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(54) **Device to be used as a delimitation between two areas**

(57) This invention relates to a device 1 intended to be used as a delimitation between two areas A and B. The device 1 comprises a three-dimensional body 2 resting on a substratum C and a retention device 3 that force-loads the body 2 for stabilization of the body 2 against the substratum C.

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Description

[0001] This invention relates to a device intended to be used as a delimitation between two areas according to the preamble of claim 1.

[0002] It is many times desirable to delimit two areas so that access to one of the areas from the other one is prevented or so that things are prevented to move from one area to the other.

[0003] An object of this invention is to present such a device that delimits two areas.

[0004] This object is attained by a device having the features defined in the characterizing part of claim 1.

[0005] In the description below, the invention will be described based on a few embodiments and with references made to Fig. 1-Fig. 9. In the figures, parts and details are indicated with reference designations. Parts and details that correspond to each other in different embodiment examples have been given the same reference designations.

Fig. 1 shows an embodiment example of a device according to the invention to be used as delimitation between two areas A and B on top of a substratum C.

Fig. 2 shows a device or a part of a device according to the invention.

Fig. 3 shows a collapsible body according to the invention.

Fig. 4 shows a retention device according to the invention.

Fig. 5 shows the device in Fig. 1 as seen in the section X in Fig. 2.

Fig. 6 shows the device in Fig. 1 as seen in the section Y in Fig. 2.

Fig. 7 shows a second embodiment example of a device according to the invention to be used as delimitation between two areas A and B, where one area B is filled with a liquid E.

Fig. 8 shows a body and a retention device that retains a cloth.

Fig. 9 shows a house surrounded by a device according to the invention.

[0006] Devices 1 according to the invention are shown and described here below based on how they look like when they are mounted and correctly placed and are used as a delimitation between two areas A and B. A device 1 may, for instance, be used in temporary road and street works, and the device is then an edge beam and/or edge marking.

[0007] The device has a selected width B1 and height H1, and a selected length L1. The width B1 is selected, among other things, based on the fact that the device should stand steady, the height H1 is selected so that desired delimitation, screening, is obtained in the vertical direction, and the length L1 is selected so that desired delimitation, screening, is obtained in the horizontal direction so that the device 1 extends a desired distance and constitutes a dividing line of desired length between the two areas A and B.

[0008] The device 1 comprises a three-dimensional body 2 resting on a substratum C and a retention device 3 that force-loads the body 2 for stabilization of the body 2 against the substratum C. The substratum C may, for instance, be a ground surface, a roadway or the like essentially having a horizontal extension.

[0009] The body 2 has a three-dimensional shape and constitutes the forming base for the overall shape of the device. The body 2 has a preselected width B2 and height H2, which essentially correspond with the width B1 and height H1 of the device, and a selected length L2. The width B2 and the height H2 are selected on the same basis as those of the device. The length L2 is selected so that it either corresponds to the desired length L1 of the device 1 or so that the body 2 gets a size, a length L2, so that a plurality of bodies 2 can be combined into a device 1 so that the desired length L1 of the device 1 is obtained. Accordingly, the device 1 may comprise only one body, two bodies or more.

[0010] Each body 2 is elongate and comprises two surface-extended elongate side portions 4 and 5, upwardly directed from the substratum C. The side portions 4 and 5 are interconnected along the respective side portion's upper edge 6 and 7 upwardly directed from the substratum C. The respective side portions' lower edge 8 and 9 directed toward the substratum C rests against the substratum C. The side portions 4 and 5, the outer side surfaces 4a and 5a thereof, face the respective area A and B.

[0011] The two side portions 4 and 5 are angled by the angle α, 30-90°, in relation to each other so that the body 2, the device 1, gets an upside-down V-shape when the body 2, the device 1, is regarded from one short side 1x, 1y, 2x or 2y, seen in an end view.

[0012] Each body 2 has an inner open space 10 that liquid D, for instance water, can flow into and flow further on within. The space 10 is constructed, formed, between the side portions 4 and 5, inside the side portions 4 and 5. The side portions 4 and 5 delimit the space 10 and give it an upside-down V-shape. The liquid D may fill the entire space 10 and thereby force-load the device 1, the body 2, by such a great force that the device 1, the body 2, will be moved in an undesired way. Therefore, one side portion 4 or 5, or both side portions, comprise(s) at least one opening 11 at the lower edge 8 thereof that allows the water, having entered into the space 10, to flow out of the space 10.

[0013] The body 2 may be shaped into said V-shape comprising two side portions 4 and 5 from a single piece of material. The shaping may be effected by pressing, bending, injection moulding or the like.

