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(54) Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion

(57) The present invention proposes a composable gutter (1) which forms a duct (2) in which liquids or fluids flow. The gutter (1) shows two lateral gutter sides (3) which have seats (5) which are provided with clasping elements which allow the clasping of futher gutter components (7) of completion. The gutter components (7) of completion are utilized to make the various gutter covers safer and stronger. The ends of the duct (2) show a profile (12) which shows seats (15) and fins (13). The fins (13) show holes (14) in which both the corresponding part of an additional duct and connecting and stopping elements and/or stoppers (17) are inserted. The stoppers (17) include means for the insertion in the corresponding seats of the duct (2). The gutter is completed with further components, namely, closing and strengthening covers (7) as well as safety and reinforcement elements (8) for the various gutter covers. Finally, there are provided stopping elements acting as stoppers (17).

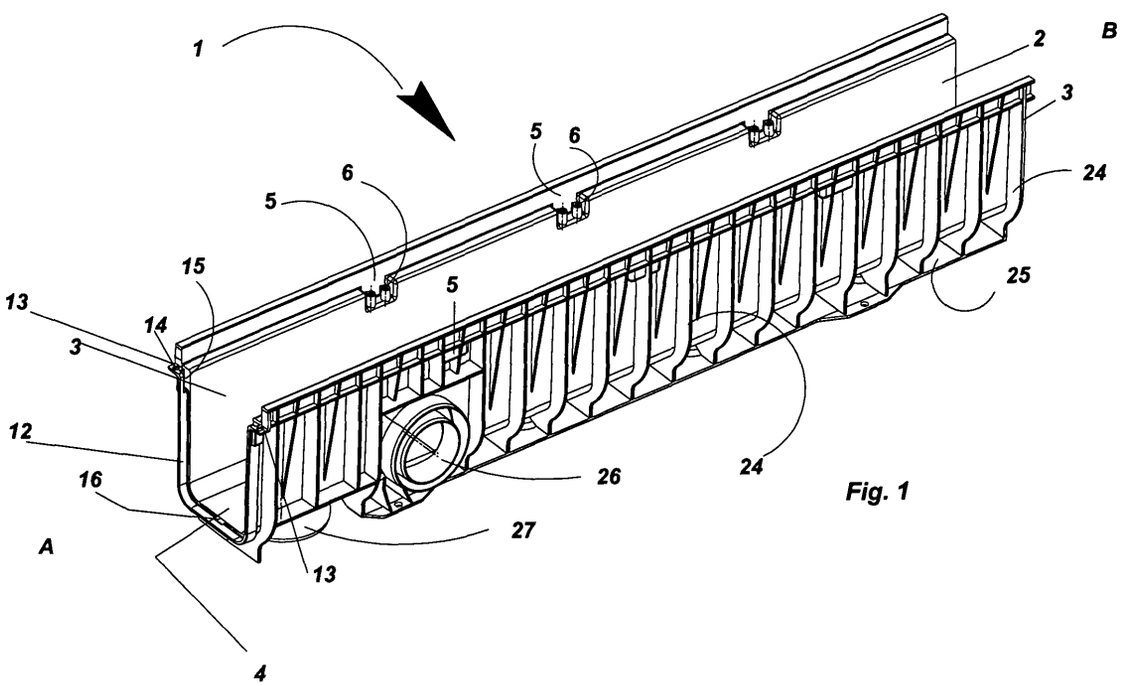

Fig. 1

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Description

[0001] The present invention proposes a composable gutter in which liquids and/or fluids or the like flow. Otherwise, the said gutter acts as a seat in which for instance cables are inserted. The gutter is provided with clasping elements which allow a rapid clasping and unclasping of further gutter components of completion.

[0002] The said composable gutter facilitates the laying of ducts for the collection, flow and discharge of liquids or fluids to a discharge well.

