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- **Ansaldo Andrea, c/o Whirlpool Europe S.r.l.**
21025 Comerio (IT)
- **Stroppari Massimo, c/o Whirlpool Europe S.r.l.**
21025 Comerio (IT)

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

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

(72) Inventors:
 • **Pelizzari, Armando, c/o Whirlpool Europe S.r.l.**
21025 Comerio (IT)

(54) **Refrigerator with partially extractable shelves**

(57) A refrigerator in which at least part of the relative shelves is supported by projecting supports directly obtained within the cell defining the preservation compartment of the refrigerator, in which two supports (5, 5A, 5B) which mutually cooperate to support a shelf (6, 6') define a horizontal guide (11) of limited extension for a cooperating part (15, 15') of said shelf (6, 6'), such as to enable this latter to be moved towards the user to the extent permitted by the guide (11).

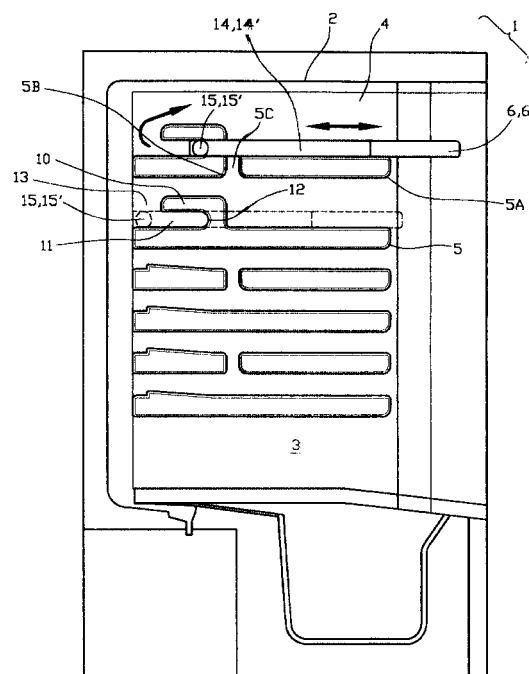


FIG. 1

Description

[0001] The present invention relates to a refrigerator in which at least part of the relative shelves is supported by projecting supports directly obtained (co-formed) within the cell defining the preservation compartment of the refrigerator.

[0002] In known refrigerators accessibility to the products disposed on the shelves is limited, especially when the products are of small dimensions and are positioned on the rear part of the shelf. In certain cases the user is compelled to remove the products from the front part of a shelf to gain access to those more distant. It is at least theoretically possible to partly extract the shelf, but in practice this is not feasible for the reason that the extraction is not guided, i.e. is uncontrollable with the result that the shelves can tilt and the products fall.

[0003] The main object of the present invention is to enable the shelf or shelves to be semi-extracted under guided and controlled conditions, to provide comfortable access even to the most distant products and avoid the problems which could arise from a random attempt to remove the shelves.

[0004] This and further objects which will be apparent from the ensuing detailed description are attained by a refrigerator in accordance with the teachings of the accompanying claims.

[0005] The invention is described in detail hereinafter by way of non-limiting example with reference to the accompanying drawing, in which:

Figure 1 is a schematic vertical section through a refrigerator according to the invention;

Figure 2 is a plan view of one type of shelf schematically showing, on only one side of the shelf, the projecting support parts provided within the cell; and

Figure 3 is a plan view of another type of shelf.

[0006] In the figures the reference numeral 1 indicates the refrigerator, and 2 the relative cell obtained in the usual manner by vacuum-forming to define the preservation compartment 3, and presenting on the lateral walls 4 projecting supports 5, 5A, 5B for supporting shelves 6. These supports are obtained directly within the cell during its forming, i.e. they are co-formed. In the described example the refrigerator is of the so-called undercounter type, i.e. to be installed below a worktop (not shown).

[0007] The shelf 6, 6' can be of two types. That of Figure 2 comprises a glass sheet 7 surrounded by a plastic frame 8. The frame presents on two sides two recesses 14 of given depth P and length L. The position and dimensions of the recesses 14 are chosen such as to enable the shelf to operate in the manner described hereinafter.

