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(54) **Rainwater gutter**

(57) A rainwater gutter defined by at least two channels (3) connected end to end to each other in fluidtight manner by a first sleeve (12) projecting inside one of the channels (3), a second sleeve (13) projecting outwards of the other channel (3) and inserted inside the first sleeve

(12), a first annular seal (15) interposed between the first sleeve (12) and the second sleeve (13), a second annular seal (16) fitted between two end faces (11) of the two channels (3), and fastening means for fastening the two end faces (11) one to the other with the interposition of the second annular seal (16).

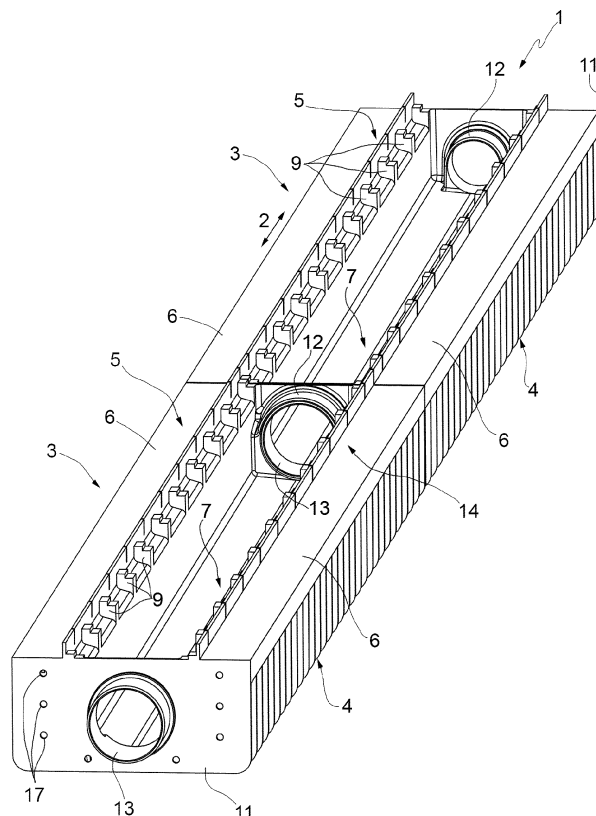


FIG.1

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Description

[0001] The present invention relates to a rainwater gutter.

[0002] In the building industry, rainwater gutters are used comprising a number of elongated channels connected end to end.

[0003] Each channel extends in a given direction, has a bottom supporting face by which to mount the channel on a supporting surface, is bounded internally by a bottom wall defining a rainwater flow bed, and is bounded longitudinally by two substantially parallel end faces perpendicular to said direction.

[0004] Each channel is normally connected to each adjacent channel by a number of bolts fitted through the corresponding end faces.

[0005] Known rainwater gutters of the type described above have several drawbacks, mainly due to the way in which the adjacent channels are connected not providing for any sort of sealing, and so allowing rainwater to seep between the end faces of the adjacent channels, thus damaging the construction beneath the gutter.

[0006] It is an object of the present invention to provide a rainwater gutter designed to eliminate the above drawbacks, and which is cheap and easy to produce.

[0007] According to the present invention, there is provided a rainwater gutter as claimed in the attached Claims.

[0008] A non-limiting embodiment of the present invention will be described by way of example with reference to the attached drawings, in which :

Figure 1 shows a schematic view in perspective, with parts removed for clarity, of a preferred embodiment of the gutter according to the present invention;
 Figure 2 shows an exploded view in perspective of the Figure 1 gutter;
 Figure 3 shows a schematic side view, with parts removed for clarity, of the Figure 1 and 2 gutter;
 Figure 4 shows a schematic longitudinal section, with parts removed for clarity, of the Figure 1 and 2 gutter;
 Figure 5 shows a schematic view in perspective of a top cover grille of the Figure 1 and 2 gutter;
 Figure 6 shows a schematic view in perspective of a manifold for draining the rainwater fed along the Figure 1 and 2 gutter.

[0009] Number 1 in Figures 1 and 2 indicates as a whole a rainwater gutter, which extends in a direction 2 and comprises a number of elongated channels 3 (two of which shown in Figure 1) connected end to end in direction 2.

