

C. O. TAYLOR.

TOOL FOR REMOVING BROKEN SUCKER RODS FROM WELLS.

(Application filed Jan. 21, 1901.)

(No Model.)

Fig. 1.

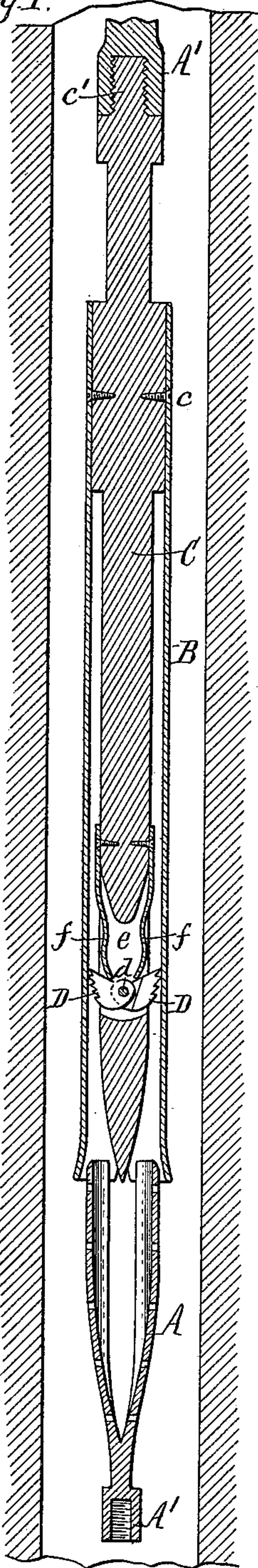


Fig. 2.

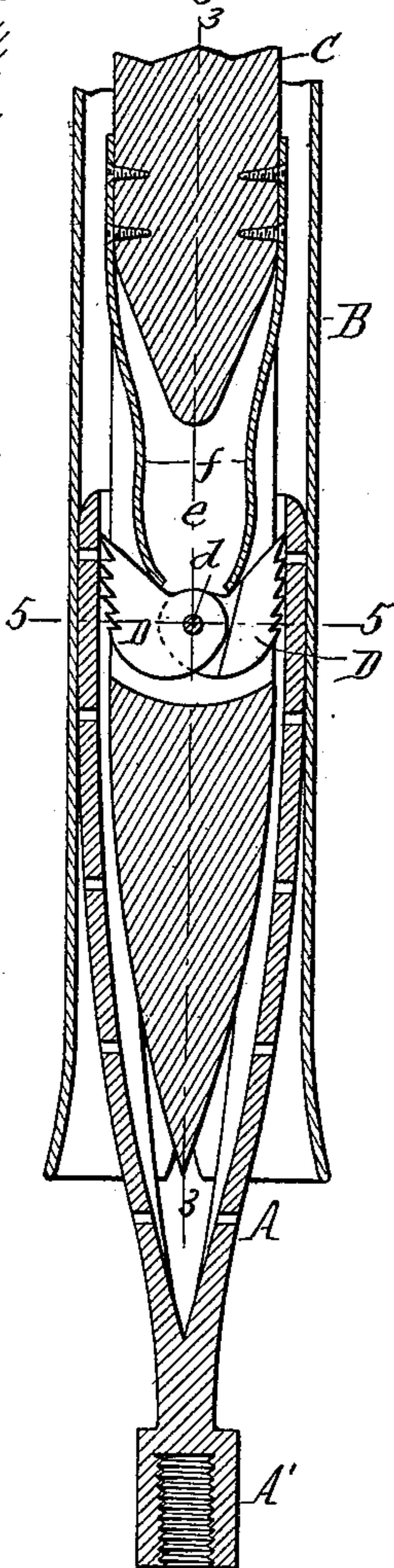


Fig. 3.