[0014] In order to make each body 2 easy to handle in all respects, concerning storage, transportation, mounting/dismounting and assembly/disassembly of a plurality of bodies 2 arranged one after the other, the bodies are disassemblable and each body 2 is foldable/extendable. The body 2 is manufactured from two separate parts that

constitute the two side portions 4 and 5. The side portions 4 and 5 are suitably manufactured from a plate-shaped metal material or plastic material. Examples of suitable materials are sheet iron, aluminium, composite or glass fibre. The plate-shaped piece of material gets the shape thereof in a way suitable for the selected material.

[0015] At the respective upper edge 6 and 7 thereof, the side portions 4 and 5 of the body are interconnected via a construction 12 that enables to bring the side portions toward each other, thereby decreasing the volume of the device, of the body. The construction 12 has a hinge function. The hinge construction 12 allows collapsing the body 2, to bring the side portions 4 and 5, the insides 4b and 5b of the side portions, toward each other, and obtain a relatively flat packet that is easy to handle and where the collapsed bodies 2 can be piled on each other. The hinge construction 12 may be a separate unit that is connected with the side portions 4 and 5 in a suitable way or may be co-operating parts of the side portions 4 and 5.

[0016] Each body 2 comprises a locking device 13 attached in the respective side portion 4 and 5, arranged between the two side portions 4 and 5. The two side portions 4 and 5 are positioned and locked in position in relation to each other by the locking device 13. The locking device 13 comprises one or more parts that may be moved to and from a location where the side portions 4 and 5 are positioned and locked in position in relation to each other by the locking device 13.

[0017] The retention device 3 comprises a connecting part 14 by which the retention device 3 is connected to the body 2. The connecting part 14 is arranged over the body 2, over the upper part 15 of the body, and abuts against the upper outsides 16 and 17 of the body directed from the substratum. The connecting part 14 comprises two elements 18 and 19 angled by the angle β, 30-90°, in relation to each other and that abut against the body 2, against the upper outsides 16 and 17 of the body. The connecting part 14 has an upside-down V-shape when the connecting part 14 is regarded from one short side of the device, of the body, when it is seen in an end view. The V-shape of the connecting part corresponds essentially to the V-shape of the body.

[0018] The retention device 3 comprises a load part 20 to which a weight 21 is arranged. The load part 20 comprises a shelf 22 on which the weight 21 is placed. The load part 20 allows force-loading the body 2 so that the weight and stability thereof increases.

[0019] The retention device 3 comprises a construction part 23 that in one end thereof is formed into the connecting part 14 and the other end thereof is formed into the load part 20 and that comprises an intermediate part 24 that connects the connecting part 14 and the load part 20. The intermediate part 24 abuts against and follows the outside 5a of one side portion 5 of the body. The length 3L of the retention device determines the placement of the load part 20 in relation to the body 2, the upper part 15 of the body, and the substratum C. One element 19 of the connecting part is connected to or is a part of the intermediate part 24. The length 3L of the retention device is determined by the length 24L of the intermediate part including the element length 19L of the connecting part.

[0020] The retention device 3 also has a certain width 3B, which influences the surface extension of the retention device along the device 1, the body 2, and thereby the distribution of the force application over the device 1, the body 2.

[0021] The retention device 3, the construction part 23, are manufactured from a plate-shaped metal or plastic material that in one end 23a thereof is formed into the connecting part 14, into the two elements 18 and 19 that are angled 30-90° in relation to each other. In the other end 23b thereof, the construction part is formed into the load part 20 by a portion X of the outermost end part being angled by the angle γ in relation to the intermediate part 24 and forming the shelf 22. Examples of suitable materials are sheet iron, aluminium, composite or glass fibre. The plate-shaped piece of material is formed into the desired shape in a way suitable for the selected material. It may be effected by pressing, bending, injection moulding or the like.

[0022] The device 1, each body 2, may be provided with a number of retention devices 3 arranged at a selected distance from each other, for instance, approx. 3 m from each other. This allows to influence and adjust the load if there are different needs in different areas of the device 1.

[0023] A device 1 according to the invention can also be used to retain materials, for instance bulk in the form of sand, gravel, wood chips, pellets or the like, within a certain area. In order to protect the substratum C, the ground, in such cases the device 1 comprises a surface-extended cloth 25 that is arranged on the substratum C and, along one of the side portions 25a thereof, up and over the device 1 and that is retained in this location by means of the retention device 3. The cloth 25 is clamped between the respective body 2 and one or more retention devices 3. The cloth 25 covers at least one area of the substratum C that extends 0,5 m perpendicularly out from the body 2 and follows the length L2/L1 of the body or device. Depending on the quality, properties and not the least the weight of the cloth, the device 1 may be provided with a greater or smaller number of retention devices 3 arranged at a selected distance from each other so that the cloth 25 reliably is retained in the desired location over the body 2. The cloth 25 should be flexible in the construction thereof so that it can shape itself according to the body 2 and according to the substratum (C).

