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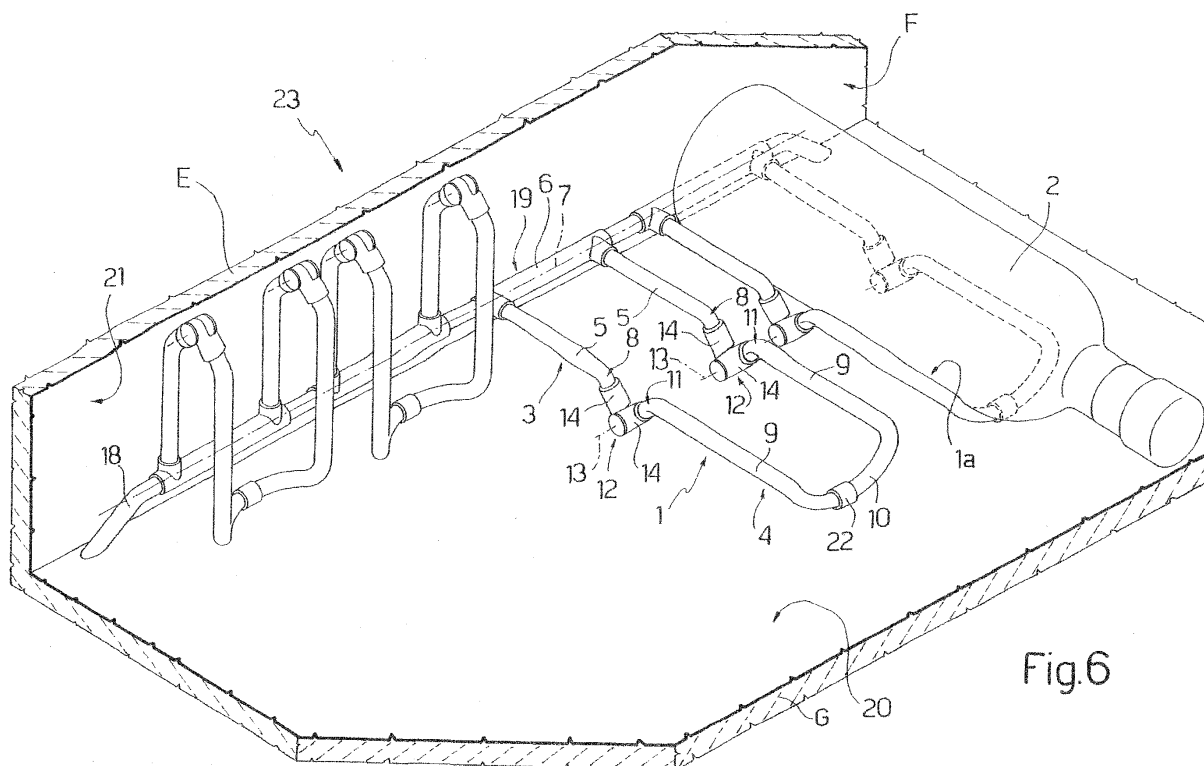
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(54) **A cooling appliance having a bottle support**

(57) A cooling appliance (A) having a bottle support (1), which is defined by a first and a second portion (3, 4) connected by a hinge (12) to rotate, with respect to each other and about a first axis (13), between an extended position, in which the first and second portion (3, 4) are aligned and define a seat (1a) for housing a bottle

(2), and a scissored fold-up position; the first portion (3) having a fastening member (6), by which the first portion (3) rotates, in use, about a fixed second axis (7), parallel to the first axis (13), so as to be positioned horizontally in the extended position, and vertically in the fold-up position.



**Fig.6**

## Description

**[0001]** The present invention relates to a cooling appliance having a bottle support.

**[0002]** In particular, the present invention relates to a refrigerator or wine cellar, preferably for domestic use, having a storage compartment including a bottle support to support one or more bottles in a stable horizontal position.

**[0003]** Refrigerators are normally fitted with bottle racks comprising a shelf; and a contoured member located on the shelf, normally connected removably to the shelf, and defining a number of side by side seats, each for housing a bottle in a horizontal position.

**[0004]** This type of rack has the drawback of being relatively bulky, especially in view of the fact that, even when, as is normally the case, not all the seats on the rack are occupied, the part of the shelf occupied by the empty part of the rack can rarely be used to store other than bottles.