[0010] Each channel 3 extends in direction 2, is made of plastic material, and is bounded by a bottom supporting face 4, by which to mount channel 3 on a supporting surface (not shown), and by a top face 5 substantially parallel to face 4.

[0011] The distance between faces 4 and 5, and hence

the height of channel 3, are therefore substantially constant along the whole length of channel 3, thus enabling fast, easy installation of gutter 1.

[0012] Channel 3 has a substantially U-shaped cross section, is bounded by two longitudinal shoulders 6 parallel to each other and to direction 2, and is bounded internally by a bottom wall 7 defining a rainwater flow bed.

[0013] As shown in Figure 3, wall 7 of each channel 3 extends in a direction 8 sloping towards face 4 at an angle of other than 0° and 180° with respect to direction 2, so that channel 3 slopes as required for the rainwater to flow along gutter 1.

[0014] In connection with the above, it should be pointed out that wall 7 of each channel 3 has the same slope as walls 7 of the other channels 3, and is substantially coplanar with wall 7 of each adjacent channel 3, so as to ensure the necessary continuity of gutter 1.

[0015] With reference to Figures 1, 2 and 4, each shoulder 6 has a number of substantially L-shaped supporting brackets 9 spaced along the top edge of shoulder 6, in direction 2, and each facing a corresponding bracket 9 on the other shoulder 6.

[0016] Brackets 9 on the two shoulders 6 cooperate to support a grille 10 closing the top of channel 3 and located a given distance from the top edge of each shoulder 6 to allow rainwater to fall into channel 3, between shoulders 6 and grille 10.

[0017] Each channel 3 is bounded longitudinally by two end faces 11 substantially perpendicular to direction 2, and comprises two sleeves 12, 13, of which sleeve 12 projects into channel 3 from one of faces 11, and sleeve 13 projects outwards of channel 3 from the other face 11.

[0018] As shown in Figure 4, each channel 3 is connected in fluidtight manner to each adjacent channel 3 by a connecting device 14 comprising sleeve 12 of one channel 3, and sleeve 13 of the other channel 3.

[0019] Sleeve 13 is inserted inside sleeve 12, and is connected in fluidtight manner to sleeve 12 by a first annular seal 15 interposed between sleeves 12, 13 of the two channels 3.

[0020] Device 14 also comprises a second annular seal 16, in the form of a closed ring and which extends about sleeve 13.

[0021] Seal 16 is fitted between adjacent faces 11 of the two channels 3, and is substantially the same shape and size as faces 11.

[0022] Device 14 also comprises two flat, substantially U-shaped reinforcing brackets (not shown) made of metal and located on opposite sides of the two adjacent faces 11 in direction 2.

[0023] Finally, device 14 comprises a number of bolts (not shown) fitted parallel to direction 2 and extending through seal 16 and through respective holes 17 formed in faces 11 and the reinforcing brackets (not shown).

[0024] With reference to Figure 6, the rainwater flowing along gutter 1 is drained into a parallelepiped-shaped manifold 18 located between two gutters 1 and bounded by two opposite end faces 19, each of which is connected

in fluidtight manner to face 11 of relative gutter 1, in the same way as faces 11 of two adjacent channels 3.

[0025] Manifold 18 comprises two inlet sleeves 20, each of which projects inside manifold 18 from a relative face 19, is substantially coaxial with the other sleeve 20, and is connected in fluidtight manner to sleeve 13 of relative gutter 1 in the same way as sleeves 12, 13 of two adjacent channels 3.

[0026] Manifold 18 also comprises an outlet sleeve 21, which projects outwards of manifold 18, extends in a direction substantially perpendicular to sleeves 20, and drains out of manifold 18 the rainwater fed into manifold 18 by the two gutters 1.

[0027] Gutter 1 has several advantages, mainly due to the fact that :

channels 3 are relatively easy and fast to install, with no additional equipment required, because of the constant height of each channel 3, and the slope of bottom wall 7 of each channel 3 with respect to relative bottom face 4;

the connection between sleeves 12, 13 and end faces 11 of each two adjacent channels 3 ensures proper fluidtight connection of channels 3; and

seal 16 being in the form of a closed ring and the same shape and size as faces 11, gutter 1 prevents rainwater from infiltrating beneath the supporting surface of gutter 1.