[0024] It happens occasionally that liquids, for instance water, stream and flow and find ways that are undesirable and that simply have to be blocked. It may be water existing naturally in our water courses that for some reason flows over the space available and finds a new way, for instance upon ice melting and heavy rain periods. It may also be water or other liquids that escape from a space

available in the form of a petrol truck or the like and flows away. It may also be water or other liquids that is accumulated and begins to flow a non-desired way, for instance in dump grounds or the like. The liquids may be both harmless and dangerous, poisonous. In the text below, with the word "liquid", all types of liquids that can move by flowing will be referred to.

[0025] A device 1 according to the invention may also be used for holding a liquid E of the type mentioned above within a desirable area B or blocking the motion of the liquid to an undesired area A. The device 1 may be used for discontinuing the advance of the liquid by using the device 1 as a direct obstacle or for guiding the liquid in the desired direction by using the device as a lateral guiding. The device 1 may also be used directly around things that are desired to protect from the liquid, for instance constructions of different types, see Fig. 9.

[0026] A device 1 that should be used for this purpose is provided with a cloth 25 according to the above where the cloth 25 is impermeable to water. The cloth 25 may be a thin plastic foil.

[0027] A device 1 comprising a cloth 25 also comprises a force-load part 26 that is put onto the part of the cloth 25 that lies on the substratum C. The force-load part 26 has the purpose of holding down the cloth 25 and holding it in place both in relation to the substratum 25 and in relation to the body 2. The force-load part 26 may be sand, gravel, stone, concrete blocks or another type of weight/ weights of previously known type. If the retention device 3, the intermediate part length 24L including the element length 19L, are given a length 3L that corresponds to the width 5B of the side portion of the body, the shelf 22 can be placed against the cloth 25 that lies on the substratum C and thereby clamp the cloth 25 against the substratum C.

[0028] Upon use of a device 1 having a cloth 25 of this type and where the liquid E is retained on the side B of the body 2 by means of a cloth 25, the liquid E may conceivably leak in under the cloth 25 and further into the space 10 of the device. The liquid E/D will then pass out of the device 1, the body 2, via the opening 11 in the way previously described. The liquid D that flows out through the opening 11 and comes out on the side A, and that thereby undesirably ends up in the wrong area, on the wrong side of the body 2, can simply be pumped back to the desired area B using a pump device 26.

[0029] Each body 2 shown in Fig. 1 comprises two end portions 2.1 and 2.2 at least one of which is directed toward another body 2. The end portion 2.1 or 2.2 directed toward the adjacent body 2 is arranged overlapping with the end portion 2.2 or 2.1 of the adjacent body.

[0030] In order to be able to surround an area, to hold something inside or to keep something out, see Fig. 9, or to be able to build a deflected device, the device 1 also comprises corner elements 27 that constitute a connecting link between two bodies 2, which allows angular difference between the longitudinal axis LA of two bodies. In Fig. 9, a building F is shown surrounded by a device according to the invention to protect the building from the water that risks overflowing in a passing river G.

[0031] This description of different embodiments of the invention and alternative detail constructions should not be seen as a limitation of the invention but should be interpreted in the widest sense thereof in order not to unnecessary limit the scope of protection according to the claims appended herein. Changes that lie within the knowledge of a person skilled in the art are within the scope of protection of the general idea of the invention. The various detail constructions mentioned in the description hereinabove may be used and combined freely as long as the desired function is obtained.

Claims

1. Device (1) intended to be used as a delimitation between two areas (A, B), **characterized in that** it comprises a three-dimensional body (2) resting on a substratum (C) and a retention device (3) that force-loads the body (2) for stabilization of the body (2) against the substratum (C).

2. Device (1) according to claim 1, wherein the body (2) comprises two side portions (4, 5), upwardly directed from the substratum (C), which are interconnected along the upper edge (6, 7) of the respective side portion and wherein the respective lower edge (8, 9) of the side portions rests against the substratum (C).

3. Device (1) according to claim 2, wherein the two side portions (4, 5) are angled 30-90° in relation to each other forming an upside-down V-shape.

4. Device (1) according to claim 2 or 3, wherein one side portion (4) comprises an opening (11) at the lower edge thereof that allows water (D), having entered into an inner space (10) present in the body (2) and running along the body (2), to flow out of the device (1).

5. Device (1) according to any one of claims 2-4, wherein the side portions (4, 5) are manufactured from a plate-shaped metal material or plastic material.

6. Device (1) according to any one of claims 2-5, wherein the side portions (4, 5) at the respective upper edge (6, 7) are interconnected via a construction (12) having hinge function

7. Device (1) according to any one of claims 2-6, comprising a device (13) attached in the respective side portion (4, 5) and arranged between the two side portions (4, 5) for positioning and position locking of the two side portions (4, 5) in relation to each other.