**[0005]** Other solutions are known which contemplate the use of collapsible bottle supports.

**[0006]** For example, CA-1167510 relates to a collapsible bottle rack suitable for use in a domestic refrigerator. The collapsible rack is configured so that it may be readily stored within a compartment of the refrigerator when not in use. For this purpose, the rack is moveable between a substantially horizontal support position for supporting the article and a collapsed position for locating the rack adjacent to an inner wall of the compartment. The rack is mounted on the inner wall of the compartment by means of anchoring means and comprises a pair of spaced apart pivot posts pivotally supported by said anchoring means. Each of the aforementioned pivot posts further includes at least one rack portion which can pivot between a supporting position and a collapsed position and is horizontally aligned with one rack portion of the other pivot post so as to support a bottle when disposed in the supporting position.

**[0007]** Another example of collapsible bottle support is disclosed in US-2768048, which relates to a bottle rack suitable to be mounted on the walls or the door of a household refrigerator and capable of being folded out of the way when not in use. The rack comprises a plurality of individual bottle holders, each of which comprises a base member attached to a wall and a U-shaped frame pivotally mounted on the base member for rigidly pivoting between an horizontal supporting position and a vertical collapsed position.

**[0008]** Still further examples of bottle supports of the collapsible type are disclosed in CN-2869718 and CN-2869718 both relating to suspension bottle holders suitable for use in a domestic refrigerator. Each of the aforementioned bottle holders has a wire frame and is collapsible so that it may be readily disposed adjacent an interior wall of the refrigerator when not in use. The bottle holder includes a plurality of bottle seats which are rigidly connected to one another (so that each holder is not individ-

ually collapsible).

**[0009]** Finally, EP-0929247 discloses a holder for bottles suitable to be mounted in a refrigerator. This holder comprises a fixed section arranged in a stationary position in the storage space of the refrigerator and a pivotable section, which is hinged to the fixed section, comprises a holding element designed to accommodate a plurality of bottles and is movable between a horizontal supporting position, in which the holding element rests on a shelf of the refrigerator, and a vertical collapsed position. The pivotable section is formed by two parts consisting of two support arms hinged to the fixed section and a support part, which is designed to accommodate a plurality of bottles and is mounted for being displaced along the support arms.

**[0010]** All the cooling appliances equipped with a collapsible bottle support or holder described above have some drawbacks stemming from the fact that the relevant bottle supports or holders are, in general, relatively bulky, expensive and difficult to mount and to operate.

**[0011]** It is an object of the present invention to provide a cooling appliance having a bottle support and avoiding the above drawbacks.

**[0012]** According to the present invention, there is provided a cooling appliance having a bottle support a bottle support as claimed in Claim 1 and, preferably, in any one of the Claims depending directly or indirectly on Claim 1.

**[0013]** The present invention will now be described by way of examples with reference to the accompanying drawings, in which:

Figure 1 shows a view in perspective of a preferred first embodiment of the cooling appliance of the present invention;

Figures 2 to 4 show a side view, plan view, and end view, respectively, of a particular of Figure 1;

Figure 5 shows a side view of the particular Figures 2 to 4 in a different operating position;

Figure 6 shows a view in perspective of a further particular of Figure 1; and

Figure 7 shows a view in perspective of a variant of the particular of figures 2 to 5.

**[0014]** With reference to Figure 1, reference A indicates a cooling appliance, in particular a refrigerator, comprising a cabinet B having an inner space C bounded at the front by a door D, at the back by a rear vertical wall E, and laterally by vertical lateral walls, and internally divided into a number of storing compartments F by a number of horizontal supporting shelves G.

**[0015]** With reference to figures 1 and 6, numeral 1 indicates as a whole a support (also called bottle holder) arranged on a supporting shelf G for supporting a bottle 2.

**[0016]** As shown in Figures 2 to 6, support 1 comprises two portions 3 and 4. Portion 3 is U-shaped, and comprises two parallel rods 5, which extend from a straight crosspiece 6 having an axis 7, and have, on their free ends, respective end portions 8 bent 45° with respect to

a plane defined by rods 5. Also portion 4 is U-shaped, and comprises two parallel rods 9, which extend from a crosspiece 10, and have, on their free ends, respective end portions 11 bent 45° with respect to a plane defined by rods 9. Unlike crosspiece 6, crosspiece 10 is in the form of a roughly 90° arc, curves on the same side as free-end portions 11 with respect to the plane defined by rods 9, and lies in a plane perpendicular to the plane defined by rods 9. Rods 5 and 9 are preferably made of metal.

