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(71) Applicant : **Bolton, Frank Edward**
253 Mereside Way, Olton
Solihull, West Midlands B92 7AY (GB)
(71) Applicant : **Bolton, Rebecca Stephanie**
253 Mereside Way, Olton
Solihull, West Midlands B92 7AY (GB)
(71) Applicant : **Walton, Tracey Allison**
253 Mereside Way, Olton
Solihull, West Midlands B92 7AY (GB)
(71) Applicant : **Yildrim, Deborah Jane**
253 Mereside Way, Olton
Solihull, West Midlands B92 7AY (GB)

(72) Inventor : **Bolton, Frank Edward**
253 Mereside Way Olton, Solihull
West Midlands B92 7AY (GB)
Inventor : **Viner, Peter**
28 Deerstone Ridge
Wetherby LS22 4XN (GB)

(74) Representative : **Cundy, Anthony Brian et al**
Anthony Cundy & Company 384 Station Road
Dorridge
Solihull West Midlands B93 8ES (GB)

(54) Drain guard.

(57) A drain guard for covering the drain opening into which a pipe discharges comprising a main generally horizontal cover panel (13). The cover panel incorporates an opening for receiving a drain pipe and this opening is at least partially closed by two sets of mutually spaced fingers (19, 21). The fingers are directed towards each other across the opening and can be trimmed selectively to provide the required shape and size of opening for the pipe.

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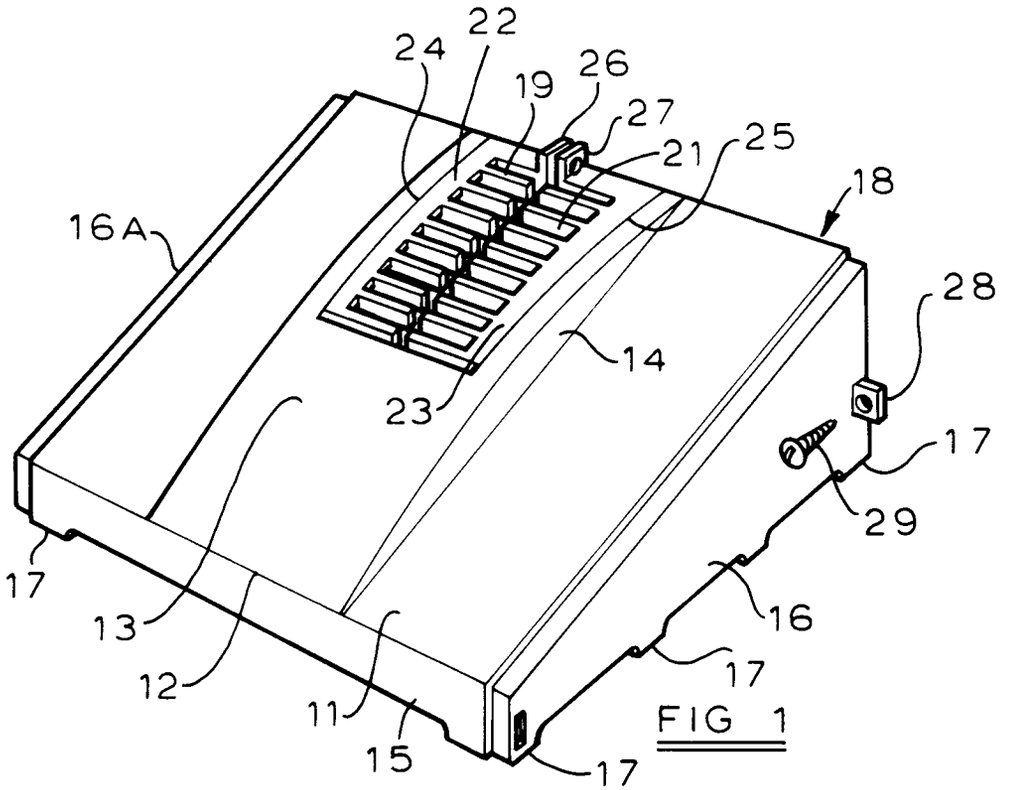

FIG 1

The invention relates to drain guards for covering openings to drains.

