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SEWER PIPE CLEANING CUTTER

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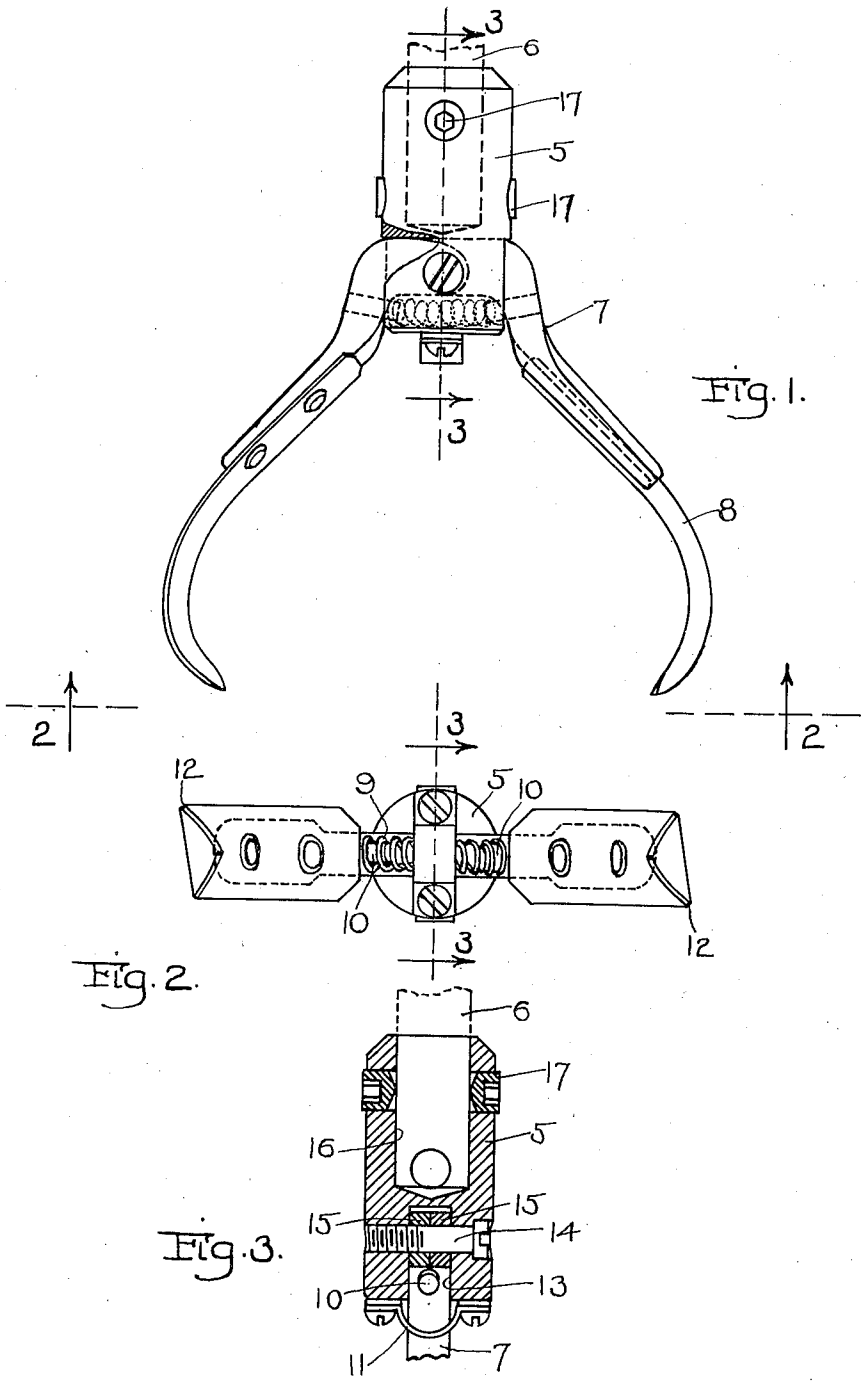


Fig. 1.

Fig. 2.

Fig. 3.

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SEWER PIPE CLEANING CUTTER

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4 Claims. (Cl. 15—104.30)

This invention relates to drain pipe cutters for cutting out roots and the like from drain pipes or for cleaning the pipes of any obstructing materials therein. One object of the invention is to provide a cutter to be attached to a flexible rod and then inserted in the drain pipe and rotated, the cutter comprising a head for holding the cutter blades and a plurality of suitable blades suitably attached to the head. For the purpose of cleaning the drain pipes of obstructing materials it is desirable to have a cutter which can be inserted through openings smaller than the bore of the drain pipe and the blades of which will then spread out so as to come firmly in contact with the walls of the pipe. It is also desirable to have the blades attached to the cutter not only so that they will spread out freely but also so that they will cut the roots of trees which are likely in time to grow through the cracks of the pipes or the joints thereof. These purposes I have fulfilled in my cutter.

