

No. 779,660.

PATENTED JAN. 10, 1905.

S. W. MUNN.
PIPE OR CASING PULLER.
APPLICATION FILED MAR. 10, 1904.

Fig. 5.

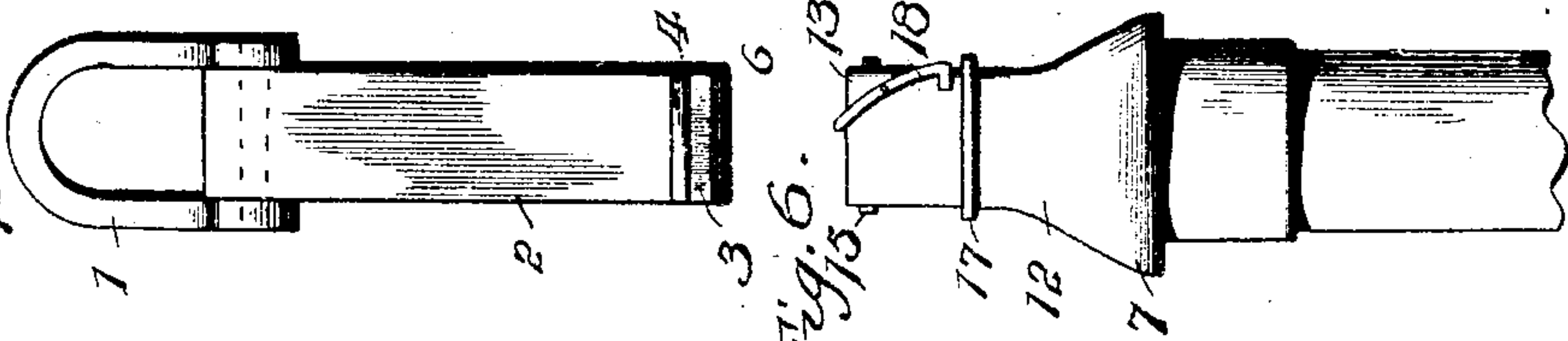


Fig. 6.