[0003] In particular, the said gutter is utilized in building, mainly for the carrying out of discharge ducts, for instance for the discharge of rain water in pedestrian areas, carriage ways, swimming-pools, terraces and the like, namely everywhere it is necessary to collect liquids or fluids to be discharged. Otherwise, the present gutter is employed to obtain ducts for the housing of cables or other materials, as previously said.

[0004] The known art discloses composable gutters for the construction of discharge ducts provided with stopping elements or stoppers to be inserted in a bevel of an end of the gutter.

[0005] As can be noted, the insertion of the said elements in the gutter does not allow a perfect seal of the stopping element and/or stopper so that there may be a consequent leakage of liquids.

[0006] The above drawback is removed in that the laying is done by applying sealing materials such as silicone along the borders of insertion of the said stopper.

[0007] However, the additional application of the sealing materials has proved to be useless because the sealing materials lose their effectiveness in the long run.

[0008] Another drawback of the known gutters is that they tend to deform owing to the changes in the climate although the gutters are reinforced with external ribs. This is due to the nature of the material of which the gutters are formed.

[0009] All the above problems and further ones are solved brilliantly by the present invention which includes a discharge duct and further completing components, namely, end stoppers, spacing and fixing elements, and strengthening elements.

[0010] Besides solving the above problems, the present gutter is very advantageous because it is easy to lay and practical to be cleaned, which reduces the time and labour cost. In addition, besides the practicalness the positioned gutter is visually more pleasant.

[0011] Another advantage is the presence of a lower base that is integral to the duct and essentially flat. This base facilitates the correct positioning of the gutter.

[0012] The present invention is characterized by a composable gutter which forms a duct in which liquids or fluids flow. The gutter shows two lateral gutter sides which have seats which are provided with clasping elements which allow the clasping of futher gutter components of completion. The gutter components of completion are utilized to make the various gutter covers safer and stronger. The end plates of the duct show a profile which shows seats and fins. The fins show holes in which both the corresponding part of an additional duct and connecting and stopping elements and/or stoppers are inserted. The stoppers include means for the insertion in the corresponding seats of the duct.

[0013] Further features and details of the present invention will be better understood from the following specification that is provided as a non-restricting example on the hand of the accompanying drawings wherein:

- Fig. 1 is a perspective view of a composable gutter according to the invention showing clasping elements that allow a rapid clasping or unclasping;
- Fig. 2 is a schematic view of the gutter as seen laterally;
- Fig. 2a is a schematic view of the lower part or base of the gutter;
- Fig. 3 is an external perspective view of an end plate showing a protruding part for coupling a discharge duct and showing the shape of the said rapid clasping or unclasping elements;
- Fig. 4 is an internal perspective view of the end plate to which the duct of Fig. 3 is coupled;
- Fig. 5 is an external perspective view of a blind end plate ;
- Fig. 5a is an inner perspective view of the blind end plate of Fig. 5;
- Fig. 6 is a top perspective view of a safety and reinforcement component utilized to make the various gutter covers safer and stronger;
- Fig. 7 is a bottom perspective view of the safety and reinforcement component to make the various gutter covers safer and stronger of Fig. 6;
- Fig. 8 is a perspective view of a closure and reinforcement cover which is utilized when the safety and reinforcement component is not utilized to make the various gutter covers safer and stronger;
- Fig. 8a is a view of the clasping elements of the cover of Fig. 8.

[0014] With reference to the accompanying drawings, number 1 denotes a composable gutter as a whole according to the present invention. This composable gutter is utilized preferably in building, especially for the carrying out of discharge ducts, for instance discharge ducts of rain water in pedestrian areas, carriage ways, swimming-pools, terraces or the like.

[0015] Basically, the composable gutter 1 is made of an appropriate material such as plastic, metal or other material. The composable gutter 1 forms a duct 2 in which liquids or fluids flow. The gutter 1 shows two lateral gutter sides 3 and a bottom 4 on which liquids or fluids flow. The upper part of the two lateral gutter sides 3 shows a suitable border which acts as a seat to receive grates or other covering elements.

