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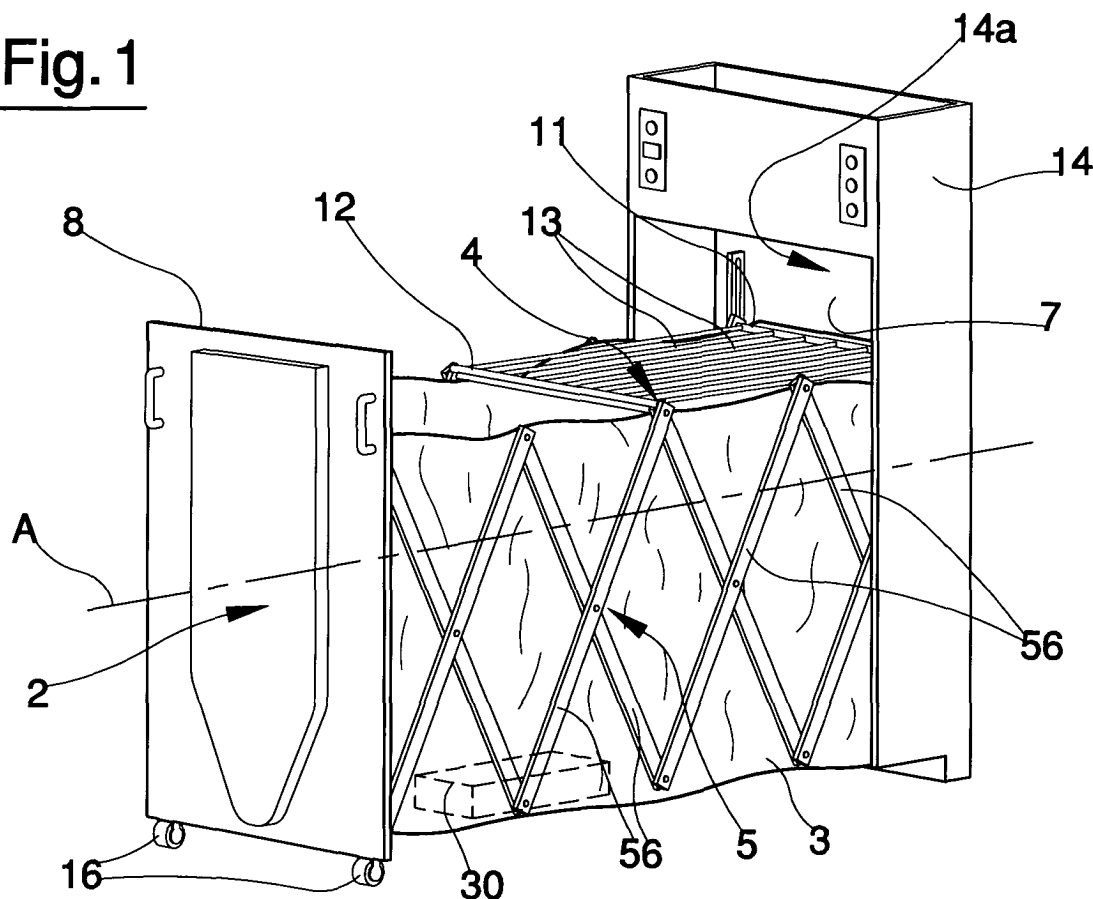
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(54) **A multifunction unit for washed laundry**

(57) The unit comprises a chamber (2) for containing washed laundry, the volume of which can be varied between maximum and minimum volume configurations. The chamber (2) is delimited by a covering (3), which has a reclosable opening and which is constrained to a

support frame. The support frame has a variable configuration, between an extended configuration, when the chamber (2) is at maximum volume, and a contracted configuration, at which the chamber (2) is at minimum volume. Means for dehumidifying (30) are housable in the chamber (2) and aid drying of the laundry.

Fig. 1



Description

[0001] The invention relates, in particular though not exclusively, to a multifunctional unit for domestic use.

[0002] Once laundry has been washed, there is the problem of drying and ironing it. Drying laundry is, especially in Winter when laundry cannot be dried outside, often problematic in that in order to hang up washing considerable spaces are necessary. Numerous types of clothes horses have been devised, which can be opened for use and then closed when not required. They must, however, be used in a domestic environment, and the washing dries slowly and also gives rise to considerable humidity in the home, which often creates problems.