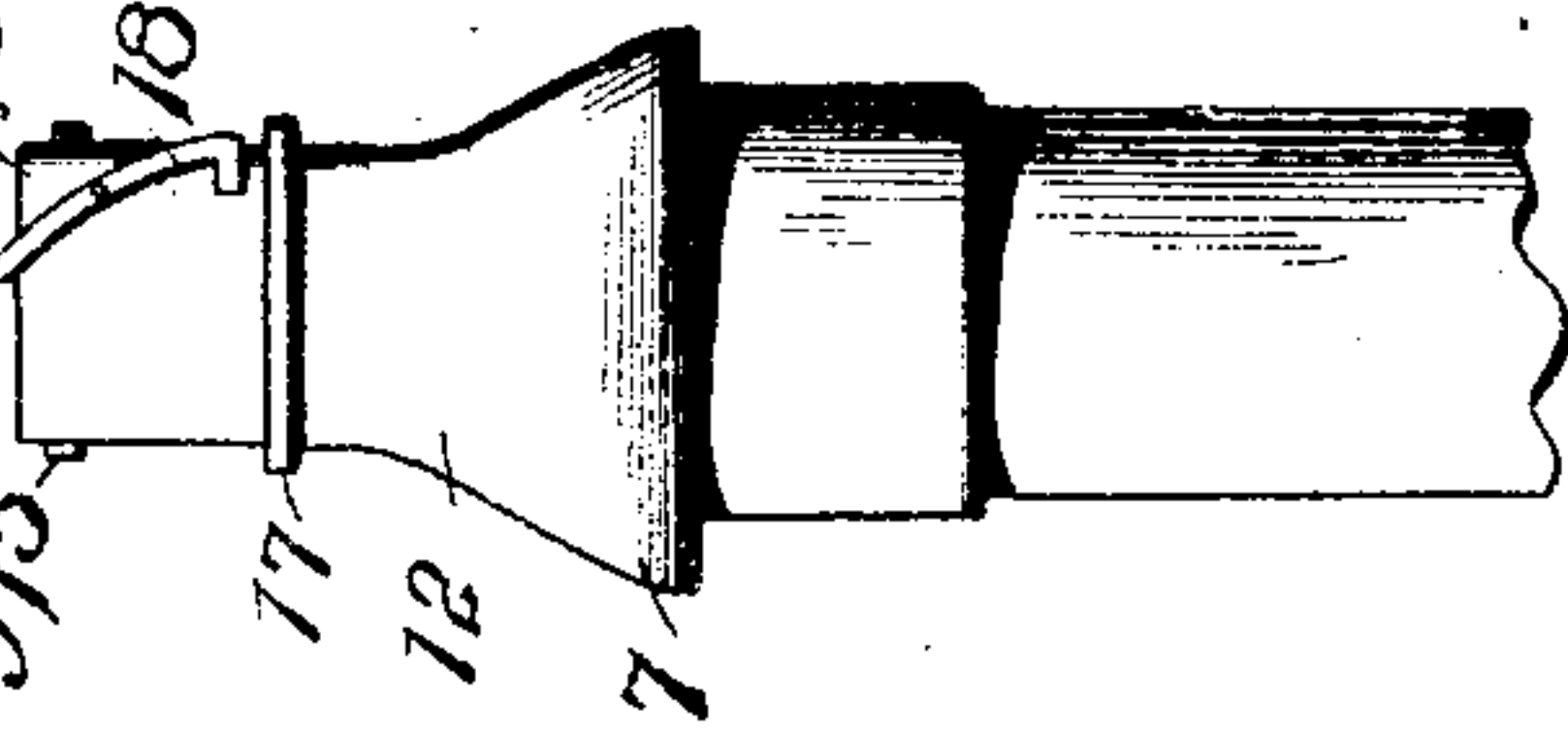


Fig. 4.

