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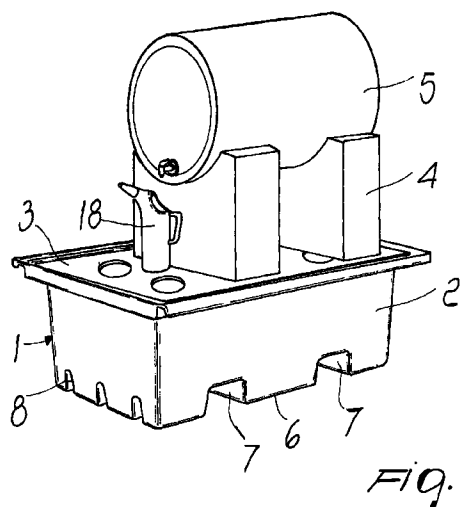
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(54) **Modular spillage container**

(57) A modular container which comprises a collecting tray or basin (2), a cover (3) with openings or a grille (3) which can be placed over the tray or basin (2), and supporting means (4), arranged on the cover or grille (3), for a container (5) of product to be transferred.



EP 0 926 095 A2

Description

[0001] The present invention relates to a modular container, particularly for collecting percolates or for storing and/or transporting food products and/or toxic and noxious products.

[0002] Many kinds of plastics containers designed to collect liquid or solid products to be stored or transported are known in the art.

[0003] Handling such products is often difficult because it is necessary to prevent even minimal amounts from leaking into the environment, both to avoid leakage or spills which would cause dirtying that would then have to be removed and cleaned and to eliminate the risk of environmental pollution, especially when dealing with products harmful to the health.

[0004] Moreover, accidental leakages, especially of noxious percolates, are liable to be legally prosecuted.

[0005] The main object of the present invention is to provide a modular container which is practical, easy to handle and suitable for collecting substances with no leaks while being transferred from one container to another or while being stored and/or transported in said container.

[0006] Another object of the present invention is to provide a modular container which can be easily stacked and stored both when empty and when containing a product or products.

[0007] Another object of the present invention is to provide an assembly-type modular container which can be used simultaneously for multiple pouring off.

[0008] Another object of the present invention is to provide a modular container made of a material which is resistant to chemical attack at low and high temperatures and can maintain its characteristics unchanged over time, besides being of low production cost so as to be advantageous also from an economic point of view.

[0009] According to a first aspect of the present invention, there is provided a modular container which comprises a collecting tray or basin, a perforated cover or grille to be located on the tray or basin, and support means for supporting a container from which a content is to be poured off, arranged on said cover or grill.

[0010] Advantageously, the said basin or tray has a bottom with external inwardly protruding recesses.

[0011] According to another aspect of the present invention, there is provided a modular container which comprises a cylindrical collecting tray or basin, a cover for the said collecting tray, engaging means for said cover, a relief upper edge along its lateral surface, a bottom provided with outer inwardly extending recesses, and is characterized in that it has an inlet valve and a vent valve which are arranged to make it possible to load and vent the tray or basin while the cover is closed.

[0012] Further aspects and advantages of the present invention will become better apparent from the following detailed description of some embodiments thereof, given by way of nonlimiting examples with reference to

the accompanying drawings, wherein:

Figure 1 is a slightly elevated perspective view of a first container according to the invention comprising a tray, a perforated cover and two supports for a barrel of a product to be poured off;

Figure 2 is a cross-sectional view of the tray or basin of Figure 1;

Figure 3 is a plan view of the tray of Figure 2;

Figure 4 is a cross-sectional view of a detail of the peripheral edge of the tray of Figure 2, shown upside down;

Figure 5 is a cross-sectional view of a detail of a variation of the peripheral edge of the tray or basin, shown upside down;

Figure 6 is a view similar to Figure 5, but relates to a different embodiment;

Figure 7 is a cross-sectional view of the tray of Figure 1 having a peripheral edge according to Figure 6;

Figure 8 is a plan view of a flat cover with a plurality of through holes;

Figure 9 is a cross-sectional view taken along the line IX-IX of Figure 8;

Figure 10 is a cross-sectional view taken along the line X-X of Figure 8;

Figure 11 is an enlarged-scale view of a detail of Figure 10;

Figure 12 is a front elevational view of a supporting block;

Figure 13 is a bottom view of the block of Figure 12;

Figure 14 is a side view of the block of Figure 12;

Figure 15 is a slightly elevated perspective view of a complete container according to a different embodiment; and

Figure 16 is a slightly elevated reduced-scale perspective view of the container of Figure 15 without cover.

[0013] In the accompanying drawings, identical or similar parts or components have been designated by the same reference numerals.

