

2010

PATENT ATTORNEYS

EXAMINATION

PAPER D

The New Zealand Law and Practice
relating to Preparation of Specifications for New Zealand
Patents

Regulation 158 (1) (d)

Duration: 4 hours (plus 10 minutes for reading)

When considering answers to the questions in this year's examinations, no account is to be taken of any provisions of the Patents Bill, the Trade Marks (International Treaties and Enforcement) Amendment Bill, the Regulatory Improvement Bill (as it relates to amendment of the Designs Act 1953), or any other bill that may be before the New Zealand Parliament.

Question 1.

General instructions: Only the prior art that is referred to in this question is to be taken into account in your answer. You must not take into account any prior art that you are separately aware of.

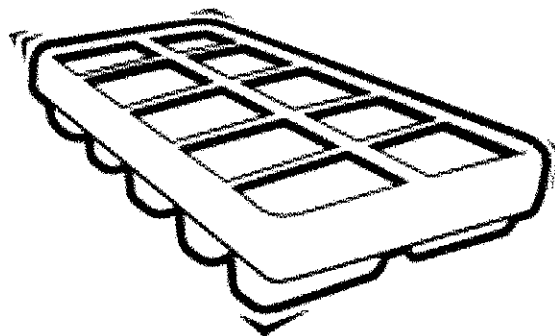
This is question one of two and it is worth 50 marks out of a total mark for the paper of 100.

John Naish owns Innovations Creations Ltd, a company that comes up with innovative ideas. For their good ideas, they usually put appropriate IP protection in place and then approach companies to see if they want to buy the IP.

John has come to you with an invention that he wants to take to a trade fair in Christchurch in two days to generate some interest in his product.

His new product is an enclosed ice cube tray.

Before describing the product to you, he explains the frustrations he's experienced using traditional ice cube trays when carrying water from the tap to the freezer. He jokes that it's usually after too many gin and tonics that much of the water spills out of the traditional ice cube trays and onto the ground. John shows you the traditional tray he is referring to. This is what it looks like.



John has made a plastic prototype of his enclosed ice cube tray. Drawings of his product are attached. He explains that his tray is enclosed so that it can be carried from the tap to the freezer at any angle. As soon as it has been partially filled with water and the lid is screwed on, no water can escape.

He has put a level marking on it show how much water to put in it when it's being held under the tap. That way, when the tray is put on a flat surface, the level of water is high enough to adequately fill the dimples, but not to overflow. Overflowing results in one large and unbreakable block of ice being formed inside the container. This cannot come out of the container.

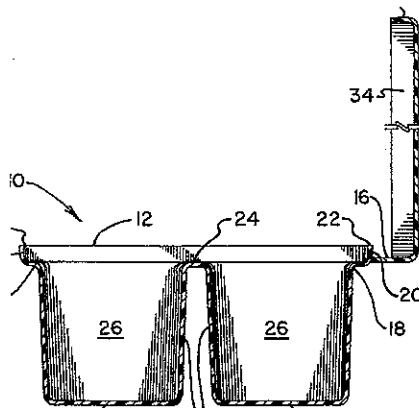
He had a few issues with an earlier prototype because he did not make the opening large enough and this prevented the frozen ice cubes from being tipped out.

The tray is likely to be made of a rigid plastic that can be injection moulded.

Because of frustrations he has with getting the ice cubes out of the dimples, he has managed to make a plastic prototype tray where the bottom of the dimples are made from a material different to the rest of the container. The bottoms of the dimples are a flexible rubber material. This lets the bottom of each dimple be pushed up to pop an ice cube out. John says he has never seen any tray with flexible parts to it to help pop ice cubes out.

John has done some research to see if anyone else has solved the spill problem before. His research has shown that the only trays available on the market are the open trays like that shown above.

You mention that you have seen a variation on the traditional trays where such trays also include a lid. You can't recall if you saw them overseas or in New Zealand. You draw a sketch of what it was that you think you saw and it looks like this.

