

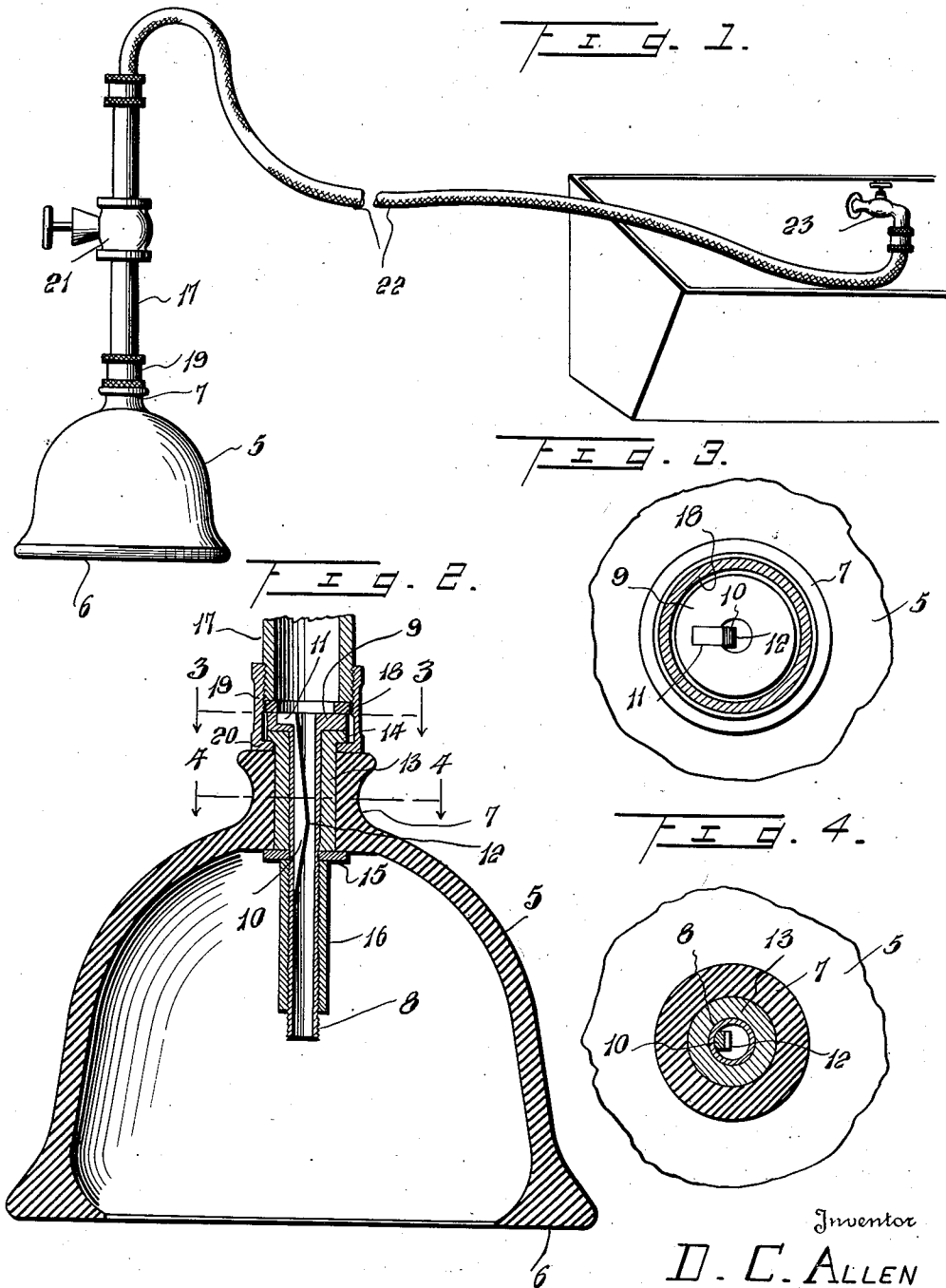
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HYDRAULIC DRAIN CLEANER AND THE LIKE

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HYDRAULIC DRAIN CLEANER AND THE LIKE

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2 Claims. (Cl. 4—256)

This invention relates to certain new and useful improvements in hydraulic drain cleaners and the like.

The primary object of the invention is to provide a hydraulic drain cleaner wherein a vacuum or suction cup has a forced water supply line communicating therewith and opening therein in a manner to create a partial vacuum in the cup when the latter is engaged with the surface surrounding a drain opening or the like to effect pulsations in a drain similar to a pump action to effect removal of obstructions from the drain for cleaning the latter and permitting unobstructed flow of water through the vacuum cup and drain.

More specifically, the present invention resides in the provision of a particular type of water jet nozzle associated with the vacuum cup to create a forced flow of water in fine stream or jet form through the cup for effectively opening a clogged drain or the like.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing and claimed.

