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(54) **Dishwashing machine with extractable functional unit**

(57) Dishwashing machine with a functional unit (2, 3) capable of sliding into a pulled-out, ie. extracted position, in which a dripping partition wall (8) extends transversally across the washing vessel (1) of the machine,

thereby dividing it into separate compartments (9, 10). When the functional unit slides back into its retracted closed position, the wall (8) shrinks into a compact retracted condition enabling the compartments (9, 10) to fully communicate with each other again.

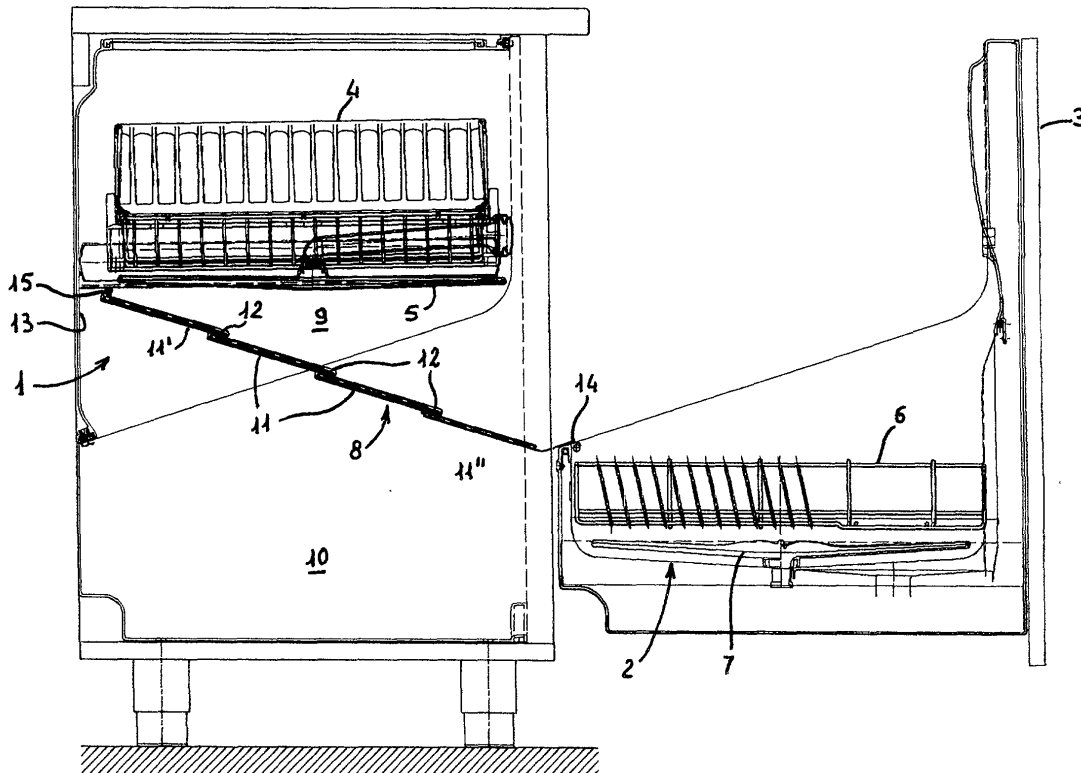


Fig. 2

Description

[0001] The present invention refers to a dishwashing machine provided with an extractable functional unit that makes the use thereof particularly convenient and rational.

[0002] In particular, the present invention refers to a dishwashing machine featuring an innovatory architecture, as described for instance in WO 00/72741, comprising a front loading door which is made in the form of a drawer-like structure, i.e. capable of being pulled out horizontally, and is joined, on its lower side, with a pan forming the bottom of the washing vessel of the machine, so as to draw such a pan with it when pulled out.

[0003] A horizontal partition wall divides the washing vessel of the machine into a lower compartment, which accommodates said pan along with washload-support means attached to the door, and an upper compartment that accommodates further extractable washload-support means. Closing the door into a pushed-in, i.e. retracted position automatically causes all washload-support means, which are associated to respective rotating spray arms, to slide into position inside the washing

[0004] A dishwashing machine of the above described kind offers a number of advantages in terms of both convenience and operational flexibility. On the other hand, the partition wall - which is joined to, i.e. integral with the washing vessel and performs mainly as a dripping pan, for the washload items arranged thereabove, when the door is pulled out jointly with the bottom of the same washing vessel - also has a number of practical drawbacks, i.e.:

- it generates water splashing noise when the rotating spray arms are operating;
- it prevents the washload items arranged in the lower compartment from making advantageously use also of the washing action of the rotating spray arms associated to the upper compartment;
- it prevents the washload items arranged in the upper compartment from making advantageously use also of the washing action of the rotating spray arms associated to the lower compartment; and
- it limits the actual space available for accommodating the dishes, i.e. the washload items, inside the washing vessel.