8. Device (1) according to any one of claims 1-7, wherein the retention device (3) comprises a connecting part (14) by which the retention device (3) is connected to the body (2).

9. Device (1) according to claim 8, wherein the connecting part (14) is arranged over the body (2), over the upper part (15) of the body, and abuts against the upper outsides (16, 17) of the body.

10. Device (1) according to claim 8 or 9, wherein the connecting part (14) comprises two elements (18, 19) angled 30-90° in relation to each other and that constitute the parts of the connecting part (14) that abut against the upper outsides (16, 17) of the body.

11. Device (1) according to any one of claims 1-10, wherein the retention device (3) comprises a load part (20) to which a weight (21) is arranged.

12. Device (1) according to claim 11, wherein the load part (20) comprises a shelf (22) on which the weight (21) is placed.

13. Device (1) according to claim 11 or 12, wherein the retention device (3) comprises a construction part (23) that in one end (23a) thereof is formed into the connecting part (14) and the other end (23b) thereof is formed into the load part (20) and that comprises an intermediate part (24) connecting the connecting part (14) and the load part (20).

14. Device (1) according to claim 13, wherein the construction part is manufactured from a plate-shaped metal material or plastic material.

15. Device (1) according to any one of claims 11-14, wherein the length (3L) of the retention device determines the placement of the load part (20) in relation to the body (2) and the substratum (C).

16. Device (1) according to any one of claims 1-15, comprising a surface-extended cloth (25) that is arranged on the substratum (C) on one side (B) of the body (2) and up and over the body (2) and that is retained in this location by means of the retention device (3).

17. Device (1) according to claim 16, wherein the cloth (25) is clamped between the body (2) and the retention device.

18. Device (1) according to claim 17, wherein the cloth (25) is impermeable to water.

19. Device (1) according to any one of claims 16-18, comprising a force-load part (26) that is laid on the part of the cloth (25) that lies on the substratum (C).

20. Device (1) according to any one of claims 1-19, wherein a first body (2) comprises two end portions (2.1, 2.2) with at least one end portion (2.1, 2.2) being directed toward a second body 2 and arranged overlapping with the end portion (2.1, 2.2) of the adjacent body.