Typical domestic plumbing arrangements for rainwater and waste water from kitchens, baths and washbasins incorporate a rectangular sump or gulley at ground level from which a drain leads away to a sewer or a soak-away. A grid is provided at the bottom of the gulley to tend to prevent leaves and other debris from being washed down into the drain. The leaves etc can block the entrance to the drain or in conjunction with other material can rot and cause odours. Cats and other pets also have access to these gulleys which can be detrimental to their health if they drink from them.

A drain pipe normally leads down vertically into the gulley. Other pipes, generally of smaller diameter, from sinks, washing machines etc can feed in to the gulley from an angle.

It is well known to cover these gulleys to prevent access of leaves and pets. Simple covers may be no more than flat timber boards with openings for drain pipes. More sophisticated covers in the form of plastics mouldings with a main generally horizontal main cover panel and generally vertical sides are also known. The main cover panel may be set at an angle which tends to help leaves etc to fall off it and may be provided with vents to facilitate drying out of the gulley when it is not in use in the interests of improved hygiene.

It is already known from GB A1544530 to provide a drain guard for covering the drain opening into which a pipe discharges. This known drain guard comprises a main cover panel incorporating a ventilation region and also incorporating a separate weakened area to facilitate removal of part of the cover to provide access for a pipe. In one embodiment the weakened area is provided by a single set of parallel slots dividing the cover into sections but leaving a continuous cover surface between sections except where sections are removed for access of a drain pipe.

An object of the invention is to provide a drain cover which can adapted in a simple manner to fit into a particular drain gulley.

The invention is concerned with a drain guard for covering the drain opening into which a pipe discharges, the guard comprising a main cover panel incorporating an opening for receiving a drain pipe. The guard is characterised in that this opening is at least partially closed by two sets of mutually spaced fingers directed towards each other across the opening which fingers can be trimmed selectively to provide the required shape and size of opening for the pipe.

Each set of fingers may be pivoted as a set at the edge of the opening, preferably by an integral hinge, to facilitate folding back of the fingers and subsequent trimming of the fingers to the required length. After fitting, the spaces between remaining fingers form a ventilation grill for the drain guard.

The drain guard may incorporate side panels formed integrally with the main cover panel and joined to it by integral hinges whereby the side panels can be folded between a position parallel to the main panel and a position substantially perpendicular thereto, and means for securing the side panels in said position substantially perpendicular to the main cover panel to form a box like structure.

An embodiment of the invention will now be described with reference to the accompanying drawings in which:-

Figure 1 is a perspective view of a drain guard in accordance with the invention;

Figure 2 is a plan view of the drain guard showing the left-hand half in its assembled or folded position and the right-hand half in an unfolded or flat condition;

Figure 3 is a perspective view on a larger scale illustrating the assembly of the front left corner; and

Figure 4 is a corresponding perspective view of the rear left corner.

The drain guard as shown in Figure 1 comprises a generally rectangular main cover panel 11. This cover panel is near to horizontal but is inclined slightly downward to its front edge 12. The panel is generally flat but incorporates a slightly curved and raised centre section 13 joined by transition regions 14 to flat outer sections. The guard also incorporates four substantially vertical edge panels, namely the front panel 15, right side panel 16, left side panel 16A and rear panel 18. Integral feet 17 are provided to raise the edge panels slightly above a base on which they may rest.

In use it is intended that the guard should cover the sump or gulley of a drain system with the feet 17 resting on the tops of the walls surrounding the gulley and with the rear panel 18 close up against a wall behind the gulley. In such an installation, it is typical for a vertical drainpipe to lead down into the gulley. The drainpipe clearly requires access through the main cover panel of the drain guard.