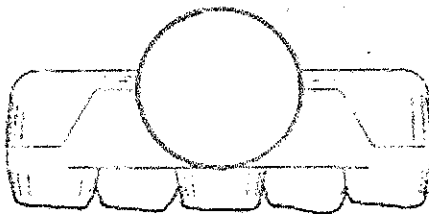
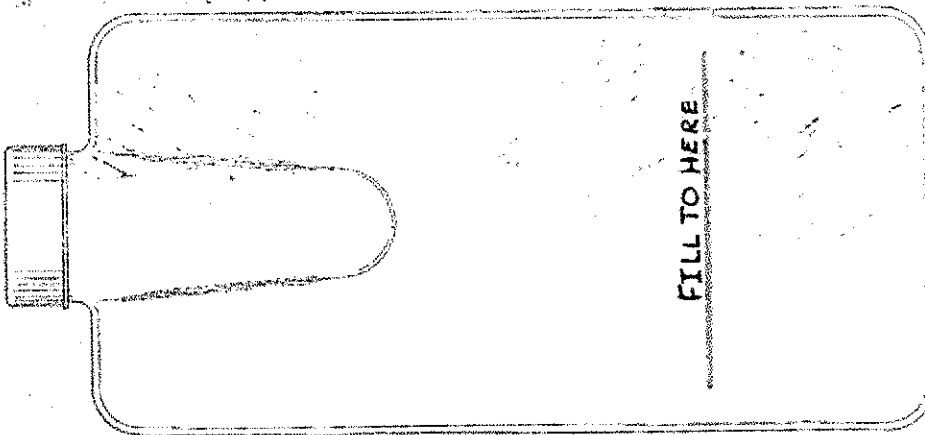
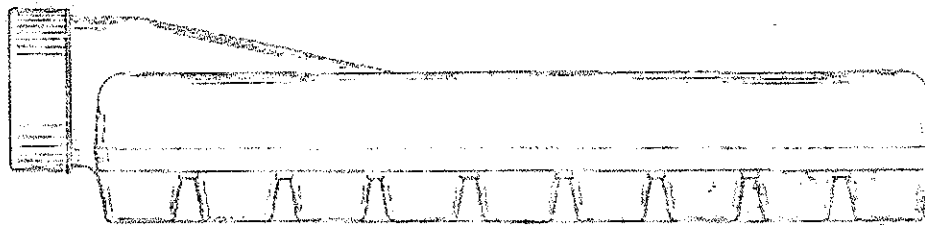
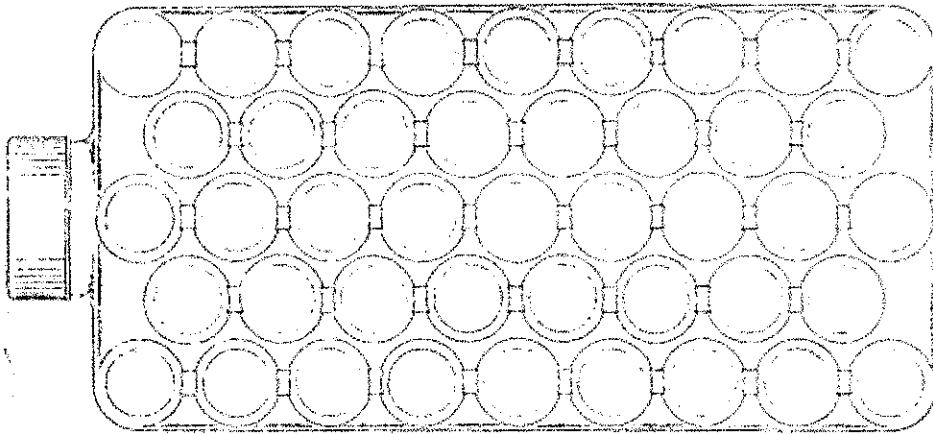


You discuss this and general prior art searching with John and come to the conclusion that because the product is going to be displayed in two days, that the main priority is to prepare and file a provisional patent specification without conducting any prior art searching.

