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(54) **Drainage channel with bottom ditch**

(57) The invention concerns a drainage channel (101) adapted to conduct drainage water towards a drain, including a concave shell form (103) with sidewalls. The drainage channel is provided with a bottom ditch (107) at its bottom part. This bottom ditch is smaller than the

drainage channel, and thereby less drain water is required in order to conduct the drain water towards a drain. Even small amounts of drain water can now be conducted towards a drain whereby it is avoided that water stands still in the channels.

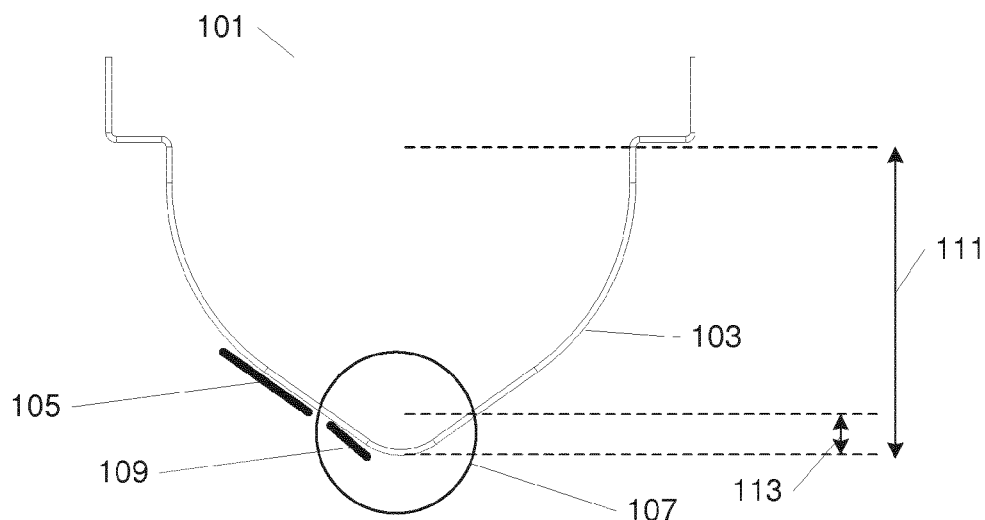


Fig. 1A

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Description

Scope of the Invention

[0001] The present invention concerns a drainage channel adapted to conduct drain water towards a drain, wherein the drainage channel at its bottom part is designed with a bottom ditch, and wherein the drainage channel includes a shell form with sidewalls.

Background of the Invention

[0002] In connection with floor drains, e.g. in connection with wet rooms in production areas of slaughterhouses or similar, oblong drain channels may be provided in the floor with a slope whereby excessive water is conducted to a drain via the channels.

[0003] By small amounts of drain water, the water cannot be conducted by the slope of the channels, and due to the surface tension of the water it will lie at the bottom of the channels until it is flushed out together with a larger amount of drain water. These small amounts of drain water, e.g. water drops, can lie at the bottom for long periods of time, forming calcareous deposits in the channel when evaporating, or bacteria are formed if the water becomes rotten.

[0004] WO 2010/047720 A1 discloses a drainage channel of the type mentioned in the introduction. Herein are described plane sidewalls meeting at sharp corners. Drain water can be accumulated at these corners, staying for longer periods of time and giving rise to the above mentioned problems. Even if the bottom ditch has smaller cross-section than the upper main part of the drainage channel, it has a plane bottom. Small amounts of drain water, e.g. water drops, can also lie on this plane bottom for long periods of time and therefore also give rise to the above mentioned problems.

Object of the Invention

[0005] An object of the invention is to solve the above mentioned problems, including providing a drainage channel by which it can be avoided that water is standing still at the bottom of it.

Description of the Invention

[0006] This is achieved by the present invention by a drainage channel of the type mentioned in the introduction which is peculiar in that the shell form of the drainage channel is a concave shell form having curving sidewalls with a first radius of curvature, and that the sidewalls of the bottom ditch are curving and have a second radius of curvature which is smaller than the first radius of curvature.

[0007] Thereby is formed a small ditch at the bottom of the drainage channel where drain water can be collected independently of the dimensions of the remaining

channel. By forming a small bottom ditch by means of the curving sidewalls, the number of sharp corners can be avoided/minimised. This is particularly an advantage as sharp corners are more sensitive to breakage when the drainage channel is formed by bending sheet material. Furthermore, such sharp corners may slow down water drops on their way to the bottom ditch.