[0014] With reference to Figures 1 to 14, it will be noted that a modular container, generally designated by the reference numeral 1, comprises a tray or basin 2 and a perforated cover or grille 3 to which supports 4 for a container 5 of liquid product to be poured off can be secured.

[0015] In the drawing, the basin 2 is shaped like a prism with a quadrangular base and a bottom 6 having outer recesses 7 which correspond to inner reliefs 7a, as shown in Figures 2 and 3. The pair of relatively wide intermediate spaced reliefs 7 extend throughout the entire bottom 6, whereas at the two short ends of the bottom there are three recesses 8 and the corresponding inner reliefs 9, which are dimensionally smaller than the recesses 7. The recesses 8 are blind and extend substantially at right angles to the recesses 7,8. The

recesses 7 are also used for lifting the tray by means of a fork power lift.

[0016] The side walls 10 of the basin 2 diverge slightly in an upward direction, so as to facilitate stacking of one tray above the other while being empty, stored or transported.

[0017] The basin 2 has supporting and positioning means for the cover 3 which comprises a female annular peripheral edge 11 rigid with the upper peripheral part of the basin 2 and is formed with a groove 12 (Figure 4). The female annular protrusion 11 can comprise a female corrugation 13 extending along two opposite sides of the edge of the tray 2 and a male corrugation 14 on the other two opposite sides, both corrugations being located externally with respect to the groove 12 (Figures 5 to 7).

[0018] The cover 3 (Figures 8 to 11) is formed by a deck or panel 15, in which two rows of uniformly mutually spaced circular holes 16 are provided, and comprises a peripheral male annular rim 17 which matches, in use, with the female annular protrusion 11, so as to engage therewith in a loose interlocking coupling.

[0019] The panel 15 is designed to support any percolate collectors 18 (Figure 1) and above all to accommodate, in some of its holes 16, supports 4 for the container 5 of the product to be poured off. The supports 4 generally comprise two blocks 4 (Figures 12 to 14), each of which has, at its lower surfaces 19, two circular reliefs 20 which can be seated, with minimal play, into a pair of holes 16 of the cover 3. Moreover, each block has, on its upper surface, a shaped portion 21 which delimits a cradle for accommodating the container 5. The cradle 21 is preferably inclined, in use, with respect to the plane containing the cover 3 in order to assist pouring off of the product from the container 5, whereas the reliefs 20, which extend downwards from the blocks 4, have lateral surfaces 22 which converge toward the outside of said blocks 4 in order to facilitate their insertion into the holes 16 of the cover 3.

[0020] In use, the said cover does not protrude from the basin 2, so that any spilled percolated liquid that does not flow directly into said basin 2 through the holes 16 in the cover 3 is collected in the groove 12.

[0021] By arranging one container 1 next to another it is possible to cause a male corrugation 14 of one basin 2 to engage with a corresponding female corrugation 13 of the adjacent basin, thus increasing the overall surface available to simultaneously pour percolate from a plurality of containers 5, saving time especially when viscous liquids must be transferred.

[0022] Stacking of one empty basin 2 onto the other and their mutual locking occur owing to insertion of the inner reliefs 7a and 9 provided in the bottom of one basin into the outer recesses of another overlying basin, whereas the covers 3 can be arranged in a pack placed on top of a stack of basins or trays.

[0023] According to another embodiment shown in Figures 15 and 16, a modular container 100 comprises

a cylindrical collecting tray body 102, a circular cover 103, an upper edge 23 which protrudes from its lateral surface, and a bottom 106 provided with external recesses 108, which correspond to inner reliefs not shown in the drawings. The cover 103 can be rigidly coupled to the tray body 102 by means of an outer thread 24 which extends beyond the edge 23 and is arranged to engage with a thread (not shown in the drawings) in the inner lower part of the cover 103. Said cover also has a sequence of peripheral reliefs 25 which are rigid with its upper face. A slot 26 is delimited between one relief 25 and the other.

[0024] Equidistant blind hollows 27 are also provided at the upper edge 23.

[0025] The outer recesses 8 and the corresponding inner reliefs extend radially and correspond to the recesses 26 on the upper edge.

[0026] Preferably, each recess 8 is clad by a protection U-shaped element 28, e.g. by a structural shape of steel plate applied thereto in any suitable manner, e.g. by heat, gluing and the like.

[0027] The cover 3 can be tightly applied to the basin 2 as retainers (not shown) can be engaged between the spaces 27 and the recesses 26 of the edge 23.

