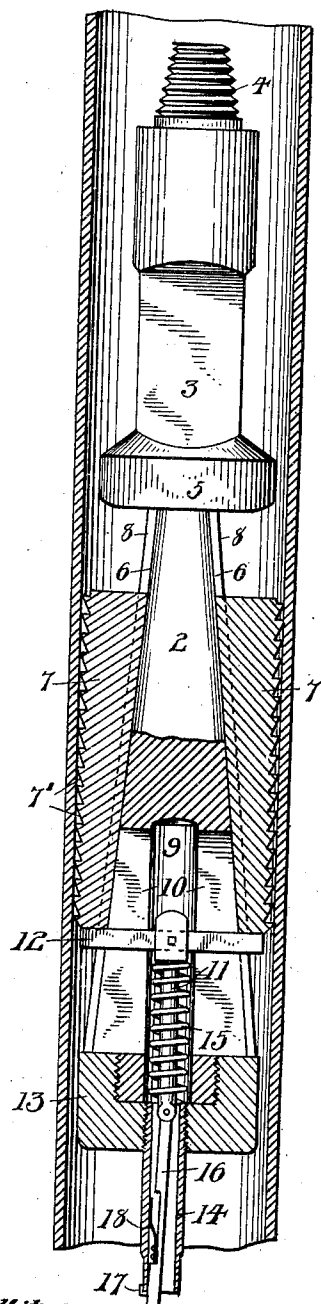


APPLICATION FILED MAR. 29, 1907.

Patented Nov. 22, 1910.

Fig. 1.



Witnesses:

J. P. Appleman,
Vernice M. Myers.

Fig. 2.

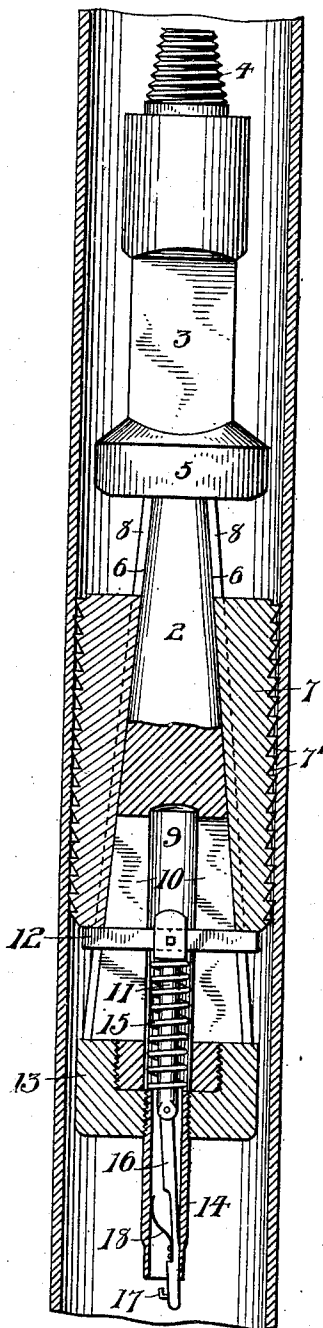
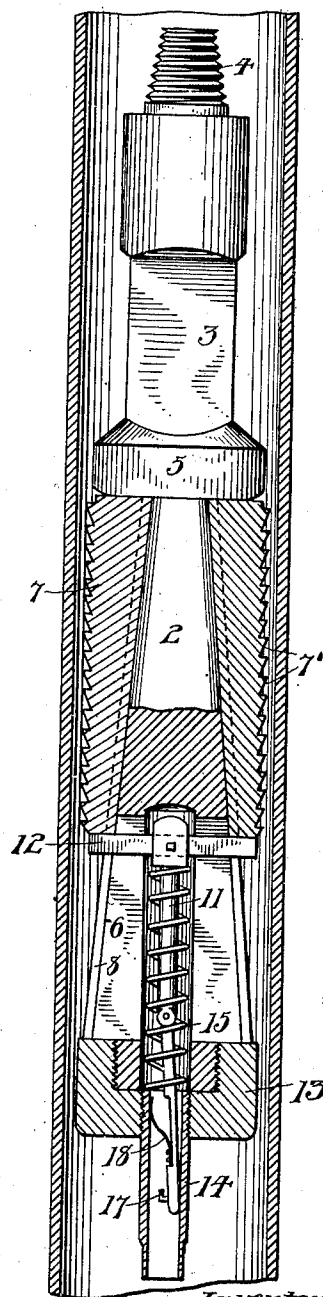


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CASING-SPEAR.

976,651.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed March 29, 1907. Serial No. 365,226.