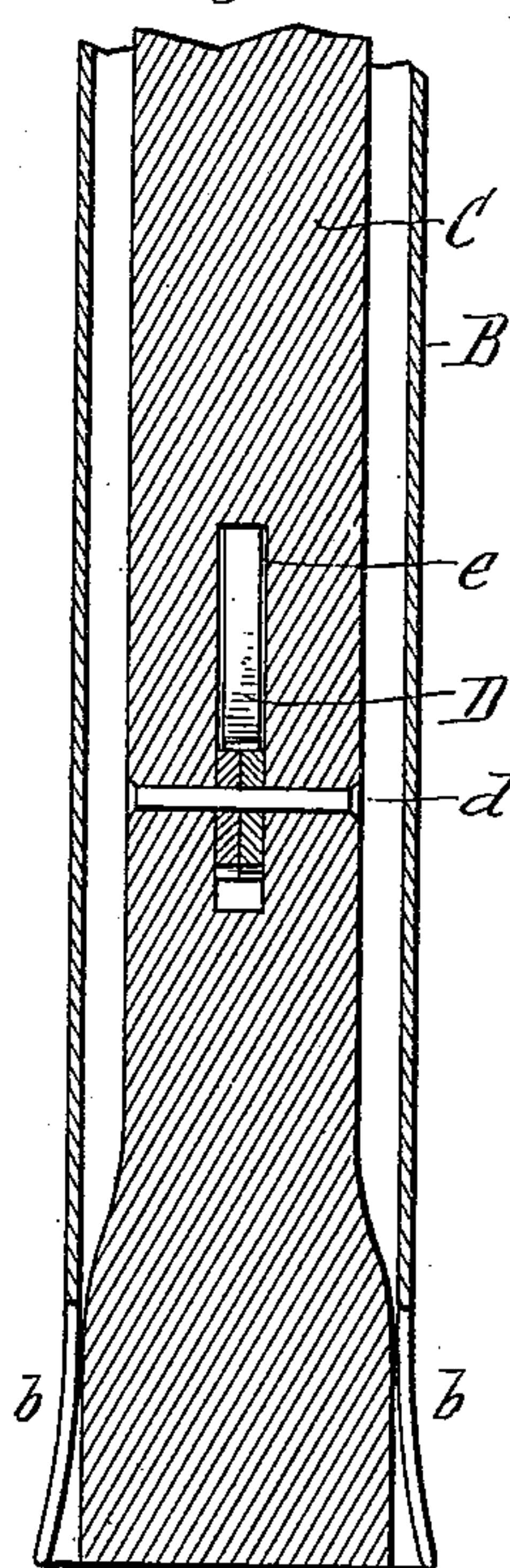


Fig. 4.

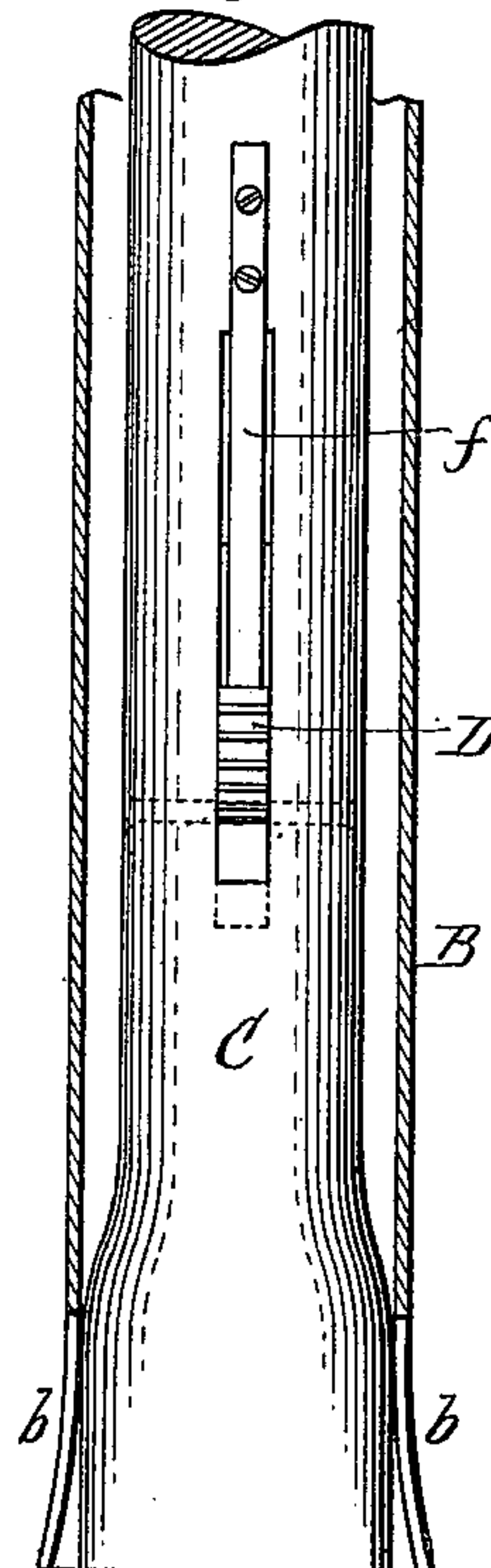


Fig. 6.