[0028] An intake valve 30 and a discharge valve 31 are accommodated in angularly spaced positions in the cover 3. The intake valve 30 makes it possible to make top-ups after initial filling, which is a very useful characteristic, especially when dealing with fermenting products which tend to settle. The discharge valve 31 instead safely vents gases produced, e.g. owing to fermentation, should the pressure exceed preset threshold levels.

[0029] This makes it possible to obtain a hermetic container for the safe storage and transport of toxic or otherwise noxious products as well as food and agricultural products, either liquid, semiliquid or solid, and for safe transports in aseptic conditions.

[0030] The capacity of a container as described can be typically 350 liters.

[0031] Preferred material that can be used for any above described container is a composite plastics which is resistant to chemicals, high and low temperatures and is stable over time.

[0032] The containers according to the present invention can withstand external stresses of 10,000 newtons and are preferably made of S-type polyethylene.

[0033] The invention is susceptible of numerous modifications and variations within the scope as defined by the appended claims.

[0034] The disclosures in Italian Utility Model Application No. VR97U000073 from which this application claims priority are incorporated herein by reference.

[0035] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting

effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A modular container, comprising a collecting tray or basin (2), a perforated or grille-like cover (3) which can be placed over the tray or basin (2), and support means (4), arranged on said cover or grille (3), for a container (5) of a product to be poured off. 5
2. A container according to claim 1, characterized in that said basin (2) has a bottom (6) formed with outer recesses (7) which correspond to inner reliefs (7a). 10
3. A container according to claim 1 or 2, characterized in that said tray or basin (2) has a rectangular plan shape and said recesses (7) and said corresponding reliefs (7a) comprise at least one first pair of recesses (7) which extend throughout the bottom (6) and at least two pairs of blind recesses (8) which can be accessed from outside, extend substantially at right angles to the said first pair of recesses (7) and are arranged at two opposite side walls of the tray. 15
4. A container according to any one of the preceding claims, characterized in that it comprises support means (4) for supporting said cover (3) which comprises a female annular edge (11) of said tray (2) which is rigid with at least one upper peripheral portion of said basin (2) and formed with at least one groove (12). 20
5. A container according to claim 4, characterized in that said female annular edge (11) of said basin (2) comprises a female corrugation (13), on at least one side of its perimeter, and a male corrugation (14) on at least one opposite side, both corrugations (13,14) being located outside with respect to the said groove (12). 25
6. A container according to claim 4 or 5, characterized in that said cover (3) comprises a male annular peripheral rim (17) which corresponds to said female annular corrugation (13) of said tray (2). 30
7. A container according to any one of the preceding claims, characterized in that said support means comprise at least one block (4) which has, at its lower surface (19), at least one relief (20) which can be inserted into a respective opening (16) in said cover (3), and an upper surface which is shaped so as to delimit a cradle (21) for accommodating said container (5) of product to be poured off. 35
8. A container according to claim 7, characterized in 40

that said shaped upper surface (21) is inclined with respect to the plane containing said cover.

9. A modular container comprising a collection tray or basin (102) which has a cylindrical configuration, a cover (103) for said collection tray (102), coupling means for said cover, an upper edge (23) which protrudes from its lateral surface, a bottom (106) provided with outer recesses (108), characterized in that it has an intake valve (30) and a discharge valve (31) arranged to feed liquid in and/or discharge it from the basin (102) when said cover (103) is closed. 45
10. A container according to claim 9, characterized in that said coupling means comprises an outer thread (24) and a female thread provided at the lower portion of said cover (103) and arranged to engage with the outer thread (24). 50
11. A container according to claim 9 or 10, characterized in that said outer recesses (108) extend radially and are externally clad by a protection structural sheet metal. 55
12. A container according to any one of claims 9 to 11, characterized in that the said cover (103) is arranged tightsealed on said basin (102).

