May 26, 1936. R. G. KUGELMAN 2,042,407

DRAIN CLEANER

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FIG. 1

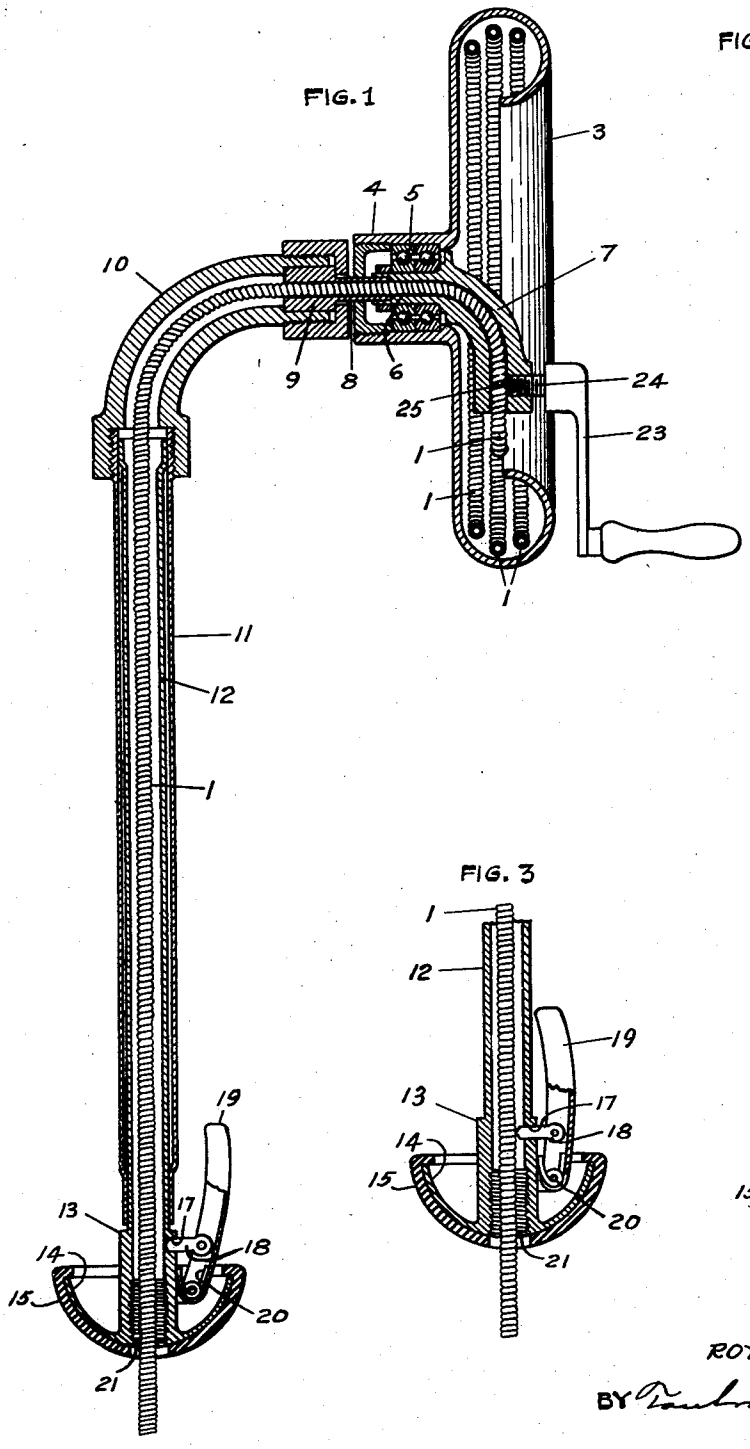


FIG. 2