[0008] The shelf 6' of Figure 3 is equivalent to that of Figure 2 but differs from it in that the shelf is constructed of metal rods welded together and arranged to provide

two "recesses" 14'.

[0009] Both the shelves present end lateral appendices 15, 15' which bound the recesses 14, 14'.

[0010] The lower projecting support 5 is continuous whereas the upper one is formed in two parts 5A, 5B separated by a passage 5C.

[0011] In detail, the support 5 and the part 5B present a substantially parallel branch 10 defining a horizontal guide channel 11 closed at its front at 12, and open at its opposite end at 13. One of the appendices 15, 15' of the shelf 6 or 6' is guided within the guide channel 11.

[0012] During habitual use, the shelf lies in its retracted position in which the relative appendices or parts 15, 15' are in positions corresponding with the aperture or passage 13. When the user requires access to a difficultly reachable single product, he moves the shelf forwards by the extent allowed him by the engagement between the appendix 15, 15' and the closure element 12 of the channel 11. Any moments tending to overturn the shelf, due for example to excessive weight acting on the front part of the shelf, are opposed by the engagement between the guide channel 11 and the appendix 15, 15'.

[0013] When the product or products have been withdrawn, the shelf is returned to its starting position. The recesses 14, 14' serve to enable these movements in spite of the presence of the closure element 12.

[0014] When the shelf is to be removed, for example for cleaning, it is lifted so that the appendix 15, 15' passes through the passage 13 and rises above the branch 10 by virtue of the presence of the recesses 14, 14'.

[0015] The only purpose of the support in two parts 5A, 5B separated by the passage 5C is to enable a shelf to be moved from a position in which it rests on these parts to another on the underlying support 5, as described in detail and protected in another simultaneous patent application by the same Applicant.

Claims

1. A refrigerator in which at least part of the relative shelves is supported by projecting supports directly obtained within the cell defining the preservation compartment of the refrigerator, **characterised in that** a pair of supports (5, 5A, 5B) which mutually cooperate to support a shelf (6, 6') defines a horizontal guide (11) of limited extension for a cooperating part (15, 15') of said shelf (6, 6'), such as to enable this latter to be moved towards the user to the extent permitted by the guide (11).
2. A refrigerator as claimed in claim 1, wherein the shelf (6) is formed from a glass sheet (7) surrounded by a plastic frame (8) which at one end presents said cooperating part (15), this latter defining a recessed region (14) which enables the shelf (6) to be moved.

3. A refrigerator as claimed in claim 1, wherein the shelf is of metal rod and at one end presents said cooperating part (15'), this latter defining a recessed region (14) which enables the shelf to be moved.

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4. A refrigerator as claimed in the preceding claims, wherein the supports comprise two parts (5A, 5A') spaced apart (at 5C), one of these (5B) defining said guide (11).