[0008] The bottom ditch is smaller than the drainage channel, and thereby less drain water is required in order to conduct the drain water towards a drain. Even small amounts of drain water can now be conducted towards a drain whereby it is avoided that water stands still in the channels. The concave shape will also enable to obviate sharp edges that may contribute to accumulation of water at the bottom of the drainage channel not being conducted away. The bottom ditch will also not have a plane bottom, further contributing to the drainage channel being efficiently emptied from drain water.

[0009] In an embodiment, the second radius of curvature is $\frac{1}{4}$ of the first radius of curvature. This has appeared to be an advantageous dimensioning in order to achieve optimal draining of waste water towards a drain.

[0010] In an embodiment, the height the bottom ditch is less than $\frac{1}{5}$ of the total channel height of the drainage channel. This has appeared to be an advantageous dimensioning in order to achieve optimal draining of waste water towards a drain.

[0011] In an embodiment, the drainage channel is made of bent steel sheet. This is a simple way of production and steel also has good hygienic qualities in relation to subsequent cleaning of the channels.

Short Description of the Drawing

[0012] The invention will be explained in more detail below with reference to the accompanying drawing, where:

Figs. 1A-D show a drainage channel according to the invention, viewed from various angles.

Detailed Description of Embodiments of the Invention

[0013] Figs. 1A-D illustrate a first embodiment of a drainage channel 101 with a bottom ditch 107 as seen from various angles, and where Fig. 1A is a cross-section, Fig. 1B is viewed obliquely from above, Fig. 1C is a side view, and Fig. 1D is a view from above.

[0014] The drainage channel 101 is adapted to conduct drainage water towards a drain, including a concave shell form 103 with sidewalls. The drainage channel is designed with a bottom ditch 107 at its bottom.

[0015] The bottom ditch 107 forms a smaller channel compared with the drainage channel 101, whereby small amounts of drain water can be collected therein and form a relative large amount of drain water in relation to the relatively small or narrow bottom ditch 107.

[0016] In order to achieve a bottom ditch that can collect and conduct even relatively small amounts of drain water, the concave shell form of the drainage channel has sidewalls with a first inclination 105, and the sidewalls of the bottom ditch has a second inclination 109 which is steeper than the first inclination 105. These inclination can be adapted to the amount of drain water, depending on the production area in which the drain is placed.

[0017] Bottom ditch as well as drainage channel can have straight, inclining sides, but alternatively and as shown on the Figure, the drain channel has curving sidewalls with a first radius of curvature marked by 105, and the bottom ditch with sidewalls have a second radius of curvature marked by 109, and which is smaller than the first radius of curvature.

[0018] The first radius of curvature can be about 60 mm and the second radius can be 15 mm which is about $\frac{1}{4}$ of the first radius of curvature.

