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(54) **CERAMIC DRAIN GRATING**

(57) The invention relates to a ceramic drain grating that comprises two lateral planar zones (1) joined by a concave zone (2) with openings (3), the concave zone (2) having a uniform thickness and each of the planar zones (1) having an area of increased thickness, serving as a bearing and housing hollow guides (5) for receiving

dampers (6), so that the lateral planar zones (1) are intended to ensure that the grating is level with the ground in which it is installed and the thickness of the concave zone (2) is intended to prevent water from pooling in any of the upper and lower zones of the grating.

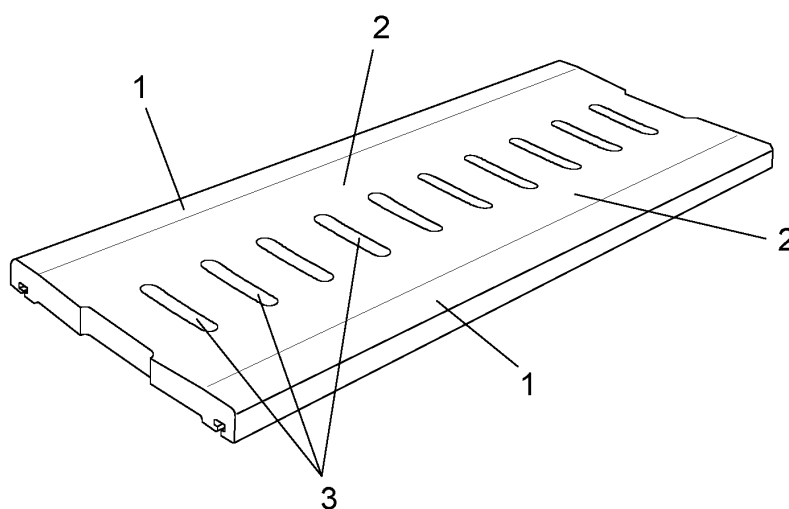


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a ceramic drain part which has a characteristic structure, both aesthetically and functionally.

[0002] It is intended for forming surface-level drain covers in order to facilitate the passage of water towards a drain channel in the ground. The gratings of the invention are placed and adjusted flush with the ground, the water passing to the drain channel by means of through openings installed in the gratings of the invention.

[0003] It has special application in the field of the industry of structural elements for construction which are designed to make water circulate.

TECHNICAL PROBLEM TO BE RESOLVED AND BACKGROUND OF THE INVENTION

[0004] At present, drain channels for collecting rainwater, irrigation water, water that overflows from swimming pools, etc. are known. In most cases, the mouths of these channels are covered by means of closing parts with through openings, through which the water flows towards the drain channels.

[0005] The closing parts are usually made of materials as varied as plastic, concrete, iron or composite parts made of several materials.

[0006] Thus, the most conventional and common form of the closing parts for a drain cover in a surface is by means of a grating, which is usually made of plastic material, and which rests on a structure intended for this aim. Said grating has several disadvantages since, by being in contact with water from different sources, they can be easily damaged over time by different agents present in the water, such as in situations with chlorinated pool water, water for cleaning sanitary and food facilities, etc.

[0007] Therefore, it is possible that over time said types of parts require maintenance and/or replacement, which implies an additional cost in facilities and labour.

[0008] The grating of the present invention prevents the aforementioned problems by providing a surface-level drain cover made of ceramic material which, therefore, is resistant to corrosion from all the waste liquids with which it could be in contact and prevents the accumulation of liquids on the surface, by incorporating a surface design for the evacuation of liquids on the surface of the grating. Additionally, the possibility of being developed in different types of finishes enables the most suitable one to be selected so that it does not stick out and provides aesthetic integration in the environment wherein it is installed.

DESCRIPTION OF THE INVENTION

[0009] In order to achieve the objectives and avoid the

aforementioned drawbacks, the present invention describes a ceramic drain grating configured in a rectangular shape with a visible face that is flush with the surface in which it is installed, and a hidden face which houses the bearing elements in the drain channel. The visible face of the grating comprises two lateral planar zones, according to the longer sides of the rectangle which they define. The planar zones are joined by a concave zone wherein the water inlet openings for the drain are located. The concave zone has a uniform thickness such that the hidden surface of the grating also offers a concave configuration.

[0010] In this manner, on the one hand, the thickness of the concave zone, being uniform, is intended to prevent water from pooling in not only the upper zone, the visible one, but also in the lower zone of the grating.