[0016] The upper part of the lateral gutter sides 3 is provided with seats 5 which are arranged at regular dis-

tances and receive holed pins 6.

[0017] The said seats 5 allow the insertion of closure and reinforcement elements 7 or safety and reinforcement elements 8 for the various gutter covers.

[0018] Each closure and reinforcement element 7 shows particularly shaped seats 9 in which the pins 6 of the seats 5 fit unless the seats 9 include the safety and reinforcement elements 8 for the various gutter covers.

[0019] The shape of the elements 8 is such that they fit in the duct 2 and are included in the seats 5 of both lateral gutter sides 3 in order to permit an appropriate safety and reinforcement of the various gutter covers such as grates, stoppers or the like.

[0020] The said elements 8 are, therefore, provided with seats 10 for housing the pins 6 of the seats 5 and being fixed to them by means of screws or fixing elements.

[0021] Advantageously, the central part of the said element 8 also is provided with seats 11 for housing clasping means for an appropriate safety and reinforcement of the various gutter covers.

[0022] Other innovative elements of a gutter according to the present invention are the end parts of the gutter. The gutter end parts are provided with connecting means, respectively that make a mutual union possible in order to allow a lengthening of the duct to the wished measure.

[0023] The connecting means of the end part A include a hollow part 12 which ends, in the upper part, with fins 13 provided with holes 14, screwing and holding seats 15 as well as a lower holding seat 16.

[0024] The said seats 13, 14, 15 and 16 provided on the hollow part 12 receive and hold corresponding elements provided on the end part B of the gutter (not represented).

[0025] In addition, there is provided a connecting or stopping element 17 that acts as a connecting element when it is opened (Fig. 3) or stopper when it is closed (Fig. 5). The element 17 has a wall 18 which shows the same shape as the end parts of the gutter so that the part 19 is leaned against the hollow part 12, a notch 20 fits into the seat 16, shoulders 21 fit into the seats 15, shoulders 22 lean against the fins 13 and teeth 23 engage the corresponding seats 14.

[0026] In particular, the present gutter is provided with reinforcing external ribs 24 and a lower flat base 25 that facilitates a correct positioning of the gutter. In fact, the said base has holes 28 which allow the gutter to be fixed on the supporting plane. In addition, the said base has further holes 29 which receive iron rounds or similar elements which are included in the casting and are integral to the gutter itself.

[0027] Another particular advantage of the present gutter is the presence of means 26 and 27 which are provided with more discharge rings. In addition, the means 26 and 27 act as seats for possible pipe-fittings that should be necessary for the discharge.

[0028] The composable gutter 1 is also utilized to carry out pipes for the housing for instance of cables, electric lines etc.

[0029] It is evident that the gutter is poly-functional, which improves the characteristics of utility and practicalness.

[0030] A technician of the present field may modify the so-described gutter to obtain for instance different types of composable gutters showing different measures and made from different materials depending on the need in order to obtain solutions that are to be considered as included in the scope of protection of the present invention as further described in its peculiarities in the following claims.

Claims

1. Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion, **characterized by** a duct (2) in which liquids or fluids flow and two lateral gutter sides (3) which have seats (5) which are provided with clasping elements which allow the clasping of futher gutter components (8) of completion which are utilized to make the various gutter covers (7) safer and stronger; grates or covering elements, blind or not, are positioned between the said gutter sides in case the duct is utilized to allow cables and/or the like to pass through; the end plates of the duct show a profile which shows seats (15), holding seats (16) and fins (13) which show holes (14) in which both the corresponding part of an additional gutter and connecting and stopping elements and/or stoppers (17) are inserted, which stoppers include means for the insertion in the corresponding seats of the duct.

2. Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion as claimed in the foregoing claim, **characterized in that** the elements included in the seats (5) are pins (6).

3. Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion as claimed in the foregoing claims, **characterized in that** the shape of the safety and reinforcement elements (8) for the various gutter covers is such that they fit between the lateral gutter sides (3) of the duct (2) and are provided with seats (10) for housing the pins (6) of the seats (5) and being fixed to them.

4. Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion as claimed in the foregoing claims, **characterized in that** the gutter is provided with closure and reinforcement el-

ements or covers (7) which are so shaped that they are included in the seats (5) and are kept in the seats by means of seats (9) which insert in the said pins (6).

5. Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion as claimed in the foregoing claims, **characterized in that** there are provided connecting or stopping elements or stoppers (17) which are so shaped to be inserted and kept in the end part of the gutter duct by means of teeth (23), shoulders (22) and a notch (20).

6. Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion as claimed in the foregoing claims, **characterized in that** discharge means (26 and 27) are provided with a plurality of discharge rings which act as seats for possible pipe-fittings.

7. Composable gutter provided with clasping elements that allow a rapid clasping and unclasping of further gutter components of completion as claimed in the foregoing claims, **characterized in that** there is a lower base which shows holes (28 and 29) which allow a perfect anchoring and fixing to the relevant supporting surfaces.

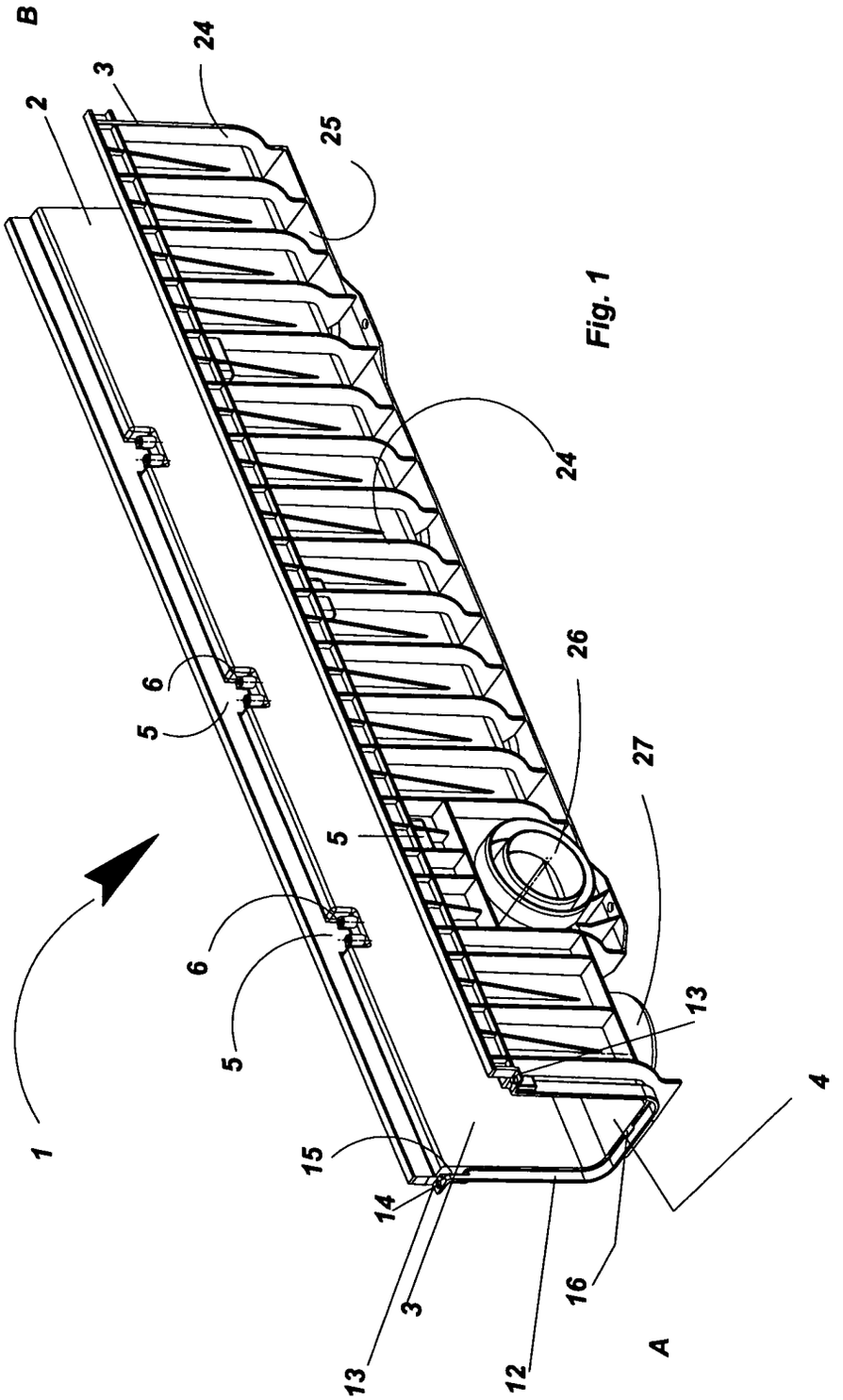

Fig. 1

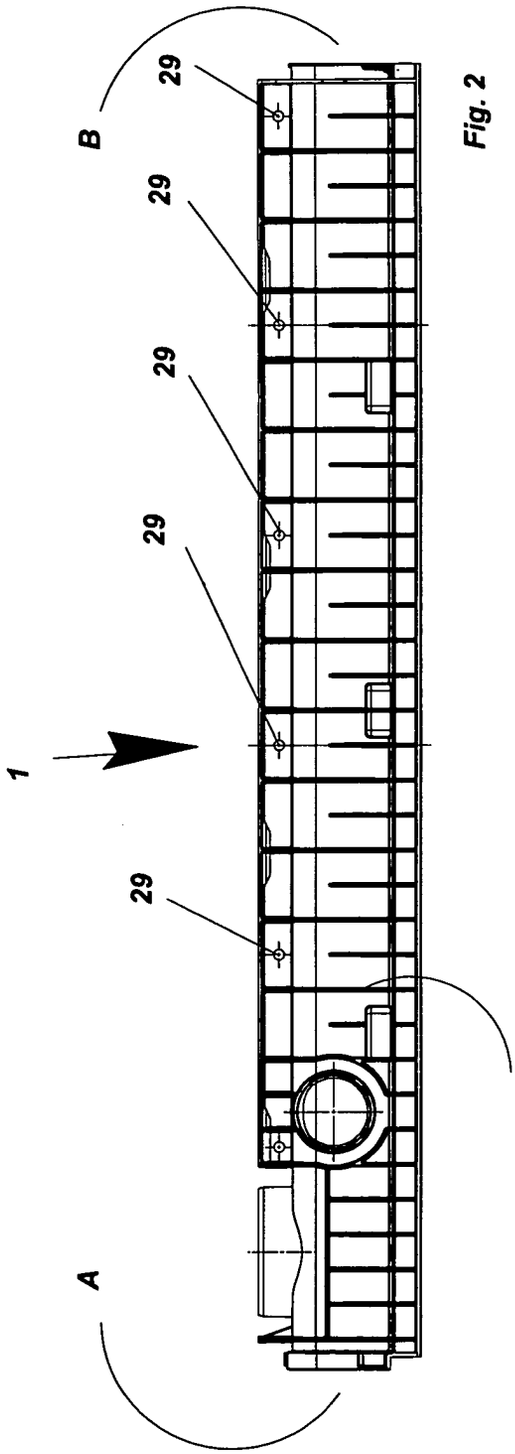

Fig. 2

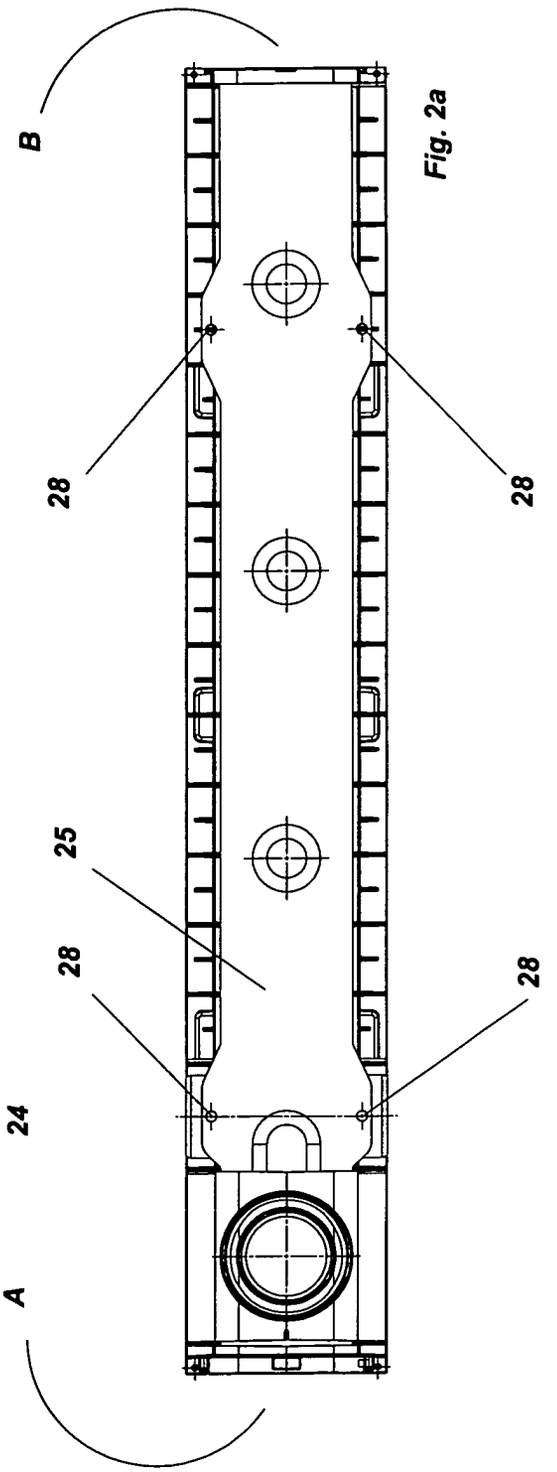

Fig. 2a

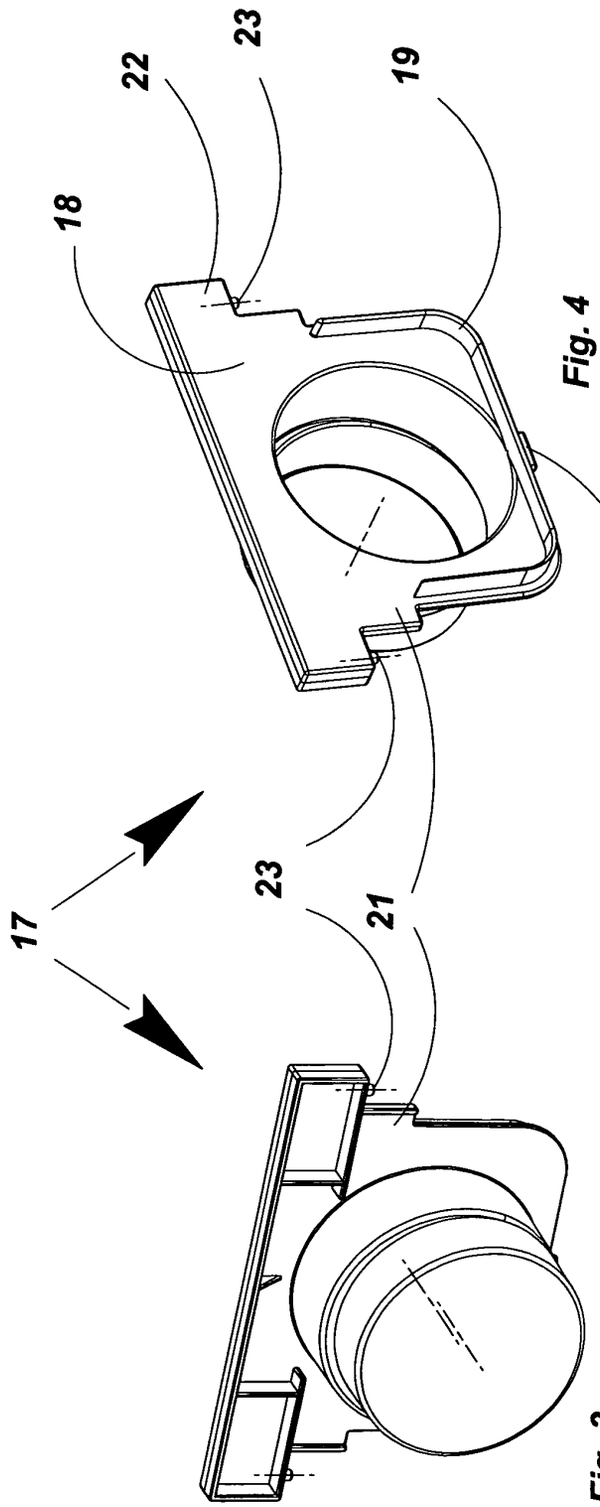

Fig. 3

Fig. 4