Claims

1. A rainwater gutter comprising at least two channels (3) connected end to end in a first direction (2), each channel (3) having a supporting bottom face (4) by which to mount the channel (3) on a supporting surface, being bounded internally by a bottom wall (7) defining a rainwater flow bed, and being bounded longitudinally by two end faces (11) substantially parallel to each other and perpendicular to the first direction (2); and connecting means (14) for connecting the two channels (3) in fluidtight manner; the gutter being **characterized in that** the connecting means (14) comprise a first sleeve (12) projecting inside one of the channels (3); a second sleeve (13) projecting outwards of the other channel (3) and inserted inside the first sleeve (12); a first annular seal (15) interposed between said first and second sleeve (12, 13); a second annular seal (16) fitted between the adjacent end faces (11) of the two channels (3); and fastening means for fastening the two adjacent end faces (11) of the two channels (3) one to the other with the interposition of the second annular seal (16).

2. A gutter as claimed in Claim 1, wherein the connecting means (14) also comprise two reinforcing brackets located on opposite sides of the end faces (11)

in the first direction (2), and fixed to the relative channels (3) by said fastening means.

3. A gutter as claimed in Claim 2, wherein each said reinforcing bracket is substantially U-shaped and made of metal.
4. A gutter as claimed in any one of the foregoing Claims, wherein the bottom face (4) of each channel (3) extends parallel to the first direction (2), and the bottom wall (7) of each channel (3) extends in a second direction (8) sloping at an angle of other than 0° and 180° with respect to the first direction (2).
5. A gutter as claimed in Claim 4, wherein said second direction (8) slopes towards said bottom face (4).
6. A gutter as claimed in Claim 4 or 5, wherein the bottom wall (7) of each channel (3) is substantially coplanar with the bottom wall (7) of each adjacent channel (3).
7. A gutter as claimed in any one of the foregoing Claims, wherein the channel (3) has a top face (5) substantially parallel to the bottom face (4); the distance between said top face (5) and said bottom face (4), and hence the height of the channel (3), being substantially constant along the whole length of the channel (3).
8. A gutter as claimed in any one of the foregoing Claims, wherein the channel (3) is made of plastic.
9. A gutter as claimed in any one of the foregoing Claims, wherein the second annular seal (16) is in the form of a closed ring, and extends about said second sleeve (13).
10. A gutter as claimed in any one of the foregoing Claims, wherein the fastening means extend through the second annular seal (16).
11. A gutter as claimed in any one of the foregoing Claims, wherein the second annular seal (16) is substantially the same shape and size as the end faces (11).