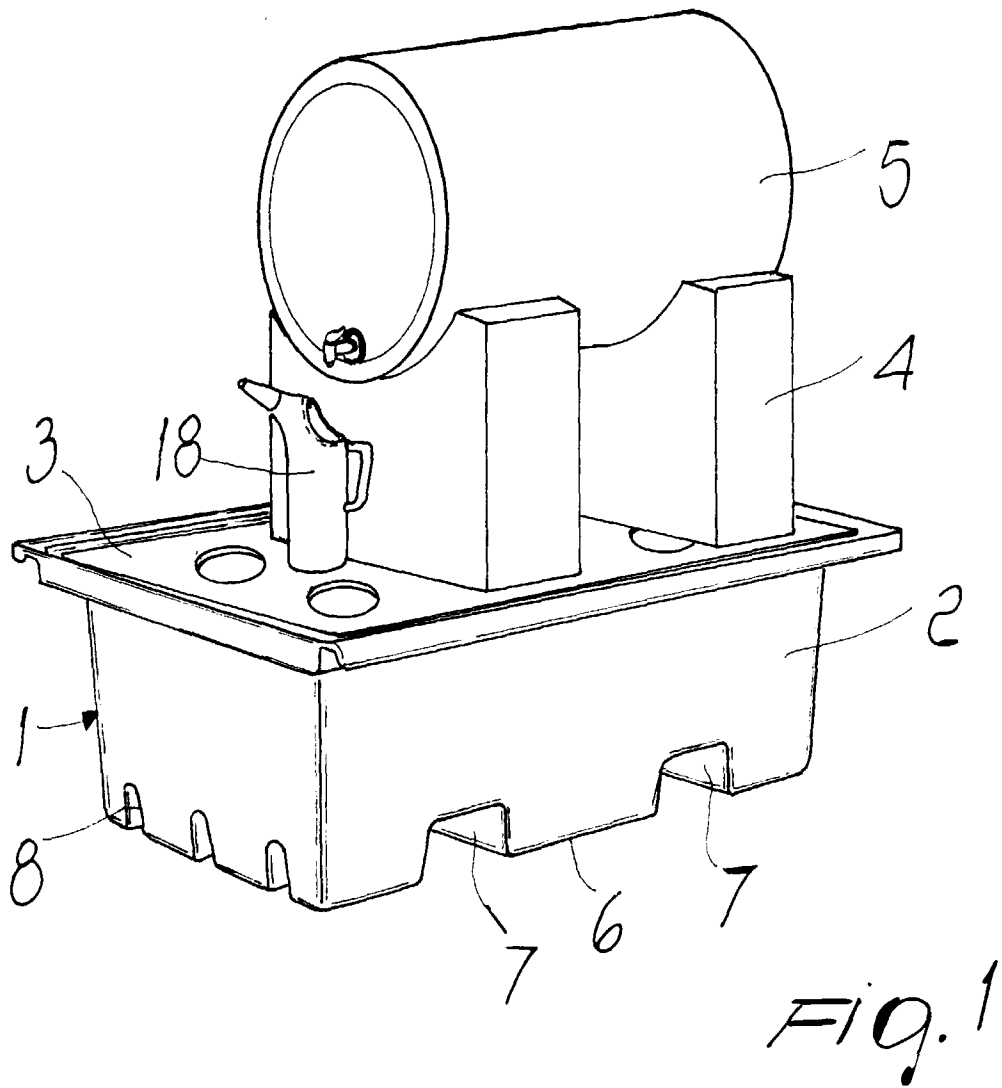


Fig. 2

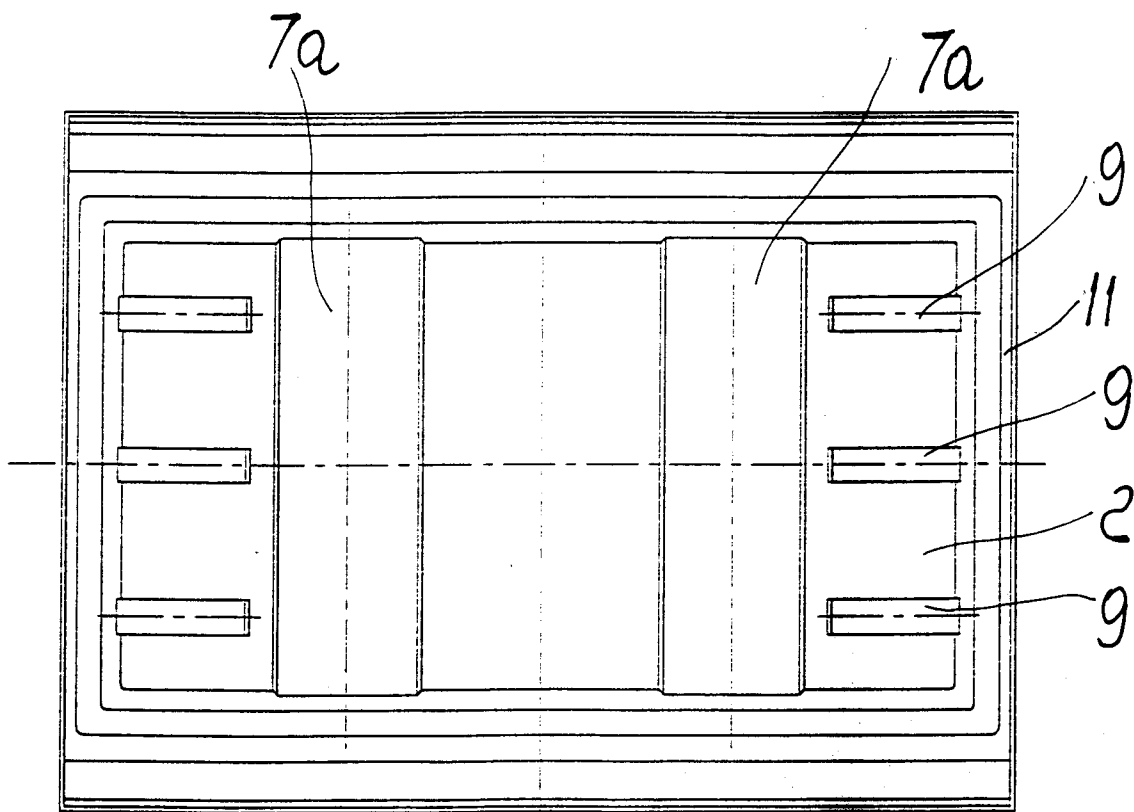