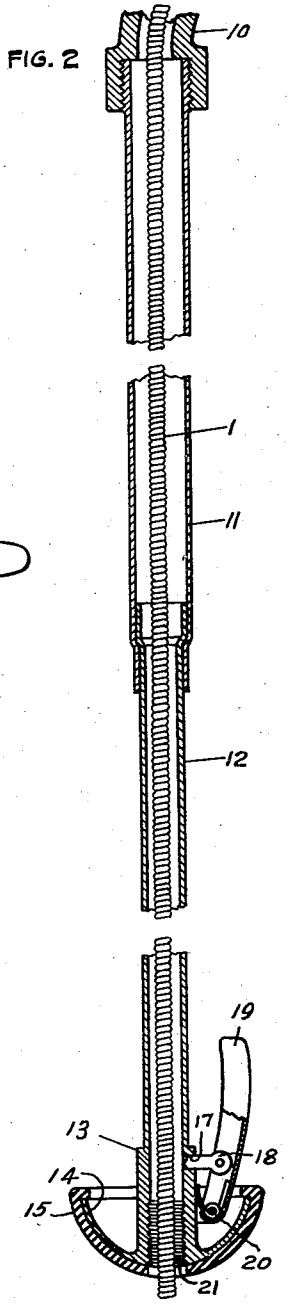


FIG. 3

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FIG. 4

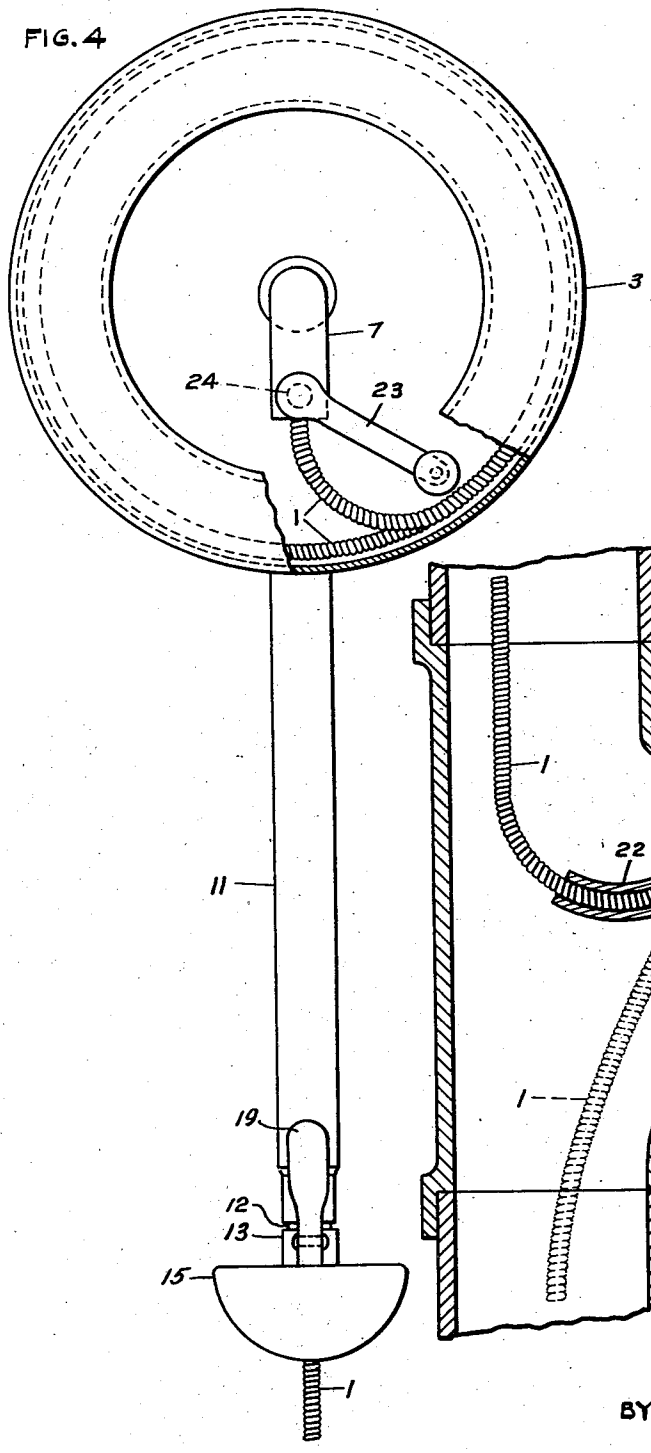
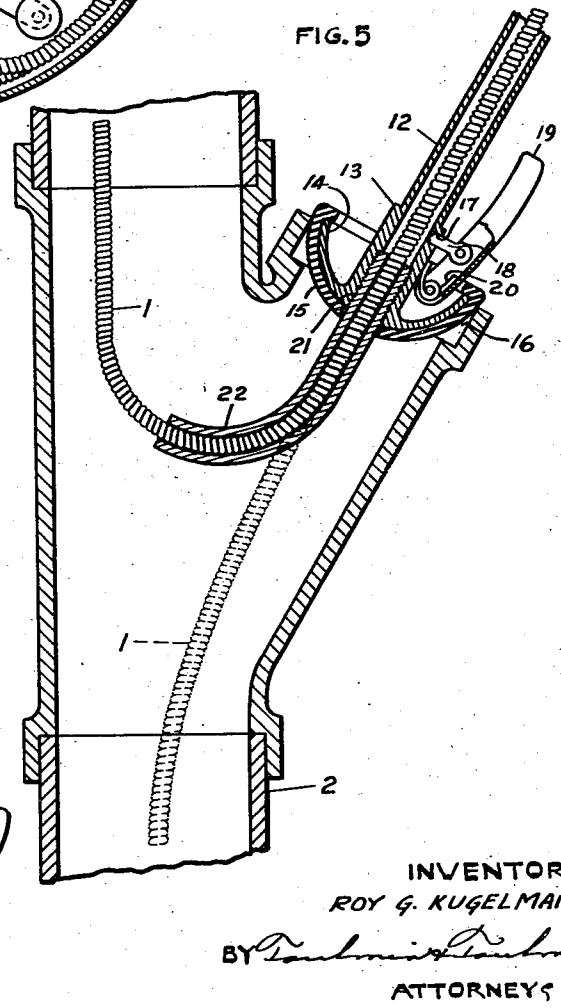


