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(71) Applicant: **WHIRLPOOL CORPORATION**
Benton Harbor
Michigan 49022 (US)

(72) Inventors:
• **Brouwer, Sander**
21025 Comerio (IT)
• **Lammers, Mark Frederik Fons**
21025 Comerio (IT)

(74) Representative: **Guerci, Alessandro**
Whirlpool Europe S.r.l.
Patent Department
Viale G. Borghi 27
21025 Comerio (VA) (IT)

(54) **Multifunctional shelf of a refrigerator cavity, and refrigerator provided with such shelf**

(57) A shelf for refrigerators or the like comprises a plurality of openings for positioning a removable trays. Each of such trays may be supported by the shelf in a first configuration in which a flat cover of the tray is flush

with an upper surface of the shelf and in a second configuration in which the tray is supported upside down on its flat cover. The whole shelf or any of the trays with covers can be used as serving trays.

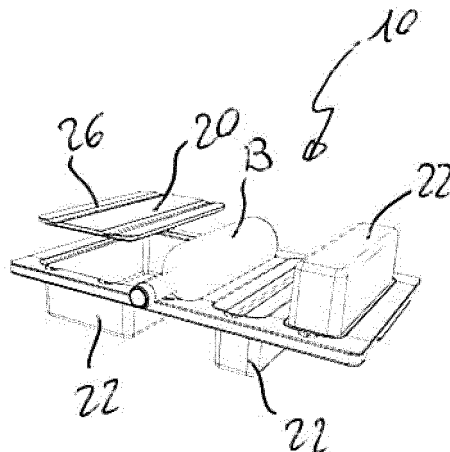


Fig. 7

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Description

[0001] The present invention relates to a shelf for refrigerators or the like, comprising at least one opening for positioning a removable tray.

[0002] This kind of refrigerator shelves is known in the art. EP 0325217 discloses a sliding shelf for dividing the interior space of a cabinet and for supporting food products in which the opening may be associated with a rectangular tray with a cover, with an accessory for holding eggs or with a rectangular plug for closing the opening. EP580967 discloses a similar shelf having a removable front tray and cover which can be repositioned in a rear trough of the shelf to permit convenient storage of tall containers.

[0003] Even if the above known solutions may solve the problem of a random and uncontrolled storage of food which float around the fridge cavity, nevertheless they do not provide the user with a solution in which the content of the tray can be easily viewed by the user. Moreover none of the known solutions does provide the user with different elements which can be either stored in a fridge and which can be presented directly on the table.

[0004] The existing solutions present the drawbacks of the need of a searching in a loaded fridge cavity for stored food and of transferring food from storage containers into containers that can be presented on the table.

[0005] One of the objects of the present invention is to provide a shelf which does not present the above drawbacks.

[0006] The above object is reached thanks to features listed in the appended claims.

[0007] This invention offers solutions in comparison to the current situation. It offers an organized configuration of storage containers nested in a frame that can serve as a serving tray to the table. The invention offers also the possibility to place tall products on the shelf below that can stick through the surface. The multifunctional character of the invention handles several functions at the same time like hosting containers while maintaining a flat surface to store further products and bottles that can be transported in its full assembly to the table and the tray covers or lids are at the same time cutting boards.

[0008] According to a further embodiment of the invention the storage trays or containers are air tight by a gasket preventing odors spreading in the fridge cavity.

[0009] Further features and advantages of a shelf according to the invention will become clear thanks to the detail description, provided as a non limiting example, with reference to the attached drawings in which:

- Figure 1 is a perspective view of a first configuration of a shelf according to the present invention;
- Figure 2 is a view similar to figure 1 and showing the shelf in a second configuration;
- Figure 3 is a cross section of the shelf in a further configuration intermediate between those of figures 1 and 2;

- Figure 4 is another perspective view according to a further configuration of the shelf; and
- Figures 5 to 7 are perspective views according to different configurations of the shelf, pointing out its versatility.

[0010] With reference to the drawings, a multifunctional shelf 10 is provided with a plurality of rectangular apertures 12 and 14. A first aperture 12 (on the left of the figures) presents an overall dimension bigger than the remaining three apertures 14. Each shelf presents an upper surface 10a and a lower surface 10b, and two lateral sections 16 to be supported by bearing elements (not shown) of the refrigerator cavity.

[0011] Each aperture 12, 14 presents an annular step 18 having a depth corresponding to the thickness of a cover 20 and of the upper bent edge 22a of a transparent tray or container 22 (figure 3). Therefore, thanks to the dimension of the step 18 on one side, and of the cover 20 and tray 22 on the other side, trays 22 can be supported in a traditional configuration as shown in figure 2, with the cover 20 substantially flush with the remaining portion of the upper surface 10a of the shelf 10, or in an upside-down configuration as shown in figure 1, in which there is no step between the upper surface 10a of the shelf and the tray 22. In such configuration the user can easily see the food products in the tray 22, supported on the covers 20, and he can transfer the whole shelf to the table while maintaining, for a reasonable period of time, the freshness of the food items contained therein and protecting such food from environment.