**[0017]** The free end of each end portion 8 is connected to the free end of a respective end portion 11 by a hinge 12, by which relative rod 9 rotates with respect to relative rod 5 about an axis 13 parallel to axis 7 and coaxial with axis 13 of the other hinge 12.

**[0018]** Each hinge 12 is defined by two sleeves 14, which are normally made of plastic, are fitted respectively to relative end portion 8 and relative end portion 11, and are fitted with respective half-hinges 15 connected by a pin (not shown) coaxial with relative hinge 13 and normally integral with one of half-hinges 15. Each half-hinge 15 projects axially from relative sleeve 14, and defines, on the free end of sleeve 14, a flat stop 16, which cooperates with the other sleeve 14 to limit rotation of rod 9 with respect to rod 5, and therefore rotation of portion 4 with respect to portion 3, to an angle of roughly 180° between an extended position shown in Figures 2 to 4, and a fold-up position shown in Figure 5.

**[0019]** When portions 3 and 4 are in the extended position, rods 5 and 9 and crosspiece 6 are coplanar and define a common plane, from which end portions 8 and 11 and crosspiece 10 project on the same side. More specifically, in the extended position, each end portion 8 and relative end portion 11 form a V with its vertex at respective axis 13.

**[0020]** In the fold-up position, portions 3 and 4 are positioned scissor-fashion, with each rod 9 parallel to and facing relative rod 5, and with crosspiece 10 substantially facing crosspiece 6.

**[0021]** As shown in Figure 2, crosspiece 6, which is normally made of plastic, comprises, on the opposite side to that from which rods 5 extend, a groove 17 coaxial with axis 7, and which clicks removably onto a fixed bar 18 to form a hinge 19 by which support 1 rotates about the axis of bar 18, which, when the support is clicked on, coincides with axis 7.

**[0022]** As shown in Figure 2, bar 18 is normally horizontal, and extends over a horizontal supporting surface 20 of a respective shelf G and at a given distance from a vertical surface 21 of rear vertical wall E. More specifically, the clearance between bar 18 and supporting surface 20 is such that, when support 1 is extended with crosspiece 10 resting on supporting surface 20, with the interposition of a sleeve 22 of flexible material fitted to crosspiece 10, the plane defined by rods 5 and 9 is substantially horizontal, and support 1 defines a horizontal seat 1a for receiving a bottle 2 and supporting it (Figure 6) in a stable horizontal position over supporting surface

20. When support 1 is rotated upwards about axis 7 from the extended position into the fold-up position, rods 5 and 9 are positioned upright alongside vertical surface 21 to clear supporting surface 20 for other use.

**[0023]** Figure 6 shows a preferred application of support 1.

**[0024]** As shown in Figure 6, bar 18 is integral with a respective shelf G, extends parallel to vertical surface 21 across substantially the whole width of shelf G, and is fitted with a number of supports 1 arranged side by side to define, with shelf G, a rack 23, in which only the supports 1 supporting respective bottles 2 are extended, while the unused supports 1 are folded scissor-fashion into an upright position to clear supporting surface 20.

**[0025]** In connection with the above, it should be pointed out that, regardless of supports 1, shelf G normally already has a bar 18 to keep foodstuffs a given distance from vertical surface 21 and prevent ice forming on the rear wall of refrigerator A.

**[0026]** Given the click-on connection of crosspieces 6 to bar 18, any unused supports 1 may even be removed easily.

**[0027]** As will be clear from the above description, being easy to use, versatile, and of modular design, rack 23 enables better use of internal compartments F of refrigerator A according to user requirements.

**[0028]** In the variant of Figure 7, crosspiece 6 is a straight piece, which comprises a straight bar 24, which is tubular at least at its opposite ends, and each rod 5 is bent, at its end connected to crosspiece 6, in the shape of a 90° arc, a free-end portion of which is fitted in the respective tubular end of bar 24.

**[0029]** Alternatively, the bar 24 can be tubular for its entire length, and the two rods 5 can be part of a single-piece rod, suitably bent, passing through bar 24.

**[0030]** On the side of bar 24 facing away from rods 5, crosspiece 6 comprises a grooved straight body 25 which is provided with groove 17 and which clicks removably onto fixed bar 18 to form hinge 19 by which support 1 rotates about the axis of bar 18, which, when the support 1 is clicked on, coincides with axis 7.

**[0031]** In a variant not shown, rack 23 may comprise supports 1 of different widths and lengths to accommodate bottles 2 of different sizes.