FIG. 5



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2,042,407

DRAIN CLEANER

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Application August 13, 1931, Serial No. 556,855

15 Claims. (Cl. 15—104.30)

My invention relates to a mechanism for cleaning drains.

It is the object of my invention to provide a mechanism for cleaning drains which is capable of penetrating the material that clogs the drain and of rotating to free the material from the drain.

It is a further object of provide such a mechanism which can either clear a drain that extends upwardly from the end of the cleaning apparatus or downwardly therefrom.

It is the object of my invention to provide means of intermittently feeding a length of the cleaning implement and, by means of a telescopic arrangement, forcing the cleaning implement through the drain while, at the same time, rotating it.

Another object of my invention is to provide means for the storage of the cleaning implement where it will be contained and guided into and out of the telescopic protecting sheath which protects the cleaning implement.

It is a further object of my invention to provide means of holding the cleaning implement in position while the sheath has its telescopic members extending, at which time the operating handle and hollow crank are detached from the cleaning implement to permit of the withdrawal from the storage casing of a new length of the cleaning implement.

It is my object to provide an implement for cleaning drains which can be forced step by step in given lengths into the drain at the same time the implement is being rotated; and to provide means for rotating the container for the surplus cleaning implement while the implement itself is being bodily rotated.

Referring to the drawings:

Figure 1 is a vertical section through the implement;

Figure 2 is a section through the telescopic casing in its extended position;

Figure 3 is a section showing the clamping of the cleaning implement at the bottom of the lower half of the telescopic casing;

Figure 4 is a front elevation thereof;

Figure 5 is a section through a drain showing the attachment for forcing the cleaning implement upwardly instead of allowing it to project downwardly as indicated by the dotted lines.

Referring to the drawings in detail, it will be understood that the spirally-wound, cleaning-out wire 1 may be wound either to the right hand or to the left hand as desired. It is sometimes found desirable to wind it in the direction opposite to that in which it is being rotated so that the rotation will tend to keep it tightly wound.

This flexible, rotatable, cleaning-out implement is adapted to follow the bends and contours of the drain pipes 2. It is stored within the annular casing 3 which has a collar 4 for mounting it on the ball bearings 5 which, in turn, rest upon the hollow sleeve 6 of the hollow crank 7 through which the cleaning-out implement 1 is threaded.

It projects through the sleeve 8 on the block 9 through the curved sleeve 10 which carries the upper half 11 of the telescopic member within which reciprocates the lower half 12 of the telescopic member. The lower half is mounted upon the end of a collar 13 which carries a cup-shaped support 14 having a rubber cover 15. This support rests upon the open mouth 16 of the drain pipe. The collar 13 is provided with an aperture 17 for receiving the locking pin 18 carried on the actuating handle 19. This handle is spring pressed by the spring 20 out of operative position normally. The collar 13 is provided with internal threads 21 for receiving the additional guide tube 22 which gives direction, preferably upwardly, to the cleaning-out implement 1, as will be seen in Figure 5.