[0005] It therefore is a main purpose of the present invention to provide a dishwashing machine with an extractable functional unit of the above cited kind, which is particularly effective and low-noise in operation, without implying any reduction in the load capacity thereof.

[0006] According to the present invention, this aim is reached in a dishwashing machine with an extractable functional unit incorporating the characteristics as recit-

ed and defined in the appended claims.

[0007] Anyway, features and advantages of the present invention may be more readily understood from the description that is given below by way of nonlimiting example with reference to the accompanying drawings, in which Figures 1 and 2 are schematic cross-sectional side views of a preferred embodiment of the dishwashing machine according to the present invention.

[0008] With reference to the above-mentioned Figures, the dishwashing machine mainly comprises, inside an outer casing, a washing vessel 1, a bottom portion 2 of which is firmly joined to a front loading door 3 of the extractable drawer type.

[0009] In particular, the door 3 is adapted to slide horizontally with the aid of (per se known and not shown) runners between two positions, i.e. a retracted position, illustrated in Figure 1, in which the door frontally closes the washing vessel 1 that is in this way coupled on its lower side with the bottom 2 thereof, and an extracted or pulled-out position, illustrated in Figure 2, in which also the bottom 2 of the washing vessel 1 is correspondingly pulled out and separated from the remaining portion of the washing vessel itself.

[0010] The washing vessel 1 is adapted to accommodate at least an upper dish rack 4 which, in a per se known manner, is capable of being pulled out from the front side of the machine, by sliding on appropriate runners, and is associated to at least a respective rotating spray arm 5. In addition, the washing vessel 1 is adapted to accommodate at least a lower dish rack 6 that is firmly joined to the door 3 and, therefore, is pulled out jointly with it, and is in turn associated to at least a respective rotating spray arm 7.

[0011] When the door 3 is pulled out jointly with the functional unit comprising the bottom 2 of the washing vessel, the rotating spray arm 7 and the lower dish rack 6, the whole functional assembly becomes most conveniently accessible; however, the need anyway arises for a partition wall 8, or the like, to be provided somewhere below the upper dish rack 4 to collect the water dripping therefrom and convey it towards the bottom 2 of the washing vessel.

[0012] According to the present invention, when the door 3 slides into the extracted position shown in Figure 2, the partition wall 8 is adapted to extend transversally across the washing vessel 1, thereby dividing the interior of the machine into substantially separate compartments 9, 10, whereas, when the door 3, is caused to slide into its retracted, closed position, the partition wall 8 is adapted to retract into a compact condition taking up just a very small space, so as to enable the compartments 9, 10 to be in substantial communication with each other inside the washing vessel of the machine.

[0013] To such a purpose, the partition wall 8 is preferably made with a plurality of sectors 11, 11', 11'' interconnected with each other by means of respective sliding connections 12, so as to form, when the door 3 is in its extracted position, a composite structure that

extends telescopically from a position adjacent to the rear wall 13 of the washing vessel 1 to a rear edge 14 of the bottom portion 2 of the same washing vessel. In this connection, it is also preferable if the structure 8 is connected to the side walls of the washing vessel, in the above mentioned position adjacent to the rear wall 13 thereof, at a higher level with respect to the connection of the structure 8 with the rear edge 14 of the bottom portion 2 of the washing vessel, in such a manner as to form a dripping wall that is inclined downwards frontally when the door 3 is open.

[0014] When the door 3 is on the contrary moved back into its retracted position shown in Figure 1, the composite structure 8 is adapted to shrink into the above-mentioned compact condition, thereby forming just a small-sized "pack" adjacent to the rear wall 13 of the washing vessel.

[0015] More particularly, the structure 8 is hinged on the rear, at 15, on to the washing vessel 1 through a sector 11', whereas it is hinged on the front, at 14, on to the functional unit through a sector 11". Conclusively, when the door 3 is closed, the structure 8 is packed together as shown in Figure 1 through a combined telescopic sliding and rotational movement of the sectors 11 as determined by the fulcra 14, 15.

[0016] From the above description it can be clearly inferred that it is only when the door 3 is opened, i.e. pulled out, that the partition wall 8 extends across the washing vessel 1, so as to be able to collect the water dripping from the portion of the same washing vessel lying thereabove, and convey the so collected water down into the bottom 2.

[0017] Conversely, said partition wall 8 substantially "disappears" when the door 3 is closed, thereby ensuring the advantageous condition that enables the dishwashing machine to operate in an optimum manner under a very low generation of water-induced noise and a highest possible effectiveness of the rotating spray arms 5 and 7. In addition, the wall 8 does not create any substantial encumbrance inside the washing vessel when the machine is closed.