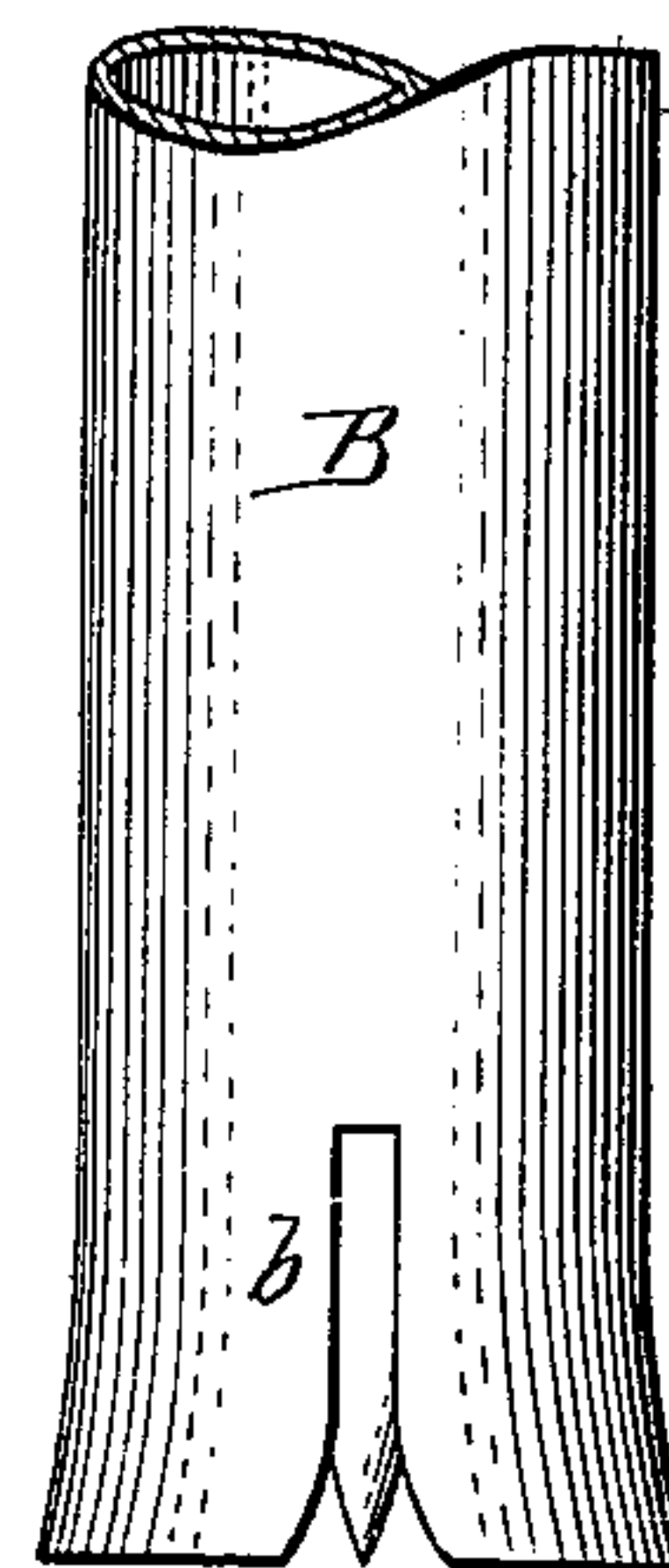
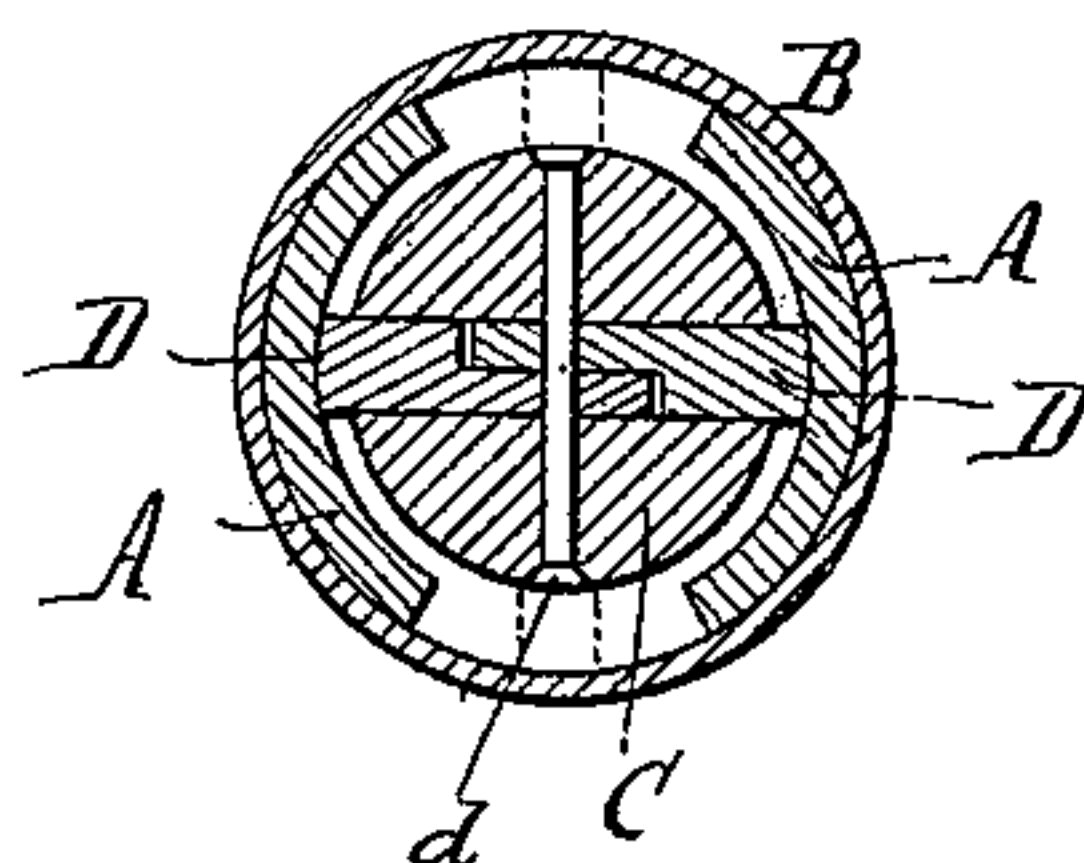