[0003] The prior art also contains machines which dry laundry that is piled inside them. These machines are, however, expensive both to buy and in terms of energy consumption, and are noisy and not always easy to use.

[0004] Once dried the laundry then has to be ironed, which requires the use of an iron, ironing board or the like. These tools also have to be taken out from where they are kept, made ready for use and then replaced when not in use.

[0005] The main aim of the present invention is to obviate the above-described drawbacks by providing a unit for washed laundry which is economical and which enables a considerable amount of laundry to be dried rapidly and without loss of humidity into the surrounding domestic atmosphere.

[0006] An advantage of the invention is that it makes available an apparatus for performing the actions of drying and ironing which is easy to use and to store away.

[0007] A further advantage of the invention is to occupy a very small space when not in use.

[0008] These aims and advantages and others besides are all attained by the invention as it is characterised in the claims that follow.

[0009] Further characteristics and advantages of the present invention will better emerge from the detailed description that follows of a preferred but non-exclusive embodiment of the invention, illustrated purely by way of a nonlimiting example in the accompanying figures of the drawings, in which:

figure 1 is a schematic perspective view of the multifunctional unit of the present invention;

figures 2 and 3 are two perspective views of the unit of figure 1, with some parts removed better to evidence others.

[0010] With reference to the figures of the drawings, the multifunctional unit of the invention comprises a chamber 2, predisposed to contain washed laundry, which chamber 2 has a variable volume, varying between a maximum volume configuration and a minimum volume configuration.

[0011] The multifunctional unit also comprises means for dehumidifying 30, predisposed for dehumidifying the

air internally of the chamber 2, and means for heating, predisposed for heating the air internally of the chamber 2. The means for dehumidifying 30 are preferably arranged internally of the chamber 2 and are constituted, for example, by a usual dehumidifier provided with a tank for collection of the water separated from the air. Advantageously, a container can be arranged internally of the chamber 2, for collection of the water removed from the damp air. The means for heating are not shown in the figures as they can be comprised within the means for dehumidifying 30, should for example an air-conditioning plant be used. Alternatively, the means for heating are constituted by a device of usual type, for example a heating ventilator. The means for dehumidifying 30 can also be arranged externally of the chamber 2; in this case a ventilation conduit will be provided for entraining air from the chamber 2 to the means for dehumidifying 30, and there will also be at least a discharge conduit for returning the dehumidified air from the means for dehumidifying 30 to inside the chamber 2.

[0012] The chamber 2 is delimited by a closed covering 3 having a reclosable opening for introduction and extraction of washed laundry and the means for dehumidifying 30. The covering 3 is constrained to a support frame which exhibits a variable shape, going from an extended configuration, when the chamber 2 is at the maximum volume, and a contracted configuration, when the chamber 2 is at minimum volume.

[0013] In a preferred embodiment, the support frame of the covering 3 comprises a pantograph structure 4 predisposed for varying a length thereof in a longitudinal direction A between an extended configuration, when the chamber 2 is at the maximum volume, and a contracted configuration, when the chamber 2 is at minimum volume.

[0014] The pantograph structure 4 comprises two lateral walls 5, 6, parallel one to another, which lateral walls are in fact defined by a plurality of rods 56 hinged together to define a pantograph, which can be varied in extension along longitudinal direction A, preferably horizontal. The ends of the lateral walls 5, 6 are constrained to two end walls 7, 8 which also enable the pantograph structure 4 to rest on the ground. The ends of the covering 3 are also constrained to the end walls 7, 8.

[0015] As can be seen in the accompanying figures of the drawings, the covering 3 is preferably made of a flexible material and is basically a bag arranged and constrained internally of the pantograph structure 4; it is also provided with a top opening which affords access to the chamber 2. The covering 3 is provided with at least one flap, not constrained to the pantograph structure 4, by means of which the top opening is re-closable. The flap can be fixed, with a good seal, to the covering 3, by a Velcro fastening or a zip. Lateral portions of the covering 3 are constrained, by slots of known type and not illustrated in the figures, to the rods 56 defining the lateral walls of the pantograph structure 4. Portions of ends of the covering 3 are constrained, in a known way which is

not illustrated, to the end walls 7, 8 of the pantograph structure 4. The pantograph structure 4 constitutes a sort of external frame for the covering 3, which, due to the constraining thereof to the pantograph structure 4, assumes a folded-up shape. Being deformable, the covering 3 is able to adapt to the extension and contraction of the pantograph, thus defining time by time the exact dimensions of the chamber 2.