A facility for access of a drainpipe is provided by two series 19 and 21 of mutually parallel inwardly directed fingers. Each set of fingers projects from its own common root portion 22 or 23 which is hinged along its respective hinge line 24, 25 to the panel 11. The whole drain guard is a plastics moulding as will be explained subsequently and the hinge lines 24 and 25 are formed as reduced thickness regions as illustrated in Figures 2 and 4 constituting what are known as live hinges. In such a hinge, molecules of the material tend to align themselves with the axis of the hinge as the hinge is operated, thus improving the facility for operation of the hinge and also avoiding breakage at the hinge.

During installation, the two sets of fingers are fol-

ded up to a substantially vertical position. There is no central part for the rear panel 18 as will be explained subsequently so bending up the fingers leaves clear access from the rear to the region which these fingers had occupied in Figure 1. In this way, the complete drain guard is installed in its required position over a gulley. The fingers can then be folded against the drainpipe and the drainpipe can be used as a guide to the extent that fingers need to be shortened to enable the sets of fingers to be folded down again. The lengths of selected fingers are trimmed by cutting them short as required so that this folding down can take place leaving an opening of the required shape and size for the pipe. It may even be possible to fold the fingers down, leaving their end portions deflected upward by the drainpipe and then cut them off at the bend. A tool such as a knife or heavy duty scissors or snips may be used to cut the plastics material. If secure closure and fixing is deemed more important than ready access, lugs 26 and 27 on sections behind the fingers 19 and 21 may be joined together by a nut and bolt or by some form of plastics clip. Similarly, side lugs 28 (only one of which is shown) may if desired be screwed to a wall by means of a screw 29.

The spaces between remaining complete fingers and also spaces at the roots of shortened fingers serve to provide ventilation for the gulley. Ventilation is improved by narrow gaps left around the bottom of the guard by virtue of the feet 17.

The guard is assembled from a single plastics moulding details of which are shown in the right-hand half of Figure 2. The left-hand half of Figure 2 shows the guard after it has been assembled into the form shown in Figure 1. The guard is moulded as a substantially flat product, but with some degree of curvature and variation in depth, for example as provided by the central domed section 13. The front, right, left and rear panels are moulded in the same general plane as the main panel 11. These panels are partially separated from the main panel by reduced thickness regions or hinge lines such as 31, 32 and 33. All four edge panels can be folded down broadly at right angles to the main panel but more specifically the front and rear panels are arranged to be vertical when the main panel adopts its normal slightly inclined position. In their corner regions, the panels are reinforced and incorporate cooperating lugs and apertures for interlocking them together.

Figure 3 shows more details of the front left corner, namely the corner joining the front panel 15 and the left panel 16 together. The front panel 15 has a thickened and thus strengthened edge at its end and this edge carries a hook-like projection 34. The projection 34 can engage in an aperture 35 in the right panel 16. This aperture 35 is incorporated in a thickened end portion 36. The aperture 35 may incorporate a step (not shown) intended to cooperate with the hook arrangement on the projection 34 to ensure a strong interconnection which can not readily be broken. To assemble the guard from the position shown at the right of Figure 2 to the position shown at the left, the front panel 15 is folded down about its hinge line 33 to a vertical position and the right panel 16 is similarly folded down. Recess 35 engages around the hook shaped projection 34 and the projection becomes locked into the recess. The other front corner, namely that joining the front panel 15 and the left panel 16A corresponds to that shown in Figure 3.

The assembly of a rear corner is illustrated in Figure 4. This shows how the rear panel 18 is incomplete across its central region and as previously explained does not interfere with the opening for a drainpipe. The rear panel 18 is first folded down to the position shown. The right panel 15 is then similarly folded down until a projection 37 from the panel 18 passes into and through an aperture 38 in the panel 15. Projection 37 has a relatively narrow inner portion but terminates in a wider and heavier outer region. The step between the inner and outer regions engages a face of the panel 15 and tends to hold it locked in position. The outer part of projection 37 also serves as the lug 28 as shown in Figure 1 for reception of a screw 29 for holding the guard against a wall in a permanent manner should this be required.

