

No. 656,515.

Patented Aug. 21, 1900.

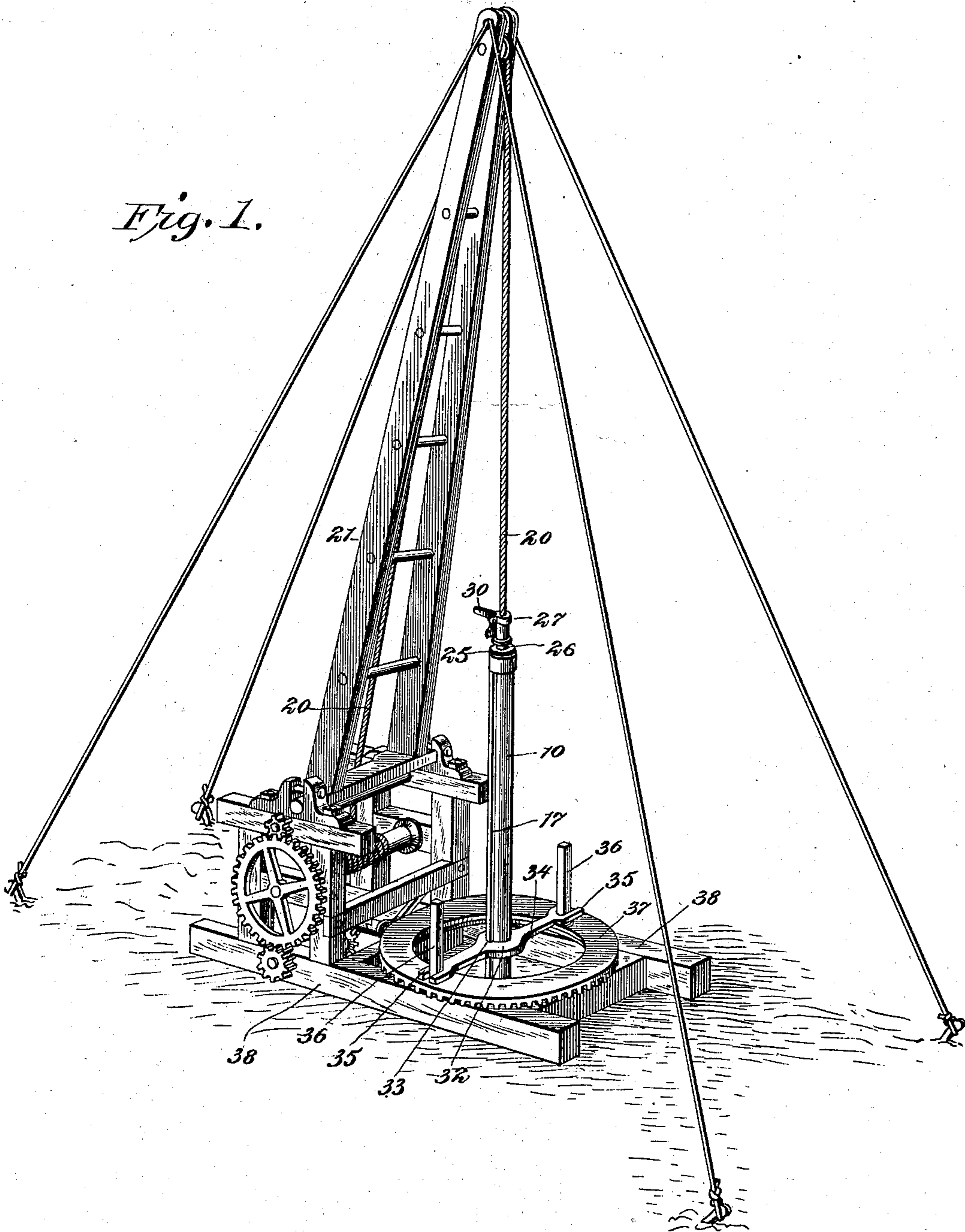
I. N. & W. J. CASSITY.  
TELESCOPIC DRILL SHAFT.

