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(54) **Box-like drainage element**

(57) A box-like drainage element (1) for a ground water handling system is provided, comprising a body (2) defined by perforated boundary walls (3,4) upstanding from a perforated base (6) and an open top (7), there being a plurality of discrete connector members (8) rising

from the base (5) towards the open top (7), and a closure device (9) in the form of a lid having means (10) adapted for releasable interengagement with the connector members (8).

The box-like drainage element (1) may be used within a ground water handling system.

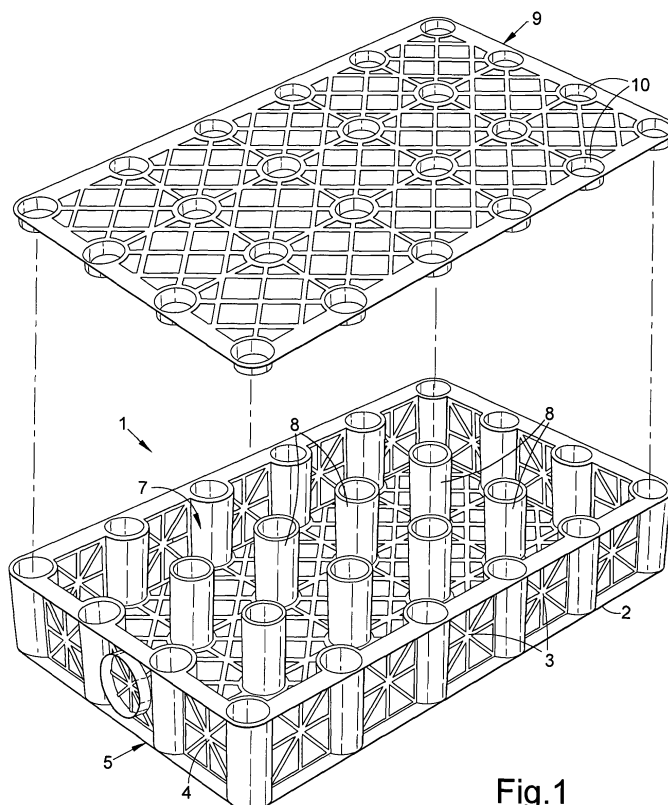


Fig.1

Description

[0001] The invention relates to a ground water system, particularly to ground water handling or attenuation systems that can deal with control or otherwise attenuate water that falls as rain, particularly in "flash" storms or from flooding, including flooding caused by melting ice and/or snow.

[0002] Modern building and agricultural methods are such that water which historically would drain away by natural seepage is no longer able to do so, which leads to floods, soil erosion and the like.

[0003] This means that modern building and agriculture methods often result in water falling as rain or formed from melting ice or flooding cannot return to the ground to form ground water. Instead, it often flows away from a locality where it is generated, depriving the ground of its beneficial effects, and overflowing normal drainage systems, therefore leading to flooding, erosion and general disruption to the environment. Prior systems to cater for this generally have the disadvantage of being massive, and of not having sufficient capacity to provide for attenuation, by which is generally meant the lengthening of the period during which water is held at a location where it arises e.g. at a storm area, for dispersal into the ground at that area without flowing away therefrom.

[0004] The invention seeks to mitigate these disadvantages.

[0005] According to the invention there is provided a drainage element for a ground water handling system, comprising a body defined by perforated boundary walls, a perforated base and a normally open top, a plurality of discrete upstanding connector members rising from the base towards the normally open top to define an array of said members, and a closure device for the open top having means adapted for releasable interengagement with the connector members.

[0006] The drainage element may be a half cell of a drainage device, such as that sold under the registered trade mark POLYSTORM. This provides a short or low element which can be installed in restricted areas.

[0007] The releasable interengagement means may comprise orifices in the lid providing an array corresponding in plan to the array of connector members. This provides a complementary arrangement which is relatively readily assemblable.

[0008] The orifices may be through orifices.

[0009] The area of the lid between the orifices may be solid. This provides for a strong element which can support both compressive and lateral loads for example up to 60 tons or more compressive load.

[0010] The lid may fit within the boundary walls, or alternatively the lid may be adapted to sit on the boundary walls.

[0011] The releasable interengagement means may comprise depending elements each adapted for engagement with a free upper end of a respective connector member. This provides for each of mounting of the lid

with the body.

[0012] The depending elements may be adapted to seat in open upper ends of the connector member.

[0013] The body and lid may be injection moulded.

[0014] According to a second aspect, the invention defines a ground water handling system including a drainage element as hereinbefore defined.

[0015] A drainage element according to the invention is hereinafter described, by way of example, with reference to the accompanying drawings, both of which are schematic, and in which

Fig. 1 shows an exploded perspective view of a drainage element embodying the invention; and

Fig. 2 is an assembled view of the drainage element.

[0016] Referring to the drawings there is shown a drainage element 1 for a ground water handling system, comprising a body 2 defined by perforated boundary walls 3, 4 upstanding from a perforated base 6 and an open top 7, there being a plurality of discrete connector members 8 rising from the base 5 towards the open top 7, and a closure device 9 in the form of a lid having means 10 adapted for releasable interengagement with the connector members 8.