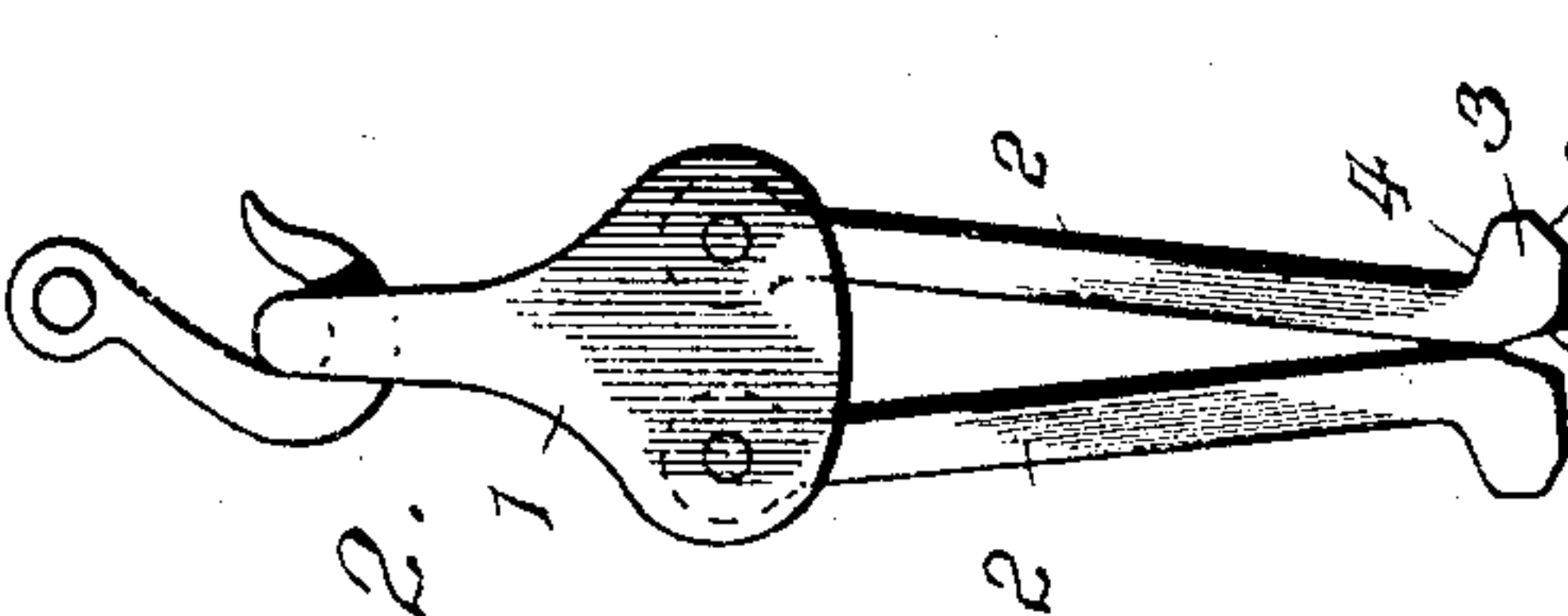
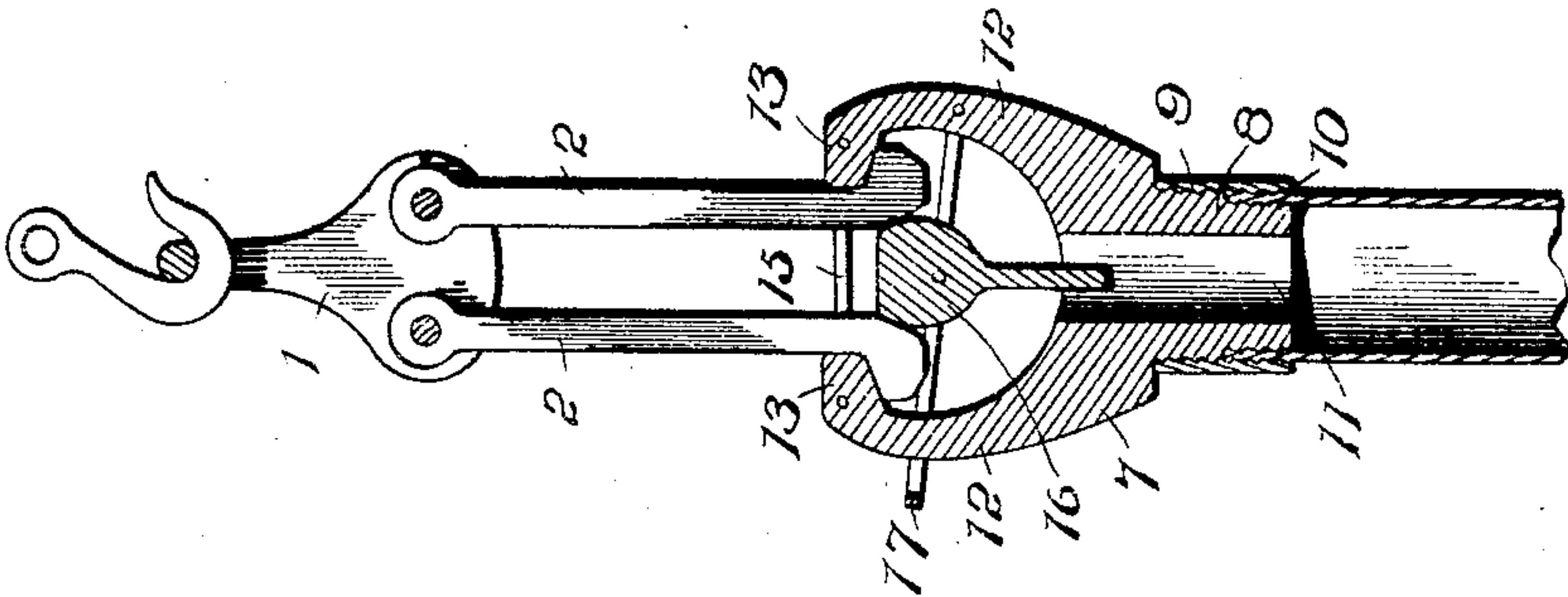


Fig. 2.

