



(22) Date de dépôt/Filing Date: 2016/05/10

(41) Mise à la disp. pub./Open to Public Insp.: 2017/11/10

(51) Cl.Int./Int.Cl. *E03C 1/22* (2006.01)

(71) Demandeur/Applicant:
9208-7170 QUEBEC INC., CA

(72) Inventeur/Inventor:
ROY, DOMINIQUE, CA

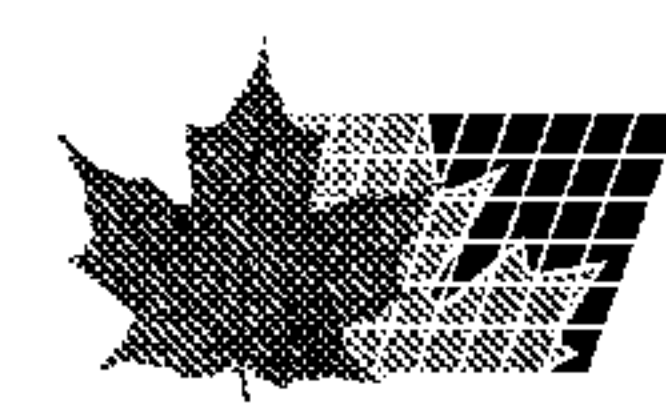
(74) Agent: ROBIC

(54) Titre : MECANISME DE DRAIN LINEAIRE

(54) Title: LINEAR DRAIN ASSEMBLY

(57) **Abrégé/Abstract:**

The invention relates to a linear drain assembly for draining liquid from a shower. The invention requires a small preparation time and can be installed following simple steps, while providing superior sealing properties. The linear drain assembly offers the possibility to install a shower tray and can be tiled, resulting in an aesthetic drainage system. The invention offers the possibility of being directly integrated into an existing shower tray or to be a shower tray in itself at the moment of manufacturing. The invention consists of at least one single sheet made of a foldable material having a slope for directing a liquid flow. A removable and optional decorative grid can be added to the linear drain assembly for improved aesthetic properties.



ABSTRACT

The invention relates to a linear drain assembly for draining liquid from a shower. The invention requires a small preparation time and can be installed following simple steps, while providing superior sealing properties. The linear drain assembly offers the possibility to install a shower tray and can be tiled, resulting in an aesthetic drainage system. The invention offers the possibility of being directly integrated into an existing shower tray or to be a shower tray in itself at the moment of manufacturing. The invention consists of at least one single sheet made of a foldable material having a slope for directing a liquid flow. A removable and optional decorative grid can be added to the linear drain assembly for improved aesthetic properties.

LINEAR DRAIN ASSEMBLY

TECHNICAL FIELD

5

The technical field generally relates to construction and renovation products and more particularly concerns a linear drain assembly for draining water from a shower.

10 BACKGROUND

The linear drain models actually available on the market present numerous drawbacks.

15 The first drawback relates to the complexity of the installation process of linear drains. The installer often has to face uncertainty during the installation process, which may result in a poorly sealed system. For at least this reason, errors occurring during the installation process involve high costs and time delay. Furthermore, the systems currently available on the market are generally not
20 suitable for combining the shower base with a decorative drain, which affects not solely the draining property of the linear drain, but also the sealing of the entire system. When the consumer is not satisfied with the decorative grid, one is forced to destroy the shower tray to change it.

25 The second drawback concerns manufacturing processes for linear drain assemblies. Depending on the product, several transformations are necessary, which generates important costs. For instance, the manufacturing process of shower bases ready for the tiling step available on the market usually requires the use of specialized machinery, such as injection moldings. Such shower bases
30 are typically made of plastic and do not offer the possibility to add a decorative grid. Most of the linear drains currently available on the market are made from stainless steel. Some linear drains require in their manufacturing processes

several steps of welding and folding with mitigated results. The manufacturing process is also known to consume a significant amount of energy.

5 The third drawback concerns the environmental impact generated by this type of system as currently found on the market. The products offered on the market typically include plastic-based materials, polymer-based and hybrid fiber requiring a lot of processing during their manufacturing steps. These products are often not recyclable.

