

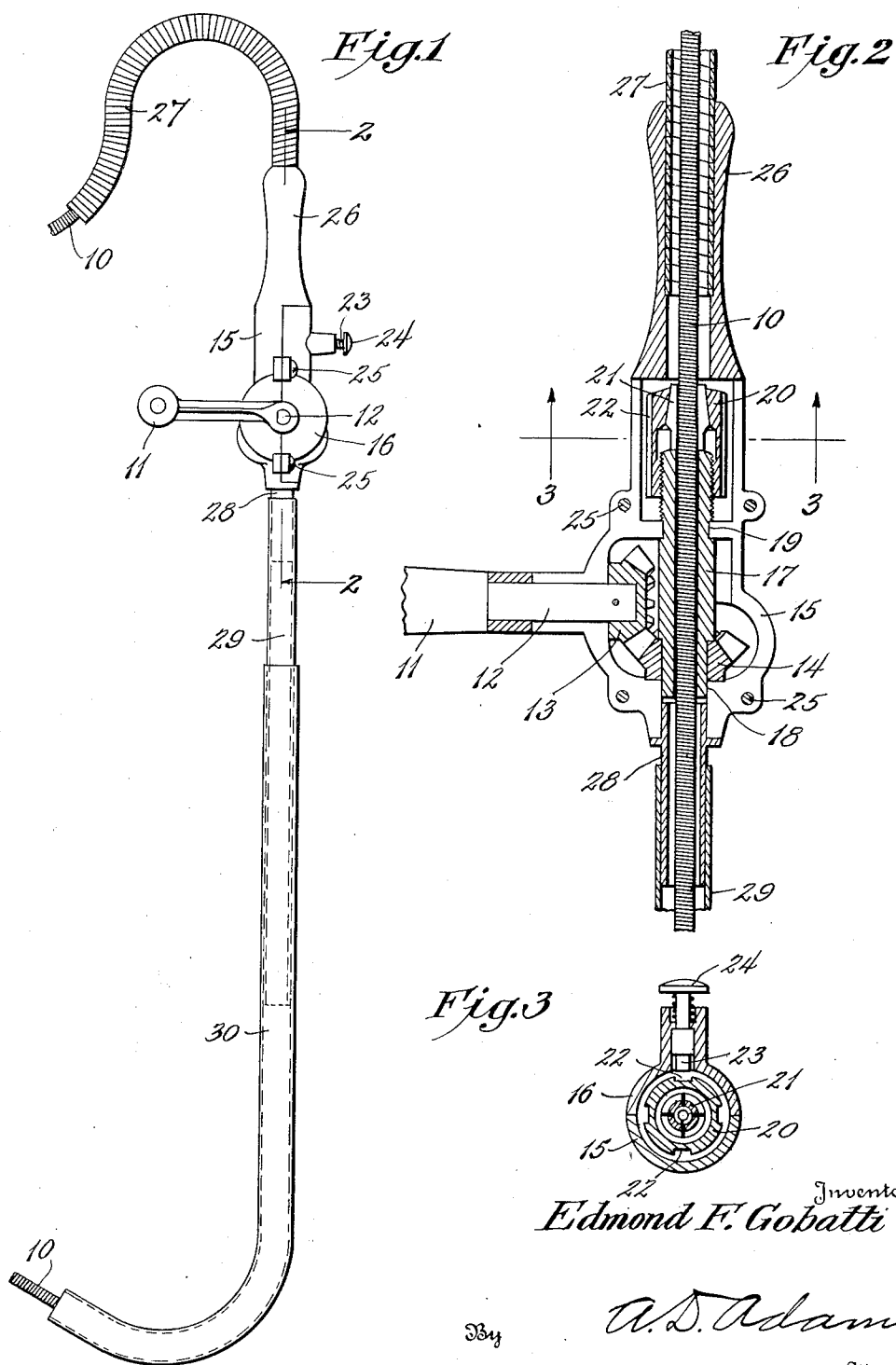
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PIPE CLEANING DEVICE

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PIPE CLEANING DEVICE

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3 Claims. (Cl. 15—104.30)

This invention relates to waste pipe cleaners and, among other objects, aims to provide a greatly improved, portable, rugged, relatively simple and effective cleaning device designed to be operated by a hand crank and having a novel chuck to release the cable or cleaning element. The idea is to provide a convenient tool of this type which can be purchased as a household article and used by unskilled persons to clean out clogged pipes and drains.

Other aims and advantages of the invention will appear in the specification, when considered in connection with the accompanying drawing, wherein:

Fig. 1 is a side elevation of a cleaner embodying the invention;

Fig. 2 is an enlarged sectional view taken on the line 2—2 of Fig. 1; and

Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Referring particularly to the drawing, the cleaner there shown employs a cable 10 in the form of a flexible coil of spring steel, the wire being wound counterclockwise or in the opposite direction from the ordinary twisted wire cables so that it has a tendency to wind up instead of unwinding when it is turned clockwise in a drain pipe. This cable or drill is adapted to be rotated by means of a hand crank 11 on a shaft 12 which drives bevel gears 13 and 14 within a casing shown as being composed of two sections 15 and 16. The bevel gear 14 is keyed or otherwise secured to a tubular chuck sleeve 17 which is journaled at its lower end in a bearing 18 at the lower end portion of the casing and intermediate its ends in a partition 19 at the upper end of the casing. The upper end of this sleeve is screw threaded to operate a chuck nut 20 which cooperates with spring jaws or fingers 21 integral with the sleeve to grip the cable, as clearly shown in Fig. 2. The nut 20 of the chuck is preferably made of brass or bronze so that it is rustproof and the screw threads on the sleeve 17 will work easily in it.

