

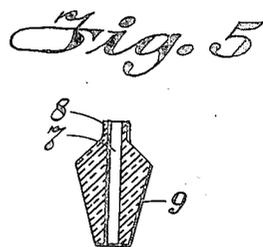
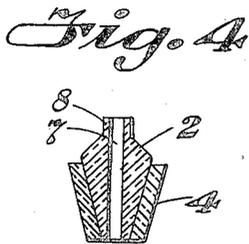
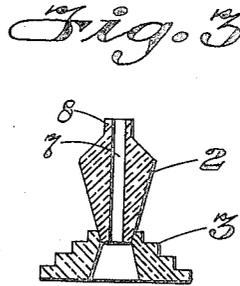
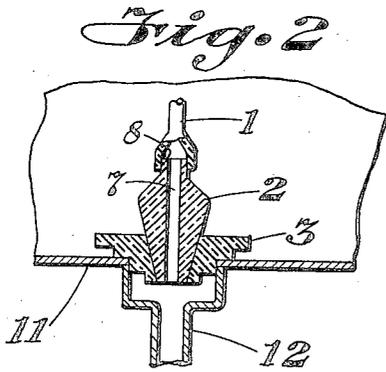
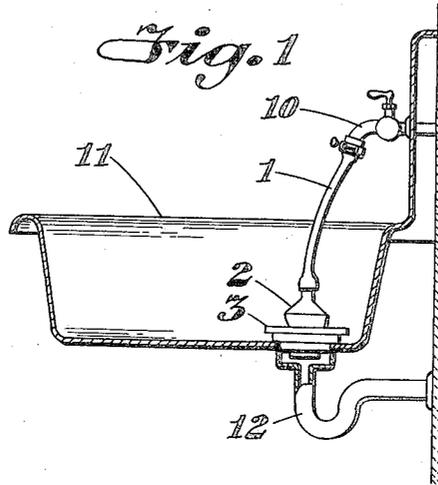
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DRAIN CLEANER

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## DRAIN CLEANER

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2 Claims. (Cl. 4—256)

The present invention relates to devices for removing obstructions from the drain pipes of sinks, tubs, basins, or the like.

The object of the invention is to provide a means simple in structure and in operation and in certain instances self-sealing and in other instances capable of being held in sealing position over the drain by the hand of the operator while fluid of the highest or lowest temperature is passing through the flushing device either under gravity or pressure. Still further objects and advantages attaching to the device and to its use and operation will be apparent to those skilled in the art from the following particular description and from the appended claims.

In accordance with these objects the invention comprises a resilient truncated cone shaped member, of soft rubber, for example, having smooth inner walls and a series of circular steps on the outer wall thereof, the interior opening of said member, in the preferred embodiment, being a truncated cone adapted to receive a similar cone shaped part of a double truncated cone member of heat insulating material, of hard rubber, or wood, for example, which is provided with a central passageway for fluid, the other end of said double truncated cone member being connected through a hose to a water faucet, or other suitable supply of fluid material under pressure, if desired. Furthermore, the hose leading from the faucet to the double truncated cone member, when desired, is of hard rubber or metal, rigidly coupled to the faucet to hold the member of soft material in the drain or over the drain thus making it possible to use with safety for flushing purposes all sorts of cleaning fluids under pressure, if desired, thus avoiding the escape of steam or volatile or poisonous gases or vapors in the room where the drain is located.

In the drawing accompanying and forming part of this specification several embodiments of my invention are shown in which

Fig. 1 is a sectional view of a sink with one embodiment of the new and novel flushing device in operative position therein,

Fig. 2 is a side elevational sectional view of the flushing device in the drain of the sink illustrated in Fig. 1.

Fig. 3 is a sectional view of the same embodiment of the invention shown in Fig. 1 the parts thereof being arranged in a different operative position than that shown in Fig. 1.

Fig. 4 is a sectional view of another embodiment of my invention, and

Fig. 5 is a similar view of another embodiment of my invention.

Like numbers denote like parts in all the figures.

Referring to Figs. 1 and 2 of the drawing the new and novel flushing device comprises a flexi-

ble truncated cone shaped sealing member 3, of soft rubber, for example. The outer walls of said member 3 have a multiplicity of circular steps thereon. Said steps are of different diameter so that said member 3 is adapted to fit into and seal circular drains of various diameters. The inner wall of said member 3 is smooth and is likewise shaped as a truncated cone to fit and make a sealing joint with the smooth walls of a double truncated cone member 2. Said member 2 is made of a stiff insoluble, heat insulation material, such as hard rubber, wood, or the like, and the walls thereof are solid and thick as illustrated in Fig. 2. A passage 7 extends lengthwise through said member 2 and the end of said member 2 opposite that end adapted to be inserted in said member 3 is provided with a nipple 8. A flexible hose 1, made of rubber for example, is slipped over said nipple 8 and makes a frictional joint therewith. The end of said hose 1 which is slipped over the faucet 10, or both ends of said hose 1, when desired, is flared and adapted to be bent back on itself to fit and make a strong frictional joint with faucets of various sizes.

One method of utilizing the new and novel flushing device is illustrated in Figs. 1 and 2 of the drawing. The member 3 is inserted in the opening of a drain 12 of the sink 11 in such manner that the bottom and sides of one of the circular steps on the outer wall of said member 3 is contiguous to or adjacent the walls of the opening of the drain 12. The member 2 is then inserted in the member 3 and the hose 1 is slipped over the nipple 8 and slipped over the nozzle of faucet 10, or clamped thereto as shown in Fig. 1. A downward force exerted by the hand of the operator is applied to the upper truncated cone part of said member 2. This downward force presses the bottom and side walls of the circular step of the flexible member 3 against the walls of the drain 12 to seal the joint between the member 3 and the drain 12. The joint between the outer wall of the bottom truncated cone shaped part of member 2 and the inner wall of said member 3 is also sealed by this downward force. The members 2 and 3 are locked in position in the mouth of the drain 12 due to the fractional joint between the outer wall of said member 2 and the inner wall of said member 3 and between the outer walls of said member 3 and the walls of the mouth of the drain 12. It will be found advantageous to wet the walls of said members 2 and 3 when putting them together and these parts will then be found to adhere to each other. The cock is then opened in said faucet 10 and water runs through the flushing device 1, 2 and 3 into the drain 12. The pressure of the water forces and flushes the obstruction from the drain 12.

