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(54) **Clothes airer of small bulk**

(57) A clothes airer comprising a foldable support structure (1), of the type presenting: two support elements (2, 3) connected together by first hinge means (4) enabling said elements (2, 3) to be disposed such as to form an inverted V when said clothes airer is in an operative position (O), and to be disposed substantially parallel and close together when the clothes airer is in a rest position (R), said clothes airer comprising two clothes holding elements (5, 6) each connected by second hinge means (17) to one of said support elements (2, 3) such that the plane (P1) in which said holding elements (5, 6) lies can be disposed in a predetermined position (M1) inclined to the plane (P2) in which the respective support element (2, 3) lies by a predetermined angle (A) when the clothes airer is in an operative position (O), said support elements (2, 3) and holding elements (5, 6) comprising respectively a locking member (7) and counter-member (8) shaped such that, when the clothes airer is in an operative position (O), said holding elements (5, 6) are able to maintain said predetermined inclined position (M1) and, when the clothes airer is in a rest position (R), said holding elements (5, 6) can be disposed substantially coplanar with the plane in which the respective support elements (2, 3) with which they are associated lie; said locking member (7) and counter-member (8) being shaped to enable said holding elements (5, 6) to assume a closed position (F2) in which the holding elements (5, 6) are substantially superposed in the manner of a sandwich on said support elements (2, 3).

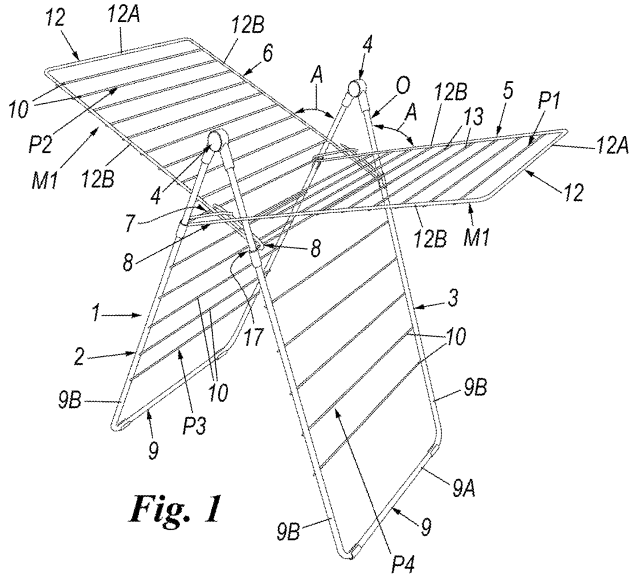

Fig. 1

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Description

[0001] The present invention relates to a clothes airer comprising a foldable support structure, in accordance with the pre-characterising part of the main claim.

[0002] A clothes airer of the aforedescribed type is known in which, when in its rest position, the flat clothes holding elements project upwards from the relative flat support elements to which said holding elements are hinged. Hence although known clothes airers have a small transverse dimension (equal substantially to the transverse dimension of the flat holding elements), they have a considerable vertical dimension given by the fact that when the clothes airer is in its rest position the holding elements project upwards from the upper edge of the relative support elements. This considerable vertical dimension negatively affects both the transport costs from the production site to the point of sale of these articles, and their storage costs. A further drawback is related to the fact that as the upper edge of the clothes airer when in its closed position is formed by the edges of the holding elements, i.e. grid elements made of a material with low compression strength, clothes airers cannot be stacked one on another otherwise they would incur the risk of damage.

[0003] The same problem, relative to the considerable vertical dimension of clothes airers of the aforedescribed type, is also perceived, but to a lesser extent, by users of these articles as present-day dwellings are always of smaller dimensions with the result that there is not always sufficient space to store them.

[0004] An object of the present invention is to provide a clothes airer of the aforestated type by which the said problems are eliminated, and in particular enables the vertical dimension to be reduced compared with known clothes airers of the same type, to hence reduce transport and storage costs and facilitate their use in dwellings with small-dimension storerooms.

[0005] These and other objects which will be apparent to an expert of the art are attained by a clothes airer in accordance with the characterising part of the accompanying claims.

[0006] The present invention will be more apparent from the accompanying drawings, which are provided by way of non-limiting example and in which:

Figure 1 is a schematic perspective view of a clothes airer in its operative position;
Figures 2A, B are perspective schematic view thereof in its two possible rest positions;
Figures 3A, B are a perspective schematic views of a detail in two different utilization steps;
Figure 4 is a side schematic view of a detail of Figure 2A.