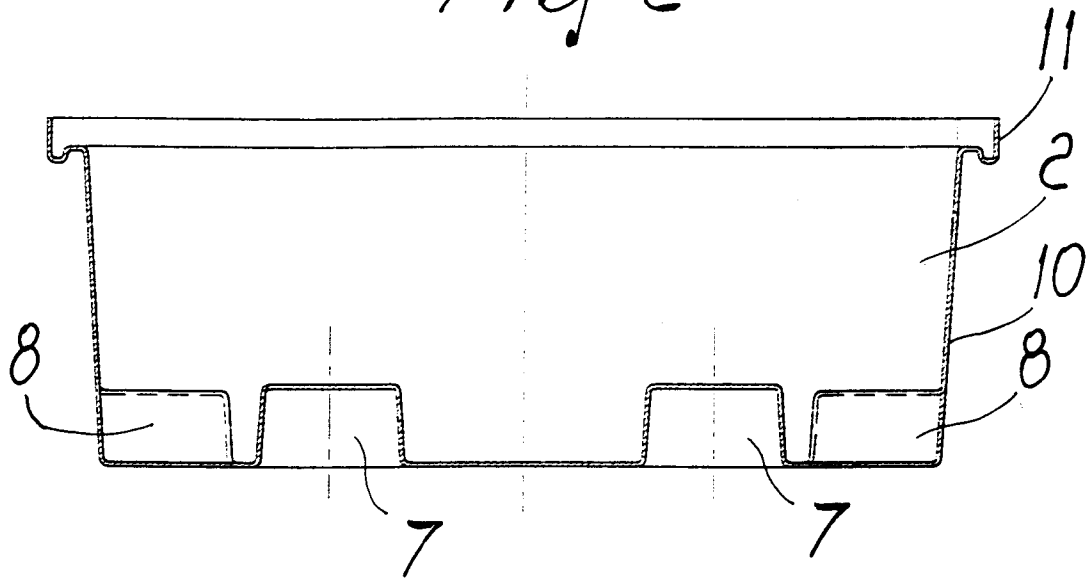
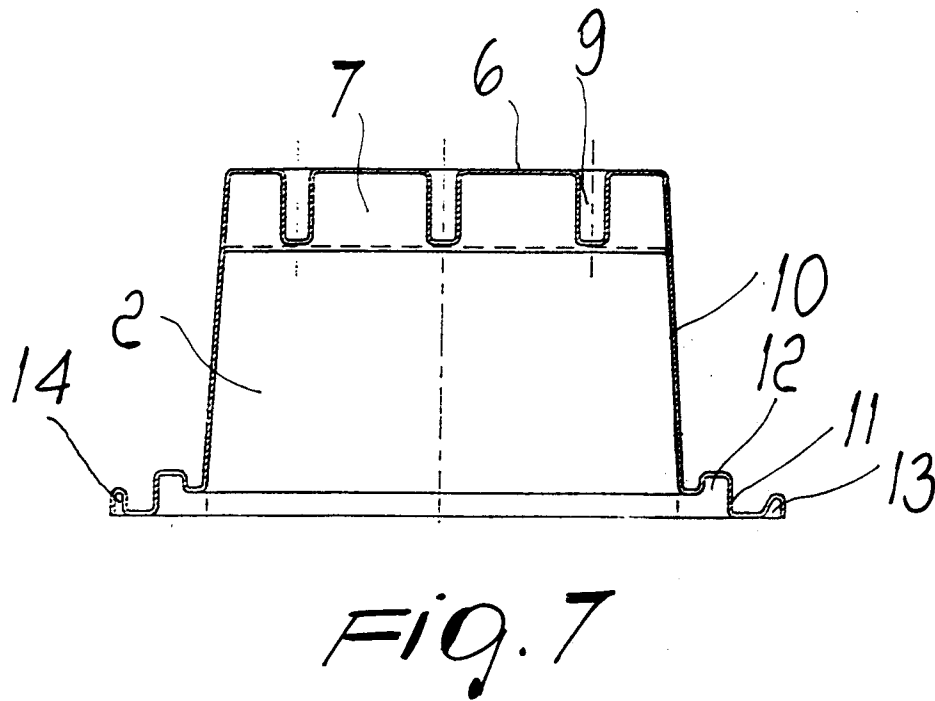
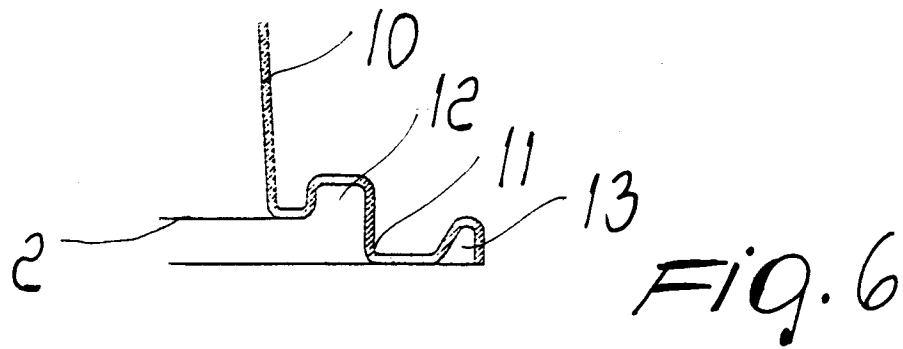