[0016] The multi-function unit further comprises means for supporting which the laundry can be attached to. The means for supporting are positioned internally of the chamber 2 and the conformation of the means for supporting can be adapted to the volume of the chamber 2.

[0017] The means for supporting for washed laundry are constituted by a flat frame 10 comprising two crossbars 11, 12 arranged in a horizontal position transversally to the longitudinal direction A of extension of the pantograph structure 4, and a plurality of bars 13, arranged parallel to the longitudinal direction A and constrained at ends thereof to the two crossbars 11, 12. One of the two crossbars 11 is rotatably constrained at an end of the lateral walls 5, 6 of the pantograph structure 4 so that the flat frame 10 is rotatable about the crossbar 11, reaching at least one use position, in which position the other crossbar 12 rests on a support 12a solidly constrained to the lateral walls 5, 6 of the pantograph structure 4 and the flat frame 10 reaches a more-or-less horizontal position, and a non-use position, in which the flat frame 10 is arranged about parallel to the end walls 7, 8 of the pantograph structure 4. In the non-use position the flat frame 10 does not interfere with the changes in extension of the pantograph structure 4, as it perfectly integrates with the contracted configuration of the pantograph structure 4. In the use position the flat frame 10 has the function of a clothes horse: in this position it can be closed within the covering 3, exposing the laundry in the most advantageous way to the action of the means for dehumidifying 30. The support 12a on which the flat frame 10 rests in the use position is preferably a bar arranged transversally between the lateral walls 5, 6 of the pantograph structure 4.

[0018] A first end wall 7 of the pantograph structure 4 is constituted by a vertical posterior wall of a box element 14 having a frontally-open chamber 14a, in which the pantograph structure 4 can be housed in the contracted configuration thereof. A second end wall 8 of the pantograph structure 4 is constituted by a vertical board which, in the contracted configuration of the pantograph structure 4, is arranged at the front opening of the chamber 14a of the box element 14, closing the chamber 14a.

[0019] The box element 14 can advantageously be configured as a small article of furniture and can be made to look a part of a room's decor. The chamber 14a has the function of containing the pantograph structure 4 in its contracted configuration, as can be seen in figure 2 which illustrates the arrangement of the flat frame 10 in the non-use position. A housing can advantageously be

afforded above the box element 14, not illustrated in the figures of the drawings, which can be open in an upwards direction. The housing can be used, for example, for containing an iron and/or other accessories. As can be seen in the accompanying figures, one or more electric sockets can be arranged on the front portion of the box element 14, as well as one or more switches for activating the sockets and/or the means for dehumidifying 30.

[0020] The vertical board constituting the second end wall 8 of the pantograph structure 4 is provided with an ironing board 15 hinged to the vertical board on the opposite side with respect to the pantograph structure 4. The ironing board can be positioned vertically, in contact with the vertical board, and can be position horizontally when in use. Known-type means are provided for blocking the ironing board in the horizontal position (not illustrated in the figures of the drawings). The vertical board is further provided with a pair of wheels for resting on the floor.

[0021] Advantageously the multi-function unit can be provided with an iron, not illustrated, which can be used with the ironing board 15 for ironing the laundry. The iron can be removably electrically connected to the box element 14, or can be unremovably connected thereto by a dedicated connection arranged among the sockets disposed frontally on the box element 14.

[0022] The multifunction unit of the invention offers important advantages. Firstly it is economical and enables a considerable quantity of laundry to be dried quickly and without releasing humidity into the home environment, where the multifunction unit of the invention will mostly be located. Thus the usual condensation problems, especially present in the cold seasons, are eliminated. The humidity collected from the air is deposited in a special tank contained in the means for dehumidifying, or in any case within the chamber, and therefore does not enter the atmosphere of the room the unit is located in. The multifunction unit provides an apparatus for performing the drying and ironing operations quickly and simply, and takes up a very limited spaces when not in use. The unit is used in combination with low-energy electrical units, leading to considerable energy savings.