[0007] With reference to said figures, these show a clothes airer comprising a foldable support structure 1, of the type presenting two support elements 2, 3 connected together by first hinge means 4 to enable said elements 2, 3 to be disposed such as to form an inverted V when said clothes airer is in an operative position O (Figure 1), and to be disposed substantially parallel and close to each other when in a rest position R (Figure 2A, B). The support structure 1 also comprises two clothes holding elements 5, 6 each connected by second hinge means 17 to one of said support elements so that the plane P1, P2 in which said holding elements 5, 6 lies can assume a predetermined position M1, inclined to the plane P3, P4 in which the respective support element 2, 3 lies, by a predetermined angle A between 10° and 170°, when the clothes airer is in an operative position O. The support elements 2, 3 and holding elements 5, 6 comprise respectively a locking member 7 and counter-member 8 which are shaped such that when the clothes airer is in an operative position O, said holding elements 5, 6 can maintain said predetermined inclined position M1, and when the clothes airer is in a rest position R said holding elements 5, 6 can be disposed substantially coplanar with the plane in which the respective support elements 2, 3 with which they are associated lie.

[0008] More specifically, the support elements 2 and 3 are of identical shape, are substantially flat and provide a support structure 9 of U-shape presenting a plurality of rods 10 uniformly spaced apart parallel to the horizontal arm 9A of said U-shaped structure, and secured to the vertical arms 9B. These rods 10 are advantageously secured to the inner surface S1 (Figure 3B) of the vertical arms 9B such that, as explained in detail hereinafter, when in one of its rest positions the holding element 5, 6 can be housed within the arms 9B as shown in Figures 2A and 4. The U-shaped structure 9 is made of a material (for example a painted and/or plastic coated tubular metal element, conventional to the expert of the art) having transverse dimensions much greater than the material (wire or painted and/or plastic coated metal) of the rods 10 (for example the ratio between the two can be 1 to 5). Consequently in the present context, the plane P4, P3 in which the support elements 2 and 3 lie means the plane in which the U-shaped structure 9 lies. The free ends of the vertical arms 9B of the U-shaped structure 9 engage in suitably shaped tubular seats of two parts 11A, B of a conventional disc hinge member 11, enabling said structures to be opened to form a predetermined angle B (Figure 3B) and bring the clothes airer into its operative position O, or be closed (Figure 2B) such that said angle B is substantially equal to 0° and the clothes airer lies in one of its possible two rest positions R1, R2 (Figure 2).

[0009] The holding elements 5, 6 are of identical shape, they are substantially flat and comprise a U-shaped structure 12 presenting a plurality of rods 13 uniformly spaced apart parallel to the horizontal arm 12A of said U-shaped and secured to the vertical arms 12B. These rods 13 are advantageously secured to the inner surface of the vertical arms 12B. The U-shaped structure 12 is made of a material (for example a painted and/or plastic coated tubular metal element, conventional to the

expert of the art) having transverse dimensions much greater than that the material (wire or painted and/or plastic coated metal) of the rods 13 (for example the ratio between the two can be 1 to 3). Consequently in the present context, the plane P1, P2 in which the holding elements 5, 6 lies means the plane in which the U-shaped structure 12 lies.

[0010] The U-shaped structure 12 of the holding elements 5 and 6 comprises, projecting perpendicularly from the vertical arms 12B, hinge pins 15 (Figure 3) arranged to engage in corresponding holes 16 provided in the vertical arms 9B of the U-shaped support structure 9 of the support elements 2 and 3, these hinge means 17 enabling the holding elements 5, 6 to rotate about the respective support element 2, 3 with which they are associated and be positioned relative to said support elements such as to form therewith an angle A (Figure 1) of predetermined value, for example 60°.

[0011] The free ends of the vertical arms 12B of the U-shaped structure are shaped to each form a U-shaped elongate flattened hook 20 able to engage a bar 21 removably secured to the vertical arms 9B of the support elements 2 and 3, said removable bar 21 and said hook 20 forming respectively the locking member 7 and counter-member 8 for said holding elements 5, 6, shaped to enable said holding elements 5, 6 to maintain their predetermined inclined position M1 (forming the angle A with the support elements 2, 3) when the clothes airer is in its operative position O and, when this latter is in its rest position R, to dispose said holding elements 5, 6 substantially coplanar with the plane in which the respective support elements 2, 3 with which they are associated lies.

