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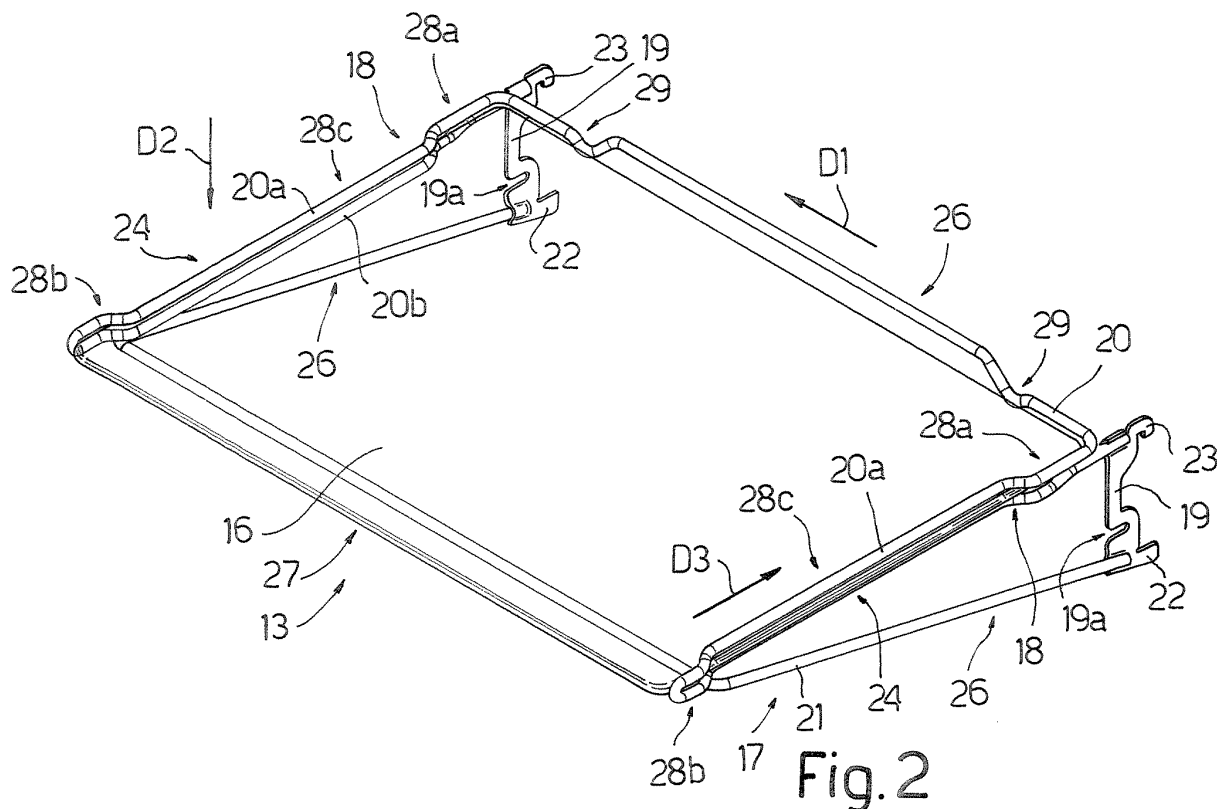
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(54) **Refrigerator**

(57) A refrigerator has a refrigeration compartment (4) defined by a number of walls (7, 8, 9, 10, 11); a supporting member (16; 30) for supporting foodstuffs and food containers, and selectively insertable inside the refrigeration compartment (4); and a structure (17; 31) fixable to at least one of the walls (7, 8, 9, 10, 11) and hav-

ing a seat (18; 39) for housing the supporting member (16; 30); the structure (17; 31) and the supporting member (16; 30) being connectable to each other to define a definite position of the supporting member (16; 30) inside the structure (17; 31) inside the refrigeration compartment (4).



**Fig. 2**



## Description

**[0001]** The present invention relates to a refrigerator.

**[0002]** A refrigerator normally comprises a refrigeration compartment enclosed by a main body and by a door hinged to the main body. That is, the compartment is defined by a bottom wall, a rear wall, two lateral walls, a top wall, and a front wall defined by the refrigerator door. A refrigerator compartment is equipped with substantially two types of fixtures : shelves and containers, for supporting foodstuffs.

**[0003]** A shelf is normally defined by a sheet of glass or Plexiglas, and by a rim made of plastic material, surrounding all or part of the sheet, and molded about the sheet to form one piece with it. And the lateral walls of the refrigeration compartment have a number of grooves which cooperate with the rim to support the shelf.