(Application filed Sept. 26, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

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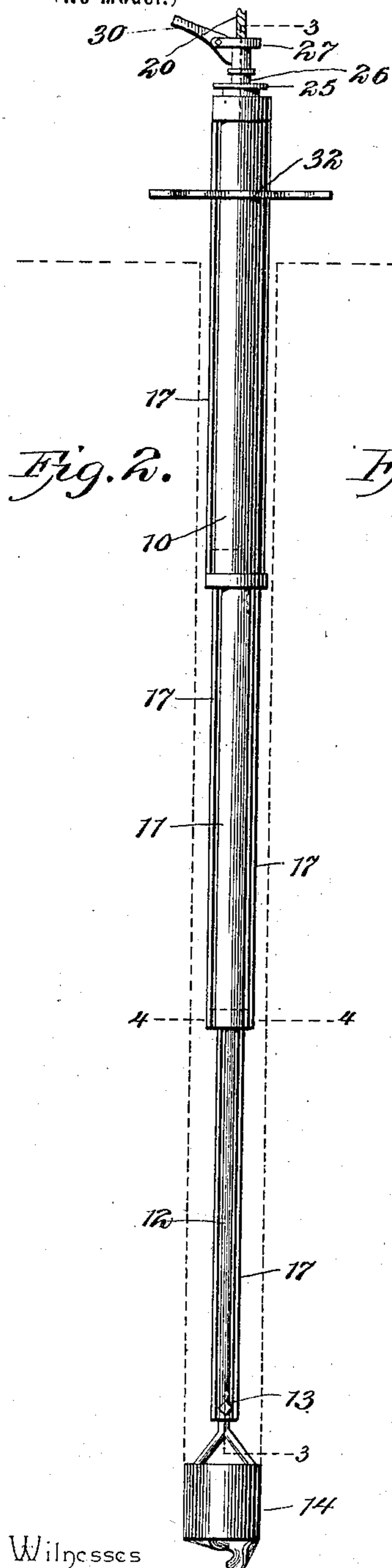


Fig. 2.

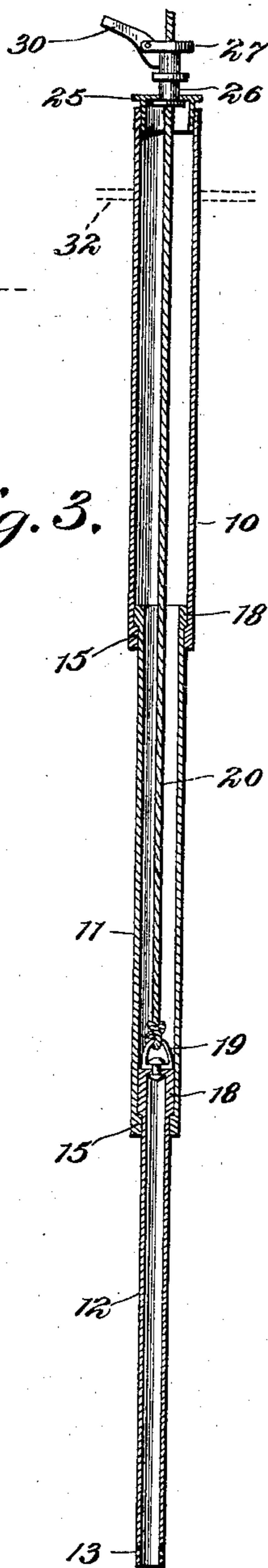


Fig. 3.

Fig. 4.