[0012] The removable bar 21 is arranged to engage in through holes 22 (Figure 3B) provided, at the same height, in the vertical arms 9B of the U-shaped structure 9 of the support elements 2, 3, said holes being enclosed at the outer surface of the arms 9B by the semi-tubular cover elements 24 which adhere to a portion of the arms 9B and present a pin extending from their inner surface to engage in a corresponding hole 25 (Figure 3B) provided in said arms 9B.

[0013] The locking members and counter-members 7, 8 are shaped and positioned such that when the holding elements 5, 6 are opened to V-shape, the base of the hook 20 (Figures 3A and B) of the holding elements 5, 6 abuts against the removable bar 21, hence locking said holding elements in a predetermined angular position relative to said support elements, such as to form the desired angle A therewith. In contrast, on closing the clothes airer, i.e. by moving the holding elements 5, 6 towards each other, the parallel arms of the hook 20 of the holding elements 5, 6 slide along the removable bar 21 to cause said holding elements to rotate upwards, so as to move them into the position F1 of Figure 2B in which these elements are disposed to form an upward extension of the respective support elements 2, 3.

[0014] If instead, before closing the clothes airer, i.e. before moving the holding elements 5, 6 towards each other, the removable bar 21 is removed from said holding elements 5, 6 (by extracting their ends from the holes 22 in which the bars are engaged after previously removing the closure elements 24 from said holes) so that the holding elements 5, 6, no longer having the hook ends 20 engaged with said removable bars 21, can also rotate downwards, into a position F2, such as to be housed within the support structure 9 of the respective support element 2, 3. It should be noted that when in this latter position, the upper ends E1 (Figure 4) of the holding elements 5, 6, i.e. the bases of the hooks 20, lie below the end of the hinge means 17 (Figure 4), to hence make it possible to stack several clothes airers one on another, for example during their storage or transport from their place of production to the point of sale. The hinge means are in fact directly connected to the clothes airer support structure 9 for the support elements 2, 3, i.e. precisely to that part of said device most able to withstand vertical loads. It should also be noted that when the clothes airer is in this second closed position F2, it presents a vertical dimension considerably less than that of the other position F1, so reducing transport and storage costs and enabling the clothes airer to be kept in small-dimension spaces.

[0015] Finally it should be noted that the aforedescribed embodiment is provided by way of example only, and that numerous variants are possible, all falling within the same inventive concept. For example, the locking member and counter-member for the holding elements 5, 6 could be shaped differently from that described, but still conventional to the expert of the art, for example using removable snap-connection means or replacing the bars 21 by pins. In a simplified variant of the clothes airer, said locking member and counter-member could also be shaped such as to enable the holding elements to assume when in an open position the inclined position M1 shown in Figure 1, and when in a closed position only the position F2 but not the position F1 in addition, i.e. only a position in which the holding elements 5, 6 are disposed such as to present a height H1 from the floor (Figure 4) less than that H2 of said support elements 2, 3, or to lie substantially superposed and immediately adjacent to said support elements 2, 3.

Claims

1. A clothes airer comprising a foldable support structure (1), of the type presenting: two support elements (2, 3) connected together by first hinge means (4) enabling said elements (2, 3) to be disposed such as to form an inverted V when said clothes airer is in an operative position (O), and to be disposed substantially parallel and close together when the clothes airer is in a rest position (R), said clothes airer comprising two clothes holding elements (5, 6) each connected by second hinge means (17) to one of said support elements (2, 3) such that the plane

(P1) in which said holding elements (5, 6) lies can be disposed in a predetermined position (M1) inclined by a predetermined angle (A) to the plane (P2) in which the respective support element (2, 3) lies, when the clothes airer is in an operative position (O), said support elements (2, 3) and holding elements (5, 6) comprising respectively a locking member (7) and counter-member (8) shaped such that, when the clothes airer is in an operative position (O), said holding elements (5, 6) are able to maintain said predetermined inclined position (M1) and, when the clothes airer is in a rest position (R), said holding elements (5, 6) can be disposed substantially coplanar with the plane in which the respective support elements (2, 3) with which they are associated lie; **characterised in that**: said locking member (7) and counter-member (8) are shaped to enable said holding elements (5, 6) to assume a closed position (F2) in which the holding elements (5, 6) are substantially superposed in the manner of a sandwich on said support elements (2, 3).