Fig. 5.



Henry L. Deck. }
F. F. Scherzinger. } Witnesses.

Chas. O. Taylor Inventor.
By Wilhelm H. Bunnell
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES O. TAYLOR, OF PETROLIA, NEW YORK.

TOOL FOR REMOVING BROKEN SUCKER-RODS FROM WELLS.

SPECIFICATION forming part of Letters Patent No. 672,154, dated April 16, 1901.

Application filed January 21, 1901. Serial No. 44,069. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. TAYLOR, a citizen of the United States, residing at Petrolia, in the county of Allegany and State of New York, have invented new and useful Improvements in Tools for Removing Broken Sucker-Rods from Wells, of which the following is a specification.

This invention relates to the tools which are employed for withdrawing broken sucker-rods from oil-wells. These rods are usually composed of wooden sections provided at one end with a screw-stem and at the other end with a screw-socket, the socket of one section receiving the screw-stem of the next section, and the lowermost section, which carries the plunger, is provided at its upper end with a vertical fork or bifurcated tang, which is secured to the lower end of the adjacent section. It sometimes happens that this fork becomes stripped from the adjacent section, leaving the detached plunger near the bottom of the well.

The object of my invention is to provide a simple and inexpensive tool by which the forked portion of the sucker-rod can be reliably gripped and extracted from the well in case of breakage.

In the accompanying drawings, Figure 1 is a fragmentary vertical section of an oil-well containing a broken sucker-rod, showing the position of the parts of my improved tool preparatory to gripping the forked end attachment of the rod. Fig. 2 is a fragmentary longitudinal section of the tool, on an enlarged scale, showing the forked end of the sucker-rod gripped by the same. Fig. 3 is a vertical section in line 3 3, Fig. 2. Fig. 4 is a sectional elevation of the lower portion of the tool at right angles to Fig. 2. Fig. 5 is a cross-section thereof in line 5 5, Fig. 2. Fig. 6 is a side elevation of the lower portion of the tool at right angles to Fig. 4.