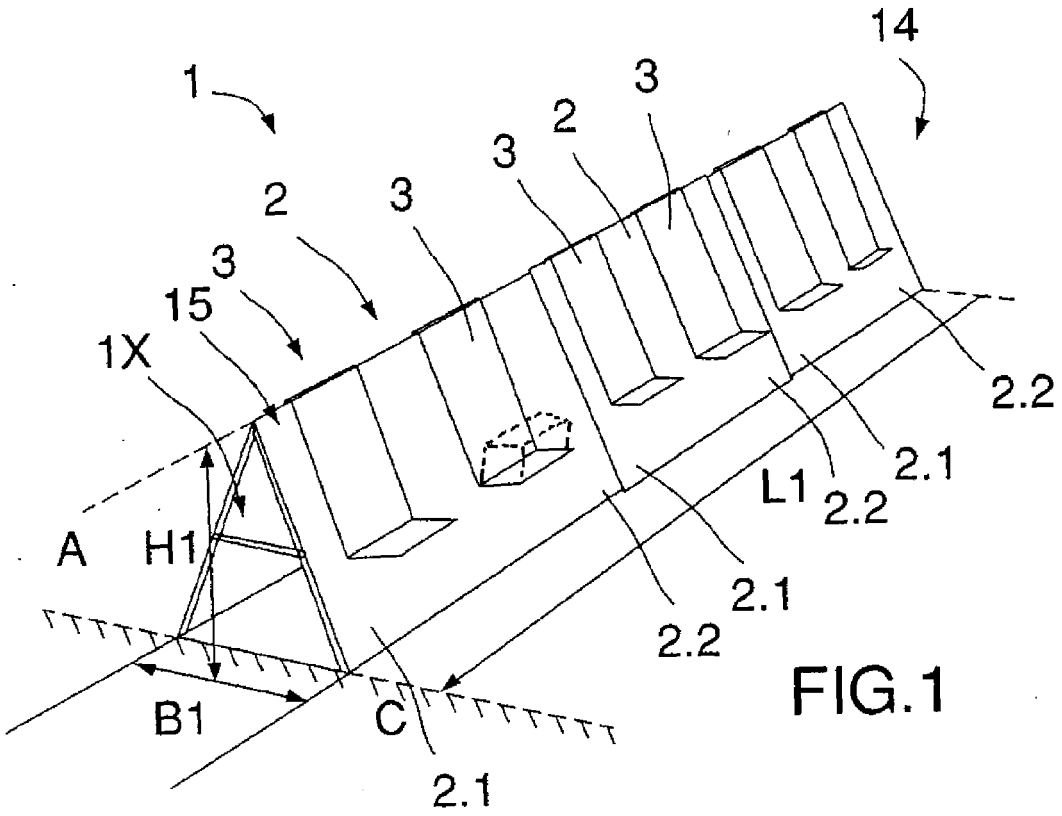
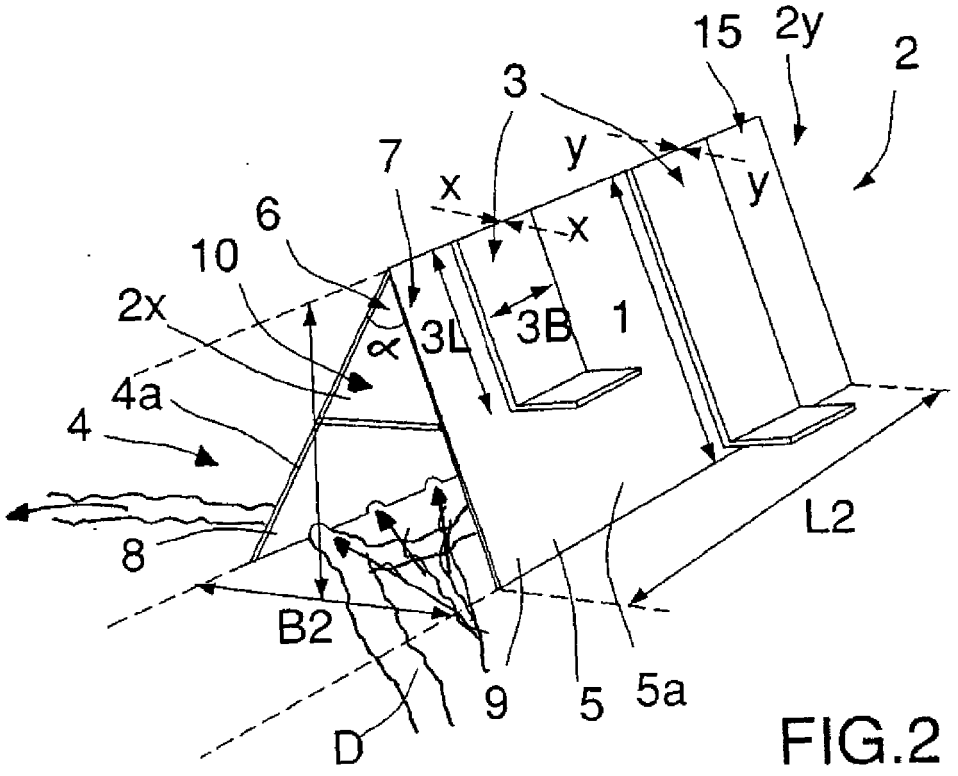

14
1
3
2
3
2
3
3
15
1X
2.2
2.1
L1
2.2
2.1
2.2
2.1
A
H1
B1
C
2.1

FIG.1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2y
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3
7
x
y
y
6
x
10
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3L
3B
1
4a
4
8
L2
B2
D
9
5
5a