2. A clothes airer as claimed in claim 1, **characterised in that** in the at least one closed position (F2) in which the holding elements (5, 6) are substantially superposed in the manner of a sandwich on said support elements (2, 3), said holding elements (5, 6) present a height (H1) from the floor less than the height (H2) of said support elements (2, 3).

3. A clothes airer as claimed in claim 1, **characterised in that** in the at least one closed position (F2) in which the holding elements (5, 6) are substantially superposed in the manner of a sandwich on said support elements (2, 3), said holding elements (5, 6) are housed substantially within a support structure (9) for the relative support element (2, 3).

4. A clothes airer as claimed in claim 1, **characterised in that** said locking member (7) and counter-member (8) are shaped to enable said holding elements (5, 6) to assume at least two different closed positions (F1, F2) angularly spaced apart by about 180° and substantially coplanar with the respective support elements, when the clothes airer is in a rest position (R); in a first of said two closed positions (F1) the holding elements (5, 6) being disposed to form an upward extension of the respective support elements (2, 3), in the other closed position (F2) the holding elements (5, 6) being disposed such as to be housed substantially inside the relative support element.

5. A clothes airer as claimed in claim 1, **characterised in that** the predetermined angle (A) formed by the holding elements and the relative support element (2, 3) lies between 10° and 170°, when the clothes airer is in an operative position (O).

6. A clothes airer as claimed in claim 1, **characterised in that** the support elements (2, 3) are of identical shape, are substantially flat and have a support structure (9) of U-shape presenting a plurality of rods (10) uniformly spaced apart parallel to the horizontal arm (9A) of said U-shaped structure, and secured to the vertical arms (9B), said rods (10) being secured to the inner surface (S1) of the vertical arms (9B) such that when in at least one of its rest positions the holding element (5, 6) can be housed within said structure (9).

7. A clothes airer as claimed in claim 1, **characterised in that** the holding elements (5, 6) are of identical shape, are substantially flat and have a support structure (12) presenting free ends shaped as a U-shaped elongate flattened hook (20) able to engage a bar (21) removably secured to the support elements (2, 3), said removable bar (21) and said hook (20) forming respectively the locking member (7) and counter-member (8) for said holding elements (5, 6).

8. A clothes airer as claimed in claim 7, **characterised in that** the removable bar (21) is arranged to engage in through holes (22) provided, at the same height, in vertical arms (9B) of a structure (9) of the support elements (2, 3).

9. A clothes airer as claimed in claim 7, **characterised in that** the locking members and counter-members (7, 8) are shaped and positioned such that when the holding elements (5, 6) are open as an inverted V, the base of the hook (20) of the holding elements (5, 6) abuts against the removable bar (21), hence locking said holding elements in a predetermined angular position (A) relative to said support elements, such as to form a desired angle (A) therewith; while on closing the clothes airer, i.e. by moving the holding elements (5, 6) towards each other, the parallel arms of the hook (20) of the holding elements (5, 6) slide along the removable bar (21) to cause said holding elements to rotate upwards, so as to move them into a position (F1) in which these elements are disposed to form an upward extension of the respective support elements (2, 3).

10. A clothes airer as claimed in claim 7, **characterised in that** before closing the clothes airer, i.e. before moving the holding elements (5, 6) towards each other, the removable bar (21) is removed from said holding elements (5, 6) so that the holding elements (5, 6), no longer having the hook ends (20) engaged with said removable bars (21), can also rotate downwards, into a position (F2), such as to lie superposed in sandwich manner on said support elements (2, 3).

11. A clothes airer as claimed in claim 1, **characterised in that** when in the at least one closed position (F2),

the upper end (E1) of the holding elements (5, 6) lie below the end of the hinge means (17).