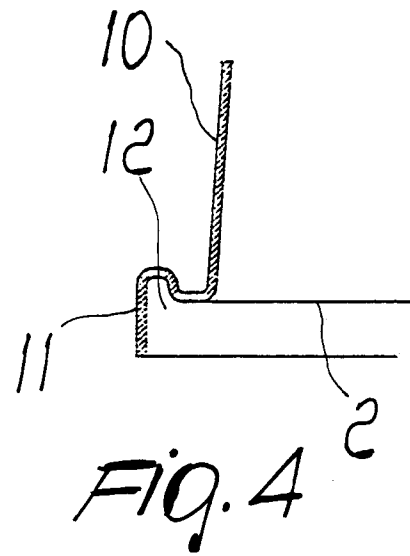
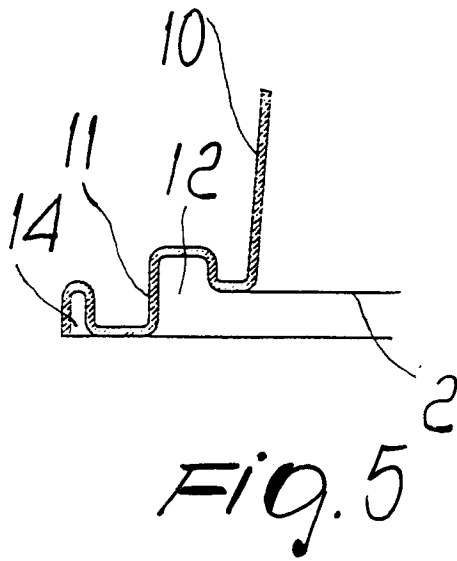


