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1,671,528

S. J. HUTCHISON

PIPE CUTTER

Filed May 3, 1927

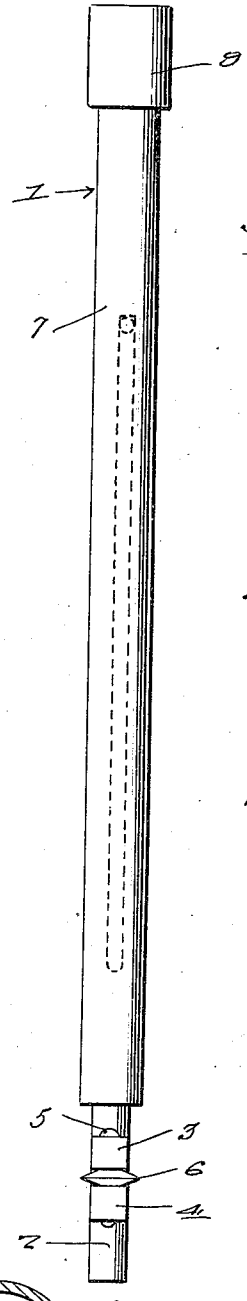

Fig. 1.

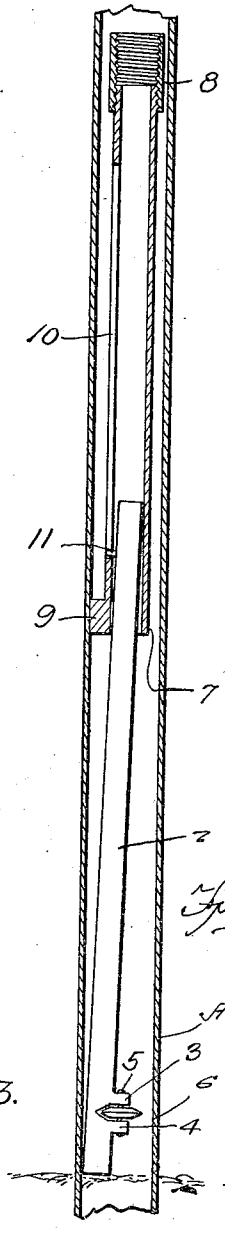

Fig. 2.

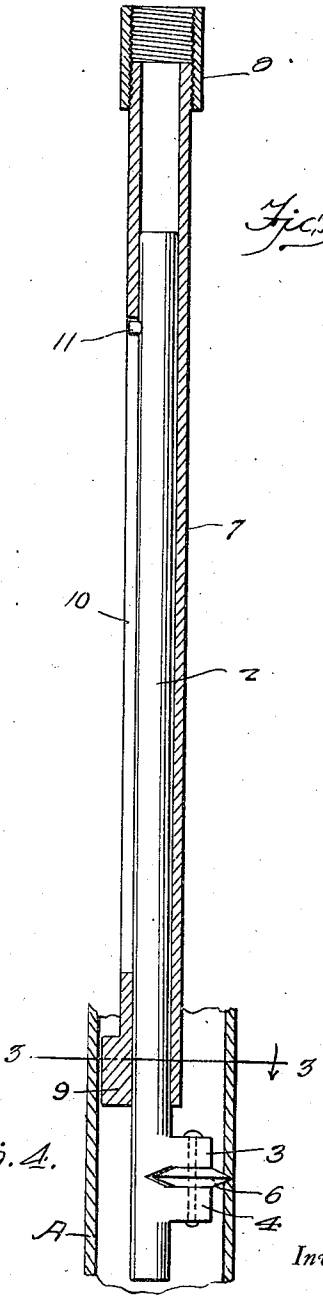

Fig. 3.

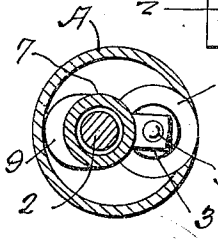

Fig. 4.

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PIPE CUTTER.

Application filed May 3, 1927. Serial No. 188,533.

The present invention relates to improvements in pipe cutters and has reference more particularly to a tool for use in cutting off a well pipe, while embedded in the ground.

One of the important objects of the present invention is to provide a pipe cutter of the above mentioned character, which may be readily and easily inserted within the well pipe within the ground, means being provided for forcing the cutter carried on the lower end portion of a vertical rod, whose lower end engages the bottom of the well, into the side of the lower portion of the pipe, additional means being provided whereby said rod and the aforementioned means may be rotated as a unit, to cut off the pipe at a point adjacent its lower end.

A further and important object of the invention is to provide a pipe cutter of the above mentioned character which is simple in construction, strong and durable and further well adapted for the purpose for which it is designed.

Other objects and advantages of the invention will become apparent during the course of the following detailed description.

In the accompanying drawing:

Figure 1 is a side elevation of the pipe cutter embodying my invention showing the sliding tube in its lowermost position.

Figure 2 is a vertical sectional view through the tube, disclosing the position of the cutter after the tube has been forced downwardly on the rod to its lowermost position.

Figure 3 is a transverse section, taken approximately on the line 3—3 of Figure 2, showing the cutting element forced through the side of the pipe, and

Figure 4 is a fragmentary detail side elevation showing the position of the tube before the same is forced downwardly on the rod, the rod being canted and having the lower end thereof which carries the cutting element shown as engaging the bottom of the well.

