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DRAIN CLEANER

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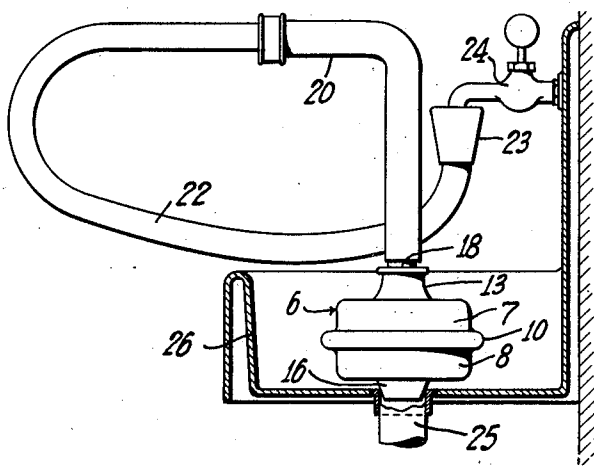


Fig. 1.

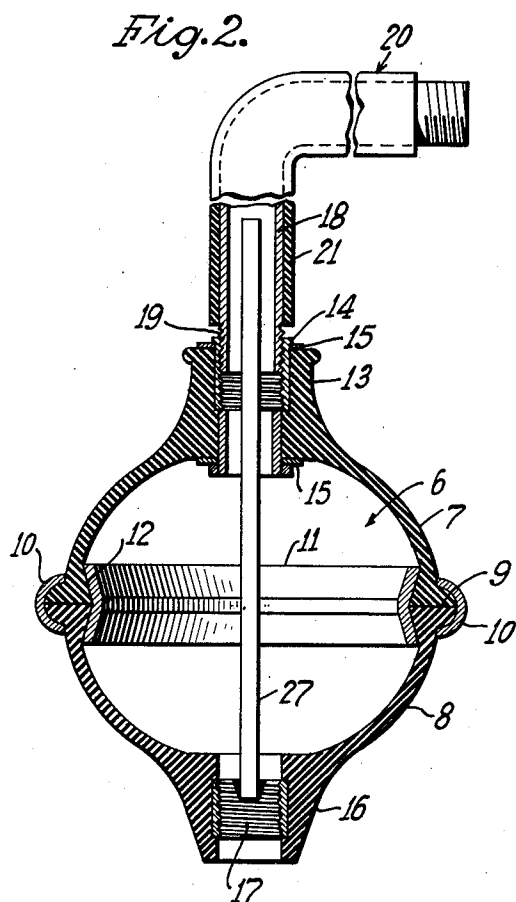


Fig. 2.

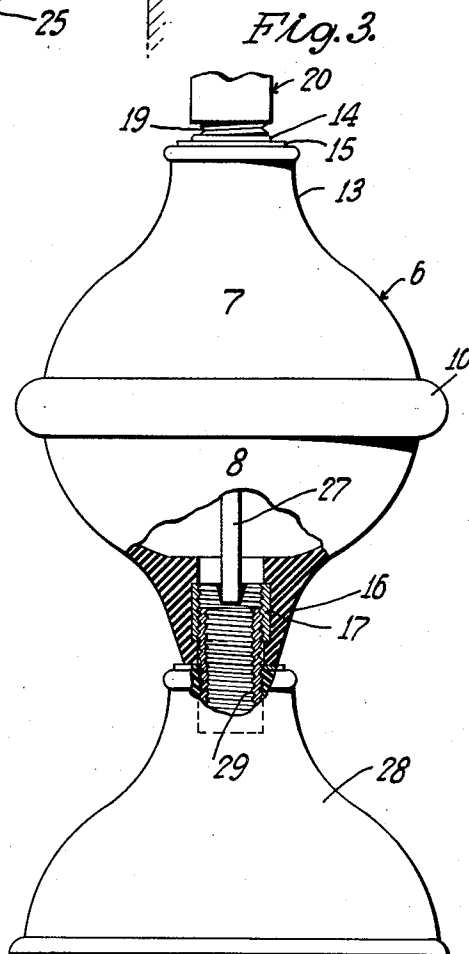


Fig. 3.