Fig. 3



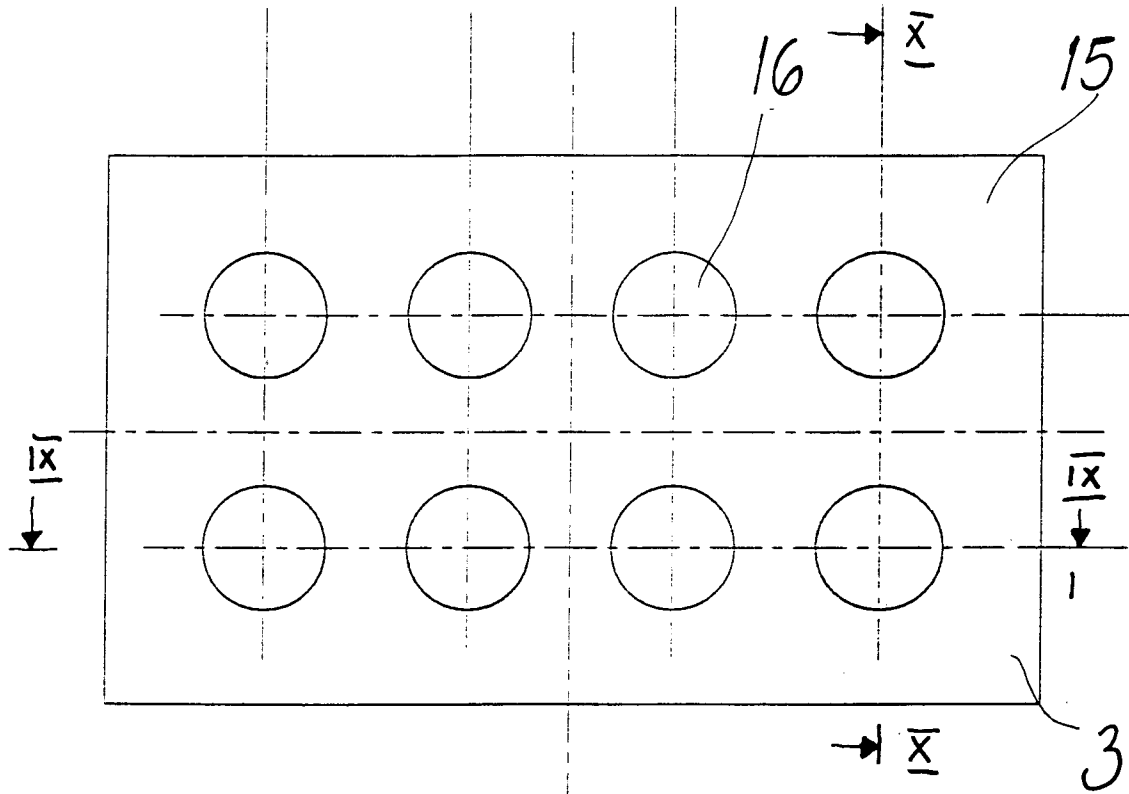


Fig. 8

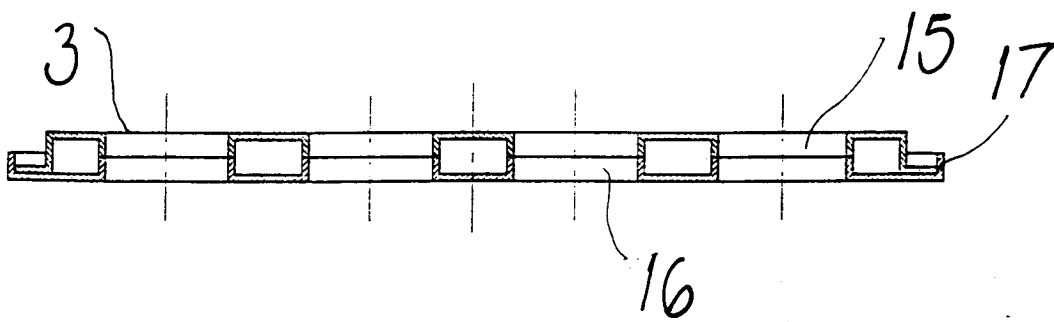


Fig. 9

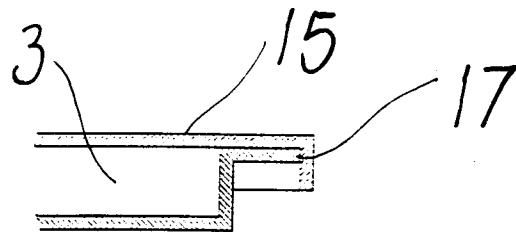
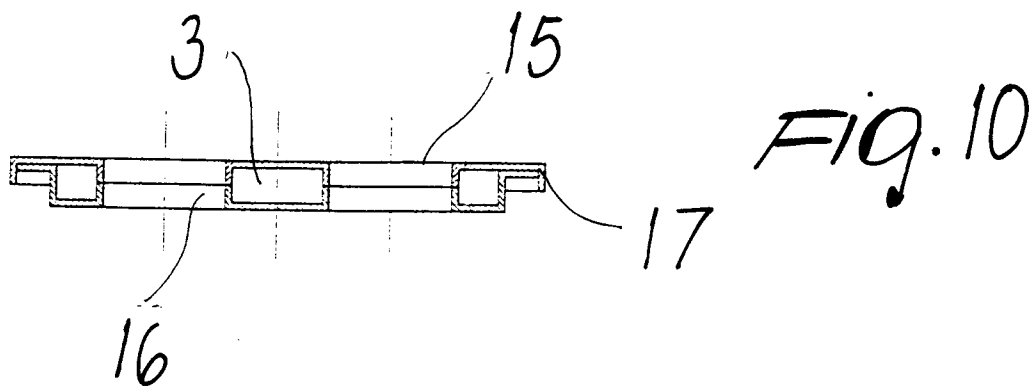