[0018] In a preferred manner, the sectors 11 dispose themselves in a mutually adjacent, juxtaposed arrangement in a substantially vertical position when the door 3 is closed. This most advantageously enables the partition wall 8 to be automatically flushed, i.e. washed in its compacted position during each washing cycle performed by the machine.

[0019] It shall be appreciated that the above described dishwashing machine may be the subject of a number of modifications without departing from the scope of the present invention.

Claims

1. Dishwashing machine comprising a washing vessel (1), a bottom portion (2) of which is firmly joined to

a sliding loading door (3), the latter being extractable from a retracted position, in which said door closes the washing vessel frontally, to a pulled-out position, in which said door is open and said bottom portion (2) of the washing vessel is correspondingly pulled out and disjoined from the remaining portion of the washing vessel (1), said washing vessel accommodating upper washload support means (4) and lower washload support means (6), as well as partition means (8) separating the washing vessel, which are provided underneath said upper washload support means (4) so as to collect the water dripping therefrom and convey it towards said bottom portion (2) of the washing vessel, **characterized in that**, when the door (3) slides into said extracted or pulled-out position, said partition means (8) are adapted to extend transversally in such a manner as to divide the interior of the machine into substantially separate compartments (9, 10), whereas, when the door (3) slides back into said retracted closing position, the partition means (8) are adapted to retract into a compacted condition of minimum encumbrance that enables said compartments (9, 10) in the washing vessel (1) to substantially communicate with each other.

2. Dishwashing machine according to claim 1, **characterized in that** said partition means (8) are connected on the one side to the washing vessel (1), in a position that is adjacent to a rear wall (13) thereof, and on the opposite side to a rear edge (14) of said bottom portion (2).
3. Dishwashing machine according to claim 2, **characterized in that** said partition means (8) are connected to the washing vessel (1) at a higher level than the level at which they are connected to said bottom portion (2) of the washing vessel, in such a manner as to form a drip collection wall that is inclined frontally downwards when the door (3) is opened.
4. Dishwashing machine according to claim 1, **characterized in that** said partition means comprise a plurality of sectors (11) interconnected with each other so as to form a composite structure (8) that is adapted to retract into a position adjacent to the rear wall (13) of the washing vessel through a combined telescopic sliding and rotational movement.