Where the mouth of the drain is covered by a

strainer which cannot be removed to permit the insertion of the member 3 into the mouth of the drain as illustrated in Fig. 1 the members 2 and 3 are arranged in the manner illustrated in Fig. 3. In this arrangement the end of said member 2 opposite the nipple 8 is inserted into the smaller end of said member 3 and the larger end of said member 3 is placed over the mouth of the drain. The hose 1 is attached to the nipple 8 and the faucet 10 in the manner described heretofore. A downward force is then applied to said member 2 which presses the bottom, flat, or inwardly bevelled wall of said member 3 against the surface of the sink adjacent and surrounding the mouth of the drain thus producing a seal thereabout. Water or other fluid under pressure is then caused to pass through the flushing unit to flush out the drain and remove obstructions therefrom. The thick, heat insulating walls of said member 2 protect the hand of the user so that fluids of the highest or lowest temperature can be used for flushing purposes with perfect safety to the operator.

Fig. 4 illustrates a simple embodiment of my invention. In this embodiment the lower truncated cone part of the member 2 is provided with a layer 4 of resilient material, such as soft rubber. In other respects said member 2 is of the same structure as that described in conjunction with Figs. 1, 2 and 3. The lower end of said member 2 is inserted into the open end of a drain. A downward pressure exerted on said member 2 forces the flexible layer 4 thereof against the wall of the mouth of the drain to seal said mouth. A cleaning fluid under pressure is then caused to flow through the passage 7 in said member 2 and into the drain; the downward force is continually applied to said member 2 during the flushing period.

The simplest embodiment of my invention is illustrated in Fig. 5 wherein cone shaped member 9 is similar in shape to member 2 but is made of a resilient material, such as soft rubber similar to said member 3. This embodiment of the invention is used in the same manner as that illustrated in Fig. 4. When fluid under pressure is caused to flow through the passage 7 in said member 9 the pressure of the fluid forces the walls of said passage outward to seal the outer walls of the cone 9 against the walls of the mouth of the drain. When it is desired to exert a downward force of greater magnitude than that force which may be exerted on said member 9 without forcing the passage 7 closed the wall of said passage 7 is hardened or a straight rigid tube, such as a metal pipe, is inserted in said passage 7. The outer walls of said tube are in sealing relation to the inner walls of said passage 7.

It will of course be understood that when the members 2, 3 or 9 are in sealed position in or over the drain the water from the water supply system to which faucet 10 is connected passes into the drain 12 at the pressure of the system, which is usually above 20 pounds, and fills the intervening space behind the obstruction building up a force greater than that which the obstruction can withstand, which results in the obstruction being forced along and broken up by the action of the water behind it until it is removed from the drain pipe 12 whereupon the operator will perceive that the water is flowing

freely through the drain cleaning members 1, 2, 3 or 9 and will know then that the drain is free from the obstruction.

In the use of my new drain cleaner I have discovered that by using resilient material, such as soft rubber, in sealing the drain that where the drain pipe 12, for example, is constructed to withstand pressures of 50-60 pounds the resilient material 3, 4 or 9 of my devices can be of such a character that it is forced upward on the cone member 2 and thus unsealed, say at pressures of 25 pounds or over, before destructive pressures are created in the drain pipe 12. This is an advantage in the use of the device in connection with household plumbing but in those cases where the drain pipe 12 will withstand the pressures of the water supply system, the sealing members 3, 4 or 9 are selected accordingly.

For the member 2 I prefer to use wood, such as white birch, maple, coated inside and outside with a water proof material, such as enamel baked thereon. The finished product thus presents a pleasing appearance and permits the passage of hot water therethrough for many hours without the outside thereof, with which the operator's hand comes in contact, becoming too hot to the touch for comfort in using the device. With this embodiment the rubber members 3 or 4 are slipped on in the manner described above.

While I have shown and described and have pointed out in the annexed claims certain novel features of the invention, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its use and operation may be made by those skilled in the art without departing from the broad spirit and scope of the invention.

I claim as my invention:

1. A drain cleaner comprising a truncated cone having an opening therethrough of substantially uniform diameter one end of which is adapted to be connected to a source of fluid under pressure, the other end of said passage being adapted to discharge said fluid into a drain, said truncated cone being of rigid, heat insulating material and a member of resilient material adapted to fit over one end thereof in frictionally sealed relation, the outer wall of said resilient member being a multiplicity of circular steps adapted to seal to a drain, the largest outside diameter of said cone being substantially greater than the diameter of said opening therethrough.

2. A drain cleaner comprising a conical member having two conically shaped portions of different height having a common base and extending in opposite directions, said conical member having an opening therethrough of substantially uniform diameter one end of which is adapted to be connected to a source of fluid under pressure, the other end of said passage being adapted to discharge said fluid into a drain, said conical member being of rigid, heat insulating material and a member of resilient material adapted to fit over one end thereof in frictionally sealed relation, the outer wall of said resilient member being a multiplicity of circular steps adapted to seal to a drain, the largest outside diameter of said cone being substantially greater than the diameter of said opening therethrough.

RAYMOND D. WOODWARD.