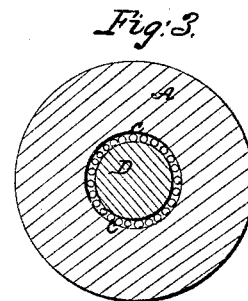
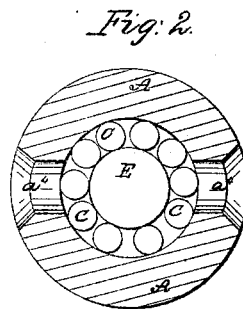
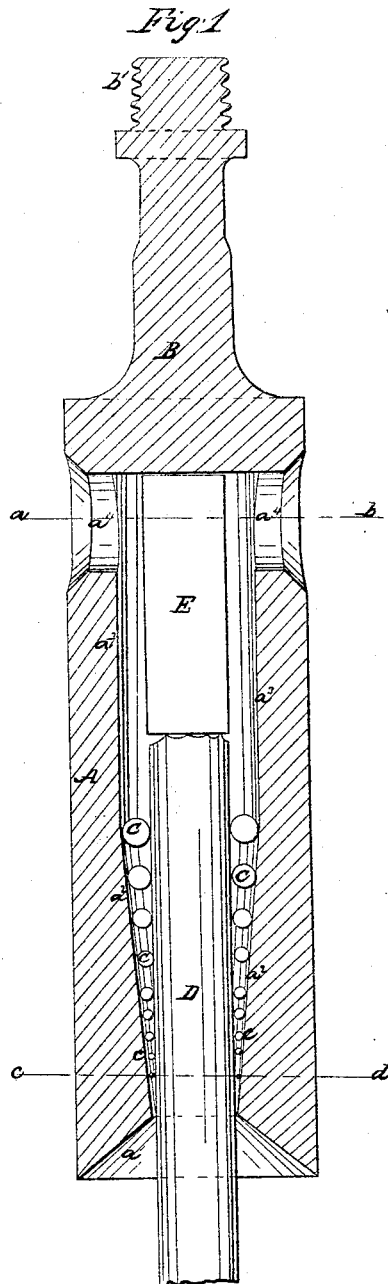


*W. Bowden,
Drill-Rod Grab.*

N^o 50896.

Patented Nov. 14, 1865.



*Witnesses.
B. H. Auchley
E. B. Forbush*

*Inventor
W. Bowden*

UNITED STATES PATENT OFFICE.

WILLIAM BOWDEN, OF WHITE'S CORNERS, NEW YORK.

IMPROVED TOOL FOR REMOVING OBSTRUCTIONS IN OIL-WELLS.

Specification forming part of Letters Patent No. 50,896, dated November 14, 1865.

To all whom it may concern:

Be it known that I, WILLIAM BOWDEN, of White's Corners, in the county of Erie and State of New York, have invented a new and Improved Tool for Removing Broken Drills and other Obstructions from Oil-Wells, and for other purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being made to the accompanying drawings, making a part of this specification, in which—

Figure I is a vertical section, representing the tool as fastened onto the shank of a drill broken in the well. Fig. II is a cross-section on line *a b*. Fig. III is a cross-section on line *c d* of Fig. I.

The nature of this invention consists in making a hollow cylindrical tool, open and funnel-shaped at its lower end, and having a tapering bore in its lower part, and a cylindrical bore above the taper, and a screw-head for connecting with tension-rods, in combination with metallic balls for the purpose of removing broken drills, reamers, or other obstructions from oil or other deep wells.

Letters of like name and kind refer to like parts in each of the figures.

A represents a cylinder forged from the best quality of iron. The lower end of this cylinder is made flaring or funnel-shaped, as shown at *a'*, so as to slip over the end or shank of a broken tool in the well and direct it into the bore of the cylinder. The bore is made tapering—that is, it commences small and gradually enlarges upwardly for five or six inches, (more or less) as shown by the lines *a²*, and then continues a true cylinder to the head, as shown by the lines *a³*, so that the metallic balls, when dropped in, will lie on the taper or inclined sides of the bore.

B represents the head, which is made of solid iron and welded to the cylindrical part. This head has a screw-thread cut on the upper part thereof, as shown at *b'*, for the purpose of connecting with tension-rods for pulling the tool from the well. Two holes are made through the sides of the cylinder, as shown at *a⁴*, for the purpose of admitting the metallic balls into the bore.

C represents metallic balls, which may be steel balls or balls of very tough iron. These are made of different sizes, as shown, corresponding with taper of the bore.

D represents the shank of the drill or other tool, which is supposed to be broken in the well, or otherwise fastened in the well in a manner to form an obstruction therein.

E represents a short rod of wood of about the length of taper bore, which is placed in the taper bore for the purpose of holding the balls in position while the tool is being lowered into the well to grapple with the obstructing tool.

Operation: This tool being completed and ready for use, the wooden rod E is placed into the taper bore. The balls are then dropped in through the holes *a⁴*. The smallest balls are put in first, and then the next larger in size, and so on, gradually increasing in size until the taper bore is filled, (or nearly so, as represented,) the balls resting upon the inclined sides of the bore and against the wooden rod. The tension-rods are then screwed onto the head of the tool in a common manner, and the tool lowered into the well until it meets the obstructing tool. The funnel-shaped mouth *a'* of the cylinder will surround the shank of the obstructing tool and direct it into the bore. The wooden rod will be driven up into the cylindrical bore by the entering shank of the obstructing tool, the metallic balls taking their place around the shank of the obstructing tool, as represented in the drawings. Now, it is evident that when this tool is drawn upwardly the metallic balls will bite the shank of the obstructing tool and take a strong and unyielding hold thereof, and such is the action of the inclined sides of the bore upon the balls, that the stronger the pull upon the tool the stronger will be the hold thereof; and hence this tool is entirely successful in practice, and fully answers the purpose for which it is designed. Its hold is easily released by a movement in the opposite direction.

What I claim as my invention, and desire to secure by Letters Patent, is—

A cylindrical tool, A B, having a flaring mouth, *a'*, and taper bore *a²*, in combination with metallic balls C or equivalent, for the purpose and substantially as described.

WM. BOWDEN.

Witnesses:

B. H. MUEHLE,
E. B. FORBUSH.