He tells you that he wants you to prepare and file a provisional patent specification to pursue patent protection in New Zealand. He tells you to protect his product as best as possible and that he needs to leave the scope of protection over to you because he is off overseas for two days and he will be out of contact.

Prepare a provisional specification suitable for filing at the New Zealand patent office tomorrow.

You may use the second copy of the enclosed ice cube tray drawings that are attached at the very end of the exam paper, as part of your answer to this question.



Question 2

General instructions: Only the prior art that is referred to in this question is to be taken into account in your answer. You must not take into account any prior art that you are separately aware of.

This is question two of two and it is worth 50 marks out of a total mark for the paper of 100.

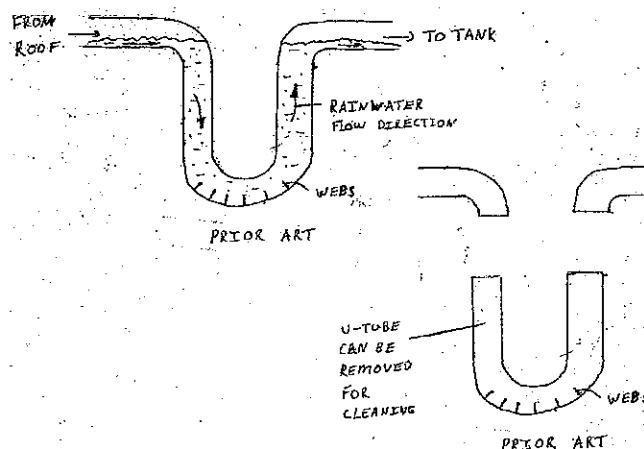
Your client is in the rainwater tank business. He sells and installs these rainwater storage tanks for his customers. The tanks are commonly positioned near a house. A pipe is connected to the spouting of the roof of the house so that water can run from the roof into the tank via the pipe. The pipe passes through a manhole positioned at the top of the tank.

For many years your client has been concerned about dirt getting into rainwater tanks.

A common explanation is that animals and insects get into the tank through the manhole and many can't get out and end up dead in the water. But many new rainwater tanks these days are well sealed to prevent animals from getting inside. Your client hence set about further investigations. He conducted tests on water from tanks at different locations around the country. The tests showed that the water contained bird droppings, salt, and in some places, heavy metals. Some tanks also contained leaves. This led your client to assume that these were getting into the tank from the roof, via the pipe.

Your client decided to try and solve this problem. He realised that after a long period of no rain, a roof can accumulate a lot of dirt. He found out that a new spell of rain flushes a lot of the dirt off the roof. On his roof at home he found out that after the first 30 or so minutes of a new spell of rain, much of the dirt on the roof would be flushed off the roof and that rain water collected after 30 minutes was relatively clean compared to the rainwater collected during the first 30 minutes.

Your client explains that from his own research he has found a product for sale in New Zealand that has been designed to reduce dirt getting from the roof into the tank. He draws a sketch of what it looks like. He draws these two sketches of what it looks like:



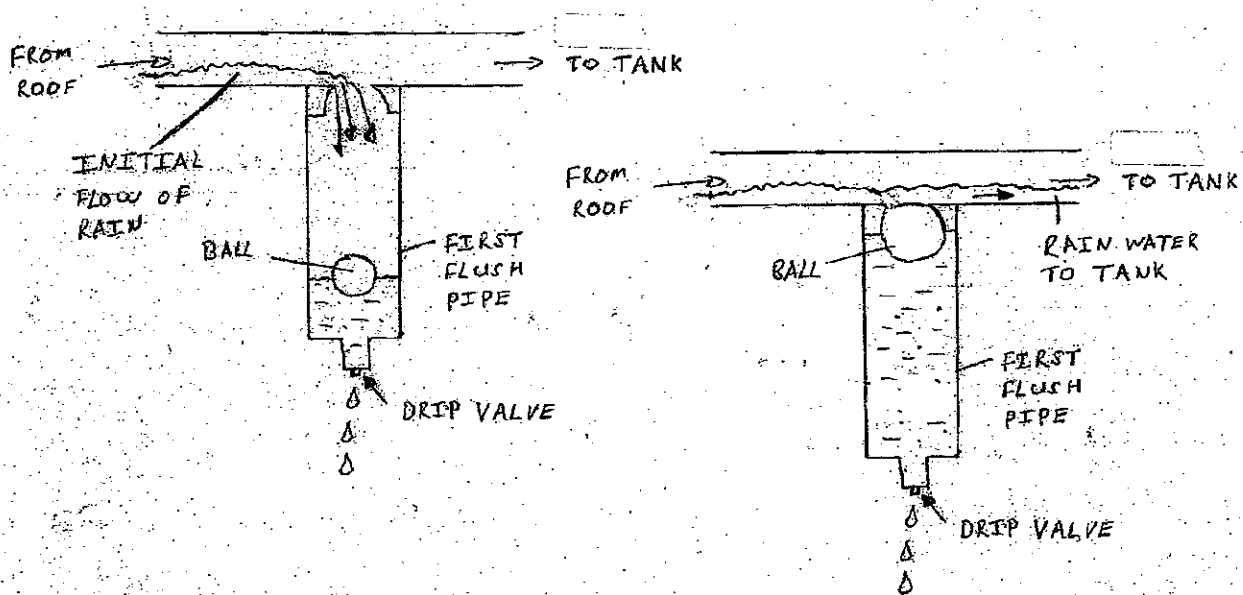
He explains that the product manufacturer claims that dirt is prevented from flushing into the rainwater tank because dirt that is heavier than water settles at the bottom of the "U" tube. Further, the webs help trap dirt coming off the roof, whilst the main flow of water passes over the webs in the "U" section of pipe. The "U" section can be removed so that the dirt can periodically be hosed out.

Your client has tested this product and has found that it is good at trapping dirt that is significantly heavier than water because such dirt quickly drops to the bottom and remains trapped by the webs. But leaves and other dirt that has a tendency to float, can pass over the webs or can easily become dislodged from the webs due to the rush of water passing over the webs. This dirt can then be swept into the tank.

So he set out trying to solve the water contamination problem in a different way. He came up with a device that he calls a "first flush filter".

The first flush filter includes a first flush pipe that is attached to the main pipe running between the spouting and the water storage tank. This first flush pipe receives the first lot of water that comes off the roof; the water that has flushed much of the dirt on the roof with it.

The first flush pipe fills with the initial flush of the water until it reaches the top. Water cannot start to flow to the tank until the first flush pipe is filled with water. To improve the device by preventing water and dirt collected in the first flush pipe from washing into the tank, a valve is provided that includes a ball that sits on top of the water in the first flush pipe. The ball seals the first flush pipe when the first flush pipe is filled up. Here is his sketch.



At the bottom of the first flush pipe is a drip valve that has a small outlet. This outlet allows water to slowly drip out. So once it stops raining, the first flush pipe can drain so that it can then receive the first flush of the next spell of rain. The

bottom of the first flush pipe can also be opened up completely so that the collected dirt can be hosed out periodically by the house owner.

Your client has also come up with an improvement to this invention. He realised that because some roofs are bigger than others, it may actually take more than 30 minutes of initial rain for the roof to be clean. He also realised that in some situations, people may not want to waste the first 30 minutes of rain coming off the roof. Especially in places or at times where little rain has fallen and any rain in the rainwater tank is precious regardless of how clean it is. He has hence devised an improvement to the first flush pipe. He has come up with a way that means the volume in the first flush pipe can be adjusted. The first flush pipe has a fixed part and a movable part that can telescopically slide relative to the first part. This can allow the volume to be adjusted. His prototype at home can be configured so that the first flush pipe has a volume in a range of 3 litres to 30 litres. He adds that it could be any size range.