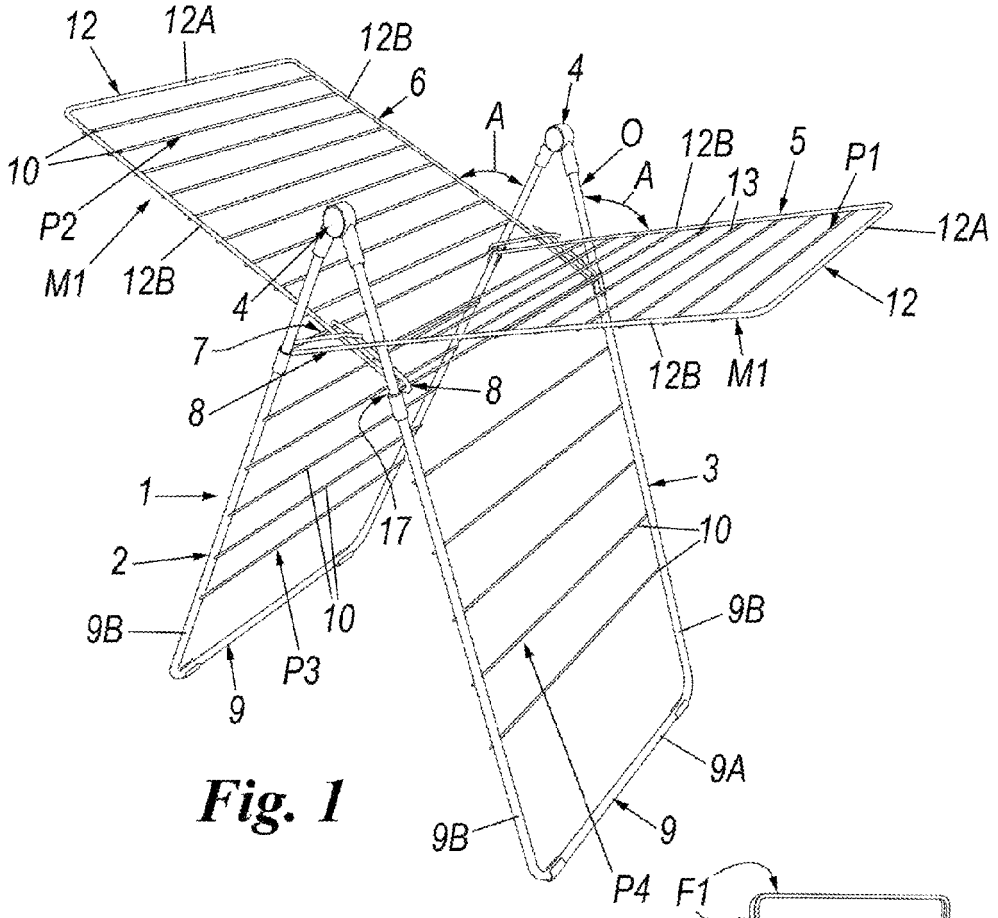

Fig. 1

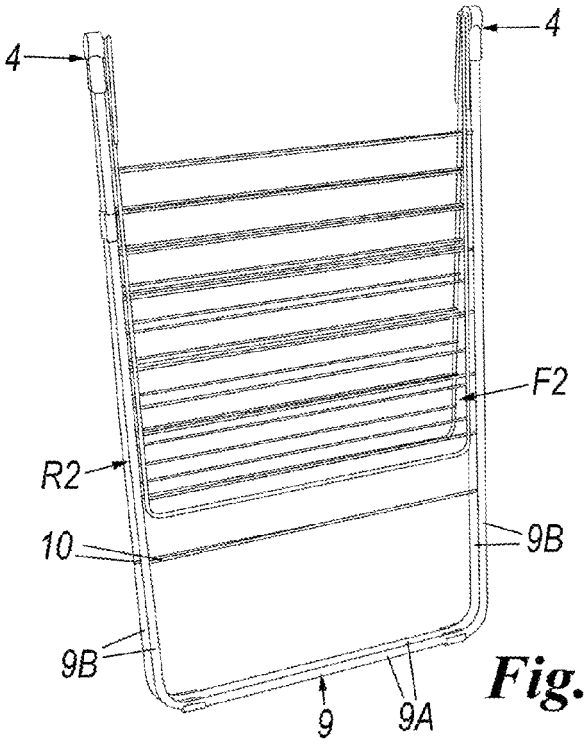

Fig. 2A

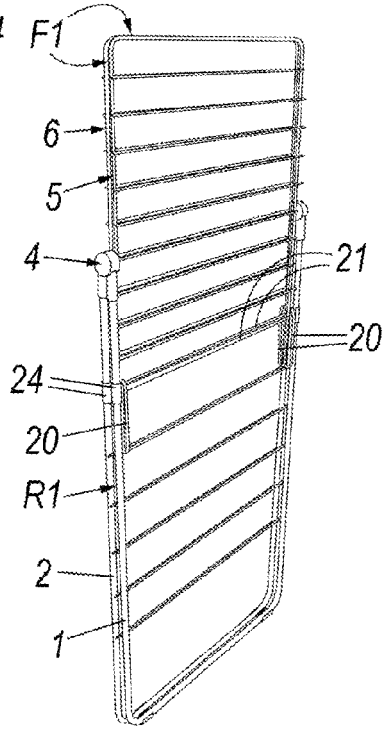