10 Therefore, there is currently a need in the market for a linear drain assembly that is easy to install and that can be recycled. There is also a need for a linear drain assembly that can be made from recyclable materials and that has a smaller environmental impact compared to similar products found on the market. Furthermore, there is a need for a linear drain assembly that can be
15 manufactured simply and at low cost.

SUMMARY

In accordance with one aspect, there is provided a linear drain assembly which
20 drains a liquid from a shower.

In some embodiments, the linear drain assembly generally comprises a base and a hole.

25 The base is made from a single sheet of a foldable material and has a slope for directing a liquid flow. The hole is configured as a drain and connectable to a discharge pipe.

The base of the linear drain assembly is mountable to a shower area, so that the
30 liquid flow is directable from the base towards the discharge pipe via the drain.

In some implementations, the dimensions of the hole are compatible with market-standard dimensions of drains and pipes.

5 In some implementations, the linear drain assembly comprises an adhesive membrane for sealing the linear drain assembly.

In some implementations, the linear drain assembly receives a decorative grid.

10 In some implementations, the single sheet of the base of the linear drain assembly is folded to form a sidewall, extending perpendicularly from the base.

In some implementations, the single sheet of the base is folded three times to form three sidewalls defining angles that are reinforceable by a weld.

15 In some implementations, the single sheet of the base is folded four times to form four sidewalls defining an area to be tiled.

20 In some implementations, the linear drain assembly is made from a first and a second single sheet of a foldable material and the second single sheet of a foldable material is fixed on top of the first single sheet of foldable material.

In some implementations, the linear drain assembly has a base threshold for fixing the linear drain to a shower tray.

25 Other features and advantages of the invention will be better understood upon reading of preferred embodiments thereof with reference to the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a linear drain assembly according to an embodiment.

5

FIG. 2 is a perspective view of a linear drain assembly according to another embodiment.

FIG. 3 is a perspective view of a linear drain assembly according to another
10 embodiment.

FIG. 4 is a perspective view of a linear drain assembly according to another
embodiment.

15 FIG.5 is a perspective view of a decorative grid according to an embodiment.

FIG. 6 is a perspective view of a linear drain assembly and a decorative grid
according to an embodiment.

20 FIG. 7 is a perspective view of a linear drain assembly comprising a decorative
grid according to another embodiment.

FIG. 8A and 8B are perspective views of linear drain assembly portions
according to an embodiment.

25

FIG. 9A and 9B is a perspective view of a linear drain assembly according to an
embodiment.

FIG. 10A and 10B are perspective views of a linear drain assembly according to
30 an embodiment.

FIG. 11 is a perspective view of an assembled linear drain assembly according to another embodiment.

DETAILED DESCRIPTION

5

In the following description, similar features in the drawings have been given similar reference numerals. In order to not unduly encumber the figures, some elements may not be indicated on some figures if they were already mentioned in preceding figures. It should also be understood herein that the elements of the drawings are not necessarily drawn to scale and that the emphasis is instead being placed upon clearly illustrating the elements and structures of the present embodiments.

In accordance with embodiments, there is provided a linear drain assembly for draining liquid from a shower. Some embodiments of the present invention may be particularly useful for the installation of a shower or the like. The installation of the linear drain assembly is simple and results in a shower tray or a shower tray portion having improved aesthetic and sealing properties

20 Referring to FIG. 1, an embodiment of a linear drain assembly 10 for draining liquid from a shower is shown. The linear drain assembly 10 can also be used as a shower tray.

The linear drain assembly 10 comprises a base made of a bottom portion 12 and four sidewalls 14 determining a square. The bottom portion 12 and the sidewalls 14 can be made of metal, polymer, brass, combinations thereof, or any other suitable materials having the desired mechanical properties. It will be understood that the bottom portion 12 and the sidewalls 14 are embodied by a single sheet of a foldable material folded to form a shower tray or a shower tray portion.

30

In the present application, a foldable material is, for example, any material having an initial shape capable of being folded into a different configuration without breakage of the material, and is thus a reconfigurable material.

5 The sidewalls 14 act as a non-return border and facilitate the installation of the linear drain assembly 10 close to a wall. One of the four sidewalls 14 is configured as a base threshold 15 and may be used to facilitate the installation of the linear drain assembly 10.