Claims

1. A multifunction unit for washed laundry, **characterised in that** it comprises: a chamber (2) for containing washed laundry, which chamber (2) has a variable volume between a maximum volume configuration and a minimum volume configuration; means for dehumidifying (30) being predisposed for dehumidifying air internally of the chamber (2).
2. The multifunction unit of claim 1, **characterised in that** the chamber (2) is delimited by a covering (3) provided with a closable opening, the covering (3) being constrained to a support frame exhibiting a

variable shape, between an extended configuration, in which the chamber (2) assumes the maximum volume, and a contracted configuration, in which the chamber (2) assumes the minimum volume.

3. The multifunction unit of claim 2, **characterised in that** the support frame of the covering (3), which covering (3) is made of a flexible material, comprises a pantograph structure (4) which is predisposed to vary an extension thereof along a longitudinal direction (A) between an extended configuration, in which the chamber (2) assumes the maximum volume, and a contracted configuration, in which the chamber (2) assumes the minimum volume; the multifunction unit comprising means for support to which washed laundry can be attached, the means for support being positioned internally of the chamber (2) and being able to vary a conformation thereof in order to adapt to variations of the chamber (2) volume.
4. The multifunction unit of claim 3, **characterised in that** the pantograph structure (4) comprises: two lateral walls (5, 6) which are parallel one to another, each of which is defined by a plurality of rods (56), rods of which plurality of rods (56) are hinged one to another in such a way as to define a pantograph which is able to vary in extension along a horizontal longitudinal direction (A); two end walls (7, 8) being provided in order for the pantograph structure (4) to rest on a floor surface, to which two end walls (7, 8) ends of the lateral walls (5, 6) are constrained as well as ends of the covering (3).
5. The multifunction unit of claim 4, **characterised in that** the means for supporting for the washed laundry are constituted by a flat frame (10) composed of two crossbars (11, 12) arranged in a horizontal position transversally to the longitudinal direction (A) of extension of the pantograph structure (4), and a plurality of bars (13) arranged parallel to the longitudinal direction (A) and constrained at ends thereof to the two crossbars (11, 12), one of the two crossbars (11) being rotatably constrained to an end of the lateral walls (5, 6) of the pantograph structure (4) in such a way that the flat frame (10) is rotatable about the one of the two crossbars (11) in order to take up a use position, in which another of the two crossbars (12) rests on a support (12a) which is solidly constrained to the lateral walls (5, 6) of the pantograph structure (4) and the flat frame (10) assumes a horizontal position, and in order to take up a non-use position, in which the flat frame (10) is arranged parallel to the pantograph structure (4).
6. The multifunction unit of claim 4, **characterised in that:** a first end wall (7) of the pantograph structure (4) is constituted by a vertical posterior wall of a box element (14), the box element (14) being provided

with a small chamber (14a), which small chamber (14a) is frontally open and can house the pantograph structure (4) when the pantograph structure (4) is in the contracted configuration; a second end wall (8) of the pantograph structure (4) is constituted by a vertical board which, in the contracted configuration of the pantograph structure (4) is arranged at the frontal opening of the small chamber (14a) of the box element (14), and closes the small chamber (14a).

7. The multifunction unit of claim 6, **characterised in that** the vertical board constituting the second end wall (8) of the pantograph structure (4) is provided with an ironing board (15) hinged to the vertical board on an opposite side thereof from a side to which the pantograph structure is constrained; the ironing board (15) being able to assume a vertical position, in which the ironing board (15) is vertically-disposed in contact with the vertical board, and a horizontal position of use, the vertical board also being provided with a pair of wheels (16) for resting the vertical board on a floor.
8. The multifunction unit of claim 1, **characterised in that** it comprises means for heating, predisposed for heating air internally of the chamber (2).
9. The multifunction unit of claim 7, **characterised in that** it comprises an iron, usable for ironing the laundry, which laundry can be extended on the ironing board (15).
10. The multifunction unit of any one of the preceding claims, **characterised in that** it comprises a container for collecting water extracted from humid air inside the chamber (2).