[0011] On the other hand, the lateral planar zones are intended to ensure that the grating is level with the ground in which it is installed, for which reason each of the planar zones has an area of increased thickness, serving as a bearing. This area of increased thickness houses hollow guides throughout the planar zones. These guides, apart from being open at each of the ends of the grating, are also open through the bearing zone. The functionality of the guides is that they house corresponding dampers which will act as bases for the bearing of the grating, such that the bearing is not performed directly on the grating which, due to the inherent features of the ceramic material, can cause a fragile breakage due to rattling from a bad fit of the 30 support with the grating.

[0012] To prevent water from pooling on the surface of the grating, the planar zones may have a downward inclination towards the concave zone.

[0013] As a last feature of the grating, the visible surface, formed by the planar zones and the concave zone, can be configured with a non-slip texture.

BRIEF DESCRIPTION OF THE FIGURES

[0014] To complete the description of the invention, and for the purpose of helping to make the features thereof more readily understandable, according to a preferred exemplary embodiment thereof, a set of drawings is included where, by way of illustration and not limitation, the following figures have been represented:

- Figure 1 represents a top frontal perspective view of the grating of the invention.
- Figure 2 represents a cross-sectional view of the grating of the invention.

[0015] A list of the references used in the figures is provided below:

1. Planar zone.
2. Concave zone.
3. Openings.
4. Lower face.

5. Guide.
6. Damper.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0016] Considering the numbering adopted in the figures, as shown in Figure 1, the drain grating of the invention is configured by means of two elongated planar zones (1) joined by a concave zone (2). The planar zones (1) are preferably not coplanar, but rather have a slight downward inclination towards the concave zone (2). A series of openings (3) are installed in the concave zone (2) for the passage of liquids. Both the inclination of the planar zone (1) and the concave zone (2) of the grating have the function of not retaining liquids, the pooling of which can cause unwanted effluvia.

[0017] The grating is intended for forming surface-level drain covers, in order to facilitate the passage of liquids which, typically, will be water. In correspondence with the drain channel in the ground, several gratings are placed and adjusted, which are flush with the ground, the liquid passing to the drain channel through the openings (3) of the gratings.

[0018] The fact that the grating is made of ceramic material affects several aspects. First, it enables the durability of the grating in receiving liquids contaminated with chemical agents, such as detergents in changing rooms or sanitary facilities, chlorine in pool zones, or any other kind. Another important aspect is the ease of integration in the environment in which it is installed, due to the ease of variability in the manufacturing in terms of different designs based on colour, textures and other factors.

[0019] As for the configuration of the grating, the thickness of the concave zone (2) is uniform, while the planar zones (1) have corresponding areas of increased thickness intended to be the bearings of the grating in the drain channel.

[0020] Moreover, the surface of the upper face of the grating, the face which will be seen once installed, preferably comprises a non-slip texture.

[0021] As for the lower face (4) of the grating, which is not visible, it also has a concavity, the function of which is that any liquid which crosses through the openings (3) does not stay adhered to the lower face (4) of the grating, but rather that it tends to slide towards the central zone in which the openings (3) are located.

[0022] As shown in Figure 2, each of the areas of increased thickness of the planar zones (1) incorporates a longitudinal guide (5) configured by means of a recess, all along the planar zone (1), also open to the outside through the bearing zone. These guides (5) are intended to house corresponding dampers (6) with the function that the gratings, due to the fragility of the ceramic material from which they are made, rest on the dampers (6) instead of on the very ceramic material, preventing breakage. To do so, the dampers (6) are configured by means of an extruded longitudinal part, the material of which is

preferably rubber in order to absorb blows or small irregularities of the projections whereon the gratings rest.

[0023] A study of the necessary water evacuation rate determines not only the size of the openings (3) of the grating, which are typically oblong, but also the position thereof, which is usually transverse, and the separation therebetween.

[0024] It must be noted that the present invention must not be limited to the embodiment described herein. Other configurations may be carried out by those skilled in the art based on the present description. Accordingly, the scope of the invention is defined by the following claims.

Claims

1. A ceramic drain grating **characterised in that** it comprises two lateral planar zones (1) joined by a concave zone (2) with openings (3), wherein the concave zone (2) has a uniform thickness and each of the planar zones (1) has an area of increased thickness, serving as a bearing and housing hollow guides (5) for receiving dampers (6), so that the lateral planar zones (1) are intended to ensure that the grating is level with the ground in which it is installed and the thickness of the concave zone (2) is intended to prevent water from pooling in any of the upper and lower zones of the grating.
2. The ceramic drain grating according to claim 1, **characterised in that** the planar zones (1) have a downward inclination towards the concave zone (2), such that water is prevented from pooling in the grating.
3. The ceramic drain grating according to claims 1 or 2, **characterised in that** the surface of the planar zones (1) and the concave zone (2) comprises non-slip texturing.

