus, the combination with a casing, a spool mounted on said casing, and an element movable in said casing, of a soluble measuring tape mounted on said spool and attached to said element.

4. In well drilling apparatus, the combination with a control head disposed over a well, a casing mounted on said control head, a spool in said casing, and an element adapted to be lowered in said well, of a soluble measuring tape wound on said spool and attached to said element.

5. In well drilling apparatus, the combination with a control head, a substantially moisture-proof casing mounted on said control head, a spool in said casing, and an element adapted to be lowered in a well, of a soluble measuring tape wound on said spool and attached to said element.

6. In well drilling apparatus, the combination with a control head having an inclined bore therein and adapted to fit over a well, a spool casing having an extension removably fitting in said bore, and an element adapted to be lowered in said well, of a soluble measuring tape on said spool, extending through said bore, and connected to said element.

In testimony whereof, I hereunto affix my signature.

CLINTON H. M. BULL.