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M. F. SZUKALSKI, JR., ET AL

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WASTE PIPE CLEANER

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Fig. 1.

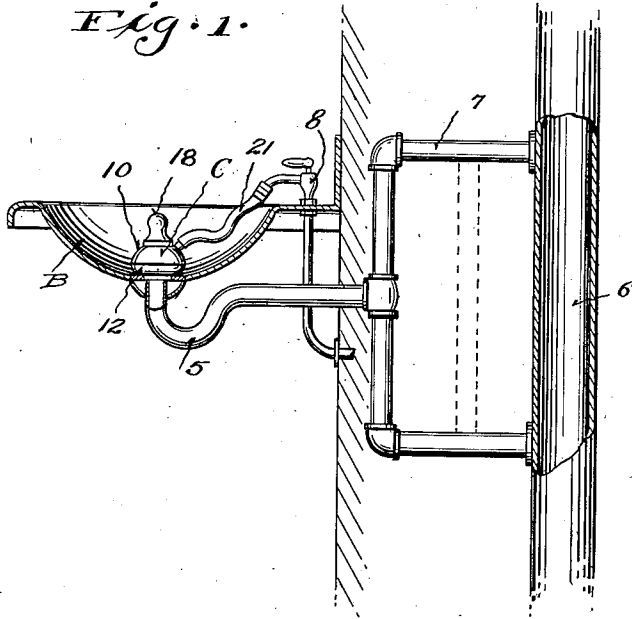
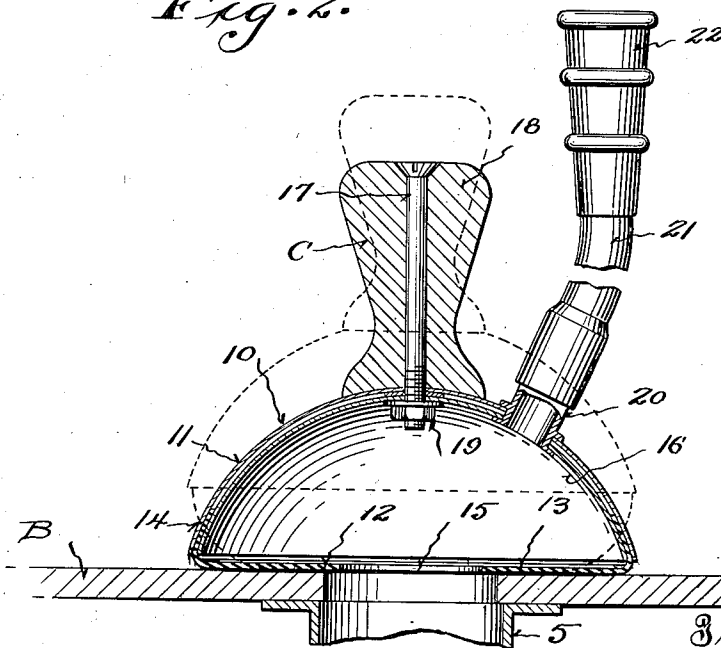


Fig. 2.



Inventor's
M.A. Szukalski, Sr.
M.F. Szukalski, Jr.
By *[Signature]*
Attorneys

UNITED STATES PATENT OFFICE

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WASTE PIPE CLEANER

Marian F. Szukalski, Jr. and Marian A.
Szukalski, Sr., Milwaukee, Wis.

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2 Claims. (Cl. 4-256)

This invention appertains to plumbing, and more particularly to means for effectively clearing drain pipes and the like.

It often happens that drain or waste pipes leading from sinks, bowls, etc., become clogged with matter that can be dislodged if proper pressure can be forced into the pipes without the necessity of calling a skilled plumber. Householders often employ a plunger (a hollow, semi-spherical, rubber head affixed to an operating handle). However, these plungers are in most instances ineffective, and do not successfully clean the pipes.

Therefore, one of the salient objects of our invention is to provide a novel device (which can be readily used either by a layman or a plumber) for effectively cleaning pipes, and which utilizes the city water pressure for this purpose.

Another important object of our invention is the provision of a waste pipe cleaner, which includes an inverted bowl-shaped member adapted to be placed over the drain pipe to be cleaned in sealing contact with the bowl or sink, with means for leading water directly from the faucet into the member, so that the pressure of the water can be utilized for removing the obstruction, and thereafter for effectively washing and cleaning the pipe.

A further object of our invention is to provide, in effect, a combination plunger and water pressure cleaner for waste pipes, the device being so constructed that when water pressure is forced into the bowl or cup, the cup can be so actuated as to force the water in pulsations into the pipe.

A further object of our invention is to provide a waste pipe cleaner embodying an inverted bowl-shaped member or cup having a flexible diaphragm adapted to be placed over the pipe to be cleaned in sealing contact with the bowl or sink around the pipe, the diaphragm being expansible under pressure when water is forced into the cup, whereby the cup can be manually forced down against the diaphragm to drive the water out and under greater pressure into the pipe.

A further object of our invention is to utilize the vent pipe of the drain for a head of water, so that upon manual release of pressure against the cup, the head of water in the vent can be used against the obstruction in the drain to free the drain.