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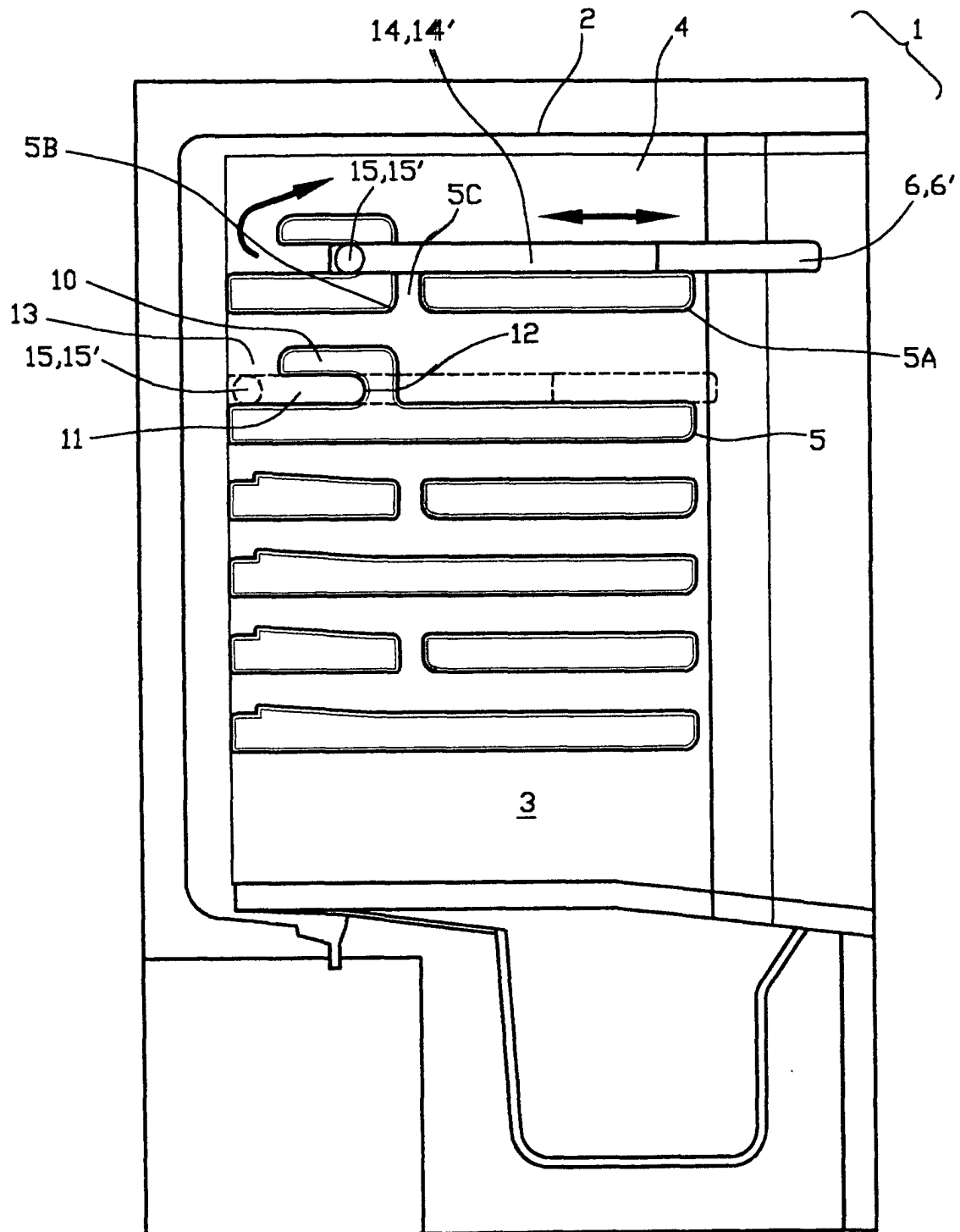
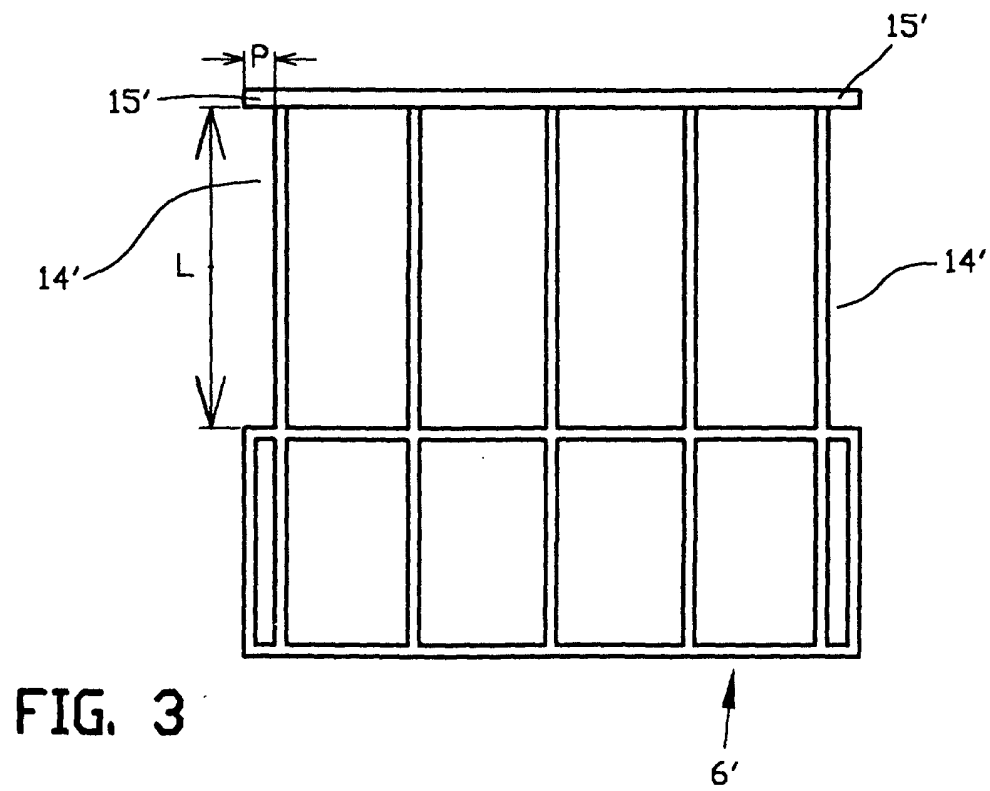
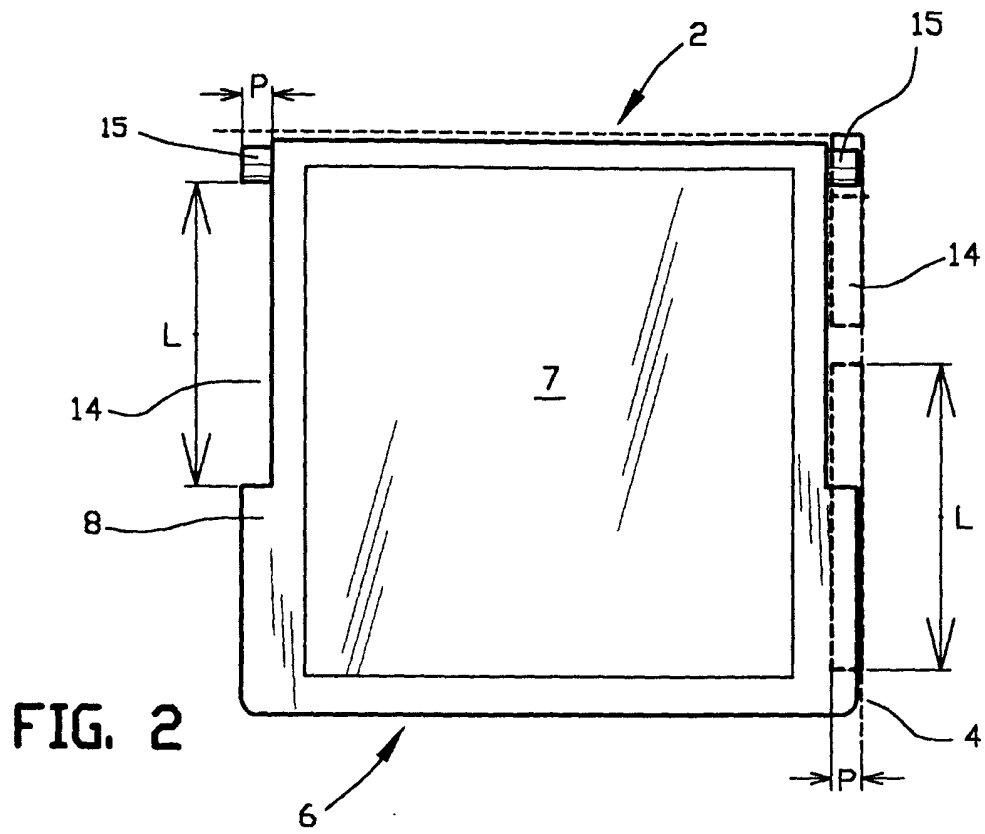


FIG. 1





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 01 11 0955

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			F25D
Place of search		Date of completion of the search	Examiner
THE HAGUE		9 July 2001	Jessen, F
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EPO FORM 1503 03 92 (P/4001)

**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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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82