June 2, 1942. R. C. ASNARD 2,284,939

DRAIN CLEANER

Filed June 29, 1940

Fig. 1

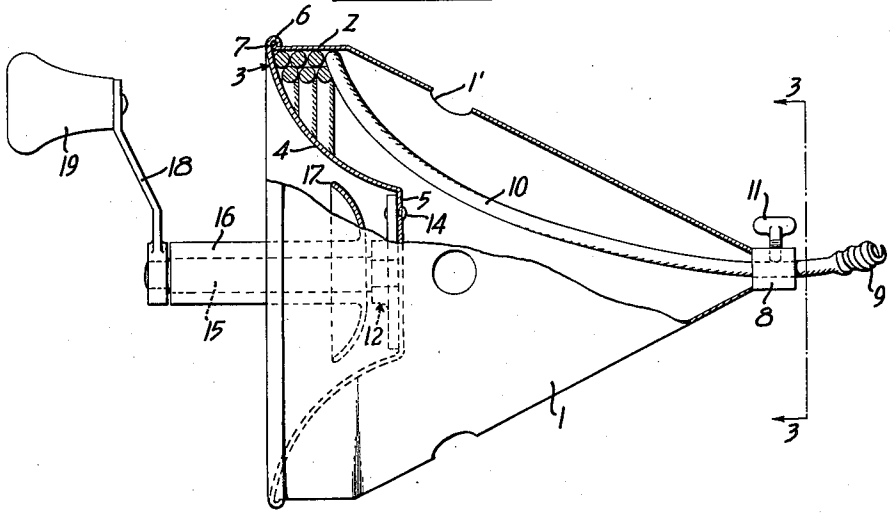


Fig. 2

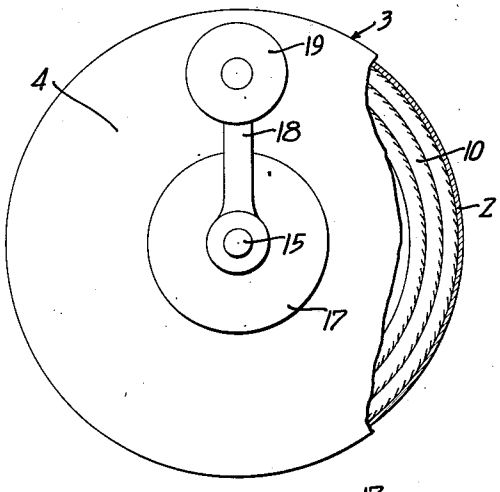
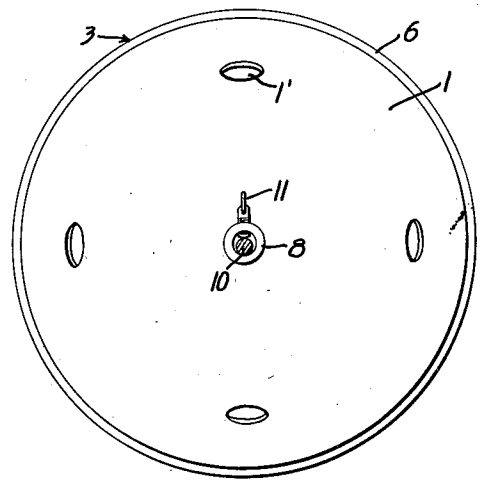


Fig. 3



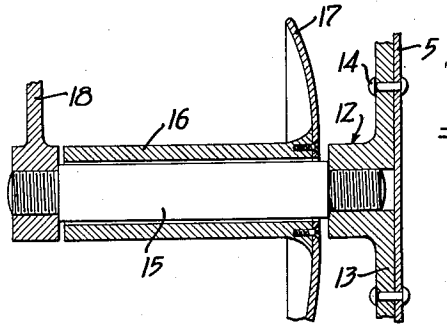


Fig. 4

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DRAIN CLEANER

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2 Claims. (Cl. 15—104.30)

This invention relates to a drain cleaner, including a snake adapted to be stored in a container one end of which is provided with a hole through which the snake extends and which container and snake are so arranged that they may be rotated as a unit for removing obstructions in pipes, drains, sewers, etc. after the snake has been inserted therein.

One of the objects of my invention is to provide a device for cleaning drains, including a snake and container to store said snake, which is so constructed that the whole weight of the device, including the container and snake stored therein is centered substantially near the point where the device is to be held by the operator.

Another object of my invention is to provide a device for cleaning drains, containing a substantially long length of snake, which may be easily and conveniently rotatably operated in any position by one person.

