(No Model.)

J. A. MILLS.

FISHING TOOL FOR OIL WELLS.

No. 589,607. Patented Sept. 7, 1897.

Fig. 1.

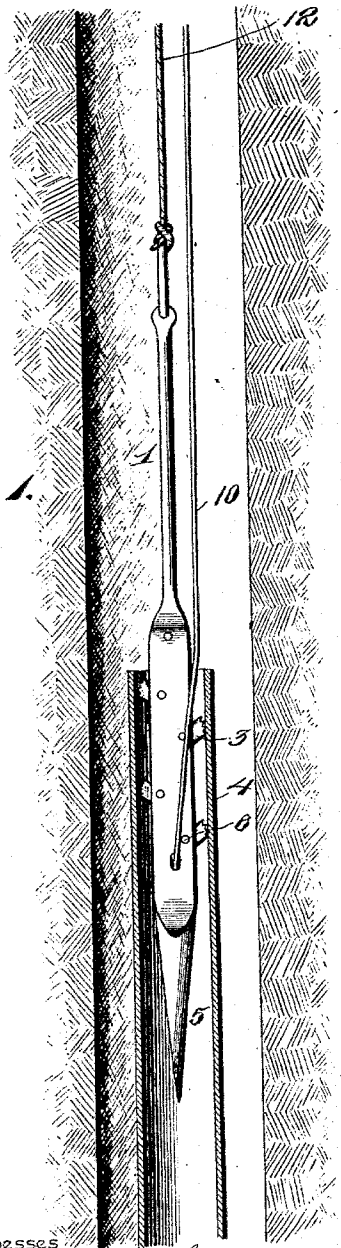


Fig. 2.

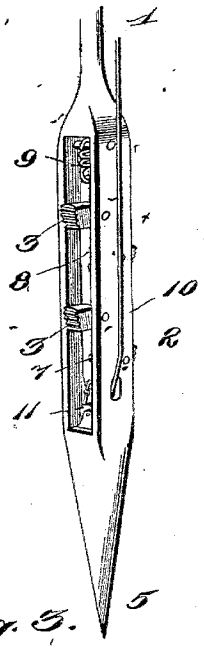


Fig. 3.

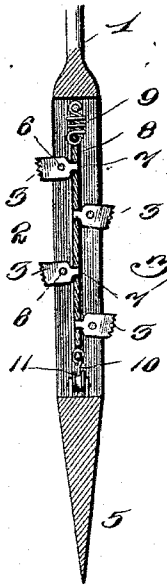
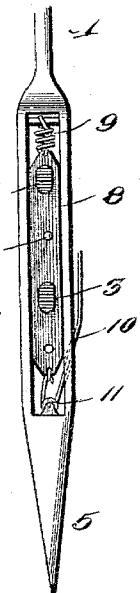


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN ANDREW MILLS, OF GAINESVILLE, TEXAS.

FISHING-TOOL FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 589,607, dated September 7, 1897.

Application filed February 23, 1897. Serial No. 624,684. (No model.)

To all whom it may concern:

Be it known that I, JOHN ANDREW MILLS, a citizen of the United States, residing at Gainesville, in the county of Cooke and State of Texas, have invented a new and useful Fishing-Tool for Oil-Wells, of which the following is a specification.

My invention relates to fishing-tools for use in connection with oil-well drilling and pumping apparatus, and the object in view is to provide a simple device for engaging a drill or pump rod for extraction from a well when said rod has become detached from the exposed drilling or pumping apparatus and has fallen into the well.

It is common for this purpose to employ a fishing-tool so constructed as to engage the rod exteriorly, but owing to the fact that a detached rod usually if not invariably lies against one side of the drill-hole much time is lost in straightening the rod or removing it from contact with the side of the hole sufficiently to allow the jaws of the tool to engage the same. Therefore it is my object to provide a tool adapted to engage a rod interiorly and which may be introduced with facility and then firmly locked to prevent displacement during the lifting of the detached portion of the drilling apparatus.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a side view of a fishing-tool constructed in accordance with my invention arranged in the operative position in an oil-well in engagement with a drill-rod. Fig. 2 is a detail view in perspective of the drill-tool. Fig. 3 is a central sectional view of the same. Fig. 4 is a detail edge view thereof.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the shank of the fishing-tool embodying my invention, and 2 the head thereof, which is vertically or longitudinally slotted to form an open-sided casing for the clutches 3, which are pivotally mounted therein, with their serrated extremities projecting beyond the sides of the head to engage the inner surface of a tube or drill-rod, such as that illustrated at 4 in Fig. 1. The lower extremity of the head is preferably reduced, as shown at 5, to facilitate insertion into the tube or rod.

The clutches, which are beveled or rounded at their serrated outer extremities, are extended beyond their fulcrum-pins 6 and are reduced, as shown at 7, for engagement by a shifting-bar 8, which is arranged longitudinally with relation to the slotted head of the tool. The clutches, being enlarged or weighted at their outer extremities, are normally held in their operative or engaging positions by gravity, and in order to assist or insure this depression of the outer extremities of the clutches by relieving the same of the weight of the shifting-bar I attach to said shifting-bar an actuating-spring 9 or its equivalent, and hence when the tool is inserted into the bore of a tube or drill-rod the upward pressure of the extremity of the latter upon the clutches serves to displace them sufficiently to allow the tool to enter the tube or rod. When, however, an upward strain is applied to the shank of the tool, the serrated faces of the clutches engage the inner surface of the tube or rod and are forced firmly into contact therewith to prevent removal.

It sometimes happens that a drill-rod becomes caught by an obstruction within the drill-hole, whereby the withdrawal of the same is prevented, and in order to provide for the detachment of the fishing-tool therefrom under these circumstances I employ a trip-cord 10 of sufficient strength to support the weight of the fishing-tool, which is carried through a suitable guide, such as a direction-pulley 11, in the lower end of the slot in the head and attached to the lower extremity of the shifting-bar. Strain upon this trip-cord sufficient to lift the weight of the fishing-tool will depress the shifting-bar against the tension of its actuating-spring and thereby disengage the clutches from the drill tube or rod. The fishing-tool may be introduced into a drill tube or rod without allowing contact of the clutches with the inner surface thereof by lowering said fishing-tool by means of the trip-cord.

The cable 12, by which the fishing-tool is lowered and elevated under ordinary circum-

stances, is attached to a ring at the upper end of the shank.

The clutches are arranged to project alternately beyond opposite sides of the head, and they are arranged, respectively, in different transverse planes to avoid the diametrically opposite pressure of two clutches, the disadvantage of such a diametrical pressure being that it is liable to result in the transverse expansion or fracture of the drill tube or rod due to the eccentric action of the clutches, thereby damaging the drilling or pumping apparatus and defeating the object of the fishing-tool. By arranging the clutches to project alternately beyond opposite sides of the head in different transverse planes they engage the tube or rod at different distances from its extremity and thereby avoid said objectionable expansion.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

A fishing-tool having a head adapted to be introduced into the bore of a drill tube or rod, pivotal clutches mounted upon said head and projecting beyond the sides thereof to engage the inner surface of the tube or rod, and a spring-actuated bar connected to the inner extremities of the clutches and normally holding the latter in their operative positions, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN ANDREW MILLS.

Witnesses:

J. T. ADAMS,

F. X. SCHAD.