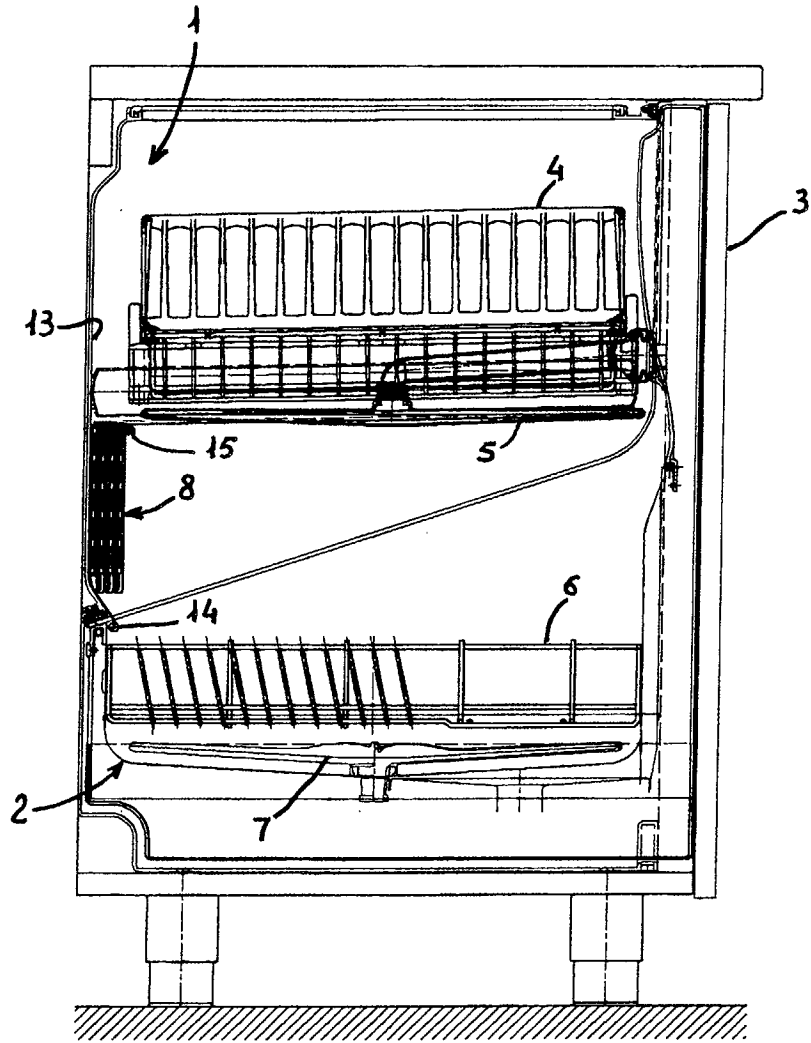


Fig. 1

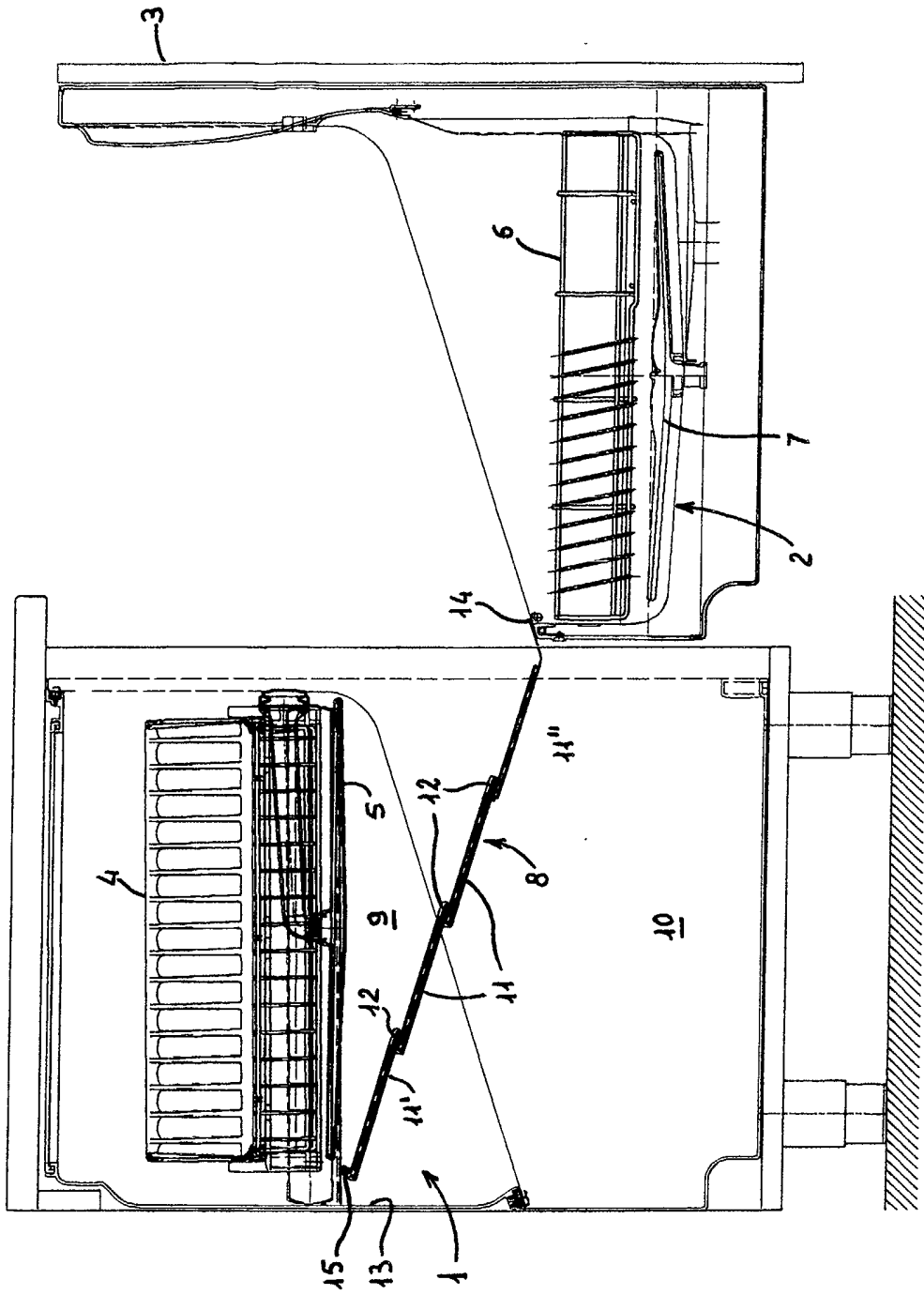


Fig. 2



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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) A47L
Place of search THE HAGUE		Date of completion of the search 20 December 2002	Examiner Norman, P
<p>CATEGORY OF CITED DOCUMENTS</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</p> <p>& : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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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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