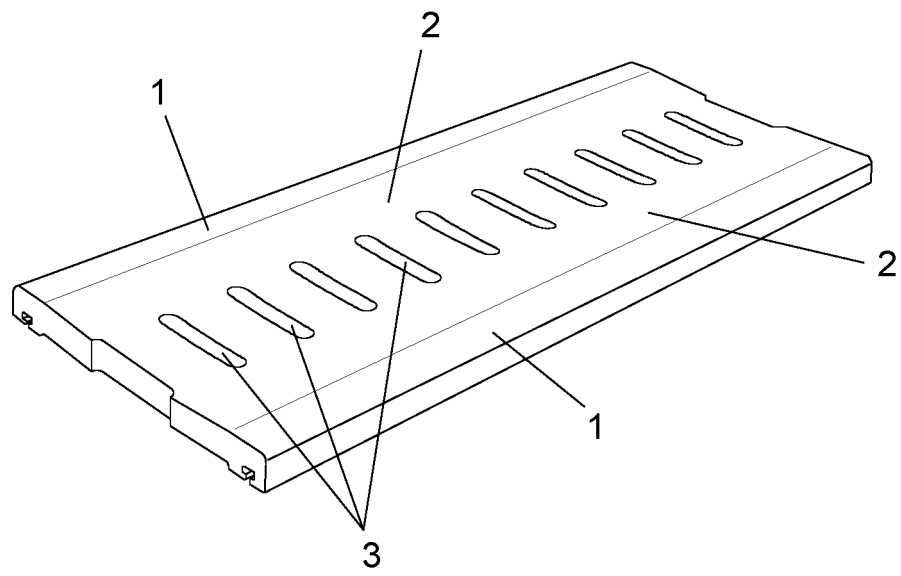


FIG. 1

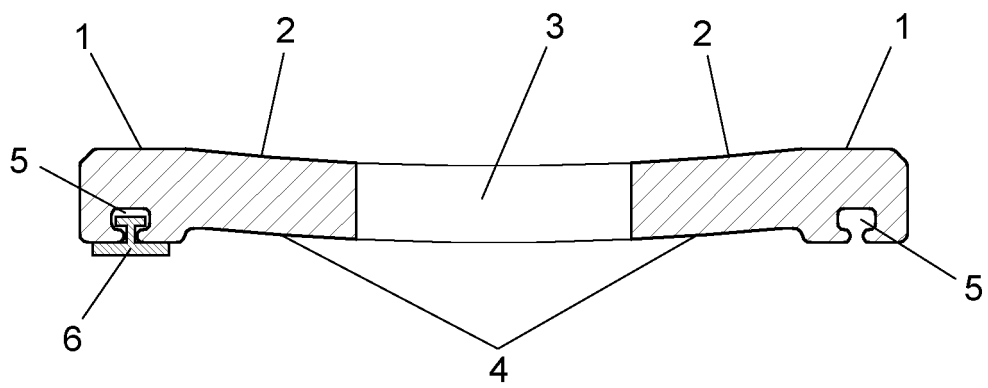


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2018/070599

A. CLASSIFICATION OF SUBJECT MATTER

E03F5/06 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E03F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2015015040 A1 (CERÁMICA MAYOR S A) 05/02/2015, the whole document	1-3
A	CN 203795574U U (XU YANWANG) 27/08/2014, the whole document	1-3
A	CN 206174093U U (UNIV SHAANXI TECHNOLOGY) 17/05/2017, the whole document	1-3
A	JP 3167831U U 19/05/2011, the whole document	1-3
A	EP 1655420 A2 (MUFLE S P A) 10/05/2006, the whole document	1-3
A	JP S56176286U U 25/12/1981, the whole document	1-3

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

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"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure use, exhibition, or other means.

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
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Name and mailing address of the ISA/

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International application No.

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Information on patent family members

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
WO2015015040 A1	05.02.2015	ES1089279U U ES1089279Y Y	05.09.2013 05.12.2013
----- CN203795574U U	----- 27.08.2014	----- NONE	-----
----- CN206174093U U	----- 17.05.2017	----- NONE	-----
----- JP3167831U U	----- 19.05.2011	----- NONE	-----
----- EP1655420 A2	----- 10.05.2006	----- ITMC20040131 A1	----- 04.02.2005
----- JPS56176286U U	----- 25.12.1981	----- JPS5912308Y Y2	----- 13.04.1984
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Form PCT/ISA/210 (patent family annex) (January 2015)