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ANTI-CLOGGING DEVICE FOR ROOF DRAINS

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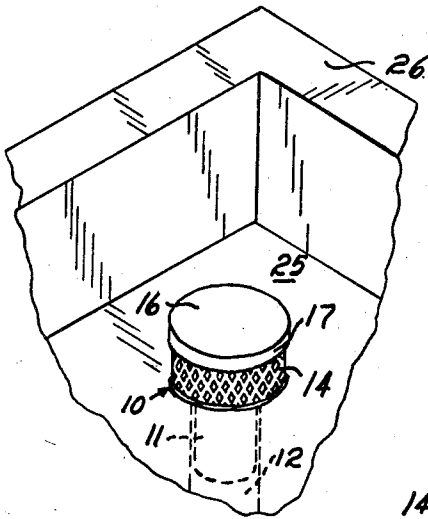


Fig. 1.

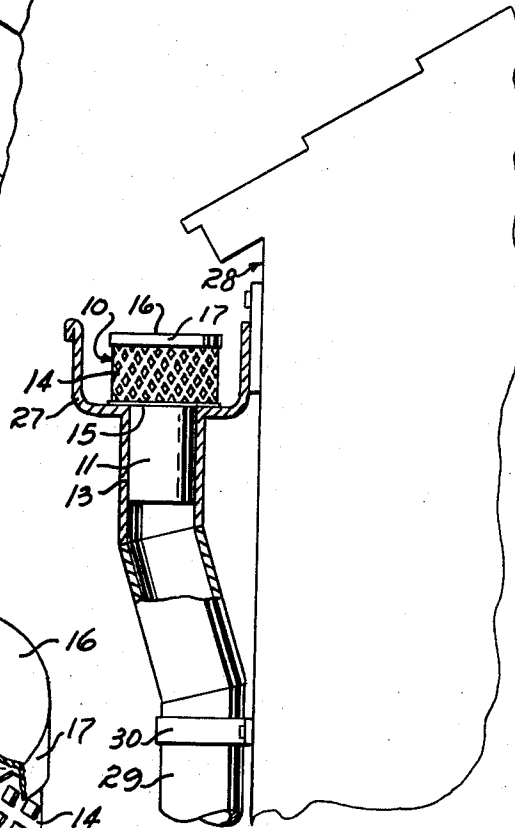


Fig. 2

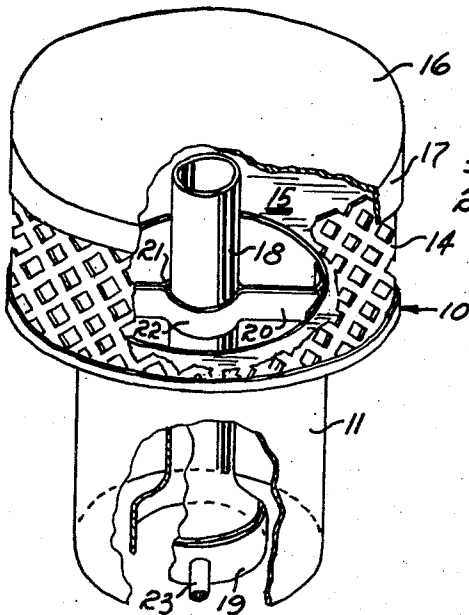


Fig. 3.

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1

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ANTI-CLOGGING DEVICE FOR ROOF DRAINS

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1 Claim. (Cl. 210-463)

This invention relates to a roof drain or downspout anti-clogging device.

It is an object of the present invention to provide an anti-clogging device having a vent to break the suction produced by the water being discharged through the downspout or roof drain.

It is a further object of the invention to provide an anti-clogging device having a covered strainer to prevent the entrance of debris into a downspout or roof drain and a suction breaker to prevent the accumulation of debris about the strainer.

It is a still further object of the invention to provide an anti-clogging device having a flared vent member to introduce air into a downspout or roof drain over its entire area.

Other objects of the present invention are to provide a roof drain or downspout anti-clogging device which is of simple construction, inexpensive to manufacture, has a minimum number of parts, is easy to use and install in a roof drain or a downspout, is compact and of unitary structure, and is efficient in operation.

For other objects and a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of the anti-clogging device installed in a roof drain;

Fig. 2 is an elevational view of the device, with parts broken away, installed in a gutter downspout leader;

Fig. 3 is a perspective view, with parts broken away, of the anti-clogging device.