Like letters of reference refer to like parts in the several figures.

A is the forked lower portion of a sucker-rod, and A' the screw-socket of one of its lower sections.

B is a cylindrical tube which forms the body of my improved tool and which is open at its lower end and adapted to receive the fork A.

The lower end of this tube is flared to facilitate the entrance of the fork into the same, and for the same purpose it is preferably split on opposite sides, as shown at *b*, to permit the same to expand slightly.

C is a supporting-rod arranged lengthwise in the tube B and secured to the upper portion thereof by screws *c* or other suitable means. This supporting-rod extends above the tube B and is provided at its upper end with a screw-stem *c'*, which is adapted to be screwed into the socket A' of the sucker-rod, so that the tool can be lowered into the well and withdrawn therefrom by means of the sucker-rod. The supporting-rod C terminates at the lower end of the tube B, and its lower portion is reduced, so as to leave an intervening space between said rod and the inner side of the tube, which space receives the arms of the fork A, as shown in Figs. 2 and 5. The lower end of the supporting-rod is tapered or made wedge-shaped, so as to enter readily between the downwardly-converging arms of the fork A.

D D represent a pair of vertically-swinging grippers or clutch-jaws which are pivoted by a transverse pin *d* to the lower portion of the supporting-rod C and which are adapted to clamp the arms of the fork A against the inner side of the tube B. These grippers are arranged in a longitudinal slot *e*, formed in the rod C, and their gripping-faces extend beyond the sides of said rod and are serrated, as shown, to form a reliable gripping-surface. The grippers are arranged to extend upwardly and outwardly from their pivot *d*, so that when the fork A has entered the tube B and the latter is raised the grippers tend to spread or straighten like a toggle-joint, thereby automatically clamping the fork to the tube and compelling the same to be elevated with the latter upon withdrawing the sucker-rod from the well.

f represents springs which tend to press the grippers D outwardly into their operative position. These springs are secured to opposite sides of the supporting-rod C above the grippers and bear at their free lower ends against the inner edges of the grippers, as shown in Figs. 1 and 2.

In using the tool the broken section of the

sucker-rod is removed from the socket A' of the adjacent section, and the supporting-rod C is screwed into said socket. The sucker-rod is then lowered into the well so that the
5 tube B of the extracting-tool passes over the fork A. The latter deflects the grippers inwardly and enters between the serrated faces thereof and the tube B, and upon raising the
10 sucker-rod the grippers firmly clutch the arms of the fork A to the tube, thereby withdrawing the fork and the attached plunger from the well.

In order to detach the fork from the tool after extracting it, the fork is pushed farther
15 into the tube B to loosen the grippers and the fork is then given a quarter-turn to bring the grippers opposite the spaces between the edges of the fork-arms, as shown by dotted lines in Fig. 5, when the fork can
20 be withdrawn from the tube.

I claim as my invention—

1. The combination with a tube adapted to be lowered into the well, of a supporting-rod arranged in said tube and separated
25 therefrom by an intervening space which receives the end attachment of a broken sucker-rod section, and a movable gripper attached to said supporting-rod and arranged to clutch

said end attachment to said tube, substantially as set forth. 30

2. The combination with a tube adapted to be lowered into the well, of a supporting-rod secured within said tube and separated therefrom by an intervening space which receives the end attachment of a sucker-rod
35 section, and a pair of grippers pivoted to said supporting-rod by a transverse pivot-pin and extending beyond the sides of said rod, substantially as set forth.

3. The combination with the tube adapted
40 to be lowered into the well, of a supporting-rod secured within said tube and separated therefrom by an intervening space which receives the end attachment of a sucker-rod
45 section, a pair of grippers pivoted to said supporting-rod by a transverse pivot-pin and extending beyond the sides of said rod, and springs which bear against said grippers and tend to swing the same outwardly,
50 substantially as set forth.

Witness my hand this 28th day of December, 1900.

CHARLES O. TAYLOR.

Witnesses:

F. H. CHURCH,

JESSE L. GRAUTIER.