**[0004]** A container is normally located along the inner face of the door wall, and is defined partly by the door wall itself, and partly by a half-shell made of plastic and which fits onto the door wall.

**[0005]** Both the above types of fixtures are unhygienic, by dirt collecting, in the case of the shelves, in the joins between the sheet and rim, and, in the case of the containers, in the joins between the door and the half-shell.

**[0006]** The above drawback is further compounded by dirt collecting in areas which may come into direct contact with the foodstuffs. Moreover, the rim being fixed to the sheet, normal cleaning is often ineffective in removing dirt collected in the corners between the rim and sheet. As for the containers, the half-shells, though removable, are fitted to the door to withstand fairly heavy loads, and as such are not easy to remove and are normally left in place.

**[0007]** It is an object of the present invention to provide a refrigerator designed to eliminate the above drawback.

**[0008]** According to the present invention, there is provided a refrigerator comprising a refrigeration compartment defined by a number of walls; and a supporting member for supporting foodstuffs and food containers, and selectively insertable inside the refrigeration compartment; the refrigerator being characterized by comprising a structure fixable to at least one of said walls and having a seat for housing said supporting member; the structure and the supporting member being connectable to each other to define a definite position of said supporting member inside said structure inside the refrigeration compartment.

**[0009]** In other words, the function of connecting the supporting member to one of the walls of the refrigeration compartment is performed by the structure, so that the supporting member can be so formed as to avoid hard-to-clean areas, and to be easily removable from the structure.

**[0010]** A preferred, non-limiting embodiment of the

present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a front view of a refrigerator in accordance with the present invention, with the door open;

Figure 2 shows a larger-scale view in perspective of a shelf of the Figure 1 refrigerator;

Figure 3 shows a larger-scale view in perspective of a container of the Figure 1 refrigerator;

Figure 4 shows a view in perspective of the Figure 2 shelf equipped with a further fixture.

**[0011]** Number 1 in Figure 1 indicates as a whole a refrigerator comprising a main body 2 and a door 3, which define a refrigeration compartment 4. A freezer compartment 5 is located beneath compartment 4, and is defined by main body 2 and by a further door 6. Refrigerator 1 is of the type in which the door is hinged about a vertical axis not shown. More specifically, compartment 4 is defined by a bottom wall 7, a rear wall 8, a top wall 9, two lateral walls 10, and a wall 11 defined by door 3.

**[0012]** Compartment 4 houses a drawer 12 resting on bottom wall 6; four shelves 13 hooked onto rear wall 8; and four containers 14 hanging on wall 11, i.e. door 3. Rear wall 8 has two parallel sets of openings 15 engaged by shelves 13.

**[0013]** With reference to Figure 2, each shelf 13 comprises a supporting member, defined by a flat sheet 16, for supporting foodstuffs and/or food containers; and a structure 17 having a seat 18 for housing sheet 16. Sheet 16 is rectangular with rounded edges, and structure 17 comprises two connecting brackets 19 and two bent bars 20 and 21. Each bracket 19 is substantially C-shaped, and comprises a first free end having a stop member 22, and a second free end located over the first free end and having a hook 23. Stop members 22 and hooks 23 engage respective openings 15 to fix shelves 13 to wall 8. Each bracket 19 also comprises a slot 19a for the purpose explained later on.

**[0014]** Bar 20 is fixed at the ends to the top portions of brackets 19, and is bent to comprise two opposite facing lateral portions 24, and a rear portion 25 connecting portions 24. Each lateral portion 24 is defined by portions 20a and 20b of bar 20 bent one on top of the other. Bar 21 is fixed at the ends to the bottom portions of brackets 19, and comprises two lateral portions 26 extending from brackets 19 towards the free ends of portions 24 and joined by a front portion 27.

**[0015]** Each portion 24 comprises a rear end 28a, a front end 28b, and a central portion 28c recessed with respect to ends 28a and 28b and forming a respective seat 18. Along central portion 28b, portions 20a and 20b of bar 20 are spaced apart to house one end of sheet 16, and, at end 28a, portions 20a and 20b are spaced apart by a gap smaller than the thickness of sheet 16. In other words, ends 28a provide for guiding sheet 16



and defining a definite position of sheet 16 inside structure 17 in a direction D1, while central portion 28c defines a definite position of sheet 16 in a vertical direction D2 perpendicular to direction D1. Portion 25 has bends 29 for arresting sheet 16 in a given position in a direction D3. And sheet 16 can be withdrawn freely from the structure in direction D3, in the opposite sense to the arrow in Figure 2.