If it is desired to sell in these drain guards by mail order or to store them in an individually packed condition, it is possible prior to assembly to fold the four panels 15, 16, 16A and 18 in so that they lie almost parallel to the main panel 11 of the guard. This arrangement reduces the size in terms of width and length of a package needed to enclose or to transport the guard. The small increase in thickness caused by folding in the sides of the guard is of little significance.

The resulting product is thus simple to mould, can simply be folded into a small space for transportation or storage and can be assembled very simply for use as a drain guard. Any cutting necessary to fit the guard around a drainpipe can also be conducted in a simple manner.

Some drain installations have small pipes leading to the drain gulley at a near horizontal angle as well as the vertical drainpipe. To accommodate these, it is acceptable to cut a D-shaped notch or a circle in one of the side panels for passage of that pipe.

Although the fingers and their installation is described in relation to a fold-flat drain cover, this feature can have much wider application and may for example be used in a drain guard which does not fold.

Claims

1. A drain guard for covering the drain opening into which a pipe discharges, the guard comprising a main cover panel incorporating an opening for receiving a drain pipe characterised in that this

opening is at least partially closed by two sets of mutually spaced fingers directed towards each other across the opening, which fingers can be trimmed selectively to provide the required shape and size of opening for the pipe.

2. A drain guard as claimed in claim 1 characterised in that each set of fingers is pivoted as a set at an edge of the opening to facilitate folding back of the fingers and subsequent trimming of the fingers to the required length.

3. A drain guard as claimed in claim 2 formed from plastics material characterised in that the hinges are integral hinges formed as reduced thickness regions of the plastics material.

4. A drain guard as claimed in claim 1 or claim 2 or claim 3 characterised in that the opening is arranged near a rear edge of the drain guard which is intended to lie against a wall.

5. A drain guard as claimed in any one of the preceding claims comprising side panels formed integrally with the main cover panel and joined to it by integral hinges whereby the side panels can be folded between a position parallel to the main panel and a position substantially perpendicular thereto, and means for securing the side panels in said position substantially perpendicular to the main cover panel to form a box like structure.

6. A drain guard as claimed in claim 5 characterised by a front panel foldable in the same manner as the side panels.

7. A drain guard as claimed in claim 5 or claim 6 from plastics material characterised in that the hinges are formed as reduced thickness regions of the plastics material.