Still another object of my invention is to provide a drain cleaner containing a substantially long length of snake, which is constructed so as to balance about and be easily supported by one hand of the operator, while the other hand of such person operates the device by rotating it with a handle more conveniently located than heretofore. Other objects of my invention will appear in the specification and drawing annexed hereto.

In the drawing,

Fig. 1 is a side view of my invention partially in section to show the contained snake.

Fig. 2 is an end view of the larger end of my invention, partially in section.

Fig. 3 is an end view of the smaller end of my invention, along the line 3—3 of Fig. 1, with the snake shown in section.

Fig. 4 is a detail view of the supporting handle of the device, partially in section, showing how it is connected to the container and operating crank arm.

Briefly described, my invention includes a container in which a snake is coiled while not in use, the end of which snake extends through an opening in one end of the container. The container is substantially funnel-shaped, the snake extending from the smaller end with the larger end covered by an indented cap or covering which indented portion extends into the container. Extending outwardly from the center of this covering and along the axis of the container is a rod or pipe around which is mounted a rotatable handle. At the end of the rod beyond the handle, is a crank adapted to rotate the container while the operator supports it by the handle. It is obvious that because of the construction of the indented cap the handle lies partially within the confines of the container so that the center of gravity of the whole device is substantially near the handle and the weight is positioned circularly around it. By this method of supporting the device, it may be used with ease in any position by a single person. Heretofore, other similar devices have contained means for cleaning pipes and drains and amongst such devices are those described in the following patents: I. D. Yohn, Nos. 2,037,103 and 2,037,104, April 14, 1936; and J. Wrigley, No. 599,089, Feb. 15, 1898; and R. J. Kugelman, No. 2,042,407, May 26, 1936. Those devices include, generally, containers and snakes, but in none of them was consideration given to a proper distribution of weight around the supporting handle, if a handle were included at all. In my device, that problem has been solved by positioning the handle at a point substantially near the center of gravity of the device when the snake is coiled therein. This construction enables my device to be conveniently used in any position, whether it is over the head of the operator or in an obstructed area, particularly where it is necessary to hold the device at some distance from the body, without causing undue strain on the operator. The devices shown in the patents named above are, as a practical matter, limited in their use with upwardly facing openings. Held in other positions away from the operator's body, they would shortly tire the operator, necessitating frequent rest periods. My invention, on the other hand, has been designed to overcome this limitation and to provide a drain cleaner that may be used with any opening in any position by a single operator, by providing a supporting handle, properly positioned with respect to the weight distribution, regardless of the position of the cleaner. It provides, as well, that such supporting handle shall remain stationary while the container and snake are rotated with respect to it.

In detail, my drain cleaning device is constructed with a container 1 substantially in the shape of a truncated cone with its larger end forming a short cylindrical section 2 of constant diameter. The container 1 may be provided with a number of small holes 1' for drainage and admission of water for cleaning the coiled snake. This container may be made from any suitable material, such as aluminum or sheet metal. The larger end of container 1 (the cylindrical portion 2) is closed by a circular cap or end piece

3, formed from the same material used in the container. This cap 3 is substantially bowl-shaped with sloping sides 4 and a flat circular bottom 5, and is placed on the cylindrical portion 2 of container 1 with the bottom 5 and sides 4 extending into the central portion of container 1. The recess in the cap 3 formed by its bowl shape is deep enough to position the bottom portion 5 somewhat nearer the smaller end of the container 1 than is the plane formed by the bend of container 1 between its generally conical portion and the cylindrical portion 2. The cap 3 may be attached to the cylindrical portion 2 of container 1 by clamping the edge 6 of cap 3 over and around the bent edge 7 of cylindrical portion 2 of container 1, or by any other suitable method.

The closure formed by container 1 and cap 3 is open at the smaller end of container 1 and to this smaller end is welded or brazed a short piece of heavy duty pipe 8, through which the end 9 of the snake 10 extends. This short pipe 8 is fitted with a thumb screw 11 adapted to be turned down on the snake 10 to lock it at any given point to prevent movement of the snake relative to the container.

On the outwardly facing side of the flat indented surface 5 of the cap 3 is positioned a metal sleeve 12 with a laterally extending flange 13 by which it is attached to the surface 5 by means of rivets 14 or any other suitable method. The metal sleeve 12 is threaded to receive one end of a threaded rod or pipe 15. The rod is tightly threaded into sleeve 12 and a handle 16 with a hollow shaft along its axis is slipped over the rod 15 so that when the handle is held stationary, the rod 15 with the attached container may rotate while handle 16 remains stationary. This handle 16 is fitted at the one of its ends adjacent sleeve 12 with a circular guard 17 extending out and away from the axis of the handle, which prevents injury to the operator's hand caused by rubbing against sleeve 12 while the device is rotating.