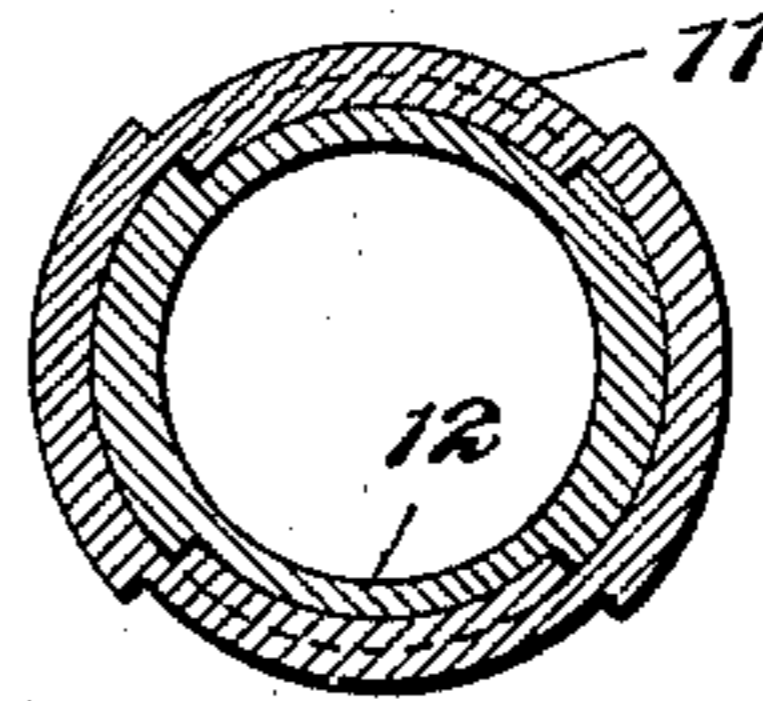


Fig. 5.

