Sept. 6, 1966 J. J. NORTON, JR 3,270,362

ELECTRICIAN'S FLEXIBLE CLEAN-OUT TOOL

Filed Feb. 4, 1965

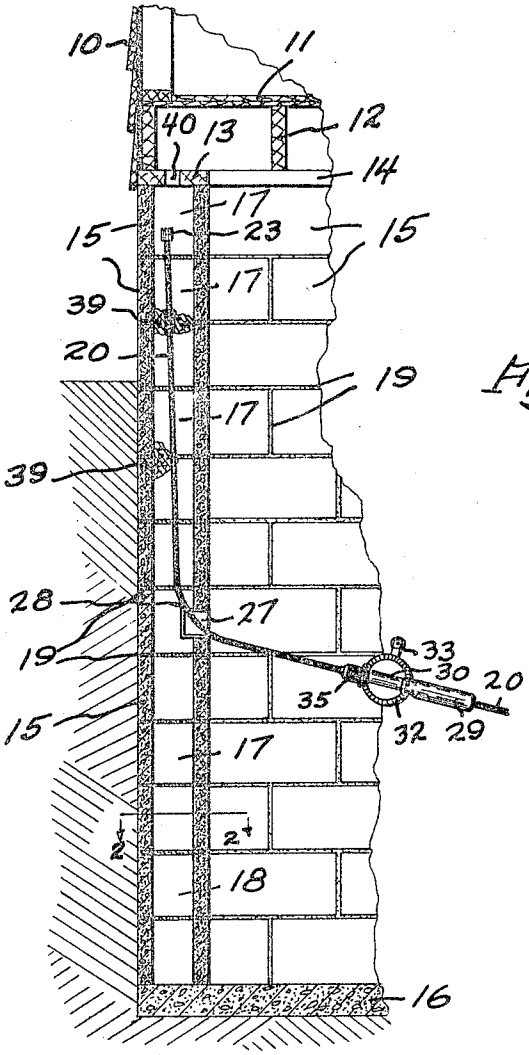



Fig. 1

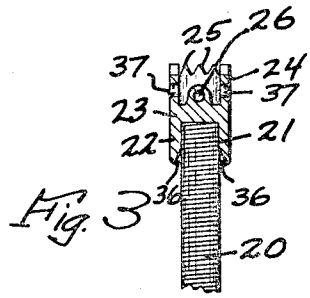



Fig. 3

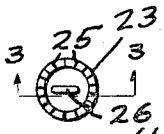



Fig. 4

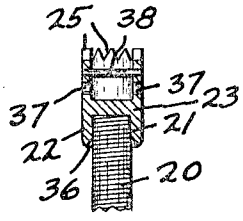



Fig. 5

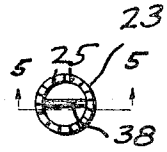



Fig 6

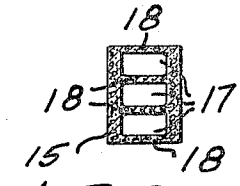



Fig. 2

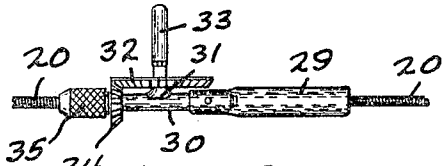



Fig. 7

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# ELECTRICIAN'S FLEXIBLE CLEAN-OUT TOOL

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2 Claims. (Cl. 15—104.3)

My invention relates to an electrician's clean-out tool.

An object of my invention is to provide a tool which will clean out vertical or other ducts, and especially ducts naturally formed by cement blocks having superimposed openings.

A further object of my invention is to provide a clean-out tool which will not only clean out the material in the openings or ducts, but will additionally provide means whereby an electrical cable can be drawn to a suitable box or other opening.

A further object of my invention is to provide a simple tool which can be manufactured at a reasonable cost.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

FIGURE 1 is a cross-sectional elevation of a wall structure showing the use of my invention,

FIGURE 2 is a sectional view of FIGURE 1 taken along the lines 2—2 thereof,

FIGURE 3 is an enlarged cross-sectional detail of the cutting arrangement or bit taken substantially along the lines 3—3 of FIGURE 4,

FIGURE 4 is a plan view of FIGURE 3,

FIGURE 5 is a cross-sectional view taken along the lines 5—5 of FIGURE 6 of a modification,

FIGURE 6 is a plan view of FIGURE 5, and

FIGURE 7 is an enlarged plan view of the arrangement for rotating the tool.