In the drawing:—

Figure 1 is a side elevational view of a hydraulic drain cleaner constructed in accordance with the present invention and showing a hose extending from a sink or the like to the cleaner;

Figure 2 is a vertical sectional view of the cleaner head or vacuum cup with the water jet nozzle anchored therein;

Figure 3 is a cross-sectional view taken on line 3—3 of Figure 2; and

Figure 4 is a cross-sectional view taken on line 4—4 of Figure 2.

It is to be understood that the cleaner disclosed herein may be used for the opening of sink or floor drains, toilet bowls and conduits of various kinds for removal of clogged substances for cleaning a passage. The cleaner comprises a head or vacuum cup 5 substantially of bell-shape and of the type usually employed in hand operated plungers, the cup 5 being preferably formed of rubber and embodying a flattened circular flange 6 at its open end with an annularly reduced neck 7 at the other end thereof for the support of a jet nozzle. The jet nozzle comprises a tubular stem 8 having an outwardly directed annular flange 9 at its upper end. An elongated lip or rib 10 is disposed interiorly of the tubular stem 8 and extends longitudinally thereof with a flange 11 directed outwardly of the upper end thereof

and counter-sunk in the annular flange 9 of the tubular stem as shown in Figures 2 and 3, the lip being permanently anchored in position. One flat side of the lip or rib is engaged with the wall of the tubular stem 8 and the opposite side thereof bulges outwardly as shown at 12 for reducing the bore of the tubular stem at a point intermediate the ends thereof. The mounting for the tubular stem 8 of the jet nozzle comprises a bushing 13 in the neck 7 of the cup 5, the tubular stem being supported in the bushing 13 with the annular flange 9 at the upper end of the tubular stem engaged with an annular flange 14 at the upper end of the bushing. The lower end of the bushing 13 terminates flush with the lower end of the neck 7 and the anchor means for the lower end of the bushing and tubular stem 8 includes a sealing gasket 15 surrounding the tubular stem and engaged with the lower end of the bushing and adjacent portion of the neck, the gasket 15 being retained in position by the collar 16 mounted upon the inner projecting end of the tubular stem that has its lower end terminating substantially midway the upper and lower ends of the cup 5.

The anchor means for the upper end of the bushing 13 and the water supply devices associated with the cup include a pipe 17 engaged with the upper end of the flange 9 of the tubular stem with a gasket 18 interposed therebetween, the locking ring 19 retaining the pipe 17 in position and being engaged therewith as shown in Figure 2 and having a flanged lower end 20 engaged with the adjacent end of the neck 7 and disposed beneath the bushing flange 14. A manually operable valve 21 is carried by the pipe 17 to control the flow of water through the cup 5 when a flexible or other hose 22 forms communication between a faucet 23 and the outer end of the pipe 17 as shown in Figure 1.

The tubular stem 8 of the jet nozzle is placed directly over a drain opening or the like with the open end 6 of the cup 5 intimately engaged with the surface surrounding the opening and the fine jet of water projected through the tubular stem creates a partial vacuum in the cup 5 and pulsations in the clogged drain opening in simulation of a pump action for clearing the drain opening of any obstructions lodged therein. The hose 22 may be of any length desired and the flow of water through the vacuum cup 5 is controlled by the valve 21.

While there is herein shown and described the preferred embodiment of the invention, it is nevertheless to be understood that minor changes

may be made therein without departing from the spirit and scope of the invention as claimed.

I claim:—

1. In a hydraulic drain cleaner and the like, a
5 flexible cup of bell-shape having a reduced neck
with an opening therein, a jet nozzle anchored in
the neck opening with the discharge end thereof
terminating in spaced relation to the neck, water
supply means in communication with the jet
10 nozzle, means for restricting the flow of water
through the tubular stem to increase jet action
thereof including an elongated rib anchored at
its upper end to the tubular stem and having a
flat side engaged with the wall of the tubular
15 stem and terminating in spaced relation to the
lower end of the tubular stem and a bulged por-
tion intermediate the ends of the rib extending
towards the opposite side of the tubular stem.
2. In a hydraulic drain cleaner and the like, a

flexible cup of bell-shape having a reduced neck
with an opening therein, a jet nozzle anchored in
the neck opening with the discharge end thereof
terminating in spaced relation to the neck, water
supply means in communication with the jet
5 nozzle, the jet nozzle including a tubular stem, a
bushing interposed between the stem and cup
neck, means for anchoring the tubular stem and
bushing in the neck, means for restricting the
flow of water through the tubular stem to in-
10 crease jet action thereof including an elongated
rib anchored at its upper end to the tubular stem
and having a flat side engaged with the wall of
the tubular stem and terminating in spaced rela-
tion to the lower end of the tubular stem and a
15 bulged portion intermediate the ends of the rib
extending towards the opposite side of the tubu-
lar stem.

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