[0017] The lid 9 is in the embodiment a planar perforated lid 9, corresponding in shape in plan to the open top 7 of the body 2 so that it can either sit inside the open top 7 to be close up to the inner surfaces of the free upper (in use) edges of the boundary walls 3, 4, or to sit on those boundary walls, in the embodiment without overhang.

[0018] Usually the lid 9 will sit in the body 2, inside the boundary walls 3, 4, the means 10 comprising orifices, which are through orifices in the embodiment.

[0019] The orifices 10 are arranged to form an array complementary to the array formed by the upper, free, ends of the connector members 8 rising from the base 5. Thus when the lid 9 is offered up to and dropped into the body 2 between the boundary walls 3, 4, a free end of a connector member enters a respective facing through orifice and thus secures the lid in position.

[0020] The lid 9 when in position is substantially flush with the free upper ends of the boundary walls 3, 4 to provide a smooth outer surface of the drainage element 1. To prevent the lid 9 from falling too far into the body 2, there are means such as stops or abutments (not shown) which limit insertion. These means may comprise a conical outer surface of the connector members 8, stops or shoulders thereon, or stops or shoulders on the inner surfaces of the boundary walls 3, 4 or any other suitable and effective means.

[0021] The body is a half cell of a usual stormwater attenuation device, but with the lid 9 can provide a short or low unit only about 230mm high whilst providing a strong element which can support high compression and lateral applied forces for example up to or even above

60 tons compressive force.

[0022] Thus the body 2 with perforated lid 9 as described with reference to the drawings can provide a strong yet compact box which provides for flexibility of application in that it can be installed in confined locations or used as an adjunct to stormwater attenuation systems.

[0023] The body and lid may be injection moulded from a suitable plastic material.

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Claims

1. A drainage element for a ground water handling system, comprising a body defined by perforated boundary walls, a perforated base and a normally open top, a plurality of discrete upstanding connector members rising from the base towards the normally open top to define an array of said members, and a closure device for the open top having means adapted for releasable interengagement with the connector members. 15 20
2. A drainage element according to Claim 1, which is a half cell of a drainage device. 25
3. A drainage element according to Claim 1 or Claim 2, the releasable interengagement means comprising orifices in the lid providing an array corresponding in plan to the array of the connector members. 30
4. A drainage element according to Claim 3, the orifices being through orifices.
5. A drainage element according to Claim 4, the area of lid between the orifices being solid. 35
6. A drainage element according to Claim 5, the lid fitting within the boundary walls.
7. A drainage element according to Claim 5, the lid being adapted to sit on the boundary walls. 40
8. A drainage element according to Claim 1 or Claim 2, the releasable interengagement means comprising depending elements each adapted for engagement with the a free upper end of a respective connector member. 45
9. A drainage element according to Claim 8, the depending elements being adapted to seat in open upper ends of the connector member. 50
10. A drainage element according to any preceding claim, the body and lid being injection moulded. 55
11. A ground water handling system, including a drainage element according to any preceding claim.