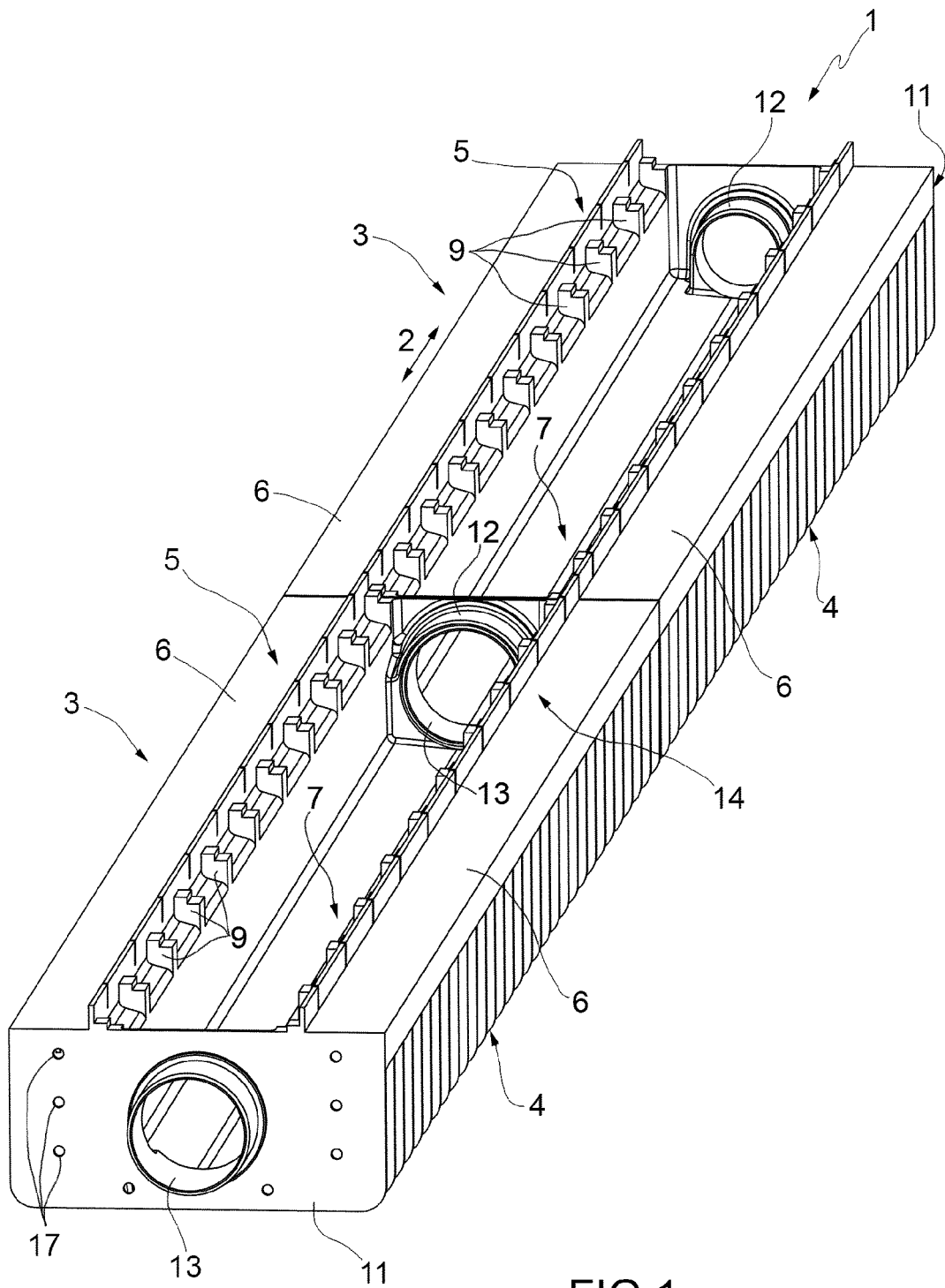


FIG.1

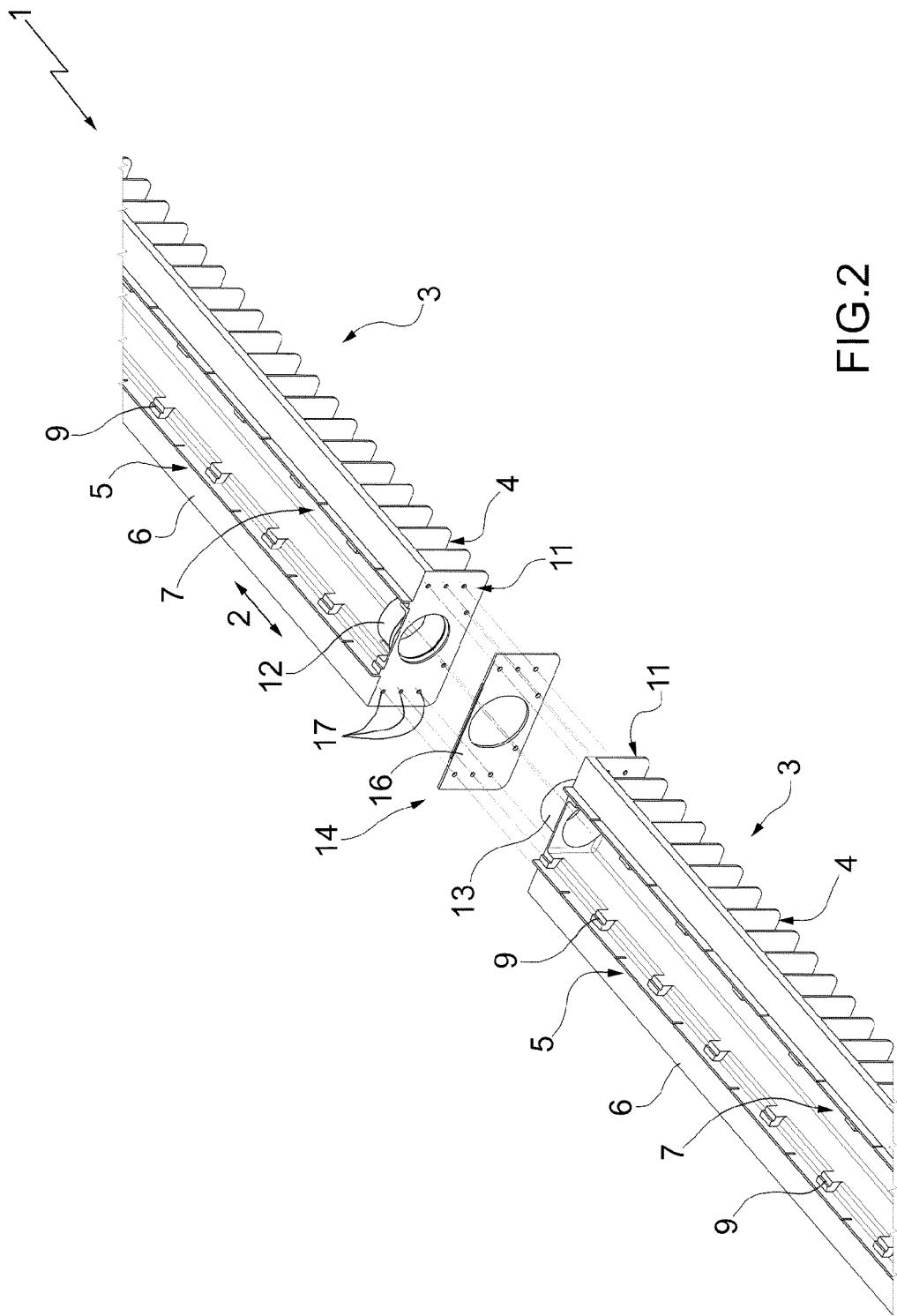


FIG.2

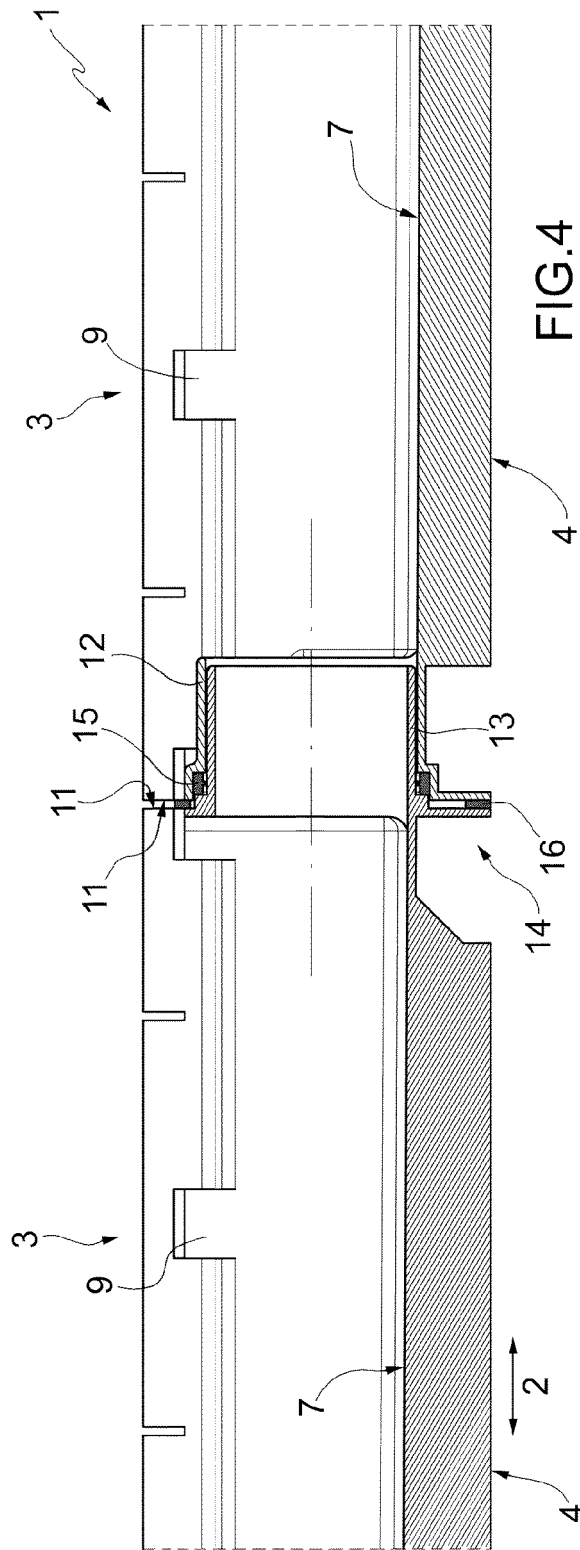


FIG. 4

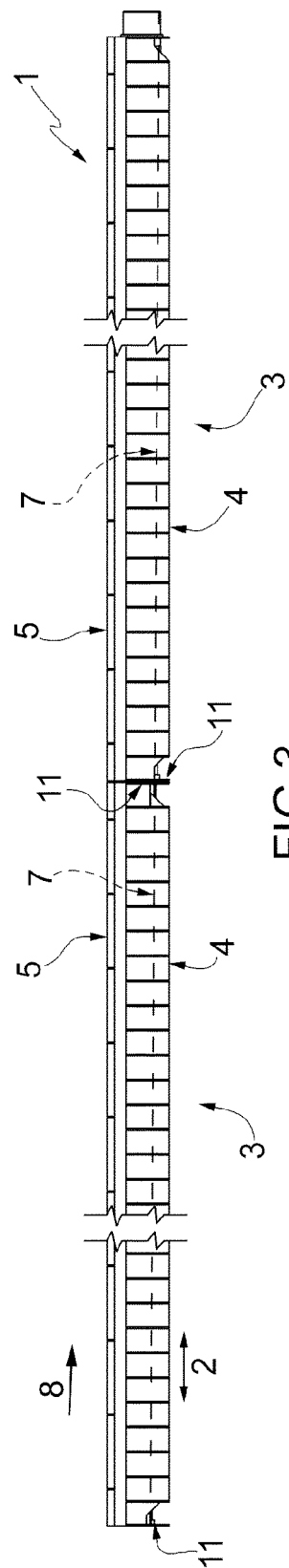


FIG. 3