The client also gives you a copy the attached patent document that he found during his own prior art searching on the Google patents database.

Prepare claims for a complete specification for this invention.



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(54) **DOWN PIPE FILTER**

Publication Classification

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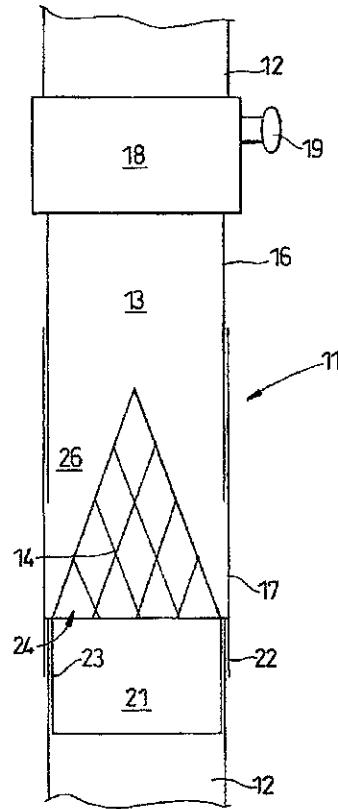
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(57) **ABSTRACT**

A filter assembly (10) for guttering down pipe (12) comprising a hollow body (13) having an internal base (24) and a conical filter (14) located within the body above the base and through which all the water must pass. The body (12) having a pair of opposed couplings (18, 21) for connection into a down pipe (12) and the filter (14) is arranged with its apex directed upwardly in use.