Fig. 2B

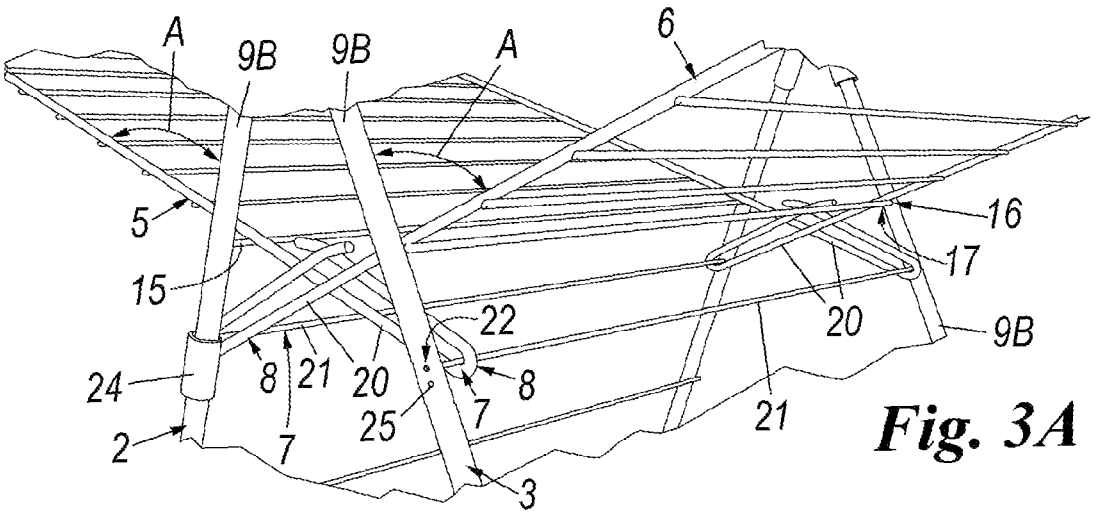

Fig. 3A

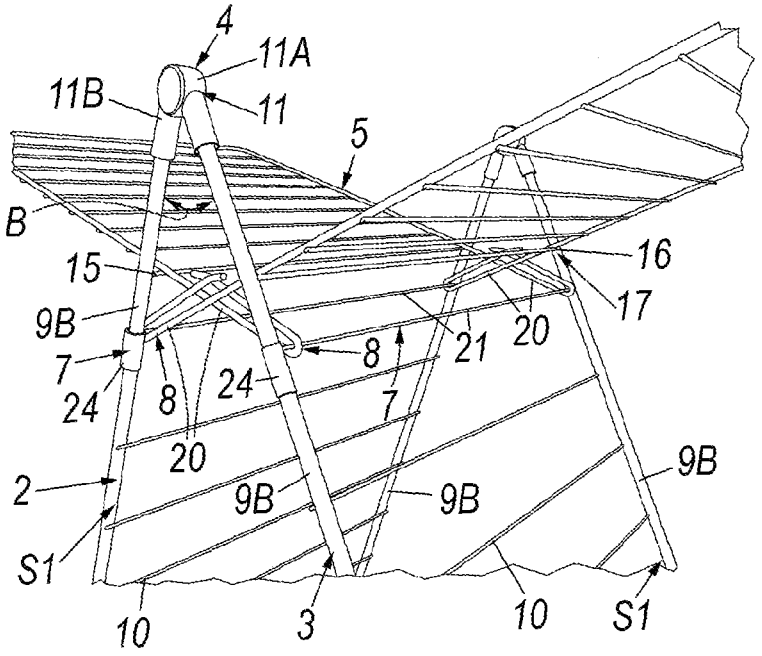