Aug. 27, 1968 H. W. HORNQUIST 3,398,830

DRAIN GUARD

Filed Dec. 6, 1965

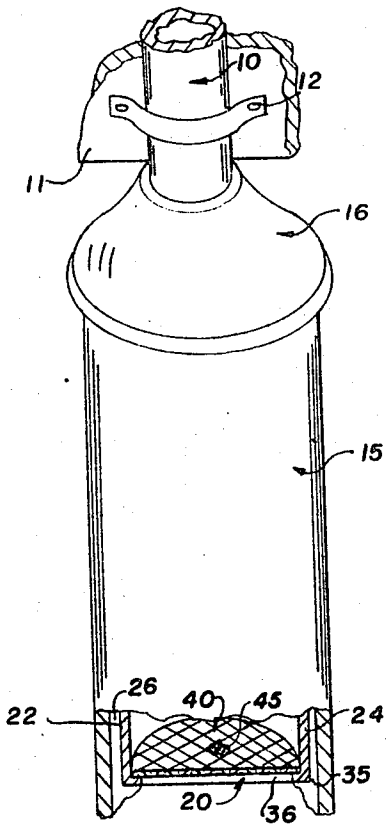


Fig. 1

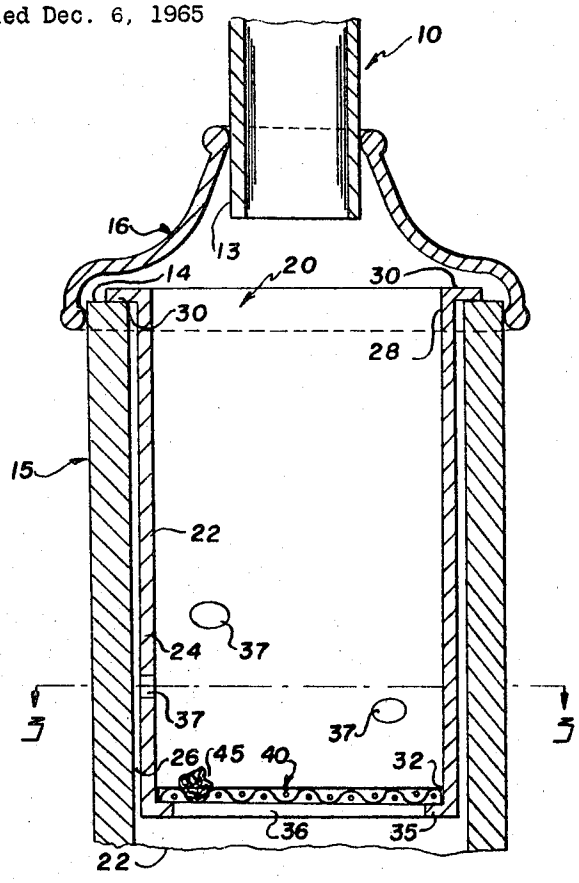


Fig. 2

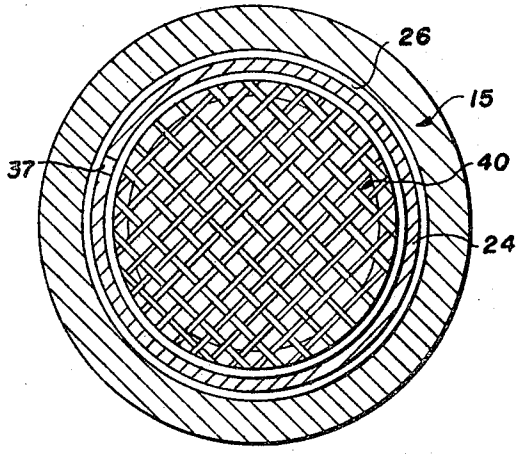


Fig. 3

INVENTOR
HOLGER W. HORNQUIST
BY
Fetherstonhaugh & Co.
ATTORNEYS

United States Patent Office 3,398,830 Patented Aug. 27, 1968

3,398,830

DRAIN GUARD

Holger W. Hornquist, 424 5th Ave. S., Port Alberni, British Columbia, Canada

Filed Dec. 6, 1965, Ser. No. 511,669
4 Claims. (Cl. 210—153)

ABSTRACT OF THE DISCLOSURE

A drain guard having an open-ended tube suspendable in an upright position in the open upper end of a drain pipe beneath a downspout, the lower end of the tube being provided with a loose tiltable screen, said tube, downspout and screen being arranged so that the screen is cleaned by tilting after the tube is slipped upwardly over the downspout.