FIG.2

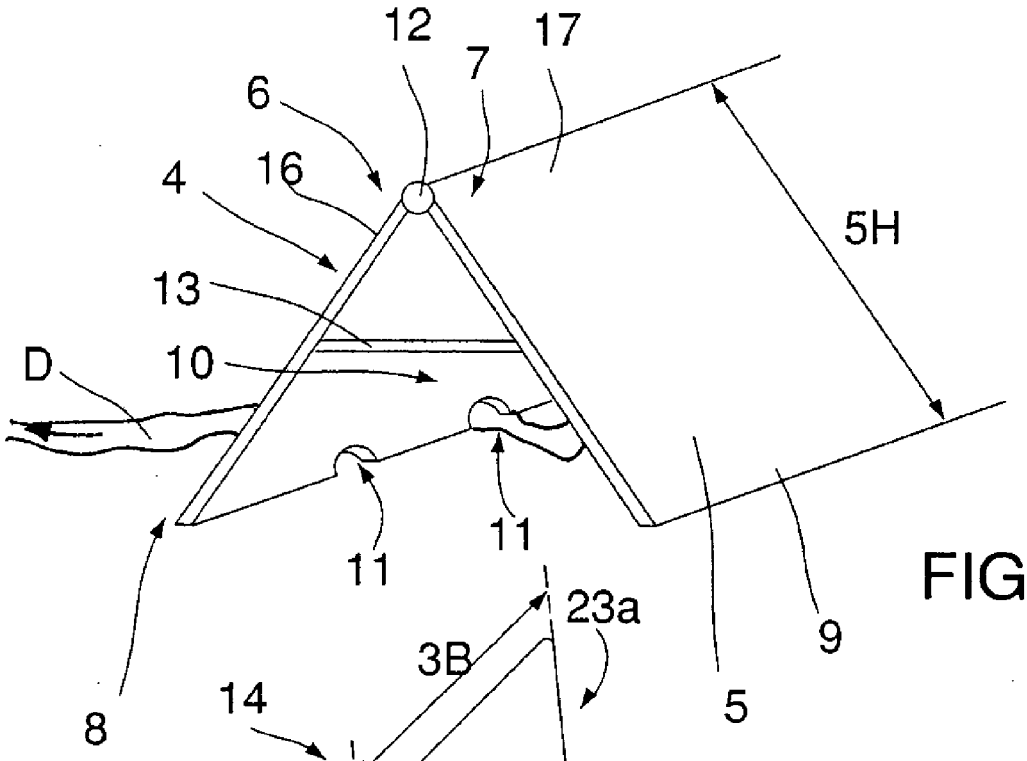

12
17
7
6
16
4
5H
13
D
10
11
11
9
8
5

FIG.3

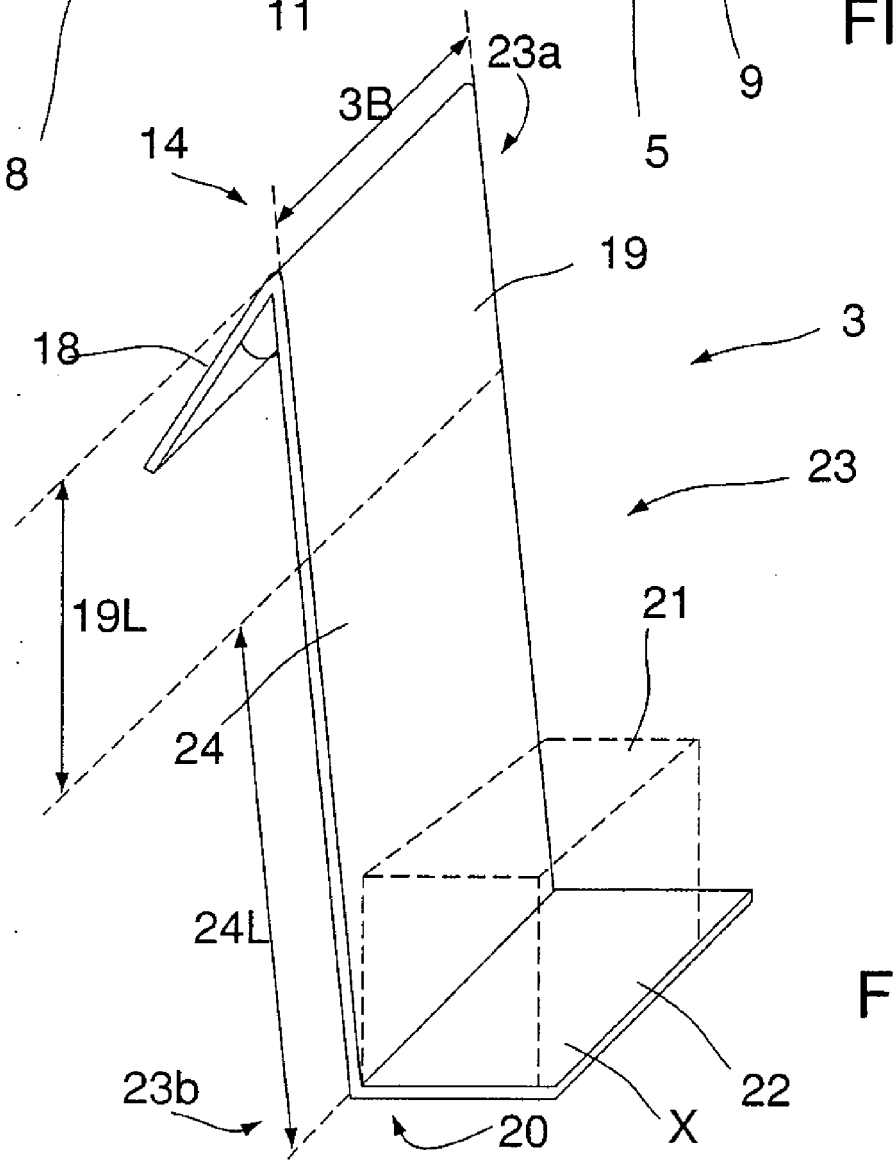

23a
3B
14
19
18
3
23
19L
21
24
24L
23b
20
X
22

FIG.4