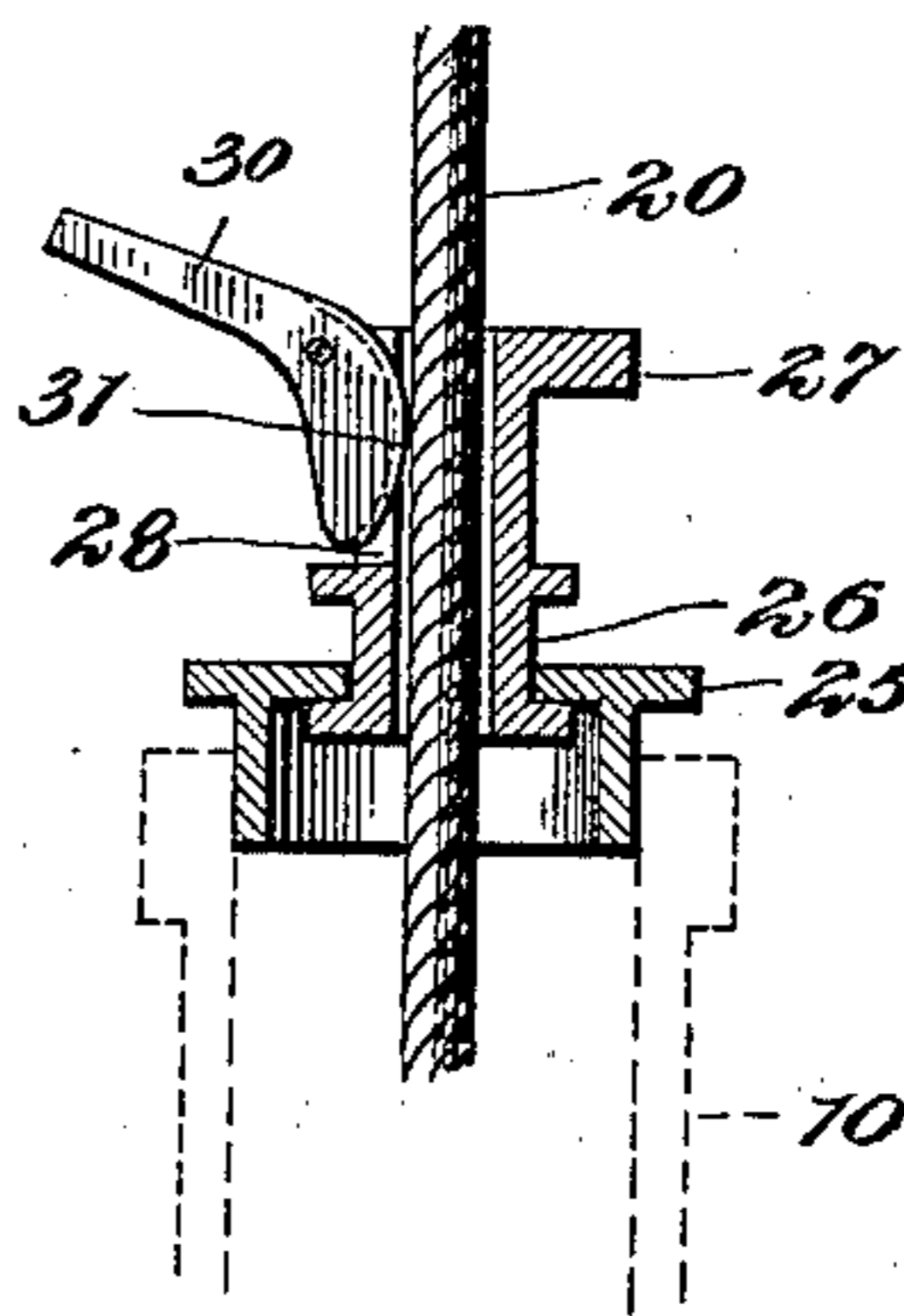
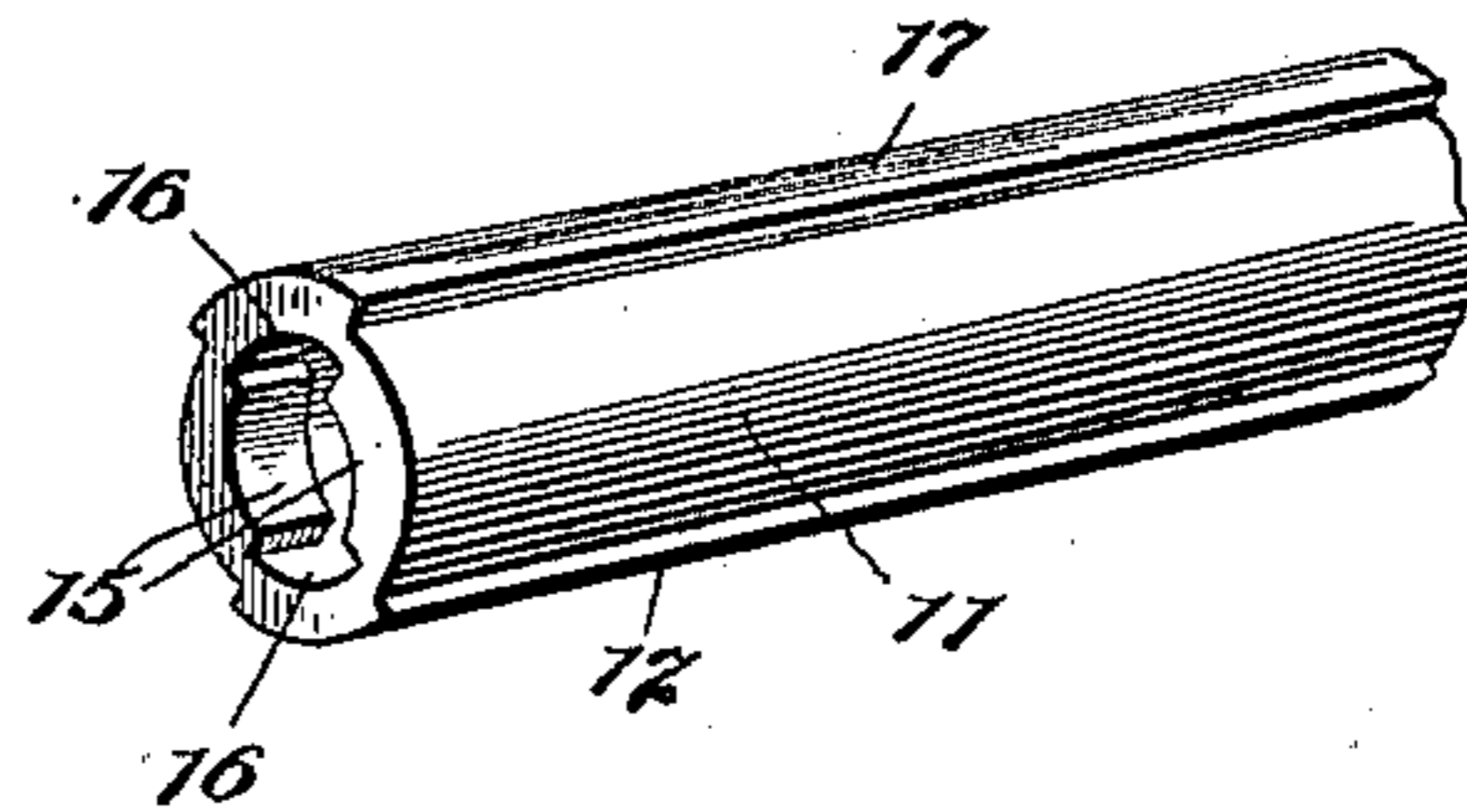