10 The linear drain assembly 10 also includes a hole 16 configured as a drain and positioned in the center region of the drain assembly 10. The hole 16 is obtained by removing a portion of the bottom portion 12 of the linear drain assembly. The hole 16 can have a circular, an elliptical or a polygonal shape. It will be understood that the hole 16 is intended at discharging liquid from the linear drain
15 assembly 10.

The bottom portion 12 has a slope directed from the sidewalls 14 towards the hole 16. When a liquid is contained in the linear drain assembly 10, the liquid flows towards the hole 16, following the slope. The hole 16 can be connected to a
20 discharge pipe, which evacuates the liquid from the linear drain assembly 10.

The linear drain assembly 10 furthermore comprises a flag 18. The flag 18 can be made of an adhesive material, a notch, a drawing, combinations thereof, or any visual sign that facilitates the installation of the linear drain assembly 10.

25

With reference to FIGs 2, 3 and 4, three other possible embodiments of linear drain assembly 10 are shown, corresponding to reference numerals 20, 30 and 40. They are similar to the linear drain assembly 10, except for the number of base thresholds and the positioning of the holes 26, 36 and 46. The linear drain
30 assemblies 20 and 40 have no base threshold, while linear drain assembly 30 has two base thresholds 35. The holes 26 and 36, respectively belonging to the

linear drain assemblies 20 and 30, are positioned at one edge region of their respective linear drain assembly and the hole 46 is in the center region of the linear drain 40.

5 In the illustrated embodiment of FIG. 5, a decorative grid 50 is shown. The decorative grid 50 can be made of metal, plastic, combinations thereof or any materials having the required mechanical properties. It will be understood that the decorative grid 50 is a monolithic element aiming at hiding a drain.

10 The decorative grid 50 has a top portion 52, grid sidewalls 54 and a plurality of notches 56. In the illustrated embodiment, the decorative grid 50 has a rectangular shape. It will be understood that the decorative grid 50 may vary in shape and may be circular, square or polygonal.

15 Now referring to FIG. 6, an embodiment of a linear drain assembly 60 is shown. The linear drain assembly 60 has a bottom portion 62, four sidewalls 64 and a hole 66 in its center region 67. The linear drain assembly 60 is similar to the linear drain assembly 10 described with reference with FIG. 1, except for the center region 67. In the illustrated embodiment of FIG. 6, the center region 67 is
20 made from a material that is different than the material used for the bottom portion 62 and the sidewalls 64. More particularly, in this embodiment, the center region 67 is made from a material with rust prevention properties, such as stainless steel or the like. The bottom portion 62 may be made from steel or any metallic elements and is covered with an adhesive coating. The adhesive coating
25 may be particularly useful when adding tiles to the linear drain assembly 60.

In the illustrated embodiment of FIG. 7, a disassembled linear drain assembly 70 is shown. The linear drain assembly 70 comprises a bottom portion 72, sidewalls 74 and a hole 76. The hole 76 is positioned at one edge portion of the bottom
30 portion 72. An adhesive layer 77 for promoting the sealing of the linear drain assembly 70 is fixed at the one edge portion of the bottom portion 72 and

comprises a perforation which is aligned with the hole 76. A decorative grid 79 aiming at hiding the hole 76 can be added on top of the adhesive layer 77.

In the illustrated embodiment of FIG. 8A, a linear drain assembly portion 80 is shown. The linear drain assembly can be made of metal, plastic, or any other material having the required mechanical properties. It will be understood that the linear drain assembly portion 80 is embodied by a monolithic element aiming at draining a liquid from the linear drain assembly portion 80 when installed into an existing shower tray.

The linear drain assembly portion 80 has a rectangular shape and two pairs of parallel and equal length sides 81 and 83. The linear drain assembly portion 80 also has a bottom portion 82 and a flag 88, as described with reference to FIG. 1

The illustrated embodiment of FIG. 8B is similar to the one described with reference to FIG. 8A, except for the shape of the linear drain assembly portion 80. In the embodiment of FIG. 8B, the linear drain assembly portion 80 has a square shape.

In the illustrated embodiment of FIG. 9A, a linear drain assembly portion 90 is shown. It is similar to the linear drain assembly portion 80 of FIG. 8A and FIG. 8B, but further comprises a sidewall 94 made from the folding of a portion of the linear drain assembly 90. The sidewall 94 facilitates the installation of the linear drain assembly portion close to a wall.