This invention relates to drain guards for drain tiles normally employed in receiving run-off water from buildings and the like.

In the construction of buildings, the rain water from the roofs thereof is usually conducted by way of perimeter gutters and vertical drain spouts into the open end of an underground conduit system usually formed of drain tiles.

The drain tiles are normally large diameter pipe having an open vertical end located directly beneath the down spouts which convey the water from the gutter. During the course of rain, trash in the form of tree leaves, twigs, sand, etc., will be washed down the down spouts and into the drain tiles. If the run-off is not of a great volume, the trash will quite often deposit in the drain tiles, gradually building up therein and eventually plugging the latter. Screens and the like have been placed over the open upper ends of the drain tiles to receive the trash, however, these screens may very quickly plug up and cause an overflow at the juncture of the down spout and the drain tile.

The present invention provides a holder for a screen which will retain the trash but which, however, is so arranged that when and if the screen should plug up, the water may yet escape into the drain tile.

Another problem with the use of screens over the open ends of the drain tile lies in the fact that the down spouts are usually secured rigidly to the side of the building and are centered over the drain tile and quite often must be moved to one side or the other of the drain tile in order to clean the trash screens. The present invention overcomes this problem by providing a drain guard which may be cleaned of trash and the like without the necessity of moving the down spout relative to the drain tile.

The present invention furthermore is so arranged as to permit removal of the trash retained by the cover without the necessity for moving the drain spout.

It is also envisaged that the present invention shall include a water soluble herbicide which may be supported by the screen and which when contacted by drain water will be carried in solution therewith through the drain tile so as to contact and kill plant life which so very often grows in the tile and eventually plugs the latter.

The present invention comprises an elongated cylindrical tube open at each end to form a through passage, said tube being of smaller cross sectional dimension than the cross sectional dimension of the drain tile so as to permit the insertion of the tube into an open end of the latter, means at one end of the tube engageable with the end of the drain tile for suspending the former in an upright position within the latter, and means at the other end of the tube extending partially into the through passage for removably supporting a screen therein.

In the drawings which illustrate the invention,

FIGURE 1 is an isometric view of the drain tile and down spout with the drain guard in position therein, portions of the drain tile being removed for clarification.

FIGURE 2 is a vertical section of the invention installed in a drain pipe, and

FIGURE 3 is a section of the invention taken along line 3—3 of FIGURE 2.

The construction of buildings requires the use of gutters which collect the water from the roofs of buildings and lead it at intervals to down spouts connected to the gutters which extend vertically therefrom and discharge at their lower ends into the open upper ends of underground drain tiles which carry the rain water into the underground drainage system with which most building areas are supplied.

In the drawings there is illustrated a down spout **10** which is normally secured in a vertical position to a building **11** by U-shaped straps **12**. The down spout **10** terminates at its lower end **13** an inch or two above the upper end **14** of the drain tile **15**, the drain tile being of considerably larger diameter than the down spout. There is usually also provided a cap **16** of an annular nature which is slidably fitted over the lower end **13** of the down spout and over the upper end **14** of the drain tile, the cap being employed to prevent foreign objects from being inadvertently dropped into the drain tile.

Leaves, twigs and the like which normally enter the down spout from the gutters and which are thence discharged into the drain tile normally cause no problem where run-off is heavy. However, during periods of relatively light rain fall, the trash quite often builds up, due to the light water flow, and eventually plugs the drain tile so that during periods of heavy run-off, the water will quite often overflow over the upper end **14** of the drain tile.

The drain guard apparatus, herein accorded the numeral **20**, has a body portion **22** taking in the form of an elongated cylindrical tube having relatively thin walls **24**, the external diameter of the latter being less than the internal diameter of the drain tile **15** so as to permit the drain guard to be insertable into the open upper end of said tile, the fit being loose enough so that an annular passage **26** is provided between the wall of the tile and the drain guard.

At one end **28**, being the upper end of the drain guard when it is in position within a drain tile, there is formed an external annular flange **30** which, when the drain guard has been fully inserted in the pipe, will lap over the upper end **14** of the drain tile and support the drain guard in a vertical position therein. At the other or lower end **32**, the wall **24** of the body portion is provided with an inwardly extending annular flange **35** having a large diameter central opening **36** so that there is provided a through passage through the guard.