The chuck nut is shown as having a series of longitudinal slots or notches 22 which are adapted to be engaged by a spring urged pin 23 projecting through a boss on the section 16 of the casing and having a button head 24 so that it may be pushed inwardly by a finger of the user as the tool is held in one hand and the crank is turned with the other. The operating parts are placed within the casing portion of the section 15 and the cover section 16 is secured thereto by machine screws 25 to hold them assembled. The

casing section 15 is shown as having a handle extension 26 which is also tubular and through which the spring cable or drill projects.

To prevent the spring cable from coming in contact with the clothing or marring a floor, there is shown a length of flexible metal conduit 27 frictionally mounted in the upper end of the handle. This flexible conduit may be and preferably is as long as the cable so that it will act as a housing for the entire cable.

The lower end of the casing section 15 is shown as having an integral tubular nipple 28 which is adapted to guide the spring cable or cleaning element into and through the chuck sleeve 17. This nipple also serves as a holder for a cable guiding tube section 29 which is adapted to be frictionally secured thereon and prevents the cable from kinking between the casing and the mouth of a drain when the cable strikes an obstruction. In Fig. 1, there is shown a second cable guiding tube section 30 slidably and telescopically mounted on the section 29, the lower end of said second tube being shown as being bent or having a goose neck for use in cleaning toilet drains or traps. However, the second section may be straight if the device is used for cleaning sink drains and the like. The arrangement is such that the second section telescopes on the first tube section as the cable or drill element is fed farther into the drain. As soon as the sections are fully telescoped, the operator pushes the button 24 so that the pin engages one of the grooves 22 in the chuck nut 20 and turns the crank to the left to disengage the chuck. Then, he slides the whole casing outwardly on the cable the distance through which the cable was advanced and the tube section 30 slides downwardly on the tube section 29 ready to be telescoped again. He holds the button in and turns the crank to the right until the chuck again engages and firmly grips the cable. Then, he releases the button and repeats the operation until the cable is fed into the drain pipe as far as may be necessary to remove the obstruction.

After the obstruction is removed, the cable may be pulled out as the crank is rotated. In case the cable is fed practically its entire length into the drain, it may be withdrawn through the casing by alternately releasing and gripping the chuck and reversing the feeding operations described above. However, the cable may be withdrawn without repeating the chucking operations and washed or wiped off as it is being removed.

From the foregoing description, it will be seen that the improved drain cleaner is very simple in

its construction. The casing is made of only two cast metal parts and entirely encloses the gearing. The chuck is manually operated without any tool of any kind and has no parts that are easily broken. It positively grips the cable and does not crawl or slip on its convolutions. Moreover, the flexible conduit and the tubular cable guides prevent any part of the cable from coming in contact with the clothing of the operator. Also, the improved spring cable will pass and clean out all L's, crooks, joints, grease traps, etc. and will not kink, snarl or break in any drain line. In fact, a device of this type is almost indispensable for cleaning all drains and can be operated by unskilled persons without requiring the expense of having a plumber do the work.

Obviously, the present invention is not restricted to the particular embodiment thereof herein shown and described. Moreover, it is not indispensable that all the features of the invention be used conjointly, since they may be employed advantageously in various combinations and sub-combinations.

What is claimed is:

1. An operating device for pipe-cleaning snakes and the like comprising, in combination, a sectional casing; gearing within the casing; a hand crank for operating the gearing; a tubular sleeve within the casing connected to be rotated by said gearing and adapted to carry a flexible pipe cleaning element projecting therethrough; a chuck element on the sleeve within said casing;

a manually operable plunger projecting through one side of the casing adapted to engage said chuck whereby the cleaning element may be gripped or released by turning the hand crank.

2. An operating device for pipe-cleaning snakes and the like comprising, in combination, a sectional casing; a tubular sleeve journaled for rotation within the casing and adapted to receive a flexible snake projecting through the casing; a gear on the tubular sleeve; a second gear within the casing connected to drive said sleeve through said first mentioned gear; a hand crank for rotating said gears; a chuck on one end of said sleeve having a notched nut; and a plunger projecting through the casing and adapted to be pressed into engagement with said chuck nut so that the snake may be gripped or released by turning said hand crank.

3. An operating device for pipe-cleaning snakes and the like comprising, in combination, a sectional metal casing having a tubular handle extension; a sleeve rotatably mounted within the casing having a chuck at one end adapted to engage a pipe-cleaning element projecting through the sleeve and handle; gearing within the casing for rotating the sleeve; a hand crank connected to operate the gearing; and means positively to engage the chuck whereby it may be operated to release or grip the cleaning element by turning the hand crank.

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