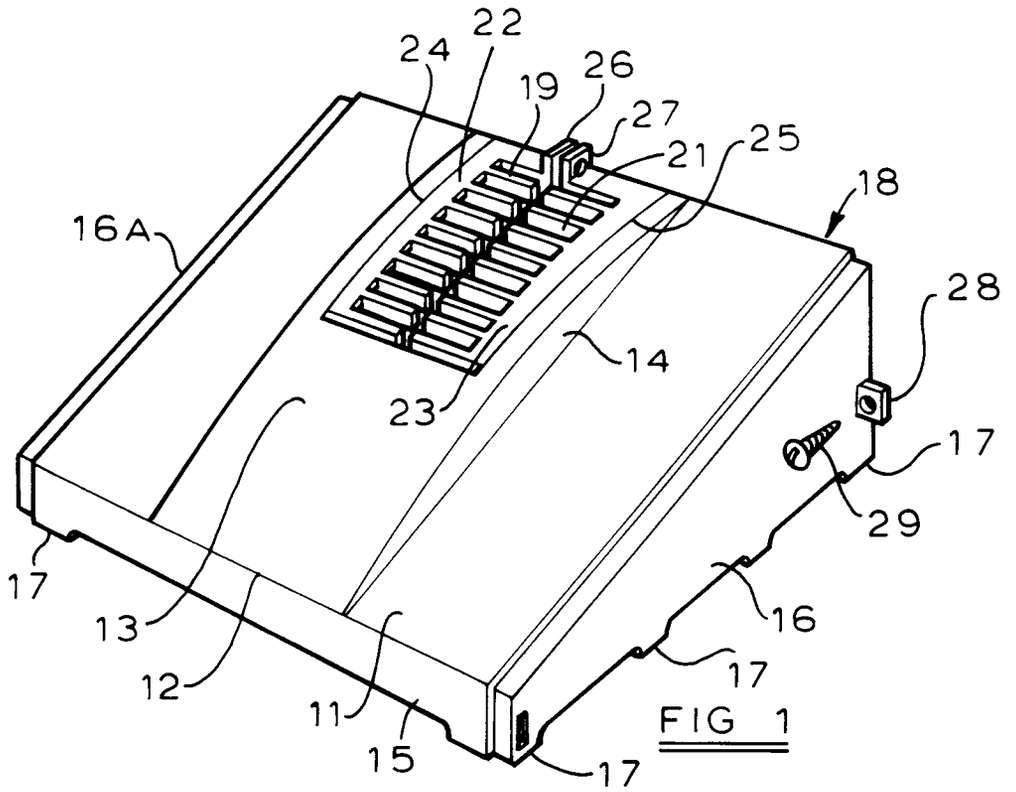

FIG 1

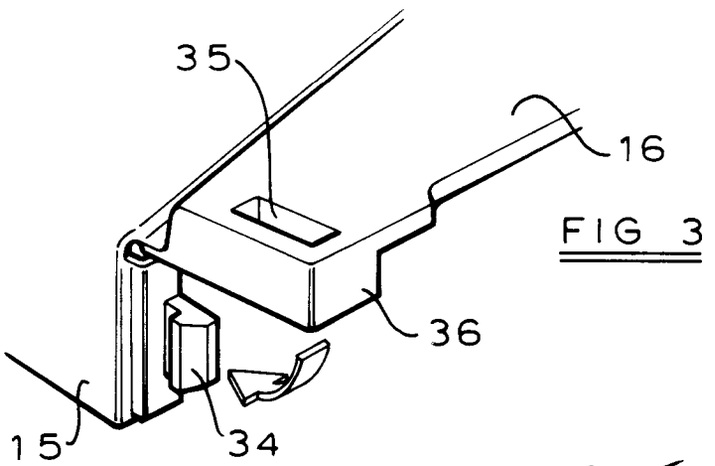

FIG 3

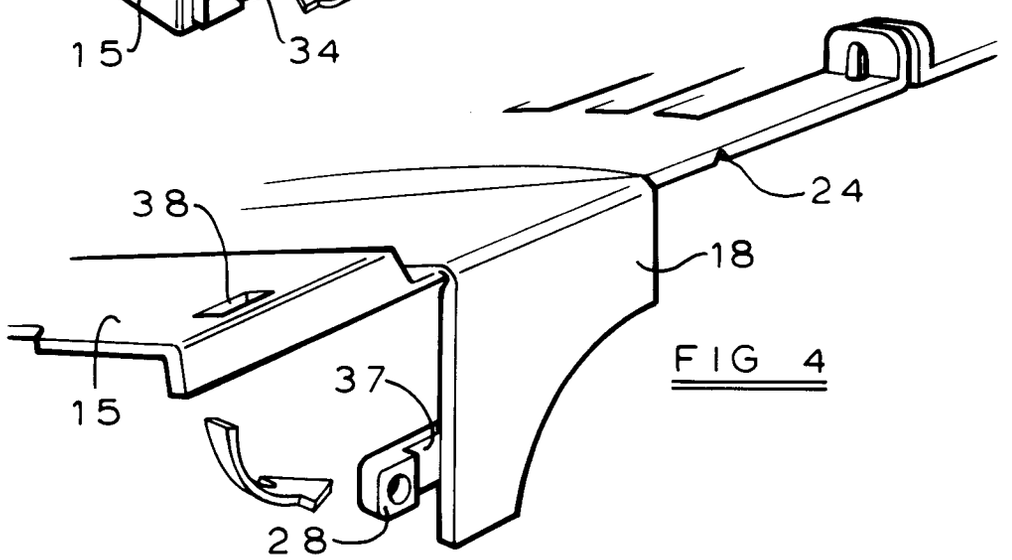

FIG 4

FIG 2