Fig. 1

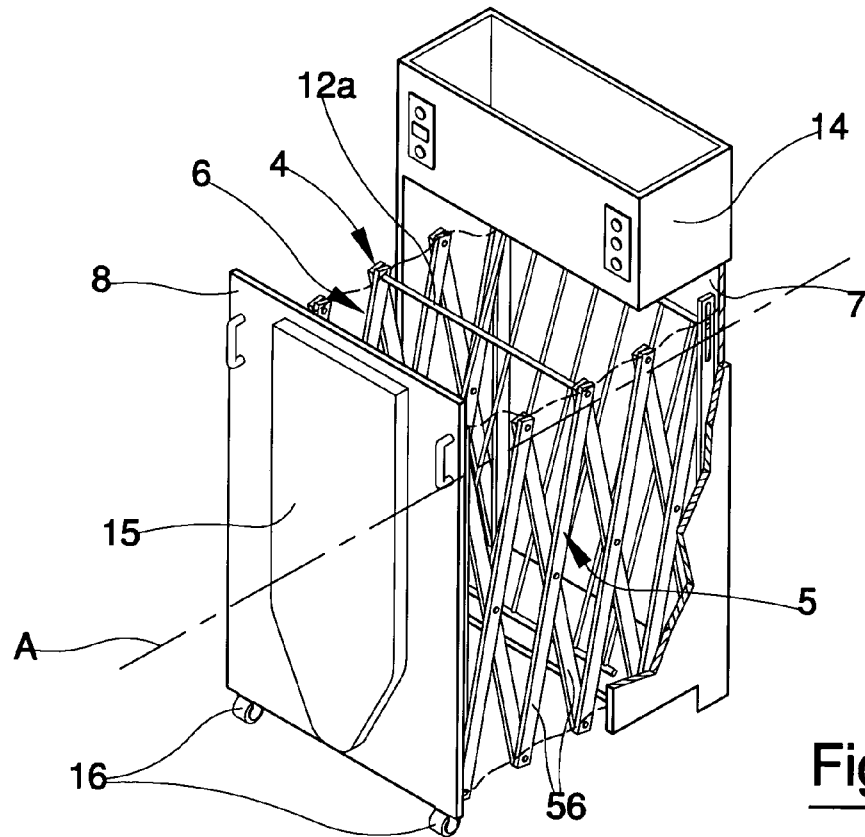
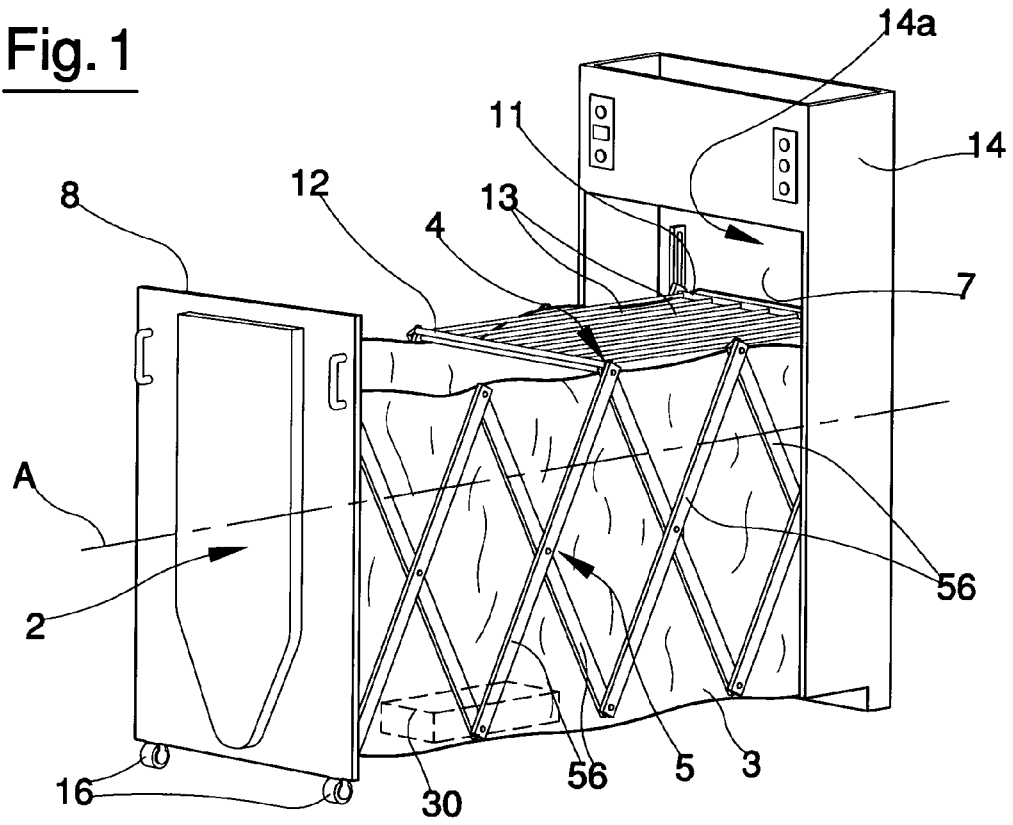
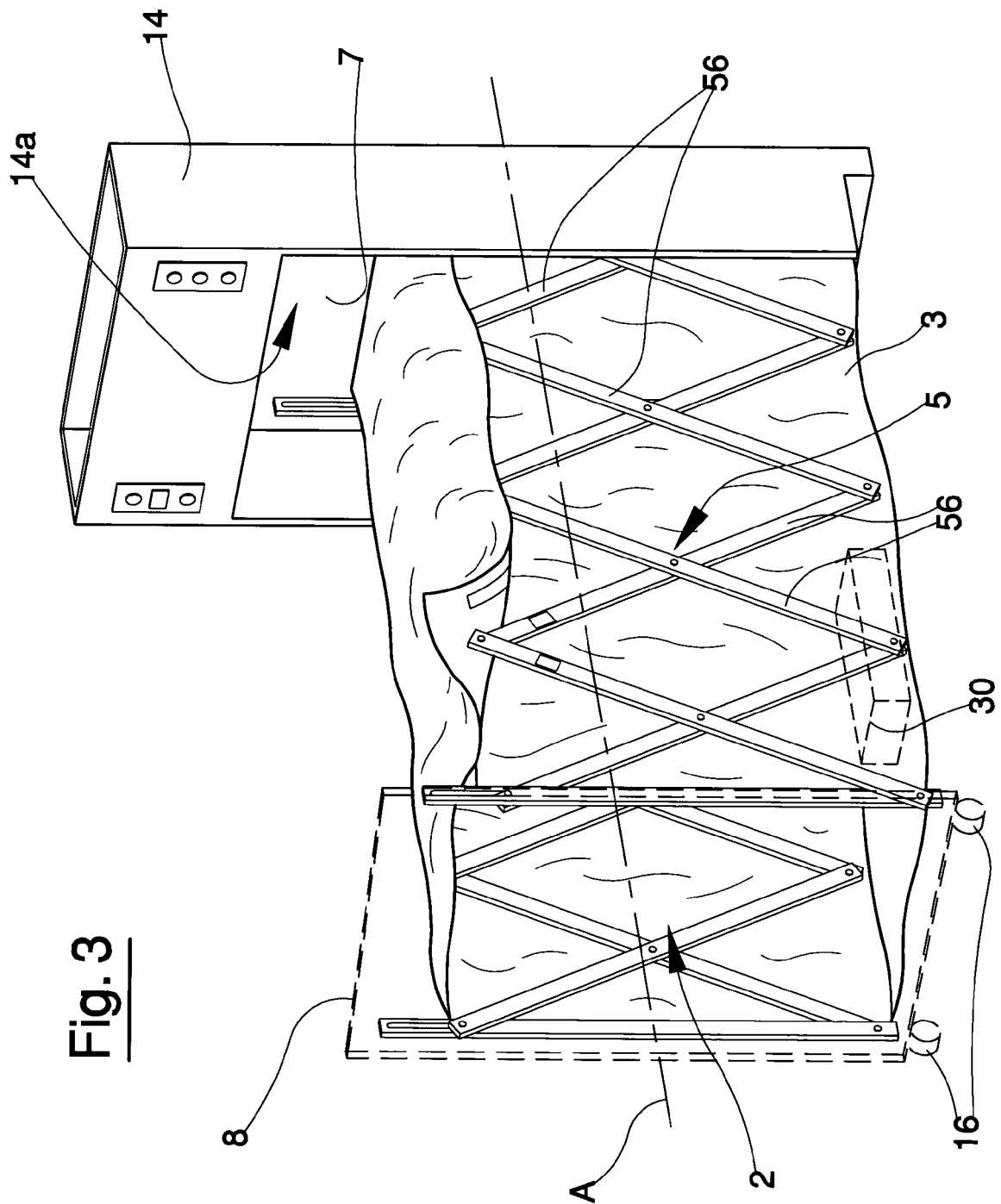


Fig. 2





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 42 5865

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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		11 May 2005	Norman, P
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 04 42 5865

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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