**[0032]** In another variant not shown, the bar 18 can be fixed to the rear vertical surface 21, or to the lateral vertical surfaces bounding the storage compartment 24.

**[0033]** In another variant not shown, crosspiece 6 is eliminated, and each rod 5 is hinged, preferably clicked on, directly to a respective fastening bar or bracket fixed to supporting surface 20, or to vertical surface 21 or to lateral surfaces bounding the storage compartment 24.

## Claims

1. A cooling appliance comprising at least a bottle holder (1), said bottle holder comprising a first and a sec-

- ond portion (3, 4) connected so as to rotate, with respect to each other and about a first axis (13), between an extended position, in which the first and second portion (3, 4) are substantially aligned and define a seat (1a) for housing a bottle (2), and a fold-up position; the first portion (3) having fastening means (6) by which the first portion (3) rotates, in use, about a fixed second axis (7) parallel to the first axis (13).
2. A cooling appliance as claimed in Claim 1, wherein the first and second portion (3, 4) are connected by hinge means (12).
  3. A cooling appliance as claimed in Claim 1 or 2, wherein the fold-up position is a scissored fold-up position.
  4. A cooling appliance as claimed in one of the foregoing Claims, comprising a supporting surface (20) below the second axis (7), the second portion (4) having supporting means (10) for maintaining said seat (1a) in a horizontal position by cooperating, in the extended position and in use, with said supporting surface (20).
  5. A cooling appliance as claimed in one of the foregoing Claims, wherein said fastening means (6) are click-on fastening means.
  6. A cooling appliance as claimed in one of the foregoing Claims, wherein the first and the second portion (3, 4) comprise two first rods (5) and two second rods (9) respectively; each second rod (9) being connected at one end to a corresponding end of a relative first rod (5) by respective said hinge means (12) to rotate, with respect to the relative first rod (5), about the first axis (13).
  7. A cooling appliance as claimed in one of the foregoing Claims, wherein the first and the second portion (3, 4) comprise two first rods (5) and two second rods (9) respectively; each second rod (9) being aligned with the relative first rod (5) in the extended position, and being located alongside and facing the relative first rod (5) in the fold-up position.
  8. A cooling appliance as claimed in Claim 6 or 7, wherein the second portion (4) comprises a crosspiece (10) connecting the ends of the second rods (9) opposite those connected to the first rods (5).
  9. A cooling appliance as claimed in Claim 8, wherein the first rods (5) and second rods (9) lie in a first and second plane, respectively, which are coincident in the extended position; the crosspiece (10), which connects the second rods (9), being in the form of an arc lying in a third plane perpendicular to the second plane.
  10. A cooling appliance as claimed in Claim 2, wherein the hinge means (12) comprise stop means (16) to limit rotation of the second portion (4) with respect to the first portion (3), about the first axis (13), and between said extended and said fold-up position, to roughly 180°.
  11. A cooling appliance as claimed in one of the foregoing Claims, further comprising a fixed bar (18) coaxial with the second axis (7), the fastening means (6) rotatably coupling said bottle holder (1) to said fixed bar (18).
  12. A cooling appliance as claimed in Claim 11, wherein the fastening means (6) comprise a crosspiece (6) connecting the ends of the first rods (5) opposite those connected to the second rods (9), the crosspiece (6) comprising a longitudinal groove (17) that clicks onto the fixed bar (18) so as to rotate about the fixed bar (18) and the second axis (7).
  13. A cooling appliance as claimed in one of the foregoing Claims, having an inner space (C) bounded by a rear wall (E) defining a vertical surface (21) and lateral vertical walls defining lateral vertical surfaces and housing at least one supporting shelf (G) defining a supporting surface (20) on which said at least one bottle holder (1) is arranged; the cooling appliance (A) further comprising a fastening member (18) which is integral with the rear vertical wall (E), the lateral vertical walls or the horizontal supporting shelf (G) and is connected to the fastening means (6) of the bottle holder (1).
  14. A cooling appliance according to claim 13, wherein the fastening member (18) extends along said second axis (7), and is connected in rotary manner to said fastening means (6) of the bottle holder (1) to permit rotation of the bottle holder (1) about the second axis (7).
  15. A cooling appliance as claimed in Claim 14, comprising a bottle rack (23) comprising a plurality of said bottle holders (1) functionally independent from each other and fitted to the fastening member (18).
  16. A cooling appliance as claimed in any one of Claims 13 to 15, wherein, in the extended position, the bottle holder (1) rests on the supporting surface (20).
  17. A bottle holder (1), comprising a first and a second portion (3, 4) connected so as to rotate, with respect to each other and about a first axis (13), between an extended position, in which the first and second portion (3, 4) are substantially aligned and define a seat (1a) for housing a bottle (2), and a fold-up position;

the first portion (3) having fastening means (6) for rotatably coupling to a fastening member so that the first portion (3) can rotate about a fixed second axis (7) parallel to the first axis (13).