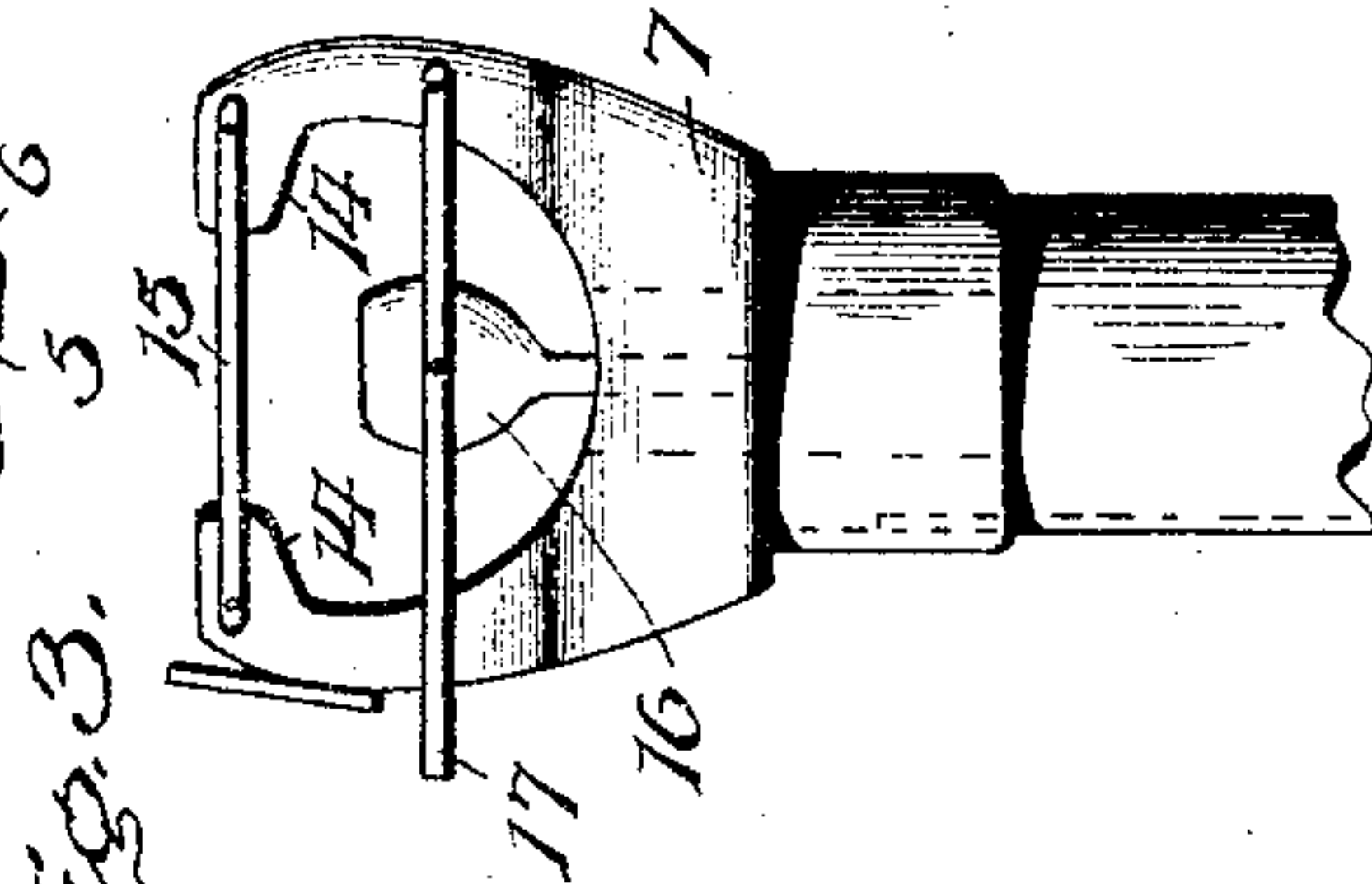