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DRAIN CLEANER

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10 Claims. (Cl. 4—256)

This invention relates to apparatus for relieving stoppage in drain pipes or the like.

One of the main objects of the invention is to provide simple, hand-operated apparatus of the above type which is capable of relieving virtually any degree of stoppage commonly met with in drain pipes.

A further object is to provide such apparatus which may be constructed of readily available materials.

A still further object is to provide such apparatus as may be used with equal facility whether or not the pipe is protected by a screen.

Further objects will in part be obvious and will in part appear from the following general description.

One embodiment of the invention will now be described, as a non-limiting example, in connection with the accompanying drawing in which:

Figure 1 is a side elevation of apparatus constructed in accordance with the invention, showing the same in use in a wash basin;

Figure 2 is a view in vertical section of the main portion of the apparatus; and

Figure 3 is a side elevation, partly broken away, showing a modification of the invention.

The main part of the apparatus of the invention comprises a substantially spherical body 6 of resilient material, which may conveniently be composed of a pair of rubber force cups 7 and 8 as shown in Fig. 2, and which are cemented or otherwise securely joined together at 9. Joint 9 is strengthened on the outside by a suitable watertight binding 10. The whole construction is reinforced in the inside by a light metal member such as V-pulley 11 of aluminum or similar material, to which force cups 7 and 8 are cemented at 12.

Handle end 13 of force cup 7 is provided with a suitable tapped fitting 14, shown as being held in place by washers 15. Handle end 16 of force cup 8 is preferably tapered as shown, and is interiorly provided with a tapped fitting 17.

Handle means for the apparatus are provided, composed of rigid pipe member 18, threaded at 19 for attachment to fitting 14, and preferably bent at right angles to form section 20 to facilitate handling in use. Pipe 18 is preferably provided with an insulating sheathing 21. Hose 22 is secured to pipe 18 and is provided at its other end with a suitable fitting such as 23 for attachment to a source of running water such as faucet 24.

Fig. 1 shows the general arrangement of the apparatus in use, with hose 22 connected to a source of running water, and tapered end 16 of ball 6 inserted in drain 25 of wash basin 26. The water

is turned on until the apparatus and that portion of the drain between it and the stoppage are full of water. Then with the water still running, the device is given one or more rapid pumping strokes by means of sudden pressure on handle 20, causing ball 6 to collapse as shown in Fig. 1. Since there is an incompressible column of water between the device and the stoppage, the effect is to transmit the strokes given to the device directly to the point of the stoppage. The shape of force cup 8 tends to prevent any loss of pressure at the jointure between it and the drain, and in order to prevent any sidewise displacement, there is provided a rigid rod member 27, suitably secured to fitting 17 and adapted to pass up into and telescope with pipe 18 when the ball is collapsed.

When the drain to be cleared has a screen or other formation at its mouth which may prevent the insertion of taper 16, the modification of the apparatus shown in Fig. 3 is used. This modification includes an additional force cup 28 suitably secured to ball 6 by a threaded fitting 29 screwed into fitting 17. Force cup 28 is placed over the entrance to the screened drain, and then the apparatus is operated as described above.

It will be seen that this invention provides simple and thoroughly effective apparatus for relieving virtually any degree of stoppage in a drain or pipe. It will be seen also that the invention teaches the accomplishment of the above results by means of simple and readily available materials. Thus, within the scope of the invention, ball 6 may obviously be made of one piece, but the use of the force cups is simpler and obviates the necessity of a specially molded ball.

Since certain changes in carrying out the above process, and certain modifications in the article which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

What is claimed is:

1. A drain cleaner comprising in combination, a substantially spherical hollow body of resilient material, said body being provided with a hollow handle opening into said body and fitted for attachment to a source of running water, said body

being adapted at a point opposite said handle for insertion into a drain pipe and provided with an aperture at said point; and reinforcing means within said body for preventing sidewise displacement of a portion thereof, said reinforcing means being adapted to telescope with said handle when said body is collapsed or pulsated.