By adjusting the member 12 with relation to the telescopic member 11 the length of the implement fed can be determined and regulated. If it is desirable to feed only a short length of the cleaning implement the telescopic members may be adjusted with relation to each other so that only a limited amount of movement of one with relation to the other can be made in feeding the cleaning implement.

In order to cause the cleaning-out implement or coiled wire 1 to rotate I provide a handle 23 with a screw 24, the head of which at 25 engages with the wire 1 and clamps it within the hollow crank 7 so that the rotation of the crank will cause a rotation of the wire and, at the same time, carry with it the storage casing 3. When it is desired to draw out a length of the wire 1 by expanding the telescopic connection between the tubes 11 and 12, the screw 24 is loosened and the additional length of wire is withdrawn from the storage chamber 3 through the hollow crank 7. This time the clamping pin 18 is brought into engagement with the lower end of the wire to prevent its slipping backwardly when the telescopic connection is expanded.

It is then released, the screw 24 brought into operative position and, as the wire is rotated, it is forced downwardly into the drain pipe by telescoping the parts 11 and 12.

Operation

In operation, the following steps take place:

(1) I first place the rubber-covered support 14 in the mouth of the pipe at 16 with a short length of the wire 1 projecting.

(2) I then clamp the wire 1 by the clamping pin 18 with the screw 24 backed off and in inoperative position.

(3) I then expand the telescopic connection from the position shown in Figure 1 to the position shown in Figure 2 thereby drawing a length of the wire 1 from the storage chamber 3.

(4) I then release the pin 18 and bring the screw 24 into operative engagement with the wire 1 and rotate both the wire and the drum.

(5) As this is being done, I press the upper half of the telescopic connection downwardly so that the wire is pushed downwardly through the drain at the same time it is rotated. When the telescopic connection is completely telescoped I then repeat the operation.

By this arrangement I am enabled to gradually and firmly feed the wire 1 without buckling and simultaneously rotate it in order to completely clear the drain pipe from any obstruction. The apparatus is self-contained as the wire may be withdrawn and wound within the container 3. There is no possibility of the wire becoming kinked, bent or broken making it impossible to press it forward while rotating it.

It will be understood that I desire to comprehend within my invention such modifications as may be clearly embraced within my claims and the scope of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a drain cleaner, a cleaning implement, means to feed said implement predetermined lengths, means to rotate the implement while being fed, means to guide the implement while being rotated and fed, and means in the cleaner to store the implement.

2. In a drain cleaner, a cleaning implement, means to feed said implement predetermined lengths, means to rotate the implement while being fed, means to guide the implement while being rotated and fed, means forming part of the cleaner to store the implement, and means to rotate the storage means while rotating the implement.

3. In a drain cleaner, a cleaning implement, means to feed said implement predetermined lengths, means to rotate the implement while being fed, means to guide the implement while being rotated and fed, means forming part of the cleaner to store the implement, means to rotate the storage means while rotating the implement, and means to render the rotating means for the implement inoperative while the implement is being withdrawn from the storage means.

4. In a drain cleaner, telescopic guide members, a flexible, cleaning-out implement passing therethrough, means on one member for clamping said implement, and means on another member for clamping said implement whereby additional lengths of said flexible implement may be moved into and out of said telescopic guide members by suitably operating the clamping means and the guide members.

5. In a drain cleaner, telescopic guide members, a flexible, cleaning-out implement passing therethrough, a storage casing on one guide member, means for clamping said implement to one of the telescopic guide members, and means for clamping said implement to another of said telescopic guide members, whereby the flexible implement may be moved out of the storage casing by suitably operating the clamping means and the guide members.

6. In a drain cleaner, telescopic guide members, a flexible, cleaning-out implement passing therethrough, a storage casing on one guide member, means for clamping said implement to one end of the telescopic guide member, means for clamping said implement to the other portion of said telescopic guide member, whereby the flexible implement may be moved out of the storage casing by suitably operating the clamping means and the guide members and means for rotating the cleaning-out member as it is being forced out of the telescopic members without rotating the telescopic members, said means comprising a hollow crank through which the cleaning-out implement passes.