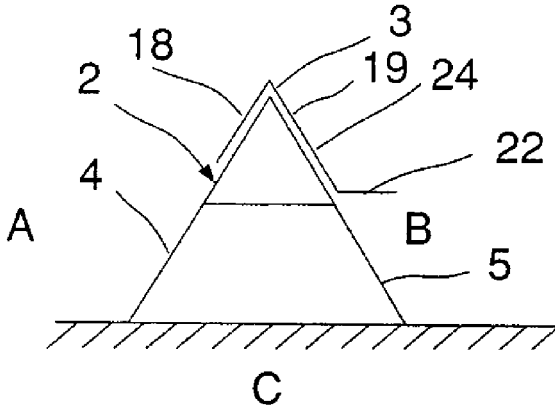


FIG.5

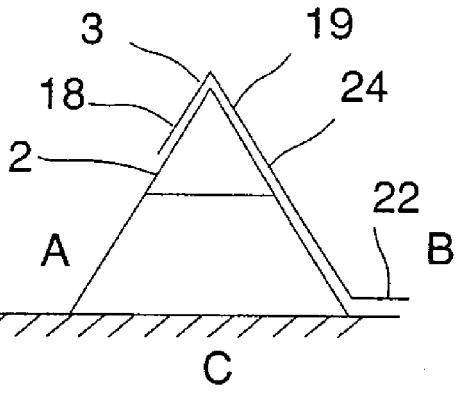


FIG.6

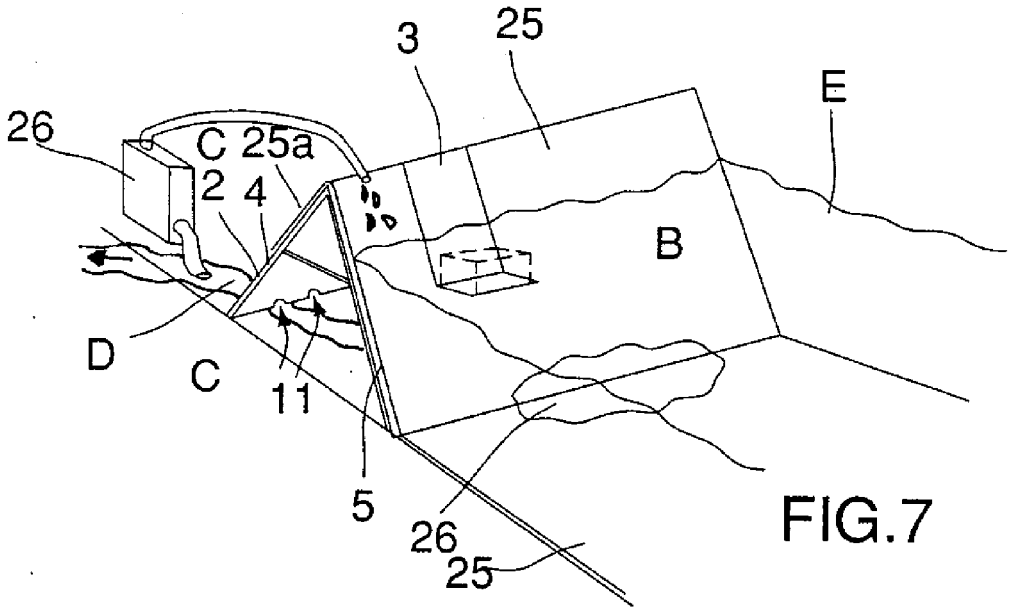


FIG.7

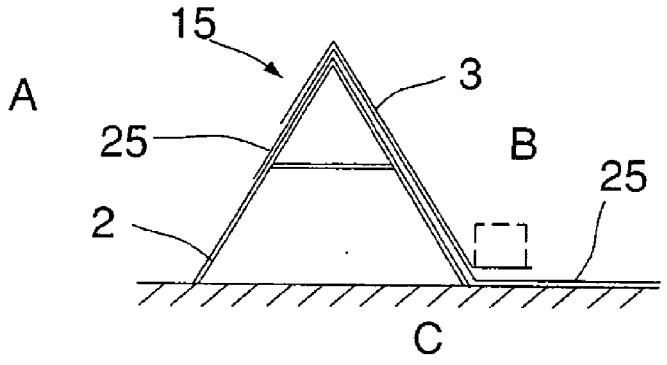
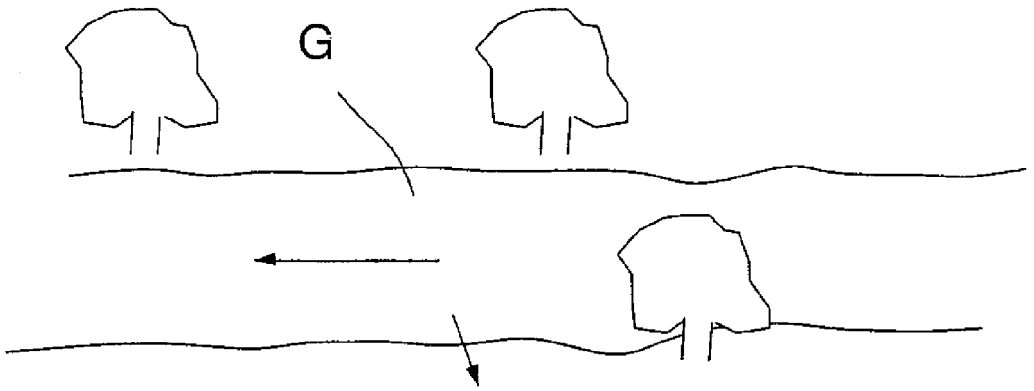