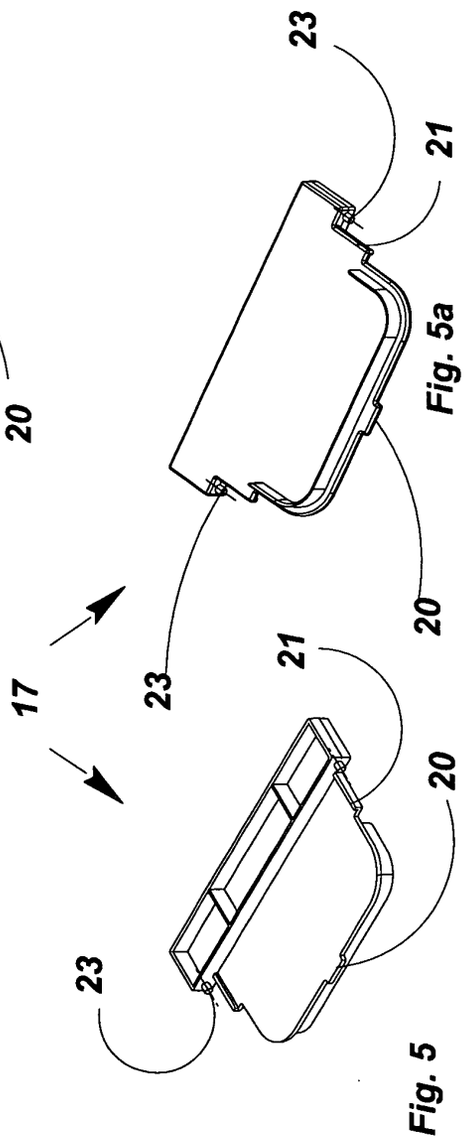

Fig. 5a

Fig. 5

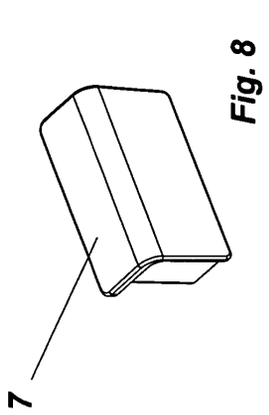

Fig. 8

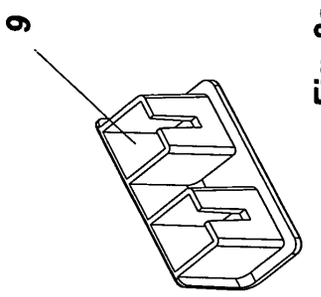

Fig. 8a

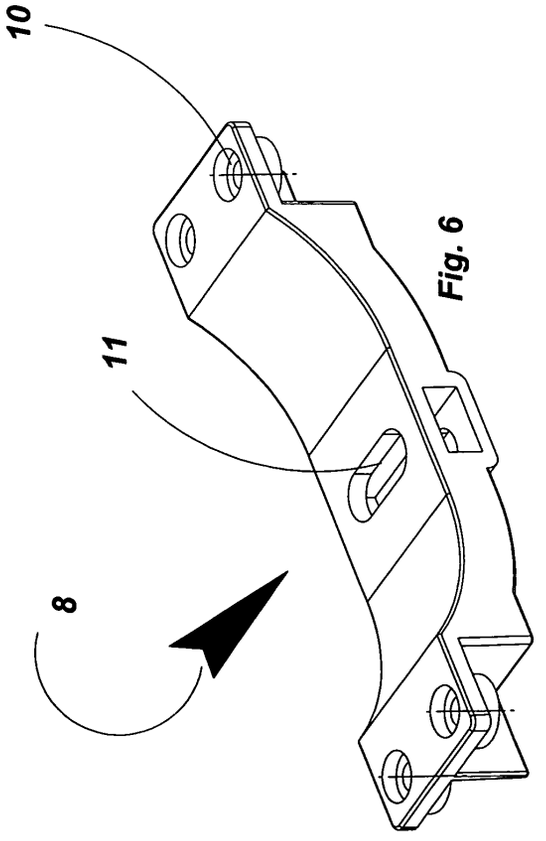

Fig. 6

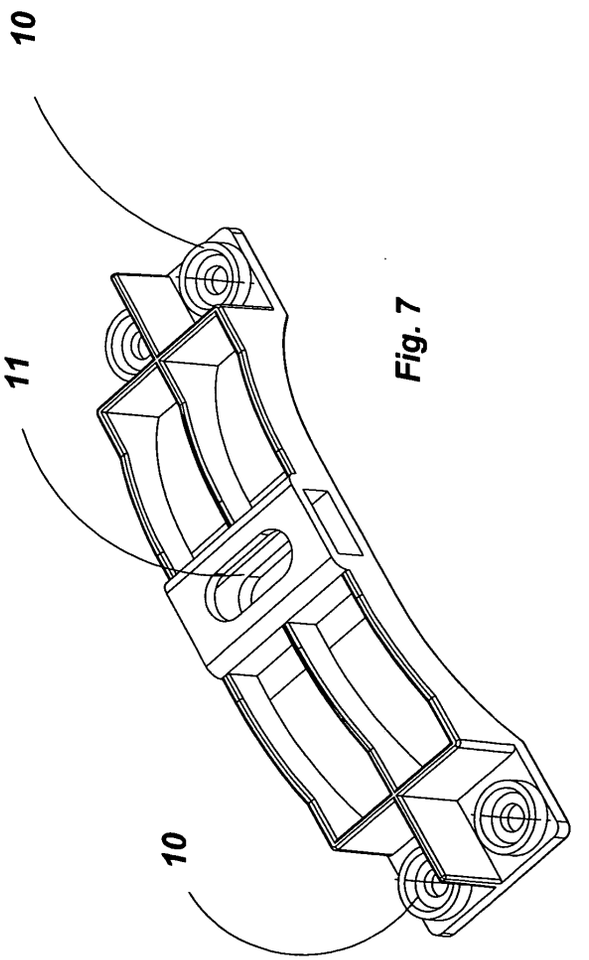

Fig. 7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 02 4172

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	28 October 2004	Bertram, H

CATEGORY OF CITED DOCUMENTS

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