J. F. McDOWELL.

FISHING TOOL.

APPLICATION FILED APR. 26, 1920.

1,374,510. Patented Apr. 12, 1921.

FIG. 1.

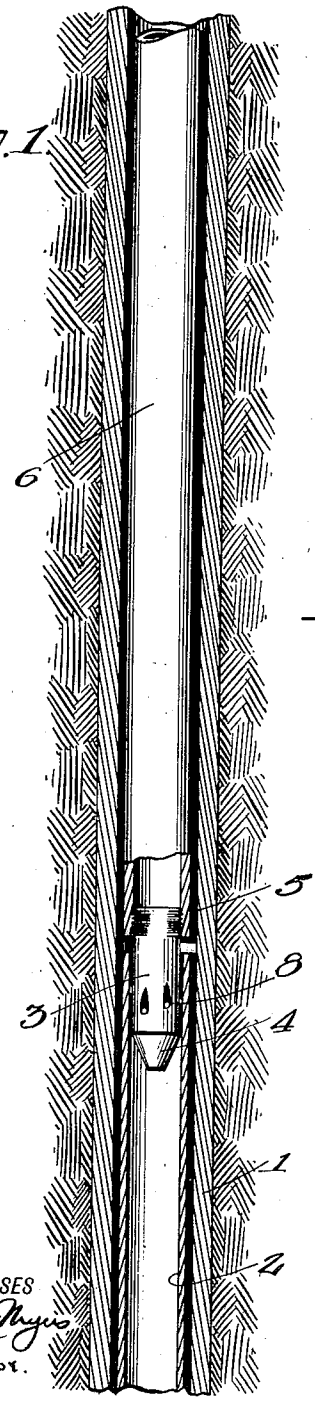


FIG. 2.

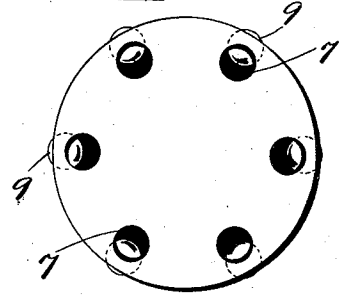
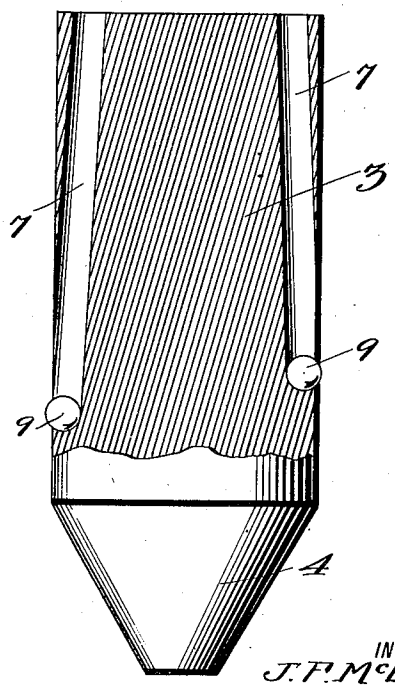


FIG. 3.



WITNESSES

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FISHING-TOOL.

1,374,510. Specification of Letters Patent. Patented Apr. 12, 1921.

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To all whom it may concern:

Be it known that I, JOHN FRANK McDOWELL, a citizen of the United States, and a resident of Shreveport, in the parish of Caddo and State of Louisiana, have invented certain new and useful Improvements in Fishing-Tools, of which the following is a specification.

My invention is an improvement in fishing tools, and has for its object to provide a tool of the character specified which may be inserted into the top of a pipe, well casing, or drill stem, and which, when once inserted, cannot be withdrawn until released, the arrangement being such that the tool may move freely downwardly in the pipe but clamps the pipe when it is moved upwardly and will be held against accidental displacement.

In the drawings:

Figure 1 is a longitudinal section of a portion of a well casing, showing the tool in use;

Fig. 2 is a top plan view;

Fig. 3 is a vertical section.

The present embodiment of the invention is shown in connection with a well casing 1 within which is a drill stem 2 or the like, the said stem being broken or otherwise disconnected from the hoisting mechanism. As is known, these broken tools must be removed from the well or the well must be abandoned.

In the usual procedure of fishing for the tool the fishing tool is lowered into the well and the said tool is manipulated to engage about the top of the stem. Since the stem is leaning against the well casing and does not have its axis vertical, the engagement of the fishing tool is a difficult matter and extremely uncertain. My improved tool is adapted to enter the pipe or drill stem and to grip it from within. Since the stem takes up a considerable portion of the area of the well casing it will be easier to engage the tool within the pipe than to engage it about the pipe.

The improved tool comprises a substantially cylindrical body 3 of suitable cross section to freely enter the top of the drill stem. At its lower end the body 1 has a tapered portion 4, which is adapted to facilitate the entrance of the tool into the drill stem, and the upper end is threaded as shown at 5, to engage mechanism including a string of pipe indicated at 6 for raising and lowering the tool.

The tool body 3 is provided with a series of recesses or openings 7 extending longitudinally thereof, from the top to near the bottom of the cylindrical portion in downwardly and outwardly divergent relation, and the said recesses or openings, at their lower ends, extend through the outer or peripheral face of the body, as shown at 8 in Fig. 1. The openings 8 are substantially triangular and are less in width than the diameter of the recesses 7. The recesses incline outwardly toward their lower ends, in order that they may cut the peripheral face at the said lower ends, at different points or elevations in stepped relation, and a ball 9 is arranged in each recess, the balls being of a size to move smoothly in the recesses. Each recess cuts the peripheral face at its lower end at a point such that while a considerable portion of the ball may be extruded beyond the periphery of the body of the tool when the ball is at the lower end of the recess, the ball cannot pass entirely from the recess. The upper ends of the recesses 7 are closed by plugs or any other suitable means to prevent disengagement of the balls at the said upper end.

In use, when the point or tool 3 is engaged with its hoisting mechanism 6 it is lowered into the well casing, until the tapering portion 4 thereof enters the broken drill stem indicated at 2. After two or more balls are below the top of the drill stem, the tool cannot be disengaged from the stem until the balls are released, that is, until they are moved upwardly. Referring to Figs. 1 and 3, it will be seen that the openings 8 are at different levels. Some of the recesses 7 open on the periphery of the tool near the lower end, while others open near the upper end and still others open intermediate the ends at various points in substantially spiral formation thus insuring a proper and positive engaging, gripping and releasing action.

I claim:

1. A tool of the character specified, comprising a body of cylindrical form having a tapering point, and having recesses extending longitudinally thereof from the upper end and inclining outwardly toward their lower ends and opening through the peripheral wall of the body, and balls in the

recess, the openings in the recesses at the periphery of the body being at different levels and large enough to permit a portion of the balls to extrude and being too small to permit the entire ball to pass, the body being of a diameter and the balls of such size that when the holder is lowered into a well casing, the balls will grip the inner wall of the casing, said body having means for connecting it to a stem.

2. A fishing tool comprising a cylindrical body portion having a tapered lower end and a threaded upper end provided for engagement with means for raising and lowering the same, said body being also provided with a series of passages leading from the upper end thereof near the edge portion in a downwardly and outwardly extending direction diverging from each other and communicating with and through the peripheral face of the body wall of the tool at different points or elevations in stepped-like relation and substantially spiral formation, the openings of the recesses on the periphery being smaller at the top than at the bottom and large enough to permit a considerable portion of the ball to extrude therefrom, but too small to permit the entire ball to pass, and balls in said passages or recesses.

JOHN FRANK McDOWELL.