In the drawing, Fig. 1 is a plan view of the cutter; Fig. 2 is an end view of the same along the line 2—2 of Fig. 1; and Fig. 3 is a sectional view along the line 3—3 of Fig. 1.

The cutter comprises a head 5, which, in use, is attached to some suitable form of flexible rod 6. Pivoted to the head are the cutting blades preferably comprising the holding arms 7 which are pivoted to the head and the cutting blades 8 which are fixed to the outer ends of the arms. In order to allow the blades to be pressed inwardly and then to expand and press firmly against the wall of the pipe, a spring 9 is positioned between the blade arms. Studs 10 are fixed to the arms, projecting inwardly towards each other, and the ends of the coil spring 9 are mounted over these studs so as to hold the spring in place at all times. A plate 11 is fixed to the head outside of the spring to prevent the spring from passing off of the studs or away from the head.

By these means it will be seen that the cutters are free to be pressed inwardly when the cutter is being inserted in the pipe, and after the cutter is inserted the cutting blades will be forced outwardly by the spring and they will press firmly against the wall of the pipe The blades are so designed that when the head is rotated clockwise, looking at it from the rear, the edges 12 will be pressed against the wall of the pipe, and these edges are sharpened so as to cut any roots or other objects that may be projecting through the walls of the pipe. It will be understood that the cutters are often used in tile pipe, which, in time, often become cracked or the joints become loose, so that small roots can enter and grow into objectionable obstructors in time. With my cutter these roots can be cut by rotating the blades with sufficient force and for a sufficient length of time.

However in order to force the blades sufficiently against the roots it is necessary to have them very firmly held by the cutter head. For this purpose I provide the deep slot 13 in the outer end of the head in which the inner ends of the arms 7 are positioned; by having the head and arms sufficiently strong and the arm ends fitting snugly in the slot, much force can be exerted against the roots. To assist in this I flatten the inner ends 15 of the arms so that they may both be pivoted to the same pivot 14.

The flexible rod 6 is firmly fixed in the opening 16 of the head by means of a suitable number of set screws 17.

It will be understood that the size of the head and blades may be varied to suit the needs, and I do not wish to limit the cutter to two blades, as more may be used if desired.

I claim as my invention:

1. A drain pipe root cutter comprising a cutter blade holding head arranged to be fixed to a rod at one end, the other end of the head having a deep longitudinal, parallel-sided slot therethrough, a pair of cutter blade holding arms having inner ends mounted in the slot on opposite sides thereof, the width of each arm being slightly less than that of the slot, the inner portions of each arm end being flattened, and a single pivot passing through the two walls of the slot and each of the flattened portions, a cutter blade fixed to the outer end of each arm, and resilient means tending to press the outer ends of the arms away from each other.

2. A drain pipe root cutter as claimed in claim 1, said resilient means comprising a coil spring mounted in the slot between the arms, and a strap passing outside of the spring with its ends fixed to the head.

3. A drain pipe cleaning device for use with a rotating cable and adapted to be rotated while being passed through a drain comprising a body portion having a rounded shank adapted to be attached to a free end of said cable and having a slotted end portion, a pair of identical blade mountings oppositely positioned scissors-like in said slot and pivotally connected therein to the body, a spring in said slot positioned against inner opposed faces of said mountings and se-

cured to retaining devices thereon and tending to be bowed outward when compressed, a bracket overlying the central portion of the slot for retaining the spring in position and a curved double edge blade on each mounting adapted to be spread by the spring into contact with the walls of drains of various sizes to cut and clean debris therefrom when passed rotatably through said drain.

4. A self-adjusting drain cleaning device for use with a rotatable extension for passing it through a drain comprising a body having an attaching element thereon for securing it to said extension, a pair of outwardly bowed cleaning members attached together scissors-like near the ends and pivotally connected to the body and adapted to be swung together until the free ends of the bowed members touch, a spring for normally spreading said members apart, a shoulder on each of said members and a co-operating shoulder on the body adapted by engagement to limit outward movement of the members, said shoulders being releasable from engagement in contracted positions so that both members jointly in said contracted positions may be shifted to one side or another with respect to the axis of the direction of movement to assist in passing the device around a corner.

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