2. A drain cleaner comprising in combination, a substantially spherical hollow body of resilient material, said body being provided with a hollow handle opening into said sphere and fitted for attachment to a source of running water, said body being adapted at a point opposite said handle for insertion into a drain pipe and provided with an aperture at said point; and a rigid member mounted in said aperture and adapted to pass into said handle member when said body is collapsed or pulsated, thus preventing sidewise displacement thereof.

3. Apparatus for relieving stoppage in drains, comprising in combination a hollow rubber ball adapted to have a portion thereof inserted in a drain and provided at such portion with an aperture, said ball having a second aperture in its circumference opposite said first aperture; a rigid hollow handle member secured in said second aperture and fitted for attachment to a source of running water; and reinforcing means within said ball for preventing sidewise displacement of a portion thereof during operation.

4. Apparatus for relieving stoppage in drains, comprising in combination a hollow rubber ball adapted to have a portion thereof inserted in a drain and provided at such portion with an aperture, said ball having a second aperture in its circumference opposite said first aperture; a rigid hollow handle member secured in said second aperture and fitted for attachment to a source of running water; and rigid reinforcing means mounted in said ball and adapted to pass into said handle member when said ball is collapsed, thus preventing sidewise displacement thereof.

5. Apparatus for relieving stoppage in drains, comprising in combination a hollow rubber ball adapted to have a portion thereof inserted in a drain and provided at such portion with an aperture, said ball having a second aperture in its circumference opposite said first aperture; a force cup provided with an axial aperture coaxially joined to said ball at said second aperture; a rigid hollow handle member secured in said second aperture and fitted for attachment to a source of running water; and telescoping reinforcing means within said ball for preventing sidewise displacement of a portion thereof during operation.

6. Apparatus for relieving stoppage in drains, comprising in combination, a pair of rubber force

cups secured together at their rims, each of said cups being provided with an axial aperture; a hollow handle member secured in one of said apertures, fitted for attachment to a source of running water and adapted to impart a pumping action to said apparatus; and telescoping reinforcing means within said body for preventing sidewise displacement thereof.

7. Apparatus for relieving stoppage in drains, comprising in combination, a pair of rubber force cups secured together at their rims, each of said cups being provided with an axial aperture; a hollow handle member secured in one of said apertures, fitted for attachment to a source of running water and adapted to impart a pumping action to said apparatus; and a rigid member mounted in the other of said apertures and adapted to pass into said handle member when said apparatus is in operation and prevent sidewise displacement thereof.

8. Apparatus for relieving stoppage in drains, comprising in combination, a pair of rubber force cups secured together at their rims in a water-tight joint; rim means for reinforcing said joint; each of said cups being provided with an axial aperture; a hollow handle member secured in one of said apertures, fitted for attachment to a source of running water and adapted to impart a pumping action to said apparatus; and reinforcing means within said body for preventing sidewise displacement thereof.

9. Apparatus for relieving stoppage in drains, comprising in combination, a pair of rubber force cups secured together at their rims, each of said cups being provided with an axial aperture; a hollow handle member secured in one of said apertures, fitted for attachment to a source of running water and adapted to impart a pumping action to said apparatus; reinforcing means within said body for preventing sidewise displacement thereof; and a third force cup provided with an axial aperture coaxially joined thereby to the other of said first named apertures.

10. Apparatus for relieving stoppage in drains, comprising in combination, a pair of rubber force cups secured together at their rims in a water-tight joint; rim means for reinforcing said joint; each of said cups being provided with an axial aperture; a hollow handle member secured in one of said apertures, fitted for attachment to a source of running water and adapted to impart a pumping action to said apparatus; reinforcing means within said body for preventing sidewise displacement thereof; and a third force cup provided with an axial aperture coaxially joined thereby to the other of said first named apertures.

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