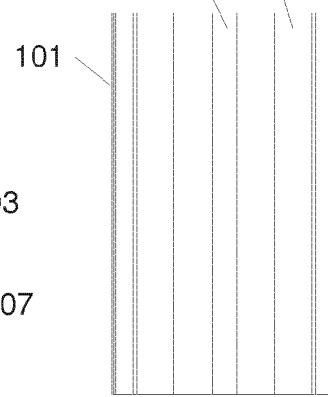
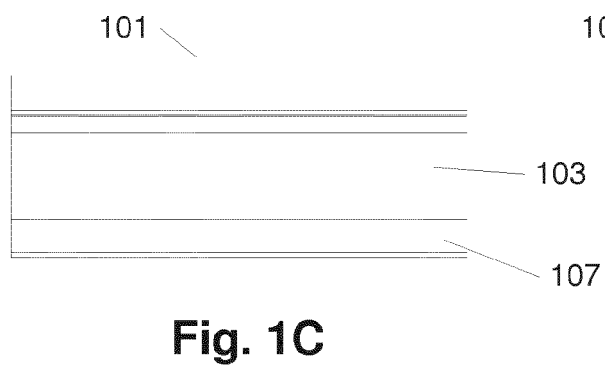
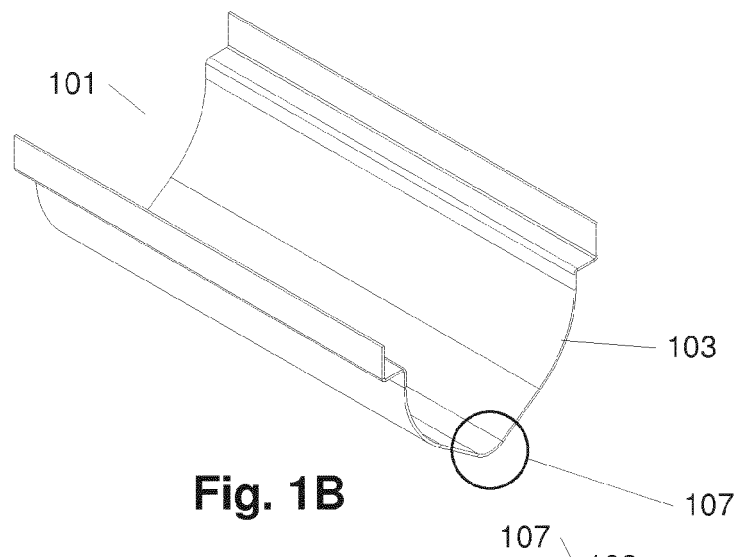
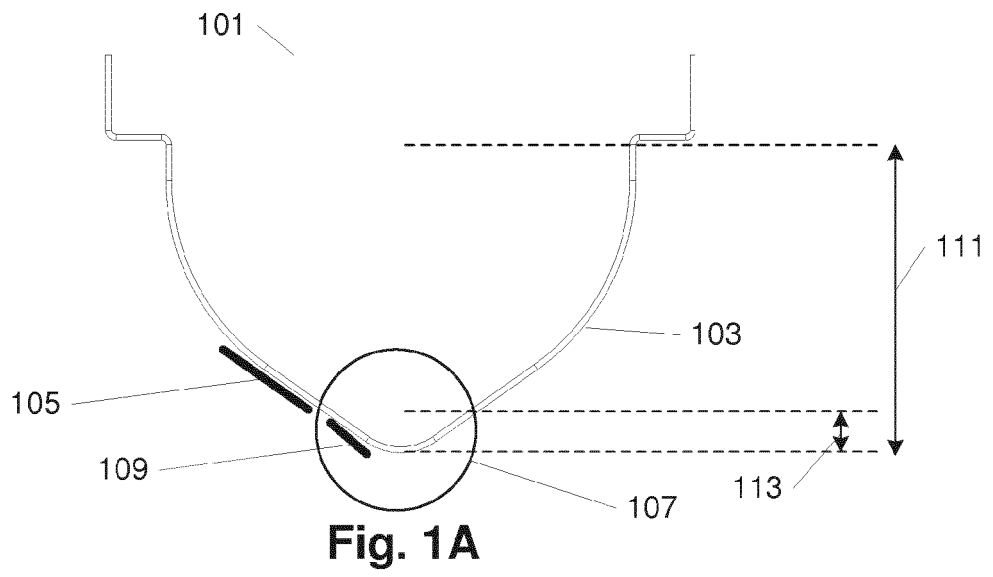
[0019] It appears from the Figure that the height 113 of the bottom ditch is substantially less than the height 111 of the whole drainage channel.

[0020] The drainage channel shown on the Figure is made of a bent sheet, preferably of steel.

[0021] The invention is not limited to the embodiments shown in the Figures and described above. Other embodiments with other shapes of the drainage channel may be envisaged within the scope of this invention and the subsequent claims.

Claims

1. A drainage channel (101) adapted to conduct drain water towards a drain, wherein the drainage channel at its bottom part is designed with a bottom ditch (107), and wherein the drainage channel includes a shell form (103) with sidewalls, **characterised in that** the shell form of the drainage channel is a concave shell form having curving sidewalls with a first radius of curvature, and that the sidewalls of the bottom ditch are curving and have a second radius of curvature which is smaller than the first radius of curvature.
2. A drainage channel according to claim 1, wherein the second radius of curvature is $\frac{1}{4}$ of the first radius of curvature.
3. A drainage channel according to claim 1 or 2, wherein the height (113) of the bottom ditch is less than $\frac{1}{5}$ of the total channel height (111) of the drainage channel.
4. A drainage channel according to claim 1, 2 or 3, wherein the drainage channel is made of a bent steel plate.





EUROPEAN SEARCH REPORT

 Application Number
 EP 14 15 8654

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Place of search Munich		Date of completion of the search 10 July 2014	Examiner Isailovski, Marko
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