[0016] With reference to Figure 3, each container 14 comprises a tub 30; and a basket-like structure 31 which is fixed to door 3 by means of a bracket 32. Structure 31 comprises a bar 33 looped into a rectangle; and two U-shaped bars 34 connected to the underside of bar 33. Tub 30 comprises a bottom wall 35, two parallel facing lateral walls 36, and two parallel facing lateral walls 37; and each lateral wall 36, 37 has a top edge 38 bent to cover bar 33. In other words, structure 31 defines a seat 39 for housing tub 30, and edges 38 in turn define a seat 40 for housing bar 33.

[0017] Bars 33 and 34 are sized to be adjacent to each lateral wall 36, 37, and so define a definite position of tub 30 inside structure 31.

[0018] With reference to Figure 4, a bottle rack 41 is hooked onto structure 17, directly beneath sheet 16. Bottle rack 41 has a reticular structure, and comprises four hooks 42 and 43 by which to hook bottle rack 41 selectively onto any one of shelves 13. Bottle rack 41 is made of bent wire, and comprises two L-shaped lateral members 44, each having a hook 42 at one end; three undulated members 45 defining bottle seats; and a member 46 having a hook 43 at each end.

[0019] In actual use, bottle rack 41 can be selectively inserted inside refrigeration compartment 4 and hooked onto any one of shelves 13 by inserting member 46 on top of portions 26 and beneath portions 24 of structure 17, pushing member 46 inside slots 19a, lifting the front of bottle rack 41 so that hooks 42 contact the underside of sheet 16, and resting hooks 42 on top of front portion 27. In the course of the last step, member 46 is withdrawn from slots 19a, and hooks 43 rest on portions 26.

## Claims

1. A refrigerator comprising a refrigeration compartment (4) defined by a number of walls (7, 8, 9, 10, 11); and a supporting member (16; 30) for supporting foodstuffs and food containers, and selectively insertable inside the refrigeration compartment (4); the refrigerator being **characterized by** comprising a structure (17; 31) fixable to at least one of said walls (7, 8, 9, 10, 11) and having a seat (18; 39) for housing said supporting member (16; 30); the structure (17; 31) and the supporting member (16; 30) being connectable to each other to define a definite position of said supporting member (16; 30) inside said structure (17; 31) inside the refrigeration compartment (4).

2. A refrigerator as claimed in Claim 1, **characterized in that** said supporting member is defined by a sheet (16) which slides inside said seat (18); said structure (17) having locators (29) against which said sheet (16) rests, and which form a shelf (13) with said sheet (16).
3. A refrigerator as claimed in Claim 2, **characterized in that** said structure (17) comprises connecting means (19) for connection to one of said walls (7, 8, 9, 10, 11).
4. A refrigerator as claimed in Claim 3, **characterized in that** said structure (17) comprises bars (20, 21) bent and fixed to said connecting means (19).
5. A refrigerator as claimed in any one of Claims 1 to 4, **characterized by** comprising a bottle rack (41) selectively connectable to said structure (17).
6. A refrigerator as claimed in Claim 5, **characterized in that** said bottle rack comprises hooks (42, 43) cooperating with said structure (17).
7. A refrigerator as claimed in Claim 1, **characterized in that** said supporting member is defined by a tub (30).
8. A refrigerator as claimed in Claim 7, **characterized in that** said structure is a basket (31).
9. A refrigerator as claimed in any one of the foregoing Claims, **characterized in that** said structure (17; 31) is made of metal bars (20, 21; 33, 34).
10. A refrigerator as claimed in Claim 9, **characterized in that** said bars (20, 21; 33, 34) are made of steel.