(21) **Appl. No.:** 10/105,144

(22) **Filed:** Mar. 25, 2002



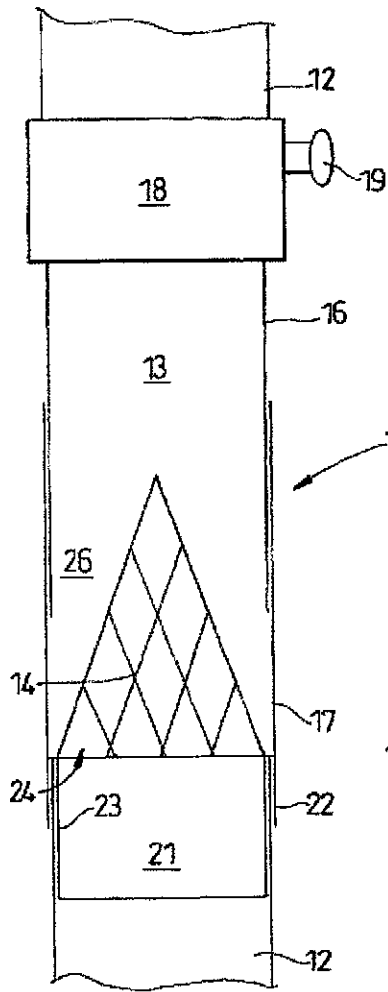


Fig. 1

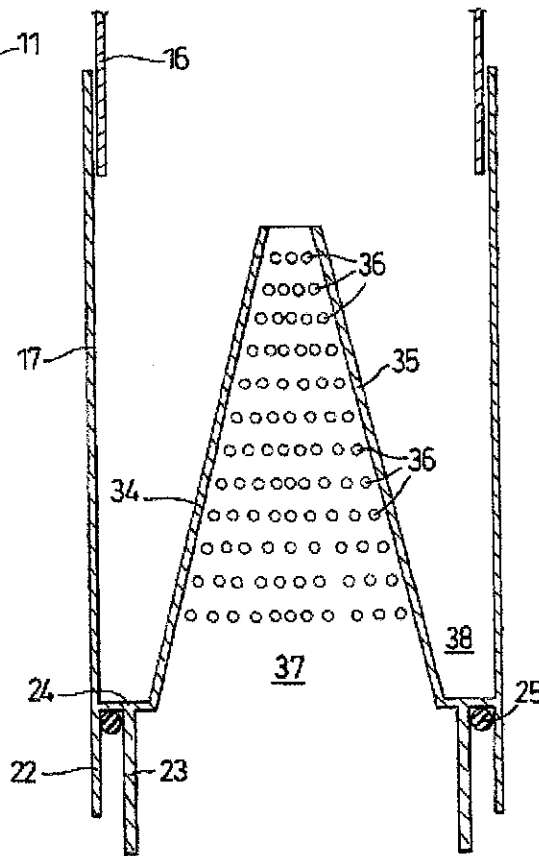


Fig. 2

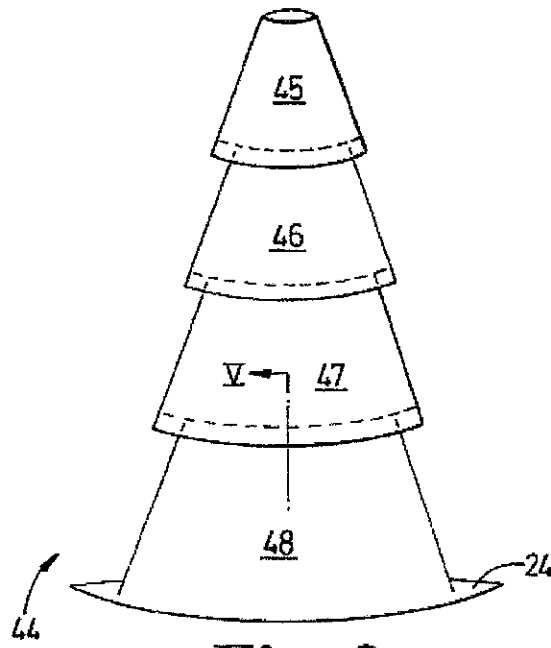


Fig. 3

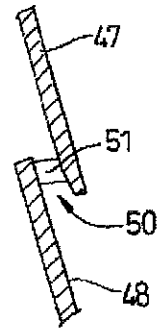


Fig. 5

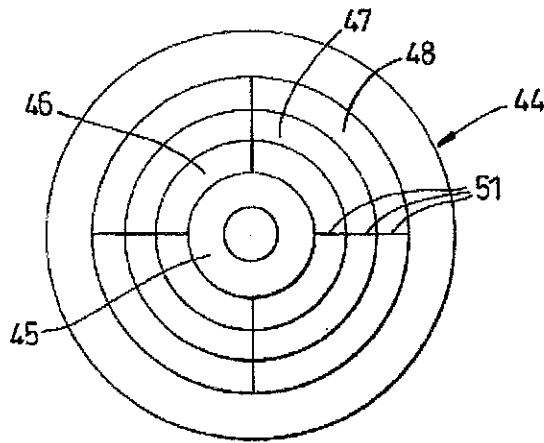


Fig. 4

DOWN PIPE FILTER

FIELD

[0001] This invention relates to filters particularly for use in the down pipes or drain pipes for rain water gutters.

BACKGROUND OF THE INVENTION

[0002] Rain water gutters as used just below the eaves of roofing frequently fill with leaves, silt, moss and other debris which is collected on a roof and then washed into the guttering by the rain water. The silt and leaves may then be washed into the down pipe where the lower portions of the pipe may become blocked. This is a particularly bad problem where the down pipe extends directly into an under soil soak-away and any blockage may only be detected when the pipe is full and water flows out through higher joints in the pipe, which may cause problems with damp and brickwork.