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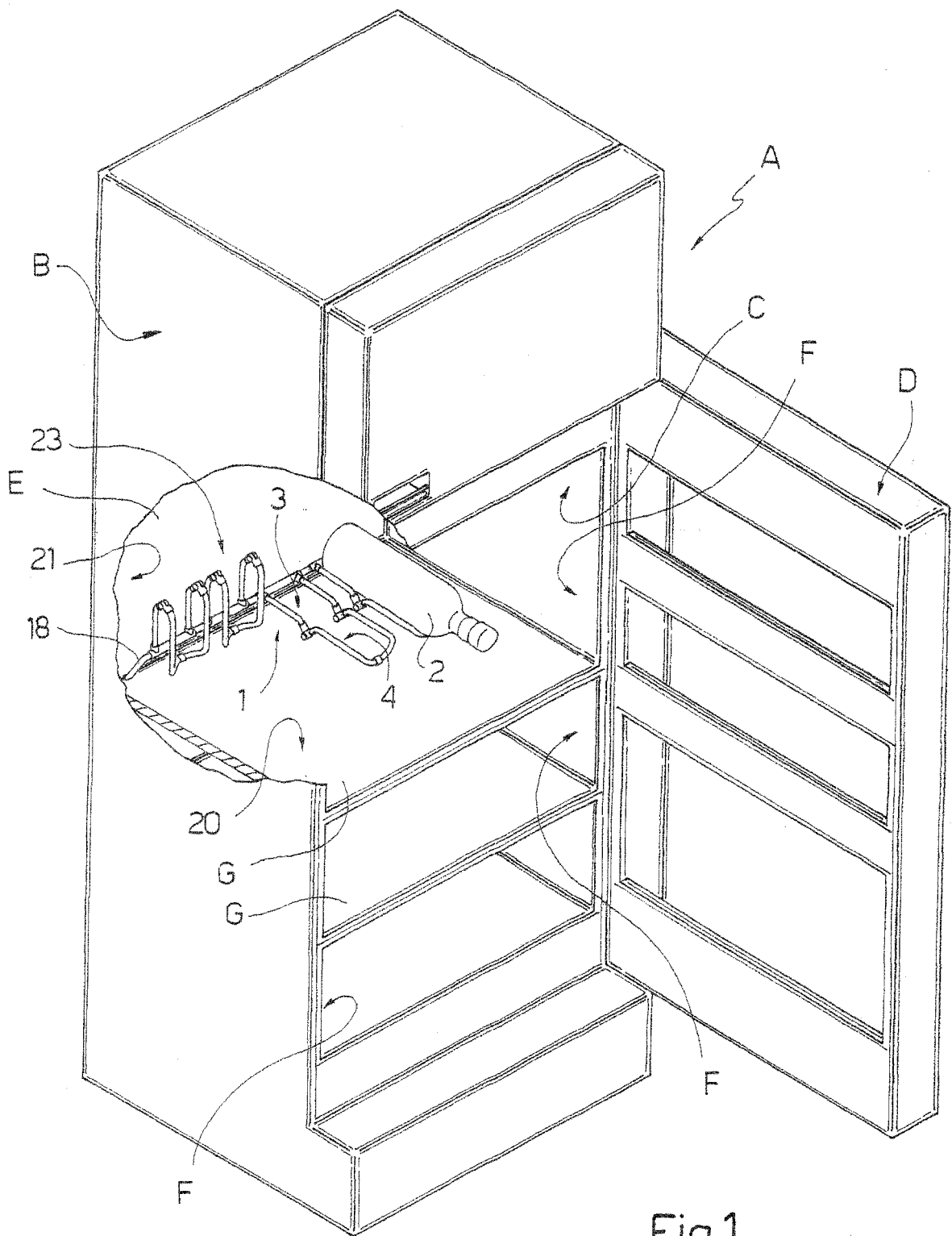
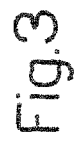
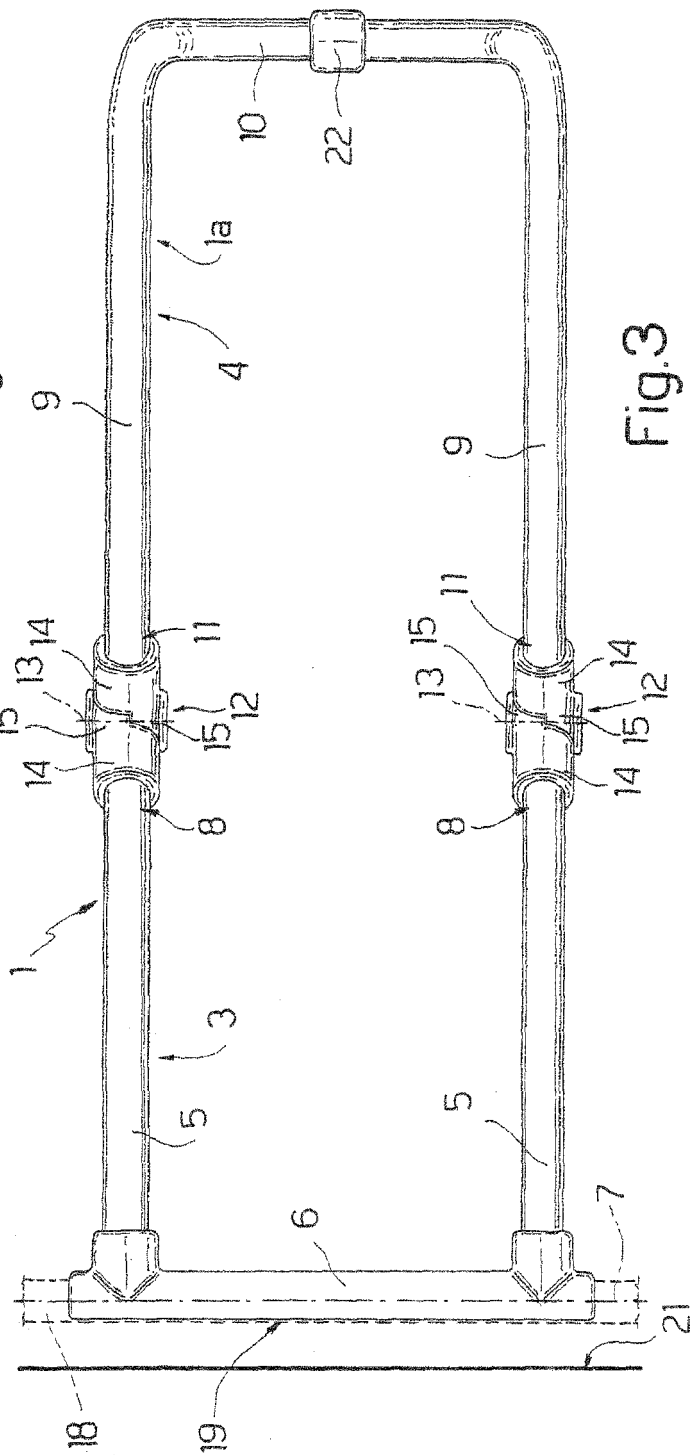
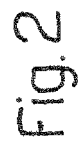