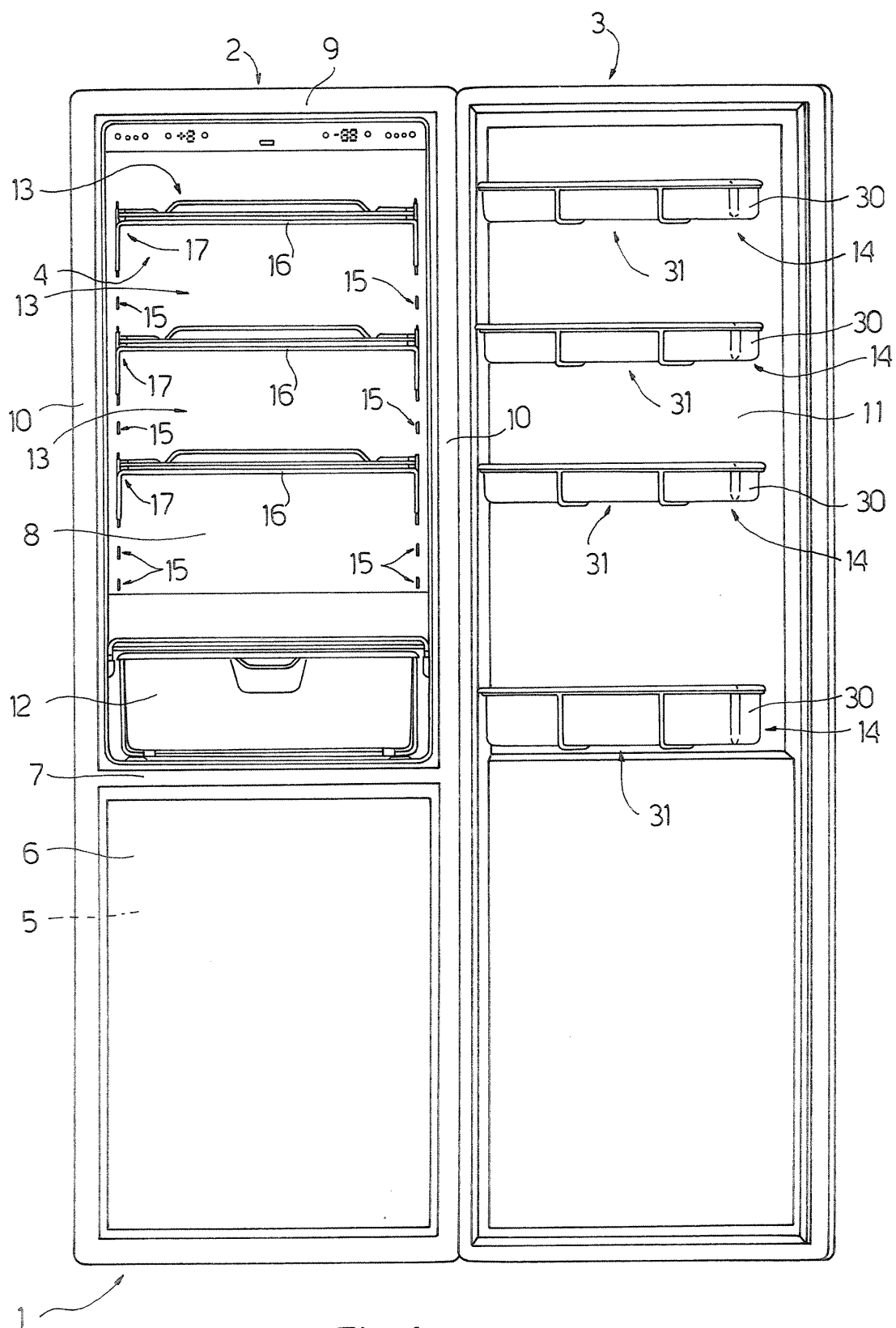
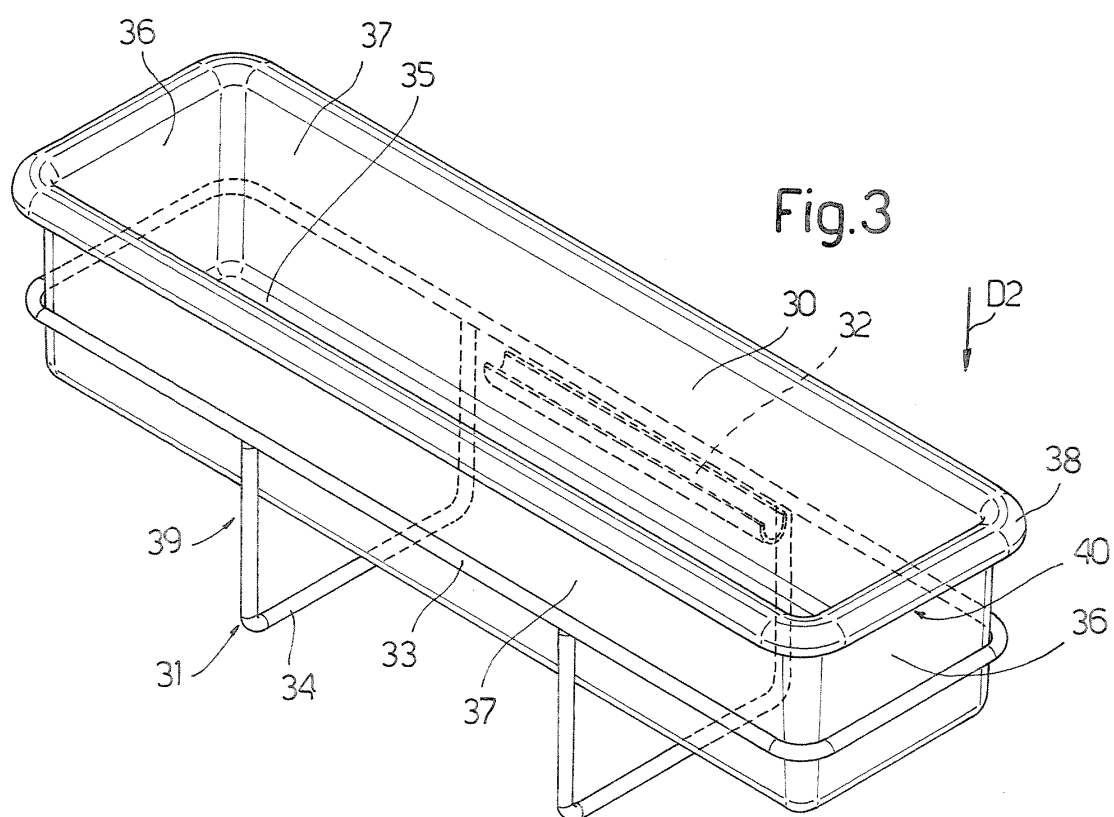