The walls **24** of the body portion are also provided, substantially intermediate between both ends thereof, with perforations **37**, these perforations thereby providing communication between the annular passage **26** and the last-mentioned through passage.

The annular flange **35** serves as a seat for a screen **40**. This screen is circular in shape and loosely fits inside the body portion **22** so as to be easily removable therefrom, and thereby provide means whereby screens having varied mesh sizes may be employed dependent upon the circumstances under which the drain guard is to operate.

In the use of the drain guard, the latter is inserted as shown in FIGURES 1 and 2, into the drain tile **15** with the annular flange **26** resting upon the upper end **14** of the latter.

During periods of rain fall, trash, including leaves,

twigs and the like which may be washed from the roof of a building down the drain spout, will be caught by the screen **40**. It will be appreciated that the trash will gradually build up in the screen and eventually plug the latter. However, when this occurs, the perforations **37** will permit continued operation of the drain guard passing the water into the annular passage **26**.

Intermittent cleaning of the drain guard must, of course, be carried out. In order to do this, it is only necessary to slide the cap **16** upwardly along the drain spout, then lift the drain guard upwardly until the lower end **32** clears the upper end **14** of the drain tile. It is then only necessary for the individual carrying out the operation to slide his hand beneath the lower end of the drain guard and press upwardly on one side of the screen **40** in order to tip the latter. This will naturally expose the trash collected therein which may then be removed and discarded. When the screen has been fully cleaned, it may then be lowered on to the flange **35** and the drain guard and cap replaced in their former position.

It will be seen that the cleaning operation as described above may be carried out without disturbing either the down spout or drain tile and, if it becomes necessary to install a new screen, this may be easily done by lifting the drain guard fully out of the drain tile, placing it in an off-centre position relative to the drain spout, and dropping a new screen downwardly thereinto.

The tendency for plant life to flourish in drain tile is well known, the growth therein eventually plugging the tile and in most instances necessitating its removal and cleaning.

The present invention, therefore contemplates the employment of a herbicide, preferably of the water soluble type, e.g., 2, 4, 5-T, which may be compressed in tablet or pellet form and which is positioned in screen **40** so as to be contacted and dissolved by drain water passing through the guard. The herbicide will of course prevent the growth of plates in the drain tile and therefore maintains the tile in a clean condition.

In FIGURES 1 and 2 a pellet **45** is illustrated resting on the screen **40**. This pellet should be of a size that it will not hinder passage of water through the guard.

What I claim as my invention is:

1. Drain guard apparatus for vertical drain tile comprising an elongated cylindrical tube open at each end to form a through passage, said tube being of smaller cross

sectional dimension than the cross sectional dimension of the drain tile so as to permit the insertion of the tube into an open end of the latter, an external annular flange at one end of the tube engageable with the end of the drain tile for suspending the former in an upright position within the latter beneath a downspout, an internal annular flange at the other end of the tube extending partially into the through passage, and a thin flat screen seated on the internal annular flange, said screen loosely fitting in the tube so as to permit it to be arranged in a tilted position relative to the latter, said downspout, tube and screen being constructed so that the screen is cleaned by tilting the same after the tube is slipped upwardly over the downspout.

2. Drain guard apparatus as claimed in claim **1** in which the cross sectional dimension of the tube relative to the tile is such as to form an annular space therebetween and including perforations formed in the tube above the screen element for permitting communication between the through passage and the annular passage.

3. Drain guard apparatus as claimed in claim **1** including a water soluble herbicide adapted to be supported by the screen so as to be contacted by water passing through the guard.

4. Drain guard apparatus as claimed in claim **3** in which the herbicide is formed as a pellet, the dimensions of which are such so as to provide clear passage for drain water through the passage.

References Cited

UNITED STATES PATENTS

232,820	10/1880	Hicks	210—499 X
644,262	2/1900	Stair	210—238
810,879	1/1906	Perry	210—463 X
1,074,375	9/1913	Miller	210—446
1,204,756	11/1916	Goldblatt	210—446 X
1,230,024	6/1917	Pritchard	210—446
1,504,233	8/1924	Graham	210—446
2,449,731	9/1948	Therrien	285—285
2,669,358	2/1954	Young	210—460
2,787,499	4/1957	Rolston	299—69

REUBEN FRIEDMAN, *Primary Examiner.*

F. SPEAR, *Assistant Examiner.*