7. In a drain cleaner, a storage casing having attached thereto telescopic guide members, a flexible, cleaning-out implement passing therethrough, means for clamping said implement to one of the telescopic guide members, means for clamping said implement to another of said telescopic guide members, whereby the flexible implement may be moved with relation to the storage casing by suitably operating the clamping means and the guide members and means for rotating the cleaning-out implement as it is being moved without rotating the telescopic members, said means comprising a hollow crank through which the cleaning-out implement passes.

8. In a drain cleaner, a telescopic guide consisting of an upper and a lower tube, a support on the lower tube, a clamping member on the lower tube, a flexible cleaning-out member adapted to pass through said tubes and be clamped by the clamping member, a rotatable storage chamber for said cleaning-out member, means for rotatably supporting it on the upper of said tubes, a hollow crank rotatably mounted in said storage chamber, a second crank mounted on said hollow crank adapted to engage the cleaning-out member passing through the tubes and the hollow crank and stored in said storage chamber, whereby, as the telescopic guide is telescoped and the hollow crank rotated, the flexible cleaning-out member may be caused to project out of said tubes and be rotated simultaneously.

9. In combination in a drain cleaner, a pair of telescopically-arranged guide tubes, a support mounted on one of the tubes, a curved guide tube mounted on the other tube, a rotatable open-faced chamber mounted on the curved guide tube, a hollow crank mounted in said chamber extending into the open-face thereof, a clamping screw mounted in said hollow crank, and a flexible cleaning-out member stored in said open-faced chamber extending through said hollow crank and said tubes, and means to clamp said cleaning-out member to the lower of said tubes.

10. In combination in a drain cleaner, a pair of telescopically-arranged guide tubes, a support mounted on one of the tubes, a curved guide tube mounted on the other tube, a rotatable open-faced chamber mounted on the curved guide tube, a hollow crank mounted in said chamber extending into the open face thereof, a clamping screw mounted in said hollow crank, a flexible cleaning-out member stored in said open-faced chamber extending through said hollow crank and said

tubes, means to clamp said cleaning-out member to said first tube, and means mounted on the lower of said tubes to guide the free end of the cleaning-out member in a desired direction.

11. In a portable sanitary plumber's snake tool, a flexible and extensible conduit-clearing member; a snake-driving grip device adapted to have said member advanced therethrough into a conduit to be cleared and adapted to be manually operated to be releasably secured to said member to work or advance the same; and a sanitary member-housing sheath in which retracted portions of the member are housed to guard against engagement of surrounding objects by the same; said grip device and said housing being rotatably connected to provide for and adapt the same for relative rotatable movement in the operation of the tool.

12. In an extensible and retractible snake tool of the character disclosed; a relatively long snake member adapted for projection into and retraction from a conduit to be cleared and to be compacted by coiling the same into convolutions for storage of unused portions thereof; a cage for receiving such closely compacted portions rotatable with the snake in conduit clearing action; and releasable snake-gripping means through which the snake member may be advanced into a conduit; said cage being adapted to have the snake member projected thereinto for compacting in a path leading angularly toward the plane of said convolutions.

13. A plumber's snake tool comprising a flexible member adapted to be advanced into a conduit to be cleared and to be worked therein in conduit-clearing action, a circular member-housing sheath having a substantially central guide aperture on its side aperture centrally inward of the periphery thereof and through which said member may be withdrawn for advance into a conduit and through which aperture said member may be returned to the interior of the sheath angularly to be automatically coiled in normally housed condition in the sheath and with convolutions in substantial number expanded into intimate engagement with the inner periphery of the sheath, and a mounting means for said sheath.

14. A drain cleaner including a casing circular in cross section, a resilient snake engageable in the casing to form coils expanded into intimate engagement with the casing wall, and a tubular guide member for the snake mounted on and communicating with the casing, the guide member being substantially perpendicular to the plane of the coils and substantially central of the latter.

15. A plumbers' snake tool comprising a flexible conduit-clearing member adapted to round the turns of a conduit to be cleared of an obstruction, a circular sheath member in which retracted portions of said conduit-clearing member are normally housed and against the inner periphery of which stored convolutions of said conduit-clearing member may lie, and a tubular member on the sheath forming a guide for a portion of the length of said conduit-clearing member and through which such last named member may be reciprocated as portions thereof are withdrawn from and returned to said circular sheath member for storage therein.

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