Fig. 11

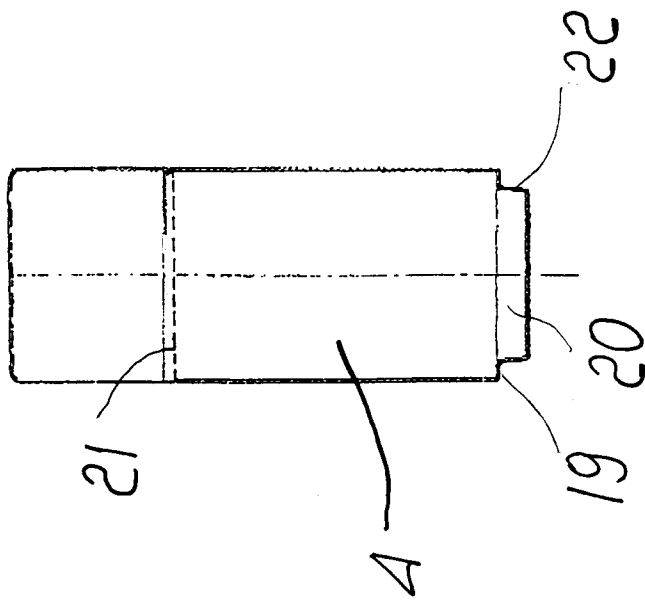
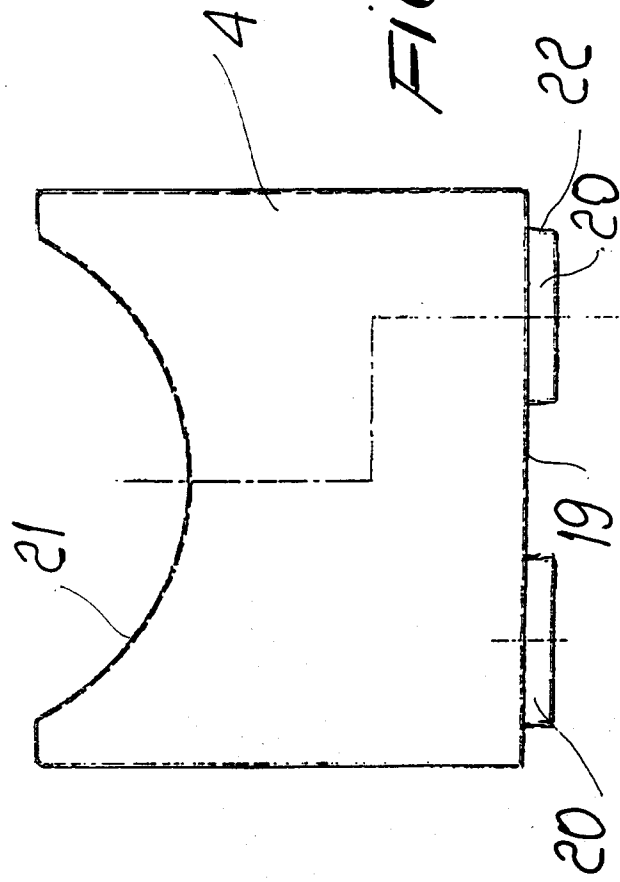
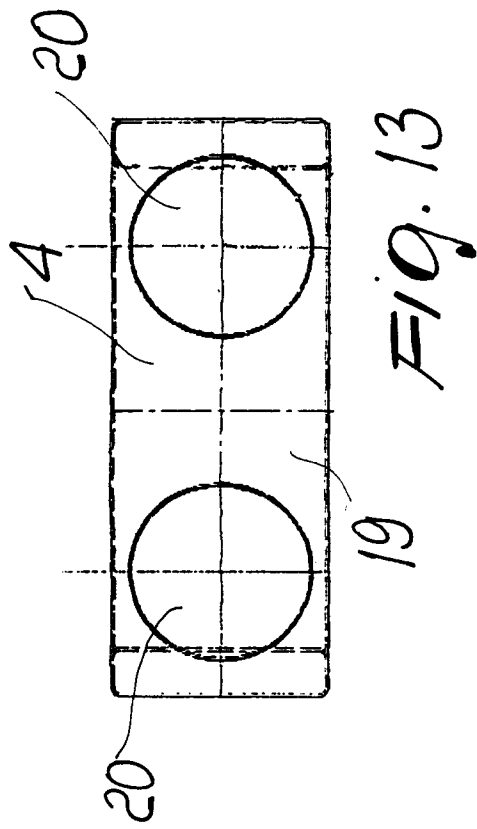


Fig. 14

Fig. 12