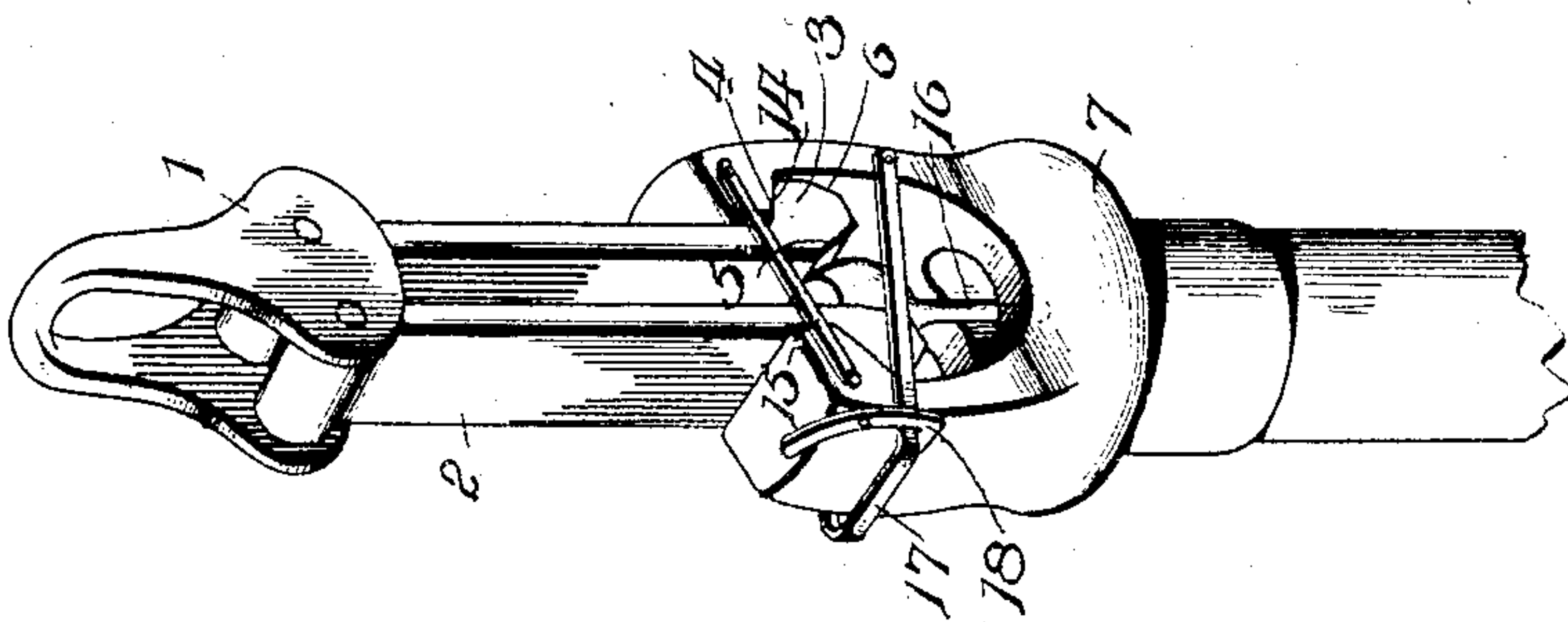