[0003] A known partial solution to the problem is to cover the upper mouth the down pipe, where it links with the gutter, with mesh so as to prevent leaves from entering the down pipe. This does not prevent silt from building up within the pipe, and requires that maintenance to remove trapped leaves is effected at the guttering which is not always convenient, and may not always take place when the pipe is blocked, since it is not generally easily observable.

[0004] The present invention provides a filter assembly which can be fitted to the down pipe at a convenient level to facilitate maintenance at ground level.

STATEMENTS OF THE INVENTION

[0005] According to the present invention there is provided a guttering down pipe filter comprising a hollow body having a pair of opposed couplings for connection into a down pipe and an internal base on which a water filter located within the body above the base and through which all the water must pass, the filter being substantially conical in shape with the apex directed upwardly in use.

[0006] Having the filter located above the base ensures that most silt is collected on the base before the water passes through the filter located above the base.

[0007] The filter may comprise wire mesh deformed to the required shape, a coarse open cell foam, porous sheet metal formed into a cone, or a hollow moulded plastic cone having a plurality of through holes or apertures formed in its surface.

[0008] The filter sits on the base of the body and preferably has a non porous portion adjacent said base. This allows silt or other debris to collect on the base in the space between the non porous portion and the body wall.

[0009] The body is preferably a cylindrical body comprising upper and lower telescopically interengaging body portions, each having one of said couplings formed at its free end with the filter being formed integrally with the lower body portion, preferably the filter and body portion are formed as a single plastics moulding.

[0010] Said couplings in use comprise upper and lower cylindrical couplings which telescopically engage with oppositely extending portions of the down pipe, the lower

coupling engaging within the down pipe and including an outer concentric cylindrical skirt which surrounds the adjacent portion of down pipe. This helps mask the otherwise exposed end of the pipe. The upper coupling slides over the external surface of the respective portion of down pipe. The upper coupling may include a radial screw which in use secures the filter assembly to the respective portion of down pipe.

[0011] At least a portion of said body, preferably the lower body portion, is formed from a transparent material allowing the filter to viewed from outside the assembly. The lower body portion may be moulded from a suitable transparent plastics material such as PET (polyethyleneterephthalate), polycarbonate, PVC, etc.

DESCRIPTION OF THE DRAWINGS

[0012] The invention will be described by way of example and with reference to the accompanying drawings in which:

[0013] FIG. 1 is a schematic sectional view of a filter assembly according to the present invention,

[0014] FIG. 2 is sectional view of a filter used in the assembly of FIG. 1.

[0015] FIG. 3 is side elevation of an alternative filter,

[0016] FIG. 4 is a bottom view of the filter of FIG. 3, and

[0017] FIG. 5 is a section on the line V-V in FIG. 3 showing the overlapping frustoconical portions of the filter.

DETAILED DESCRIPTION OF THE INVENTION

[0018] With reference to FIG. 1, there is shown in schematic form a filter assembly 11 for use with guttering down pipe 12 as is used with rain water guttering commonly fitted under the eaves of rooves.

[0019] The filter assembly 11 comprises a hollow cylindrical body 13 housing a filter 14. The filter 14 is conical in form and is secured within the body 13 with its apex pointing upwards in use. The filter 14 is a coarse filter suitable for stopping leaves and may be shaped by deforming wire mesh. Alternatively, as shown in FIG. 2, the filter 34 may be a hollow cone 35 having spaced holes 36 (about 3 mm-6 mm in diameter) passing through its shell.

[0020] The body 13 comprises two telescopic parts 16 & 17, the upper cylindrical part 16 being sealingly slidable within the lower cylindrical part 17.

[0021] The upper part 16 has a coupling 18 formed at its upper end which in use sealingly slides over the outer surface of a respective portion of down pipe 12. The upper part 16 may be held in place on the down pipe by a radial screw 19.