To all whom it may concern:

Be it known that I, COLONEL C. HEETER, a citizen of the United States, residing at Butler, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Casing-Spears, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to a tool for removing casing from oil, gas or other deep wells, and the general object is to provide an improved tool of such construction that after being lowered into the casing, an upward
15 or reversed movement of the tool causes the same to grip the casing, while a subsequent downward movement operates to not only release the hold, but also to place the gripping elements in inoperative position so that
20 the tool may be readily removed.

The invention embodies novel mechanism, normally under spring tension, for moving the gripping slips to and holding them in inoperative position; also novel means for
25 releasing such mechanism when the slips are to be disengaged from the casing.

In the accompanying drawing, Figure 1 is a vertical sectional view of the improved tool, showing the positions of the parts while
30 being lowered in the casing. Fig. 2 is a similar view, showing the positions of the several parts after the slips have obtained their lifting grip or hold. Fig. 3 is a view similar to Figs. 1 and 2, showing the position
35 of the parts after the hold has been released, with the slips moved to and held in inoperative position.

Referring to the drawing, 2 designates the body of the tool which is extended at its
40 upper end to form the usual wrench hold 3 and screw-pin 4 for connecting with the usual rope-socket or other tool from which it is suspended.

In the present embodiment of the invention, body 2 is formed with head 5, with opposite side surfaces 6 of the body converging upwardly toward the head, and slidable on each of these side-surfaces is a slip
45 7, the slips having the usual tongue and groove connection 8 for holding them in place. The outer surfaces of the slips are toothed or serrated as shown at 7', the teeth being so disposed as not to retard the downward
50 movement of the tool in the casing, but to grip the same when the tool is moved upward.

The lower portion of body 2 is formed with central recess or bore 9, and with longitudinal slots 10 at each side of the bore and intersecting faces 6.

11 designates a stem movable within bore 9, and at its upper end carrying the cross-bar 12 which projects through slots 10 and upon which rests the lower ends of slips 7.

Detachably uniting with the lower end of body 2 is the centrally apertured device 13 which forms an abutment at the lower ends of side-faces 6, and depending therefrom is tube 14 which constitutes a downward continuation of bore 9. A coiled spring 15 encircles stem 11 and rests on the upper end of tube 14 and when free to expand operates to raise the stem and the slips to the inoperative position, shown in Fig. 3. Pivoted to and depending from stem 11 is the short rod
65 or finger 16, having hook-like projection 17 adapted to engage the lower extremity of tube 14 and hold the stem depressed with the spring contracted. With hook 17 disengaged, spring 18 carried by finger 16 operates to hold the rod or finger in such lateral
70 position that it will move freely upward through the tube, as shown in Figs. 2 and 3.

In operation, the device is set as shown in Fig. 1 and is then lowered into the casing to the desired depth, the slips closely fitting the casing interior but being prevented from gripping the same both by the shape of the teeth and by the upwardly retreating faces 6 upon which the slips slide. Having been
85 lowered to the point where the casing is to be gripped, the tool is drawn upward slightly, thus causing the toothed surfaces of the slips to impinge and bite into the casing, at which time the wedge-shaped body 2 has an appreciable upward movement between the slips, causing them to increase their gripping hold, and possibly operating to slightly distend or distort the casing. This upward movement of body 2 independently of the slips causes tube 14, movable with the body, to disengage hook 17, whereupon spring 18 moves rod or finger 16 to the position shown in Fig. 2, with hook 17 out of line with the tube wall. The tool is then
90 subjected to an upward pull, and if possible the casing is lifted. If the resistance is too great, or if for any reason it is desired to disengage the tool after the casing has been gripped, it is only necessary to move the tool downward slightly, thus relaxing the wedging action of body 2 between slips 7, and as
105 110

soon as the latter are free to move upward spring 15 operates to raise the previously released stem and to elevate and hold the slips in inoperative position, as shown in Fig. 3.

I claim:—

1. A casing spear comprising a body having upwardly and inwardly sloping surfaces, slips movable on said surfaces and operating when lowered to grip the casing, a vertically movable stem in operative engagement with the slips, a spring for raising the stem, a device pivoted to the stem and adapted to engage a fixed part of the tool body and hold the stem depressed and the spring contracted, and a spring operating to disengage said pivoted device from the body when the stem is depressed beyond its normal lowermost position.
2. A casing spear comprising a body having upwardly and inwardly sloping surfaces,

slips slidable thereon and operating when in lowered position to grip the casing, the body being formed with a central recess and with slots intersecting said recess and the sloping surfaces, a stem movable within the central recess, a cross-bar carried by the stem and projecting through said slots and engaging the slips, a tube depending from the body and forming a continuation of the central recess thereof, a rod pivoted to the stem and having a lateral projection adapted to engage the lower end of the tube and hold the stem depressed, and a spring operating to disengage the rod from the tube-end when the stem is depressed.

In testimony whereof I affix my signature in presence of two witnesses.

COLONEL C. HEETER.

Witnesses:

T. C. CAMPBELL,
C. M. HEETER.