Fig. 3.

Fig. 1.



Inventor

Silas W. Munn.

Witnesses

J. Munn
W. N. Harrison

By

R. A. Racey, Attorney

UNITED STATES PATENT OFFICE.

SILAS W. MUNN, OF MANNINGTON, WEST VIRGINIA.

PIPE OR CASING PULLER.

SPECIFICATION forming part of Letters Patent No. 779,660, dated January 10, 1905.

Application filed March 10, 1904. Serial No. 197,388.

To all whom it may concern:

Be it known that I, SILAS W. MUNN, a citizen of the United States, residing at Mannington, in the county of Marion and State of West Virginia, have invented certain new and useful Improvements in Pipe or Casing Pullers, of which the following is a specification.

The object of this invention is to devise grappling means of novel formation to admit of instant release of the pipe when the same has become wedged during its withdrawal, so that it may be driven back a distance to effect loosening preliminary to again applying the lifting force.

The invention consists of the novel features, details of construction, and combinations of parts, which hereinafter will be more particularly set forth, illustrated, and finally claimed.

In the drawings hereto attached and forming a part of this specification, Figure 1 is a perspective view of a grapple and coupling-head embodying the invention, showing it applied to the pipe or casing. Fig. 2 is a view in elevation of the grapple disconnected from the coupling-head. Fig. 3 is a view in elevation of the coupling-head attached to the pipe or casing. Fig. 4 is a vertical central section of the grapple and coupling-head coupled and attached to the pipe or casing. Fig. 5 is a view of the grapple at right angles to Fig. 2. Fig. 6 is a view of the parts shown in Fig. 3, taken at right angles.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The invention comprises a grapple and a coupling-head. The grapple consists of a clevis 1 and companion arms 2, pivoted at one end to the clevis and provided at the opposite end with gripping or engaging ends. The pivotal ends of the arms 2 are spaced apart, and the ends of the clevis receiving the same are widened for their accommodation. When the clevis is suspended, the gripping or engaging ends of the arms 2 come together, as shown most clearly in Fig. 2, this being due to the outward extension of the gripping ends, which tends to throw the arms out of the vertical and toward each other at their

lower ends. The gripping or engaging ends of the arms 2 are shown at 3, and their upper faces 4 are outwardly and downwardly inclined, and the lower portion is oppositely inclined, as shown at 5 and 6, the several inclined faces 4, 5, and 6 cooperating with corresponding parts of the coupling-head, as will appear more fully hereinafter.

The coupling-head 7 has a neck portion 8, formed with threaded portions 9 and 10 of different diameters for adapting the coupling-head to different sizes of pipes and casings. An opening 11 is formed in the head for the escape of gas. Horns 12 project from the head 7 and are oppositely disposed and terminate in gripping or engaging ends 13, which have their lower faces 14 inclined inwardly and upwardly to match with the inclined faces 4 of the arms 2. To prevent separation or outward displacement of the horns 12 at their upper ends, they are connected by means of tie rods or bars 15.

A spreader 16 cooperates with the coupling-head and grapple to hold the gripping or engaging ends thereof in interlocking connection when coupled, said spreader coming between the lower ends of the arms 2 and holding them separated, as indicated most clearly in Fig. 4. Opposite sides of the spreader 16 are upwardly or outwardly converged to ride upon the inclined faces 5 at the inner lower ends of the arms 2 to force them outward into interlocking engagement with the cooperating ends 13 of the coupling-head. A pivoted support 17 carries the spreader and preferably consists of a bail having its side members embracing the horns 12 and pivotally connected to one of the horns. The opposite end of the bail embraces the outer side of the opposite horn and is adapted to be engaged by a pivoted catch 18, so as to hold the spreader between the arms 2 when the grapple is in interlocking engagement with the coupling-head.