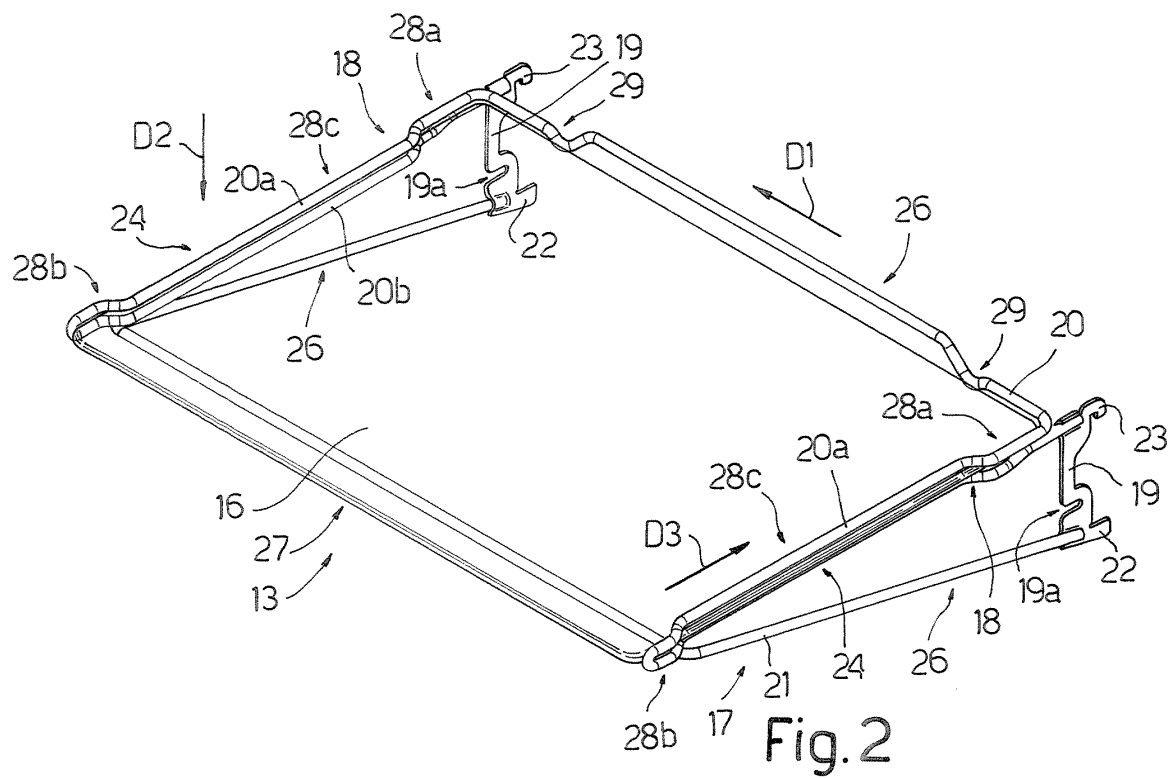