A further object of our invention is the provision of novel means for forming the inverted

bowl-shaped member itself, whereby the same will have sufficient rigidity to hold its shape under pressure, but which is of a sufficiently resilient and flexible nature to conform to the shape of the bowl or sink, so that an effective seal can be had between the member and the bowl or sink.

A still further object of our invention is to provide a waste pipe cleaner of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture, and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the drawing, in which drawing:—

Figure 1 is a fragmentary vertical section through a wall of a building, illustrating a part of a plumbing system for a wash bowl or sink, our improved appliance being shown in operative position in the bowl, and in its expanded condition.

Figure 2 is an enlarged, central vertical section through our improved device, showing the same positioned over a drain pipe, and in its normal or collapsed position in full lines, and in its expanded position in dotted lines.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter C generally indicates our improved waste pipe cleaner, and B a bowl or sink with which the same can be used.

The bowl B is provided with a drain pipe 5, which leads to the main sewer or riser drain pipe 6. A vent pipe 7 can be connected with the drain pipe 5 and with the large riser drain pipe 6. This vent pipe extends above the bowl B, and, if preferred, the same can be brought down into communication with the drain pipe 5 (as suggested in dotted lines in Figure 1) instead of being connected with the riser 6. A water faucet 8 is provided for the bowl B.

Our improved device C embodies an inverted bowl-shaped pressure member or cup 10, which is of a substantially semi-spherical shape. The bowl-shaped member or cup 10 is of a particular construction, which forms a salient feature of our invention, and thus the cup includes an outer shell 11 formed from relatively thin sheet metal. The sheet metal gives sufficient rigidity to hold the cup or bowl-shaped

member 10 against collapsing when in use, but will allow the same to flex and conform to the shape of the bowl or sink with which it is associated.

5 In conjunction with the bowl- or cup-shaped member 10, we employ a flexible apertured diaphragm 12. This diaphragm 12 is preferably formed of rubber, so that the same can expand and contract, and is preferably molded into the desired form.

10 Thus, the diaphragm 12 includes a normally flat bottom wall 13 and an outer annular side wall 14. The normally flat bottom wall 13 is formed with the central aperture 15, which is preferably of a smaller diameter than the diameter of the drain pipe. The side wall 14 of the diaphragm is clamped in place on the bowl- or cup-shaped member 10, such as by the use of a clamping spider or the like. As shown in the drawing, we utilize an inner shell 16, which is formed from the same material as the outer shell 11, and the wall 14 of the diaphragm is placed between the shells 11 and 16. The shells are then brought into intimate clamping contact with the wall 14, such as by the use of a clamping bolt 17.

The bolt 17 is also employed for holding the manipulating handle 18 in place. As shown, the bolt 17 extends through the handle 18 and the axial centers of the shells 11 and 16, and is held in place by means of a nut 19.

30 Leading from the member 10 at one side of the hand grip is a nipple 20, to which can be attached a flexible hose 21. The outer end of the hose 21 carries any preferred type of means 22 for connection with the water faucet 3, whereby the water from the city mains can be led directly into the member 10, and then into the drain pipe 5. The water pressure will effectively clear most obstructions from the drain pipe, and thereby permit the effective and economical opening of a drain pipe.

40 In use of my invention, the drain pipe cleaner is placed over the drain pipe 5, with the diaphragm 12 in sealing contact with the upper face of the bowl B, and the hose 21 is connected with the faucet. The operator holds the cup in position over the drain by grasping the handle 18. Upon the opening of the faucet 3, the water

under pressure will flow through the hose 21, into the cup- or bowl-shaped member 10, and into the drain 5 against the obstruction.

If the water has a tendency to back up into the member 10, the diaphragm will be expanded, but the diaphragm is still held into sealing contact with the bowl B. After the diaphragm has expanded the operator can then exert a greater pressure on the member 10, so as to force the water out from the member 10. This gives 15 greater pressure to the water, and by alternately increasing and decreasing pressure on the member 10, the water can be caused to pulsate against the obstruction, which tends to wash the drain pipe clean.

When the operator forces the cup 10 down against the diaphragm, the water will have a tendency to flow up into the vent pipe 7, and when the operator decreases his pressure on the bowl 10, the head of water in the vent pipe 7 will also act against the obstruction and tend to free the pipe. This forms an effective method for cleaning most obstructions from drain pipes.

The device is particularly useful in cleaning and washing drain pipes which are not totally clogged, as hot water can be forced under pressure from the hot water pipe into the drain, and the hot water flowing through the drain pipe will clean and wash the pipe.

Changes in details may be made without departing from the spirit or the scope of the invention, but what we claim as new is:—

1. A waste pipe cleaner for plumbing systems comprising a thin, metallic, inverted cup-shaped member, an apertured expansible and contractible diaphragm secured to the open portion of the cup member, and a fluid-conducting pipe in communication with the cup member.

2. A waste pipe cleaner for plumbing systems comprising a thin, metallic, inverted cup-shaped member, an apertured expansible and contractible diaphragm secured to the open end of the cup-shaped member, a flexible fluid-conducting pipe communicating with the cup at one side thereof, and an operating handle secured to the center of the cup-shaped member.

MARIAN F. SZUKALSKI, JR.
MARIAN A. SZUKALSKI, SR.