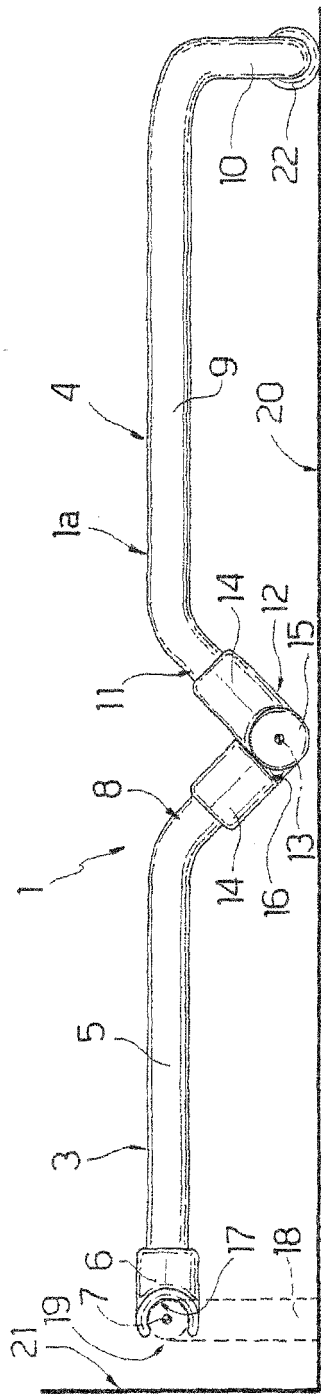
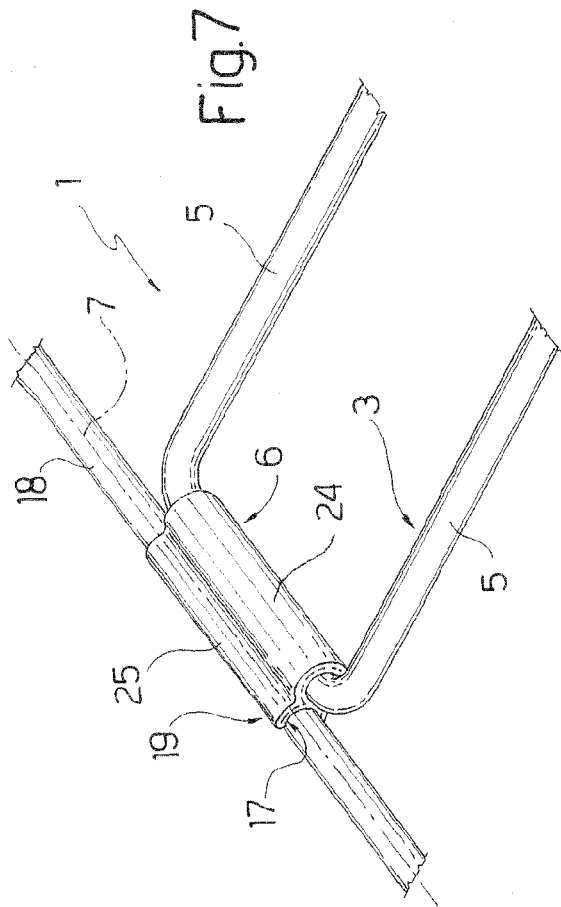
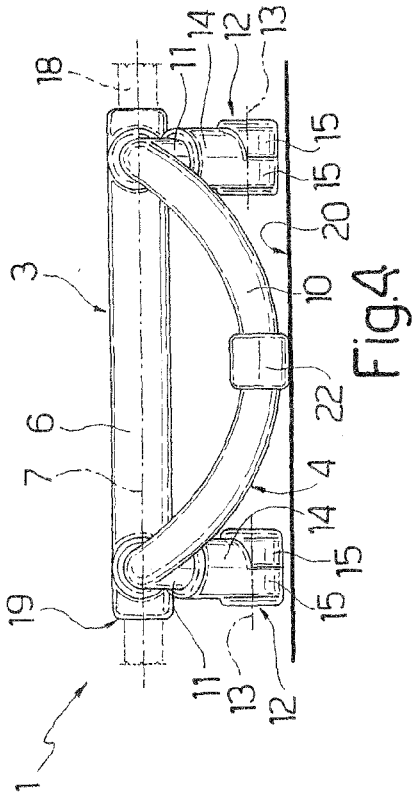
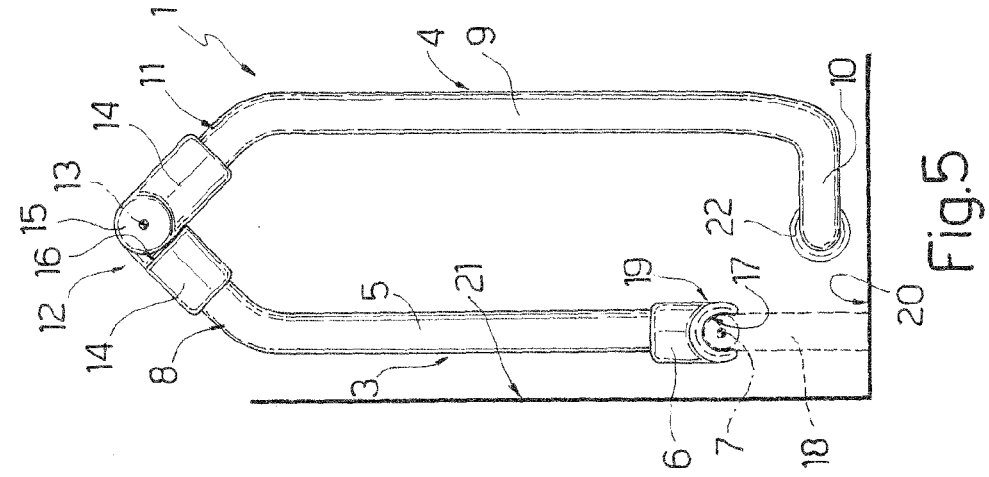
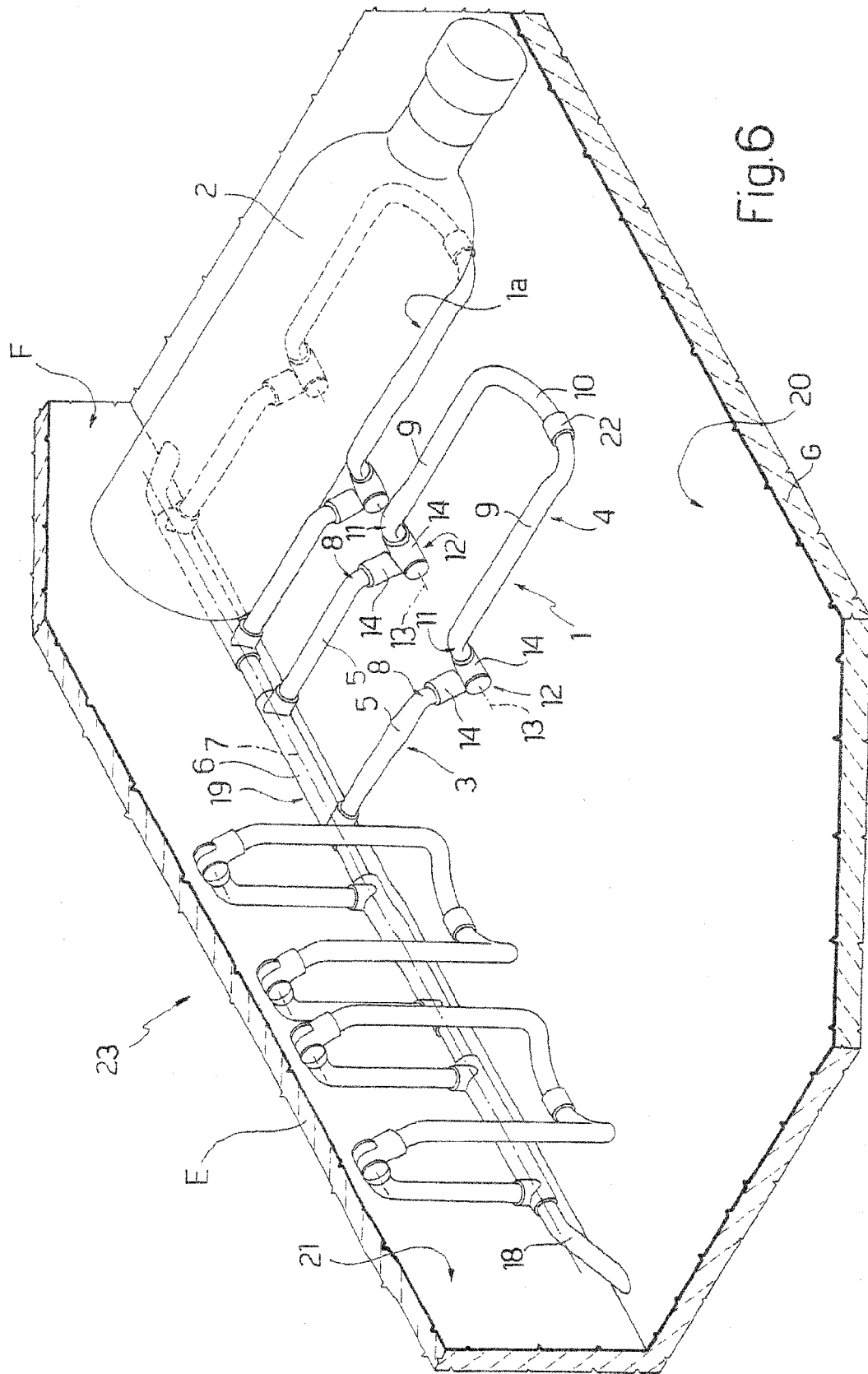


Fig.1











European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 08 15 1388

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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 19 May 2008	Examiner Jessen, Flemming
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 08 15 1388

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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