Attached to the other threaded end of the rod 15 and beyond the end of handle 16 is an operating crank arm 18 extending away from said rod and on the end of which is a knob 19 for turning the device while the handle is held stationary.

The snake 10, when in the container 1 is coiled in layers next to the outer sides of cylindrical portions 2, or if the snake is longer, against the conical portion of container 1. The snake 10, due to its stiffness, tends to remain against the outer circumference of the container rather than next to the sides 4 of the indentation in the cap. This is very desirable since it is obvious that the greater the diameter of the individual coil, the greater the amount of snake the container will store. The sides 4 of the indented cap 3 do not serve as, nor is it necessary, to provide, guides to coil the snake adjacent the sides of container 1, as the resilient construction of said snake causes it to automatically coil near the edges of the container.

The extending end 9 of the snake 10 is enlarged in the conventional manner to provide for dislodging material which is clogging the drain and the other end of the snake 10, remaining within the container, need not be anchored to the container.

In operation, the set screw 11 is loosened and a length of snake 10 is pulled out through pipe 8. Then the set screw is tightened and the end 9 of the snake is inserted into the drain or pipe. Holding the device by the handle 16 with one hand, the snake and container are rotated by means of crank arm 18 and, at the same time, the snake is forced into the drain or pipe. When all the extending length of the snake has been inserted into the pipe, the set screw 11 is again unloosened and the container 1 is backed off, leaving the snake remaining in the same position. The set screw is again tightened and the operation is repeated until a sufficient length of the snake has been inserted into the drain.

When the drain is cleared, the set screw is tightened and the whole snake may be backed out of the drain by rotating the device and pulling it away from the hole. This operation, of course, may be performed in steps, the reverse of those described in the insertion operation.

It is to be noted that the snake automatically coils itself within container 1 next to the outside walls, due to its springiness and flexibility and normally it does not come in contact with the walls 4 or flat surface 5 of the cap 3. The indentation so formed is solely for the purpose of providing a supporting position for the handle 16 which is substantially at the center of gravity of the whole device and thereby eliminates the use of large forces by the operator because of lever principles.

Having described my invention, I claim:

1. In a portable drain cleaner of the character described including a snake coiled within the enlarged end of a hollow container the walls of which container are formed by a pair of generally frusto-conical sheet members coaxially disposed one within the other with their enlarged ends secured together; the smaller end of the outer member of said pair being open and terminating outwardly beyond the smaller end of the inner member of said pair for withdrawal of the snake from the coil thereof and from said container axially of said coil through said open end of said outer member; an elongated handle carried by the smaller end of the inner member of said pair having a hand grasping portion encircled and enclosed by the enlarged end portion of said inner member; the enlarged end of said inner member being open for admission of one hand of an operator for grasping said hand grasping portion, and means on said container for manually rotating the same about the common axis of said members; said means projecting from the enlarged end of said container and spaced from said handle and being arranged and adapted for manual actuation by the other hand of said operator to continuously rotate said container in either direction on its axis while said container and coil therein are supported by the first mentioned hand grasping said hand grasping portion of said handle.

2. A portable drain cleaner comprising; a flexible and resilient snake; a hollow container, the walls of which comprise a pair of coaxially arranged, generally frusto-conical members of sheet material spaced one within the other and secured together at their larger diameter ends; the smaller diameter end of the outer of said pair being open and said snake extending through said opening and in a coil around the larger diameter end portion of the inner member of said pair and between the larger diameter end portions of said pair at a point between opposite ends of the said inner member; the larger diameter end of said inner member being open; an elongated handle longitudinally coaxial

with the central axis of said members carried by the smaller diameter end of said inner member and extending outwardly of the open larger diameter end of said inner member from the latter; a crank rotatable about the axis of said members positioned outwardly of the open end of said inner member and adjacent the outer end of said handle; a shaft coaxial with said axis of said members secured at one end to the smaller diameter end of said inner member rotatably supporting said handle thereon and secured to said crank at its opposite end; said handle being arranged and adapted for manual grasping by one hand of an operator at a point within the enlarged end portion of said inner member encircled by said coil for manually supporting said container and coil during rotation of said crank by the other hand of said operator.

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