Fig.1







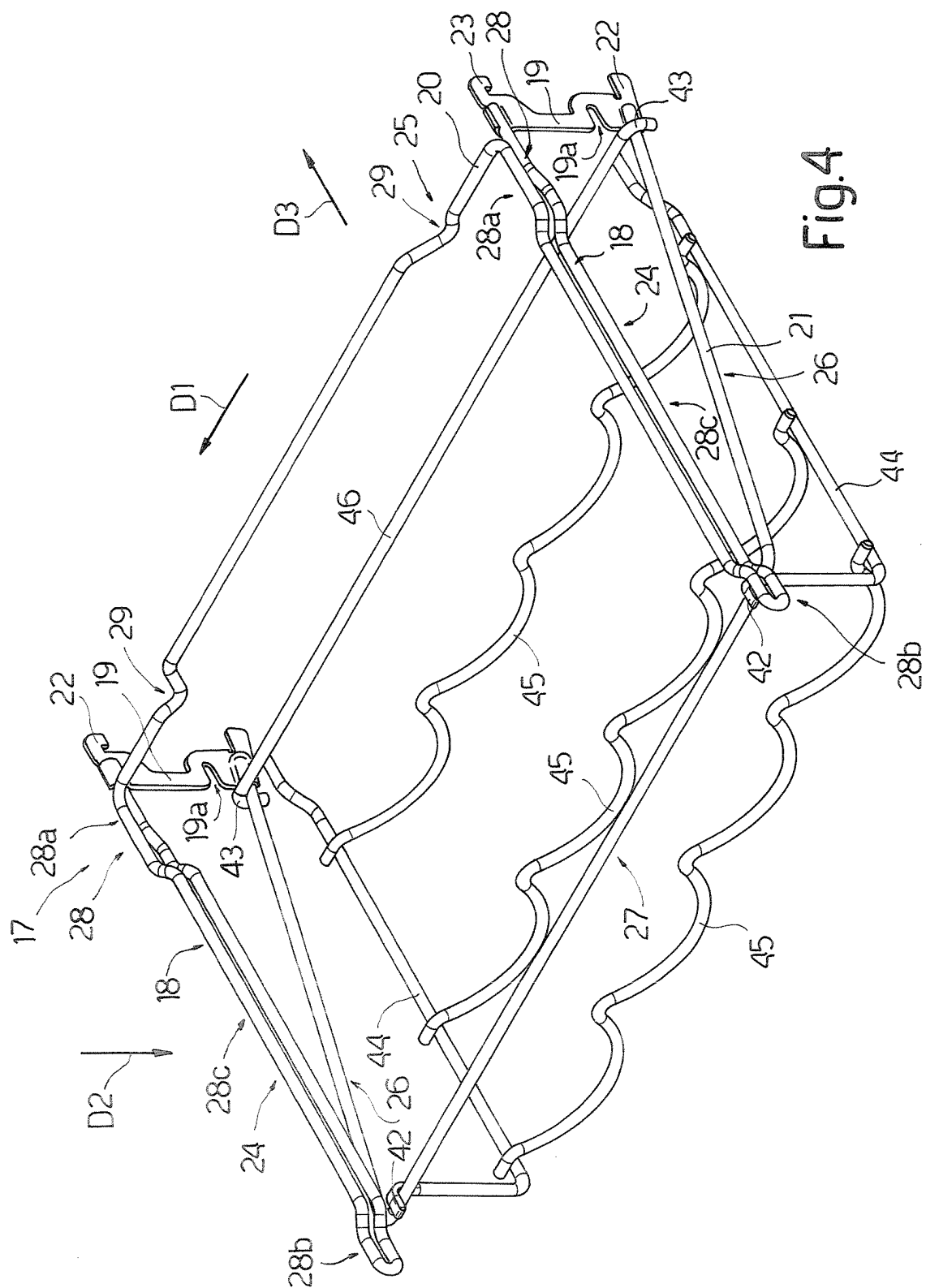


Fig. 4





European Patent  
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Application Number  
EP 03 10 4561

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The present search report has been drawn up for all claims			
Place of search <b>MUNICH</b>		Date of completion of the search <b>12 March 2004</b>	Examiner <b>Jessen, F</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)



**ANNEX TO THE EUROPEAN SEARCH REPORT  
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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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