FIG.8



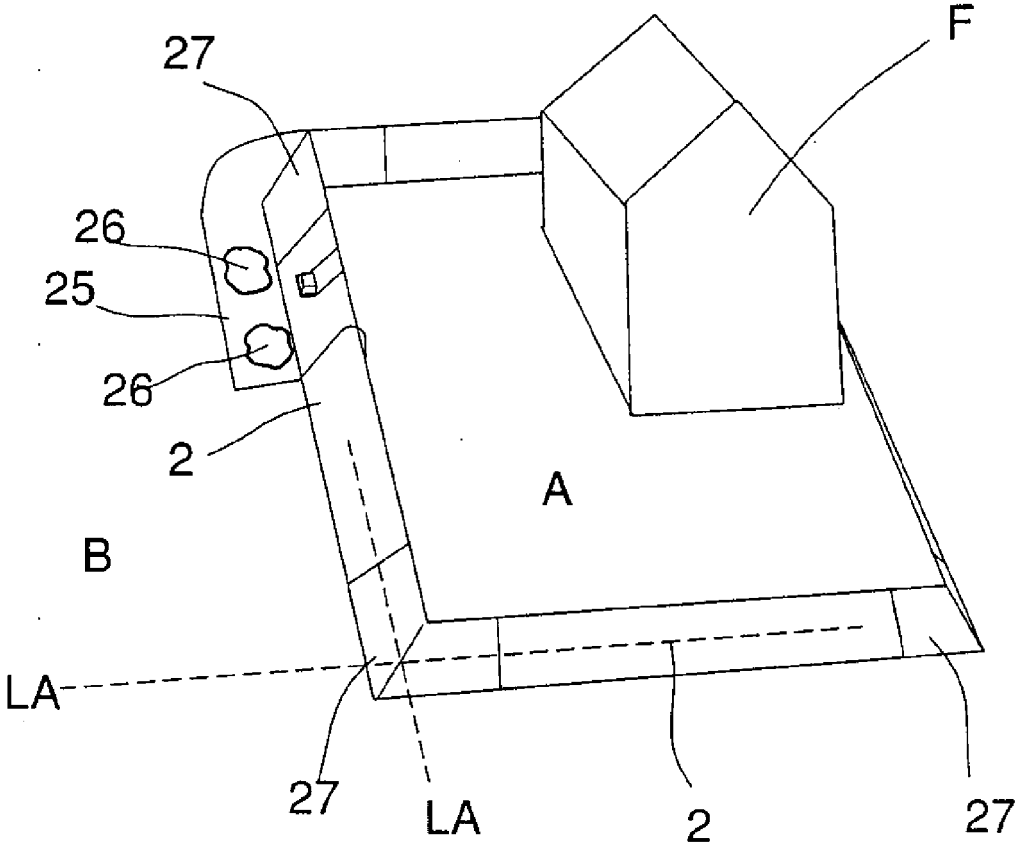


FIG.9

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 15 7634

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2002/051681 A1 (WESTMORELAND DANIEL ROLLIN [US]) 2 May 2002 (2002-05-02) * the whole document * -----	1-4,8,11	INV. E01F13/12 E02B3/10 E04H4/00
X	US 5 729 215 A (JUTRAS RICHARD A [US]) 17 March 1998 (1998-03-17) * column 3, lines 51-67 * * column 5, lines 4-20; figure 1 * -----	1-7,11, 12	
X	WO 2004/025033 A (POETZSCH HOLGER [DE]) 25 March 2004 (2004-03-25) * page 10, line 4 - page 11, line 7 * * page 12, line 30 - page 13, line 2; figures 1,4 * -----	1-3,6-9, 11,16-20	
X	US 1 779 577 A (PETER ALLIX JOHN) 28 October 1930 (1930-10-28) * the whole document * -----	1-3,5-7, 20	

TECHNICAL FIELDS SEARCHED (IPC)

E01F
E02B
E04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	28 August 2008	Flores Hokkanen, P

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 15 7634

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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28-08-2008

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82