The coupling-head may be connected to the projecting end of the pipe or casing to be extracted or otherwise manipulated by means of one or the other of the threaded portions 9 and 10 of the neck 8, according to the size of the pipe. Upon lowering the grapple the inclined faces 6 of the gripping or engaging

ends 3 ride upon the corners of the gripping or engaging ends 13 and direct the parts 3 into the space formed between the parts 13. Upon lifting the free end of the bail 17 the spreader 16 is elevated and forced between the lower ends of the arms 2, which are separated to bring the engaging ends 3 beneath the engaging ends 13, whereby coupling or interlocking of the grapple and head is effected. The hoisting power being applied to the clevis 1, the pipe or casing is elevated, and when the same becomes wedged by reason of gravel, rock, and like matter dropping into the space between the pipe and well the grapple is instantly released from the coupling-head by tripping the catch 18, which may be accomplished in the usual and well-known manner, thereby permitting the spreader 16 to drop and the grapple to become automatically disengaged from the coupling-head by the inclined faces 4 riding upon the inclined faces 14. The casing thus released from the elevating means may be driven back into the well a short distance to effect its release by loosening the wedging or binding matter and permitting the flow of water to carry the same off, and after the pipe has become loosened the grapple is again coupled to the head 7 and the lifting force applied for the extraction thereof. The peculiar construction of the coupling-head admits of the driving force being applied thereto when it becomes necessary to force the casing back into the well after the grapple has been disconnected. The tie rods or bars 15 in addition to preventing outward displacement of the horns when subjected to strain also engage with the arms 2 at opposite sides and prevent lateral disengagement of their engaging ends with the matching engaging ends of the coupling-head.

Having thus described the invention, what is claimed as new is—

1. In means for pulling and manipulating a pipe or casing, the combination of a coupling-head to be attached to the pipe or casing and provided with inwardly-extended engaging means, a grapple embodying arms having outwardly-extended gripping ends for cooperation with the inner engaging means of said coupling-head, and a spreader for holding the arms separated and in positive interlocking connection with said coupling-head, substantially as set forth.

2. In means for pulling and manipulating a pipe or casing, the combination of a coupling-head to be attached to the pipe or casing and provided with oppositely-disposed horns having inner engaging extensions, tie-rods connecting said horns, a grapple comprising arms provided with outer engaging extensions cooperating with the extensions of the coupling-head, and a spreader for holding the arms separated when the grapple and coupling-head are in interlocking connection, substantially as set forth.

3. In means for pulling and manipulating a pipe or casing, the combination of a coupling-head to be attached to the pipe or casing and provided with oppositely-disposed horns having inner engaging extensions, a grapple comprising arms provided with outer engaging extensions to interlock with the inner extensions of the coupling-head, a spreader carried by the coupling-head for holding the engaging ends of the grapple-arms separated, and means for holding the spreader in operative position, substantially as set forth.

4. In means for pulling and manipulating a pipe or casing, the combination of a coupling-head to be attached to the pipe or casing and provided with oppositely-disposed horns having inner engaging extensions with their lower faces inwardly and upwardly inclined, a grapple comprising arms having outer engaging extensions with their upper sides or faces outwardly and downwardly inclined, and means for holding said arms separated, substantially as specified.

5. In means for pulling and manipulating a pipe or casing, the combination of a coupling-head to be attached to the pipe or casing and provided with oppositely-disposed horns having inner engaging extensions, a grapple provided with arms having outer engaging extensions for cooperating with the inner engaging extensions, a spreader arranged between said horns and adapted to hold the arms of the grapple separated, a support for the spreader pivotally connected to one of the arms, and a catch arranged to engage with the support to hold the spreader from displacement when forced between the arms, substantially as described.

6. In means for pulling and manipulating a pipe or casing, the combination of a coupling-head to be attached to the pipe or casing and provided with oppositely-disposed horns having inner engaging extensions, means for connecting the horns to prevent spreading at their upper ends, a grapple having arms and provided with outer engaging extensions, a bail pivoted to a horn of the head, and a spreader carried by the bail for holding the arms separated and in interlocking engagement with the coupling-head, substantially as set forth.

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

SILAS W. MUNN. [L. s.]

Witnesses:

EDGAR P. CONAWAY,
JOHN A. MUNN.