Fig. 6.



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# UNITED STATES PATENT OFFICE.

ISAAC N. CASSITY AND WILLIAM J. CASSITY, OF HOLTON, KANSAS.

## TELESCOPIC DRILL-SHAFT.

SPECIFICATION forming part of Letters Patent No. 656,515, dated August 21, 1900.

Application filed September 26, 1899. Serial No. 731,767. (No model.)

*To all whom it may concern:*

Be it known that we, ISAAC N. CASSITY and WILLIAM J. CASSITY, citizens of the United States, residing at Holton, in the county of Jackson and State of Kansas, have invented a new and useful Telescopic Drill-Shaft, of which the following is a specification.

This invention relates to well-boring machinery in general, and more particularly to the boring-shaft thereof; and it has for its object to provide a shaft which involves less labor in its operation than is ordinarily the case and one which is well adapted for operation either by hand or machinery.

With the present invention the sections are made telescopic and the drill-rope is attached to the lowermost section, so that the act of drawing the shaft from the well will pass one section into another, while by releasing the rope the sections will slide outwardly to the proper distance.

In the drawings forming a portion of this specification, and in which similar numerals of reference designate corresponding parts in the several views, Figure 1 is a perspective view showing the boring-shaft in its position with respect to the derrick. Fig. 2 is an elevation of the shaft with the bit in place and with the sections extended. Fig. 3 is a vertical central section of Fig. 2, the rope-clutch being shown in elevation, as also the rope, the bit being omitted and the turning-yoke being shown in dotted lines. Fig. 4 is a section on line 4 4 of Fig. 2. Fig. 5 is a detail section of the rope clamp or clutch, the clutching-lever being shown in elevation. Fig. 6 is a detail perspective of a portion of one of the telescopic sections.

Referring now to the drawings, and more particularly to Figs. 2 to 6, inclusive, the shaft is shown as comprising three telescopic sections 10, 11, and 12, of which the lowermost section 12 is perforated transversely at 13 for the attachment of a bit 14 of the usual construction. At the lower end of each of the sections 10 and 11 is formed an inwardly-directed flange 15, having radial slots 16, as shown in Fig. 6. These slots are adapted to receive the longitudinal ribs 17 of the next smaller section, the upper end of each section 11 and 12 having a head 18 to prevent total downward displacement. A stirrup 19

is swiveled to the head of the section 12, and to this stirrup is fixed one end of the drill-rope 20, which passes upwardly and through the remaining sections and is supported by a derrick 21, of usual construction and shown in Fig. 1 of the drawings.