In the drawing, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates generally my improved pipe cutter, the same comprising an elongated solid stem or rod 2. A pair of spaced laterally disposed lugs 3 and 4 are formed on the side of the rod adjacent its lower end and extending through suitable registering openings provided therefor in these lugs is the pintle 5 on which is rotatably supported the cutting element 6. This cutting member is disposed between the opposed faces of the spaced lugs 3 and 4 in the manner as more clearly shown in Figure 2. The cutting edge of this cutting member extends beyond the outer ends of the lugs and the manner in which this cutting member operates will be hereinafter more fully described.

Slidable loosely over the elongated rod 2 is the elongated tube 7. The upper end of this tube is externally threaded to receive a coupling 8, whereby the same may be connected to the lower end of a drill rod (not shown) and which drill rod provides the operating means for actuating the tool. An eccentric bearing 9 is formed on one side of the elongated tube 7 at the lower end thereof and this bearing is disposed at a point diametrically opposite the cutter element 6, in the manner as clearly shown in Figure 3.

For the purpose of preventing the rotation of the elongated tube 7, with respect to the rod or stem 2, I provide a longitudinally extending slot 10, in the intermediate portion of this tube, and this slot is formed on the same side as that on which the bearing 9 is arranged. Operable within this slot is the pin 11, which extends laterally from the upper end portion of the elongated rod 2, and this pin and slot structure is clearly shown in Figure 2 of the drawings.

In use, the elongated rod is inserted downwardly within the well pipe A so that the rod is canted, it being understood of course that the diameter of the rod is materially less than the inner diameter of the tube so as to permit a canting movement of the rod with respect to the tube. The lower end of this rod will rest upon the bottom of the well in a manner as shown in Figure 4. When in this position, the cutting edge of the cutting member will be out of engagement with the side of the well pipe. The tube 7 is initially in its raised position as shown clearly in Figure 4, and when this tube is moved downwardly, it will be observed that the eccentric bearing 9 will cooperate with the adjacent face of the rod and the adjacent inner face of the well pipe to force the rod to a vertical position and simultaneously move the lower end of the rod toward the opposite side of the pipe and simultaneously move the cutting edge of the cutting member into the side of the pipe. When the bearing 9 is disposed directly above the lug

3, and the tube 7 is at its lowermost position, the cutting edge of the cutting member will have cut through the pipe and the parts will then be positioned in the manner as shown in Figures 2 and 3 of the drawings. Due to the pin and slot arrangement, the tube and rod will rotate as a unit and the upper end of the tube may be rotated in any suitable manner, thereby forming a circular cut by the action of the cutting element 6 being in engagement with the pipe A. This operation will result in the well pipe A being cut off at a point adjacent its lower end so that the major portion of the well pipe may be readily and easily removed from the well. After the pipe has been cut off, the tool may be readily removed from the well pipe.

It will thus be seen from the foregoing description that I have provided a pipe cutting tool particularly adapted for use in cutting off well pipes embedded in the ground and due to its simplicity, my device may be readily and easily set up in position for use, and furthermore will, at all times, be positive and efficient in carrying out the purposes for which it is desired.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the appended claims.

What I claim is:

1. A well pipe cutting tool comprising an elongated rod adapted to be initially disposed in a canted position in a well pipe and having its lower end engaging the bottom of the well, a cutting member supported on the side of the rod adjacent its lower end, a tube slidable over the rod, an eccentric bearing carried by the lower end of the tube and adapted to engage the well pipe at a point diametrically opposite said cutting member, the latter being adapted to cut through the pipe when the tube has been moved downwardly on the rod to its lowermost position, the lower portion of the rod being forced to a true vertical position by the action of the bearing engaging the inner wall of the tube and the lower edge of said tube sliding along the rod, and means whereby the tube and the rod may be rotated as a unit for cutting off the well pipe.

2. A well pipe cutting tool comprising an elongated rod adapted to be initially disposed in a canted position in a well pipe and having its lower end engaging the bottom of the wall, a cutting member supported on the side of the rod adjacent its lower end, a tube slidable over the rod, an eccentric bearing carried by the lower end of the tube and adapted to engage the well pipe at a point diametrically opposite said cutting member, the latter being adapted to cut through the pipe when the tube has been moved downwardly on the rod to its lowermost position, the lower portion of the rod being forced to a true vertical position by the action of the bearing engaging the inner wall of the tube and the lower edge of said tube sliding along the rod, means whereby the tube and the rod may be rotated as a unit for cutting off the well pipe, said means comprising a pin extending laterally from the upper end of the rod, the tube being formed with a longitudinally extending slot in which said pin is operable.

3. A well pipe cutting tool comprising an elongated rod adapted to be initially disposed in a canted position in a well pipe and having its lower end engaging the bottom of the well, a pair of spaced laterally disposed lugs formed on one side of the rod adjacent its lower end, a rotatable cutting member supported between the lugs and having its cutting edge protruding beyond the outer ends of the lugs, the cutting edge of said cutting member being disposed inwardly of the adjacent side of the well pipe when the rod is in its aforementioned position, an elongated tube slidable over the rod, an eccentric bearing carried by the lower end of the tube and adapted to engage the inner wall of the pipe at a point diametrically opposite said cutting member, said rod adapted to be moved to a vertical position for forcing the cutting edge of the cutting member through the adjacent portion of the well pipe as the tube is forced downwardly on the rod with the eccentric bearing being forced against the inner wall of the well tube, and a pin and slot connection between the rod and the tube for preventing the rotation of the tube around the rod whereby said elements may be rotated as a unit to cut off the pipe adjacent its lower end.

In testimony whereof I affix my signature.

STANTON J. HUTCHISON.