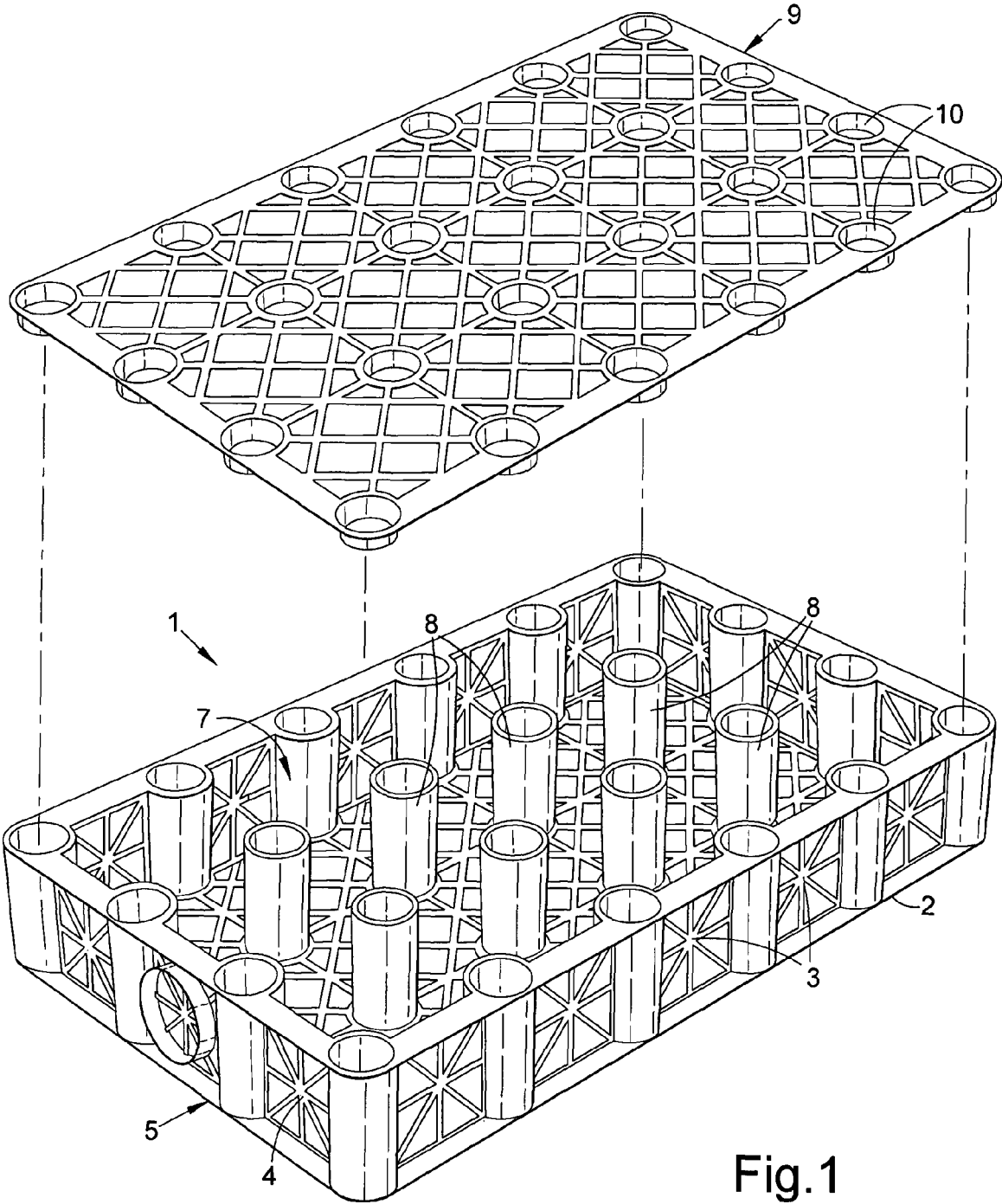


Fig.1

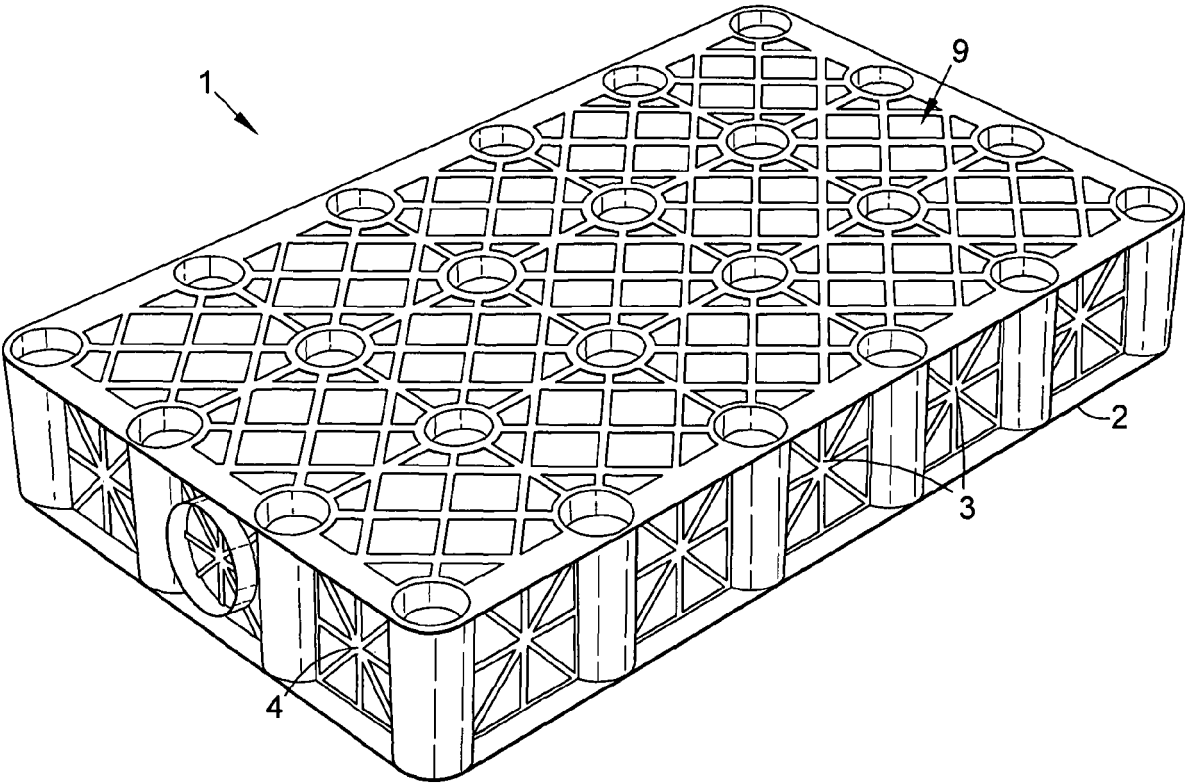


Fig.2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 25 2927

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 24 October 2007	Examiner Geisenhofer, Michael
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 07 25 2927

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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