In order to hold the sections at different points of their adjustment to lengthen or shorten the boring-shaft, a clutch is formed for the rope 20. This clutch is carried by a cap 25, fitted in the uppermost end of the section 10, and which cap has a central tubular extension 26, through which the drill-rope is passed. A flange 27 is formed upon the upper end of the tube 26 and is slotted radially to aline with a longitudinal slot 28 in the extension 26. Pivoted in the slot of the flange 27 is a clutch-lever 30, having a cam-face 31, adapted to engage the drill-rope 20 and to clamp it tightly when the lever is operated. The uppermost section 10 has also the longitudinal exterior ribs 17, and arranged upon this section is a collar 32, having radial slots 33, in which the ribs 17 are adapted to slide, and this collar has radially-extending arms 34, forming handles, through the medium of which the shaft is rotated. The handles 34 are bifurcated at 35, as shown in Fig. 1 of the drawings, and are adapted to fit over the pins 36, extending upwardly from a face-gear 37, mounted upon the derrick-frame 38, and adapted for rotation through the medium of suitable gearing, as shown. It will thus be seen that when it is desired to bore with this shaft the bit 14 is put in place, and the lower end of the shaft having been entered into the hole that is to be deepened the rope 20 is paid out until the bit strikes the earth. The clutch-lever 30 is then operated to hold the shaft against further downward movement, and the arms 34 having been engaged with the pins 36 the gear 37 may be rotated to correspondingly move the drill-shaft and to operate the drill. As the hole deepens the rope may be paid out, and when it is desired to withdraw the drill the rope is wound in and the sections are moved one into another and the top section is finally lifted from the hole. If desired, the arms 34 may be raised to permit the shaft being rotated by hand, and if desired the face-gear and its mechanism may be omitted.

It will of course be understood that in practice the several sections may be made of any desired length and material, they may be of any number, and other modifications may be made without departing from the spirit of the invention. Also the boring-shaft may be employed with any style of derrick or other mechanism to which it is adapted.

What is claimed is—

10 1. A boring-shaft comprising hollow telescopic sections and a drill-rope passed through the sections and connected with the lowermost section, to support the shaft, to adjust the sections with respect to each other and to  
15 raise and lower the shaft bodily.

2. A boring-shaft comprising hollow sections telescopically connected, means for preventing rotation of the sections with respect to each other throughout their mutual adjustments, and a single rope passed through  
20 the sections and connected with the lowermost section and means for clamping the rope to the uppermost section, whereby the several sections may be adjusted with respect to each  
25 other, the shaft may be supported and the shaft may be bodily adjusted.

3. A boring-shaft comprising telescopic sections all of which are hollow, means for preventing rotation of the sections with respect  
30 to each other at all points of their telescopic adjustment, a single rope passed through all the sections and connected with the lowermost

section, and a clamp carried by the uppermost section and adapted to clamp the rope thereto, whereby said rope may be employed  
35 for raising and lowering the shaft, for adjusting the sections with respect to each other and for supporting the entire shaft.

4. A boring-shaft comprising hollow telescopic sections, means for the attachment of  
40 a bit to the lowermost section, means for the attachment of a rope to the lowermost section a single rope passed through the sections and connected with the lowermost section through the medium of the attaching  
45 means, means for holding the sections against rotation with respect to each other through their telescopic movements, a rope-clamp carried by the uppermost section for engaging  
50 the rope to permit adjustment of the sections, to permit bodily movement of the shaft upwardly and downwardly and to support the shaft, and means slidably connected  
55 with the uppermost section for rotating the shaft.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

ISAAC N. CASSITY.

WILLIAM J. CASSITY.

Witnesses:

J. S. KENOYER,

SAML. H. NEWELL, Jr.