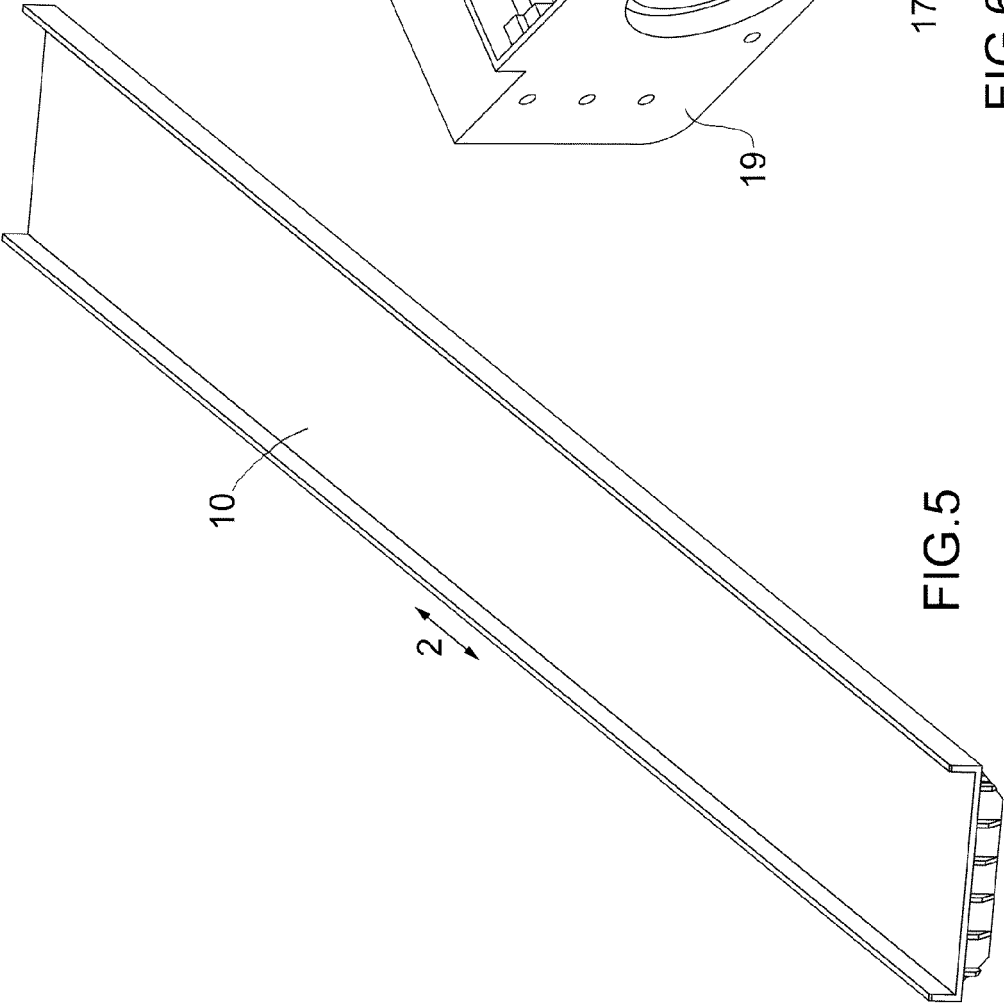


FIG. 5

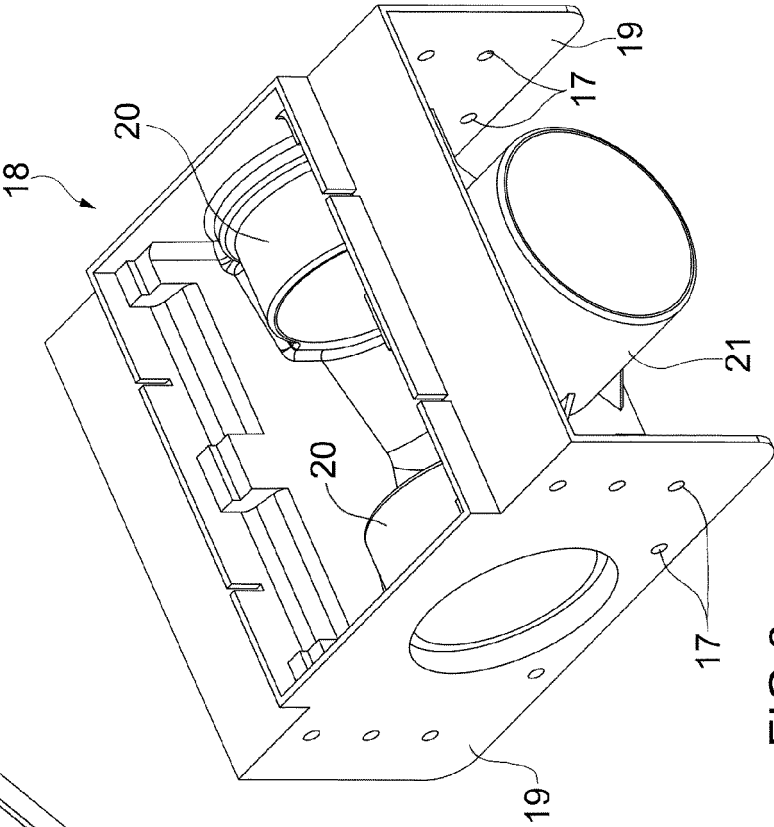


FIG. 6



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Application Number
EP 13 17 9995

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			TECHNICAL FIELDS SEARCHED (IPC)
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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 21 November 2013	Examiner Flygare, Esa
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 13 17 9995

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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