Referring now to Fig. 3, 10 represents the anti-clogging device which comprises a lower hollow cylindrical portion 11 of such size as will fit removably within a roof drain 12, Fig. 1, or within a downspout lead 13 (Fig. 2). Hollow cylinder 11 will be of such length that it will remain firmly fixed within downspout leader or roof drain and of only slightly less diameter than either so that it will not tend to become dislodged and so that debris cannot be swept down outside the cylinder.

A cylindrical strainer 14 of suitable perforated material is secured to an annular member 15, which, in turn, is secured to the upper end of cylindrical member 11.

A cap 16 having a depending flange 17 is removably placed upon cylindrical strainer 14 to prevent the entry of debris should the water level rise above the top of the device. Cap 16 is shown with a flat top, but, as will be explained later, the use of a dome-shaped top will be advantageous in many applications of the device.

A hollow vent tube 18, flared at its lower end to provide an enlarged hollow cylindrical portion 19, is centrally disposed within the device 10. The top of tube 18 will extend to a point just below cap 16 so that it will admit air to the drain or downspout even though the water level rises about strainer 14. If the top of cap 16 is dome-shaped, instead of flat, the danger of sealing off vent 18 where pressure is accidentally imposed upon

2

the cap will be avoided. For many applications, the use of the dome-shaped cap will obviously be preferred.

Vent tube 18 is held in centrally disposed position within hollow cylinder 11 by means of clamping members 20 and 21, which are soldered to the internal walls of cylinder 11 and receive the tube within central curved portions 22. Tube 18 may be secured to curved portions 22 by means of solder or a collar (not shown) may be affixed to the tube above the clamping members to prevent downward movement of the vent tube. At its lower end 19 the tube is held in position by means of cross pieces 23 which are secured to the internal walls of cylinder 11 and to the end 19 by means of solder. If desired, openings can be provided in the walls of cylindrical portion 19 so that the cross piece will pass directly through the vent to eliminate all possibility of downward displacement.

In Fig. 1, a device 10 is shown in position in a roof drain 12 of a roof 25 surrounded by a parapet 26.

In Fig. 2 a device 10 is shown in position in a downspout lead 13 of the gutter 27 attached to a building 28. The leader connects with a downspout 29, which is secured to the building by means of clamps 30.

The device 10 as shown is provided with but one centrally disposed vent tube 18. If an increased venting effect is desired, two or more suitably disposed vents may be provided within a single device.

When water accumulates on roof 25 or in gutter 27, it will pass through strainer 14 and cylindrical portion 11 of the device into the roof drain or the downspout. Strainer 14 and cap 16 will prevent the entry of debris into the drain or downspout at all times.

When a heavy rain is falling and large amounts of water have to be removed from a roof or a gutter, the roof drain and the downspout, and also the drain lines beyond these, become so filled with streams of flowing water that a powerful suction is exerted right back to the roof or gutter. As a result, any debris present are drawn about whatever screen might be present so that it quickly becomes clogged, cutting off the water flow. If no screen is present, the drain or downspout itself will become clogged.

When applicant's device 10 is placed in the roof drain or downspout, as described and shown, air will be drawn into the roof drain or downspout, breaking the suction by keeping a large amount of air in the line just below the vent. The flared lower end 19 of the vent increases the suction-breaking effect because it introduces air over a larger portion of the area of cylinder 11.

The use of a plurality of venting tubes further increases the suction-breaking effect because the amount of air introduced is increased and also because it is better distributed across the line. With the effect of the suction thus broken, the tendency for debris to clog the strainer is eliminated and drainage even in a severe storm is greatly improved.

The device can be made to fit various sizes and types of roof drains and downspout leaders. Where necessary, it may be of a shape other than cylindrical. The device will, of course, be made of materials suitable for use in a roof drainage system.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claim.

What is claimed is:

An anti-clogging device for a downspout drain comprising a hollow cylinder adapted to be fitted into the open upper end of the downspout, an annular member secured to the upper end of the cylindrical member and providing a shoulder by which the device can be rested upon the upper end of the downspout, a perforated cyl-

3

inder fixed to the outer periphery of the annular member and extending upwardly therefrom, a cover removably fitted upon the upper end of the perforated cylinder, clamping members secured across the upper end of the cylindrical member, said clamping member having opposed curved portions, said curved portions being concentric with the center of the cylindrical member, a hollow bent tube extending centrally through said cylindrical members and secured between the opposed curved portions of the clamping members, the open upper end of said vent tube lying below said cover to permit the entrance of air thereinto and extending downwardly to the lower end of the cylindrical member, the lower end

4

of said hollow vent tube being flared and of greater diameter than the portion of the tube extending between the clamping members, and cross pieces extending between the flared lower end of the hollow vent tube and the internal wall of the cylinder to rigidly hold the tube within the cylinder and against downward displacement therefrom.

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