The illustrated embodiment of FIG. 9B is similar to the one described with reference to FIG. 9A, except for number of sidewalls 94. In the embodiment of FIG. 9B, the linear drain assembly portion 90 has three sidewalls 94.

In the illustrated embodiment of FIG. 10A and 10B, a linear drain assembly 100 is shown. With reference with FIG. 10 A, the linear drain assembly 100 comprises a

bottom portion 102, four sidewalls 104 and a hole 106. The linear drain assembly 100 is embodied by a monolithic element aiming at draining liquid from the linear drain assembly 100. The linear drain assembly can be made of steel, metallic material, or any other material having the required mechanical properties.

5 Furthermore, a weld can be provided in each corner of the linear drain assembly 100.

Now referring to FIG. 10B, a bottom view of the linear drain assembly 100 is shown. It is similar to the linear drain assembly 100 described with reference with
10 FIG. 10A, but further includes a drain protuberance 107 for facilitating the connection between the linear drain assembly 100 and a discharge pipe.

In the illustrated embodiment of FIG. 11, the linear drain assembly 110 comprises a bottom portion 112, four base thresholds 115 and a hole 119 as described with
15 reference with the embodiment illustrated in FIG. 1. The linear drain assembly 110 also comprises folding lines 120. The folding lines 120 are obtained by partially folding a region of the bottom portion 112 of the linear drain assembly 110. The folding lines 120 have a slope directed towards the hole 119 to facilitate the evacuation of a liquid from the linear drain assembly 110 to the hole 119.

20

In summary, the present invention is advantageous over prior art linear drain. In one aspect, the linear drain assembly as described by the embodiments solves the sealing problem, because the drain is at least partially integrable in the shower tray. In the case where the system is only a part of the shower tray, the
25 seal is simplified and improved. The installation process of the linear drain assembly is also simple, which solves the drawback associated to the complexity of the installation of linear drain.

The dimensions of the parts composing the linear drain assembly ensure the
30 sealing of the linear drain assembly. Furthermore, the drain remains easily

accessible even in the presence of a decorative grid. The decorative grid can be replaceable at any time, without destroying the shower tray.

The manufacturing process of the present invention is also very advantageous.

5 The welds are minimized and the folding of the single sheet foldable material is simplified, which reduces the production time. As a result, the present invention can be manufactured at a very competitive price.

10 Of course, numerous modifications could be made to the embodiment described above without departing from the scope of the invention.

CLAIMS

1. A linear drain assembly for draining liquid from a shower, the linear drain assembly comprising:

5 a base made from a single sheet of a foldable material and having a slope for directing a liquid flow; and

a hole configured as a drain and connectable to a discharge pipe;

wherein the base is mountable to a shower area, so that the liquid flow is directable from the base to the discharge pipe via the drain.

10 2. A linear drain assembly according to claim 1, wherein dimensions of the hole are compatible with market-standard dimensions of drains and pipes.

3. A linear drain assembly according to claims 1 or 2, further comprising an adhesive membrane for sealing the linear drain assembly.

15 4. A linear drain assembly according to the combination of any of claims 1 to 3, wherein the linear drain assembly is configured to receive a decorative grid.

5. A linear drain assembly according to the combination of any of claims 1 to 4, wherein the single sheet of the base is folded to form a sidewall, extending perpendicularly from the base.

20 6. A linear drain assembly according to the combination of any of claims 1 to 5, wherein the single sheet of the base is folded three times to form three sidewalls defining angles that are reinforceable by a weld.

7. A linear drain assembly according to the combination of any of claims 1 to 6, wherein the single sheet of the base is folded four times to form four sidewalls defining an area to be tiled.

25 8. A linear drain assembly according to the combination of any of claims 1 to 7, wherein the linear drain assembly is provided with a first and a second single sheet of a foldable material, the second single sheet of a foldable material being fixed on top of the first single sheet of foldable material.

30 9. A linear drain assembly according to the combination of any of claims 1 to 8, further comprising a base threshold for fixing the linear drain to a shower tray.

Application number / numéro de demande: 2929561

Figures: 1 to 11

Pages: _____

Unscannable items
received with this application
(Request original documents in File Prep. Section on the 10th floor)

Documents reçu avec cette demande ne pouvant être balayés
(Commander les documents originaux dans la section de préparation des dossiers au
10^{ème} étage)