[0022] The lower part 17 has a coupling 21 formed at its lower end which has an inner portion 23 which in use slides within a portion of respective down pipe 12. The coupling 21 also includes an outer concentric skirt 22 radially spaced from the inner portion 23 and which in use masks an end portion of down pipe 12. An annular seal 25 (see FIG. 2) may be located within the radial space between the skirt 22 and inner portion 23.

[0023] The filter 14 sits on the base 24 of the lower body portion 17, and any leaves and/or debris collect in the space 26 formed between the filter 14 and the cylindrical sidewalls of the body 13. The porous portion of the filter 14 is preferably raised above the base 24 as is best seen in FIG. 2 in which the holes 36 of the hollow conical filter 34 are spaced from the base 24 by an impervious rim 37. This allows silt to collect in the space 38 between the rim 37 and the inner side wall of the lower body portion 17.

[0024] The filter 34, base 24, and lower body portion 17 may be formed as a single moulding, or may be assembled from a plurality of individual parts. The lower body portion 17 is preferably moulded from a transparent thermoplastic material allowing the state of the filter to be observed from outside of the filter assembly without removal of the assembly from the down pipe. This should prevent un-necessary maintenance and warn of impending blockages.

[0025] Yet another filter 44 is shown in FIGS. 3-5. The filter 44 is a thermoplastics moulding comprising a plurality of frustoconical portions of progressively different sizes, sitting one upon another, preferably four portions 45, 46, 47, 48. The portions 45-48 are substantially impervious to water and each overlap with the respective adjacent portions so that there is an annular gap 50 between pairs of overlapping portions. Overlapping adjacent portions 48, 47; 47, 46; 46, 45 are connected through a plurality of equiangularly spaced thin bridges 51. The bridges in this case are aligned with each other but could be arranged in other ways. The bridges 51 divide the annular gaps 50 into arcuate apertures through which the water will flow. The bottom frustoconical portion 48 spaces the first gap 50 from the base 24 to ensure that debris collects in the space 38 as previously described. The overlap of each gap 50 by the adjacent higher frustoconical portion prevents debris from flowing through the apertures and directs debris to the base 24.

[0026] If a blockage occurs, or during preventive maintenance, the filter assembly is simply removed from the down pipe and dis-assembled for cleaning.

1. A guttering down pipe filter assembly comprising a hollow body having a pair of opposed couplings for con-

nection into a down pipe and a base, a filter located within the body above the base and through which all the water must pass, the filter being substantially conical in shape with its apex directed upwardly in use.

2. A filter assembly as claimed in claim 1 wherein the filter is substantially in the form of a hollow cone with a plurality of through holes dispersed over the surface.

3. A filter assembly as claimed in claim 2 wherein the filter comprises a plurality of frustoconical portions of progressively different sizes and arranged one on top the other, with apertures formed between overlapping portions.

4. A filter assembly as claimed in claim 2, wherein the filter sits on the base of the body and has a non porous portion adjacent said base.

5. A filter assembly as claimed in claim 1, wherein the body is a cylindrical body comprising upper and lower telescopically interengaging body portions, each having one of said couplings formed at its free end with the filter being secured in the lower body portion.

6. A filter assembly as claimed in claim 5 wherein the filter and lower body portion are a single plastics moulding.

7. A filter assembly as claimed in claim 1, wherein said couplings in use comprise upper and lower cylindrical couplings which telescopically engage with oppositely extending portions of down pipe, the lower coupling engaging within the down pipe and including an outer concentric cylindrical skirt which surrounds an adjacent portion of down pipe.

8. A filter assembly as claimed in claim 7 wherein the upper coupling slides over the external surface of a respective portion of down pipe.

9. A filter assembly as claimed in claim 8 wherein the upper coupling includes a radial screw which in use secures the filter assembly to the respective portion of down pipe.

10. A filter assembly as claimed in claims 1, wherein at least a portion of said body is formed from a transparent material allowing the filter to be observed.

* * * * *

Question 1.
Second copy of the enclosed ice cube tray drawings