My invention contemplates the provision of an electrician's tool usable principally in basement walls and wherein it is desired to clean out the debris which falls from the mortared joints between cement blocks, and to provide additional means for attaching armored cable or other cable thereto for drawing said cable into any desired opening, box or other receptacle.

In describing my invention I have used the character **10** to designate the upper portions of a building usually above the ground line, the character **11** indicating the floor, the character **12** indicating joists and with the character **13** indicating a wooden plate running substantially parallel to the joists **12**, the character **14** indicating further supports attached to the plate **13**.

I have further used the character **15** to indicate cement blocks usually used to construct the basement walls, the character **16** indicating the concrete basement floor.

The character **17** indicates a series of rectangular openings commonly provided in the blocks **15**, the character **18** indicating the dividing partitions, and the character **19** indicates the cement or mortar joints used for securing the cement blocks together.

In describing the tool of my invention I have used the character **20** to designate a lengthened flexible cable which is secured as at **21** within the socket portion **22** of a bit member **23** which includes an upper annular portion **24** having the cutting teeth **25** formed therein, and formed integrally with the bit member **23** is the eyelet **26**.

The character **27** indicates a switch box having a knockout opening at **28**, and the character **29** indicates the handle of a suitable tool for rotating the cable **20**. The handle **29** is suitably secured to a tubular member **30** having the boss **31** including a suitable pin upon which the bevel gear **32** is mounted, the character **33** indicating a handle for rotating the gear **32**, the gear **32** being adapted to mesh with the further bevel gear **34** which is secured to an adjustable chuck **35** which is used to securely tighten the cable **20** therein, and the cable **20** passes freely through the various members **34**, **30** and **29** so that it will rotate when the handle **33** is operated, this arrangement providing means whereby the cable can be successively released and retightened when the tool is fed through the ducts.



The members **23** include the recessed portions **36** as well as the further openings **37**.

FIGURES 5 and 6 illustrate a slight modification wherein a transverse pin **38** is provided and attached across the annular portion **24**.

The operation of the device is as follows. It will be noted from FIGURE 2 that the cement blocks are laid so as to provide vertical openings or ducts **17** throughout, and usually in these installations, the mortar or cement at the joints **19** will fall into the ducts to provide a more or less solid mass such as the masses **39** whereby it is extremely difficult for the electrician to remove these masses so that electric cables can be drawn through the ducts.

In the present invention the drill or bit **23** is placed through the opening **28** as shown and the handle **33** is operated so that the rapid rotation of the teeth **25** will cut away the softer cement masses at **39** and so that the bit **23** can be gradually forced upwardly. The electrician will cut a suitable opening **40** in the plate **12** by means of a chisel or angle drill or the like. Any suitable hooking arrangement which can be made of a stiff wire or the like can be placed downwardly through the opening **40** to trap or snare the bit **23** and usually the hook at the end of the stiff wire can be manipulated so as to be received in the recessed portions **36** so that the bit **23** can be drawn through the opening **40**, and the conducting wires of the flexible electrical cable can then be placed in the eyelet **26** or around the pin **38** and securely attached thereto, whereupon the cable **20** can be drawn downwardly to the box **27** to provide the necessary cable installation, the upper ends of the cable being suitably attached to the joists **12** etc., and to the necessary junction box and the like.

It should be understood that the present tool could be used in a variety of other locations where it is desired to clean out the material therefrom and it will also be observed that if desired the openings **37** could be additionally employed to receive the hook ends of the stiff wire. Also, if desired the hand operated unit for rotating the cable **20** could be replaced by any type of power unit, such as an electric motor etc., and it will now be noted that I have provided the advantages of my invention with other advantages being apparent.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my invention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

1. An electrician's flexible clean-out tool comprising an elongated flexible cable, a cutting device attached to one end of said cable, said cutting device including a plurality of peripherally arranged teeth, means for rotating said cable, said cutting device including an attaching member for attaching an electric cable thereto, said cutting device being substantially cylindrical and including a recessed annular portion for receiving a hooked member therein, said attaching member including an eyelet positioned centrally of said teeth.

2. An electrician's flexible clean-out tool comprising an elongated flexible cable, a cutting device attached to

one end of said cable, said cutting device including a plurality of peripherally arranged teeth, means for rotating said cable, said cutting device including an attaching member for attaching an electric cable thereto, said cutting device being substantially cylindrical and including a recessed annular portion for receiving a hooked member therein, said attaching member including an eyelet positioned centrally of said teeth, said rotating means including a handle member, gears attached to said handle member, a rotatable chuck driven by said gears, said cable passing through said handle member and being engaged by said chuck.




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