[0012] The configuration shown in figure 2 is of course not designed for moving the whole shelf to the table, but on the other hand it allows the user to exploit the shelf 10 on two levels, i.e. on the trays 22 and on the upper surface 10a of the shelf 10. According to a further feature of the shelf, each cover 20 present at least one longitudinal slot 26 presenting a circular cross section and configured to maintain in a stable and safe position horizontal bottles B (figures 3 and 5) placed on the shelf. Such slots 26 are prolonged on the upper surface 10a of the shelf 10 by means of semicircular nail-shaped lower portions 28 of the shelf. Such portions 28 are useful also when the covers are put upside down (i.e. with the slot 26 on the lower portion) on the corresponding openings 12, 14 (for instance as shown for the upside down trays 22 in figure 3) since they allow the user to easily grasp and remove the tray 20 and the cover 22 together from the shelf 10.

[0013] Of course the user can decide to use the above different configurations of the trays 22 in different zones of the shelf 10, as shown in figures 3 and 5 to 7.

[0014] With reference to figure 4, and depending on the availability of storage space below the shelf 10, the user can remove all the covers 20 from the shelf so that the big opening 12 can be used for storing vertical bottles B supported on the shelf or on the liner below the shelf 10 and/or for storing horizontal bottles B in the openings

14. In this regard the width W of openings 14 is such that it is lower than the average diameter of wine bottles, so that these latter can be kept safely on the shelf 10.

[0015] With reference to the configuration shown in figure 6, each cover 10 presents, on its annular edge, a step 30 having a dimension either corresponding to the mouth of the tray 22 or to the step 18 of the openings 12 and 14, so that it can be put upside down on the shelf 10 for closing the corresponding aperture while being flush with the upper surface 10a of the shelf 10. This feature provides a further advantage of assuring an easy cleaning of the shelf, together with a nice appearance.

[0016] In order to provide a more protected environment in each tray 22, between its bent edge 22a and the cover 20 may be interposed an annular gasket (not shown).

[0017] With reference to figures 3 and 5, it is clear how the tray 22 positioned on the opening 12 can be removed, together with its cover 20, from the tray 10 and can be directly used as a service tray to be put on the table. Of course also smaller trays 22 and corresponding covers 20 can be used as service trays as well. By removing the cover 20, the cover 20 alone may be used as a cutting board on the table.

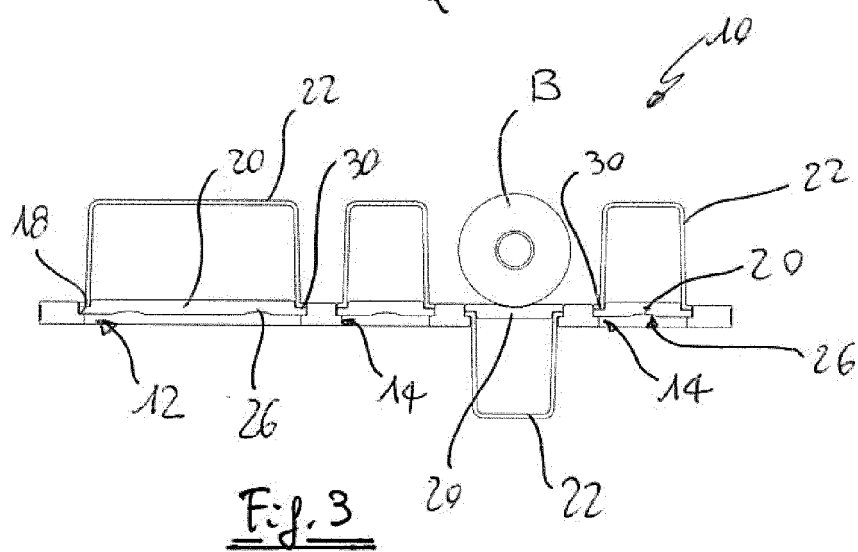
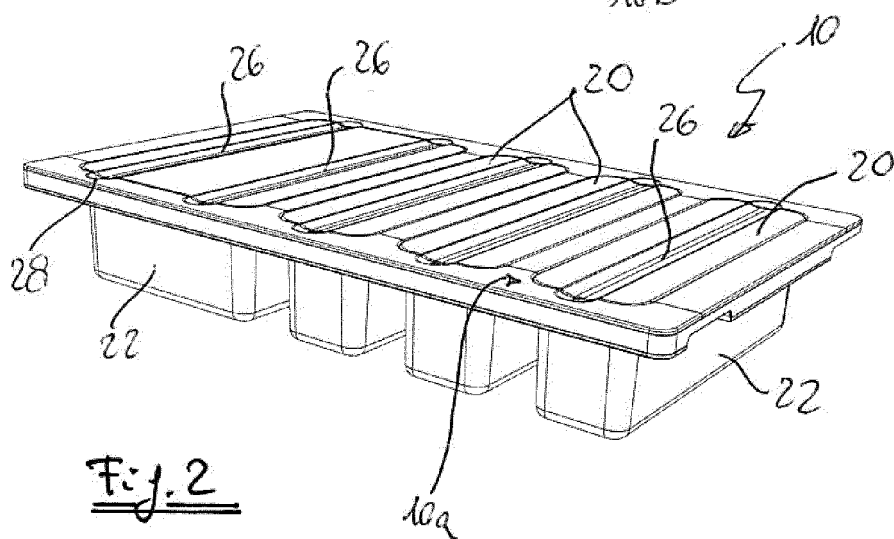
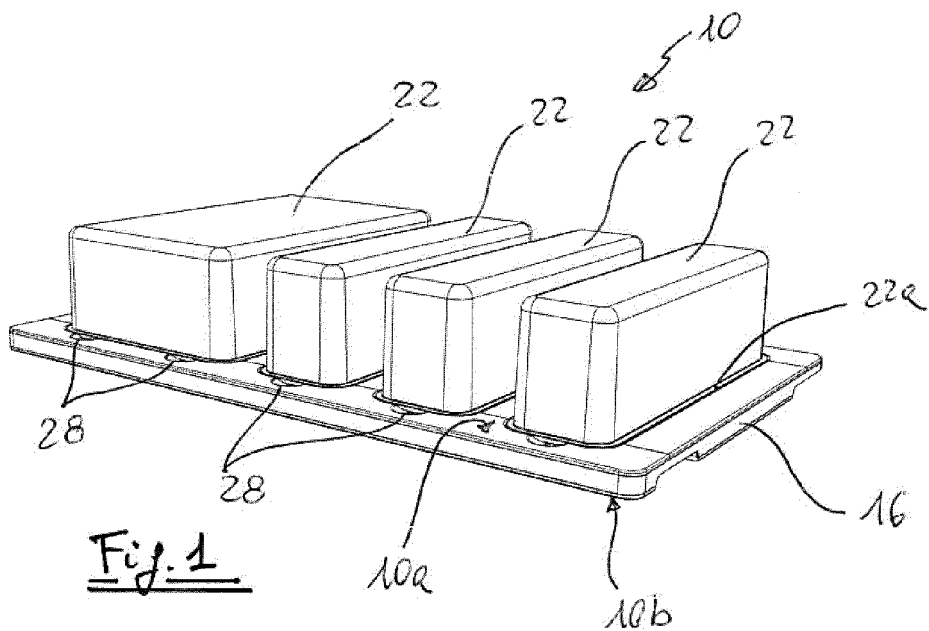
[0018] The material of the shelf 10 is preferably wood (for instance plywood) or the like because it gives a good esthetical appearance of the whole shelf and does not have safety problem in contact with foods. The material of trays 22 is preferably polystyrene or polycarbonate which both gives a high degree of transparency thereto.

Claims

1. Shelf (10) for refrigerators or the like, comprising at least one opening (12, 14) for positioning a removable tray (22), **characterized in that** the tray (22) may be supported by the shelf (10) in a first configuration in which a flat cover (20) of the tray (22) is flush with an upper surface (10a) of the shelf (10) and in a second configuration in which the tray (22) is supported upside down on its flat cover (20).
2. Shelf according to claim 1, wherein said opening (12, 14) present an annular step (18).
3. Shelf according to claim 1 or 2, wherein the tray (22) presents an annular bent edge (22a) that in said second configuration of the tray (22) is flush with the upper surface (10a) of the shelf (10).
4. Shelf according to any of the preceding claims, wherein in the second configuration the cover (20) is placed in an upside down configuration on the opening (12, 14).
5. Shelf according to any of the preceding claims, wherein the cover (20) of the tray (22) is configured

to be used as a cutting board.

6. Shelf according to any of the preceding claims, wherein the cover (20) is provided with an annular step (30) matching either the bent edge (22a) of the tray (22) or the step (18) of the opening (12, 14).
7. Shelf according to claim 6, wherein the step (30) of the cover (20) is provided with a corresponding gasket.
8. Shelf according to any of the preceding claims, wherein at least one over (20) presents a shaped slot (26) for defining a seat for an horizontal bottle (B).
9. Shelf according to claim 8, wherein said slot (26) has end portions (28) in the shelf (10).
10. Shelf according to any of the preceding claims, wherein the width (W) of the opening (14) is such that a bottle (B) can be supported horizontally in such opening (14).
11. Shelf according to any of the preceding claims, wherein at least one opening (12) has dimensions such that vertical bottles (B) can be positioned in such opening (12).
12. Shelf according to any of the preceding claims, wherein the tray (22), in an upside down configuration and with its cover (20) as a base plate is configured to be used as a service tray.
13. Shelf according to any of the preceding claims, wherein it presents a plurality of openings (12, 14).
14. Shelf according to any of the preceding claims, wherein it is made of wood or the like.
15. Refrigerator provided with a shelf according to any of the preceding claims.



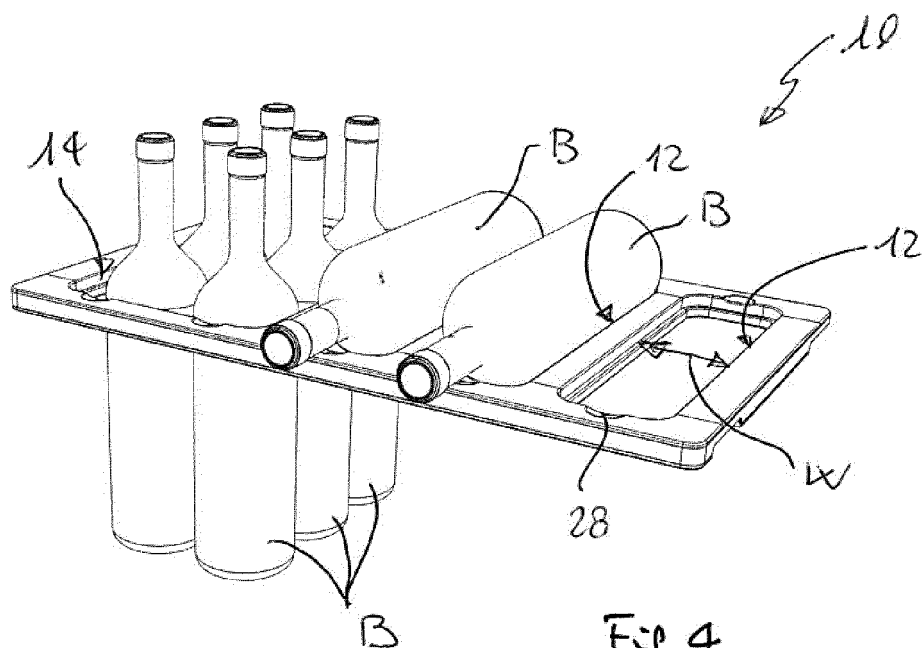


Fig. 4

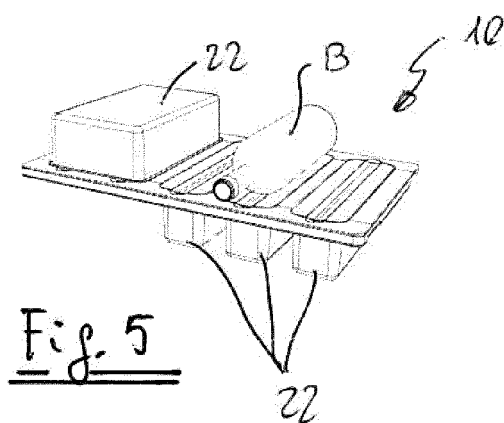


Fig. 5

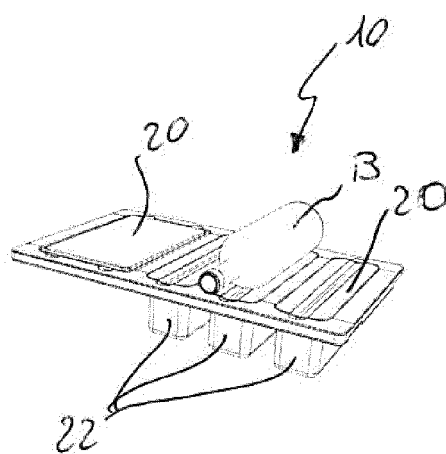


Fig. 6

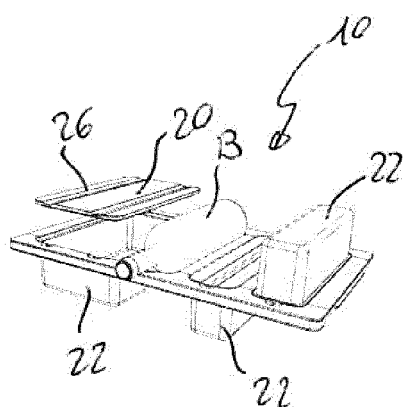


Fig. 7



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Application Number
EP 14 16 2717

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Place of search The Hague		Date of completion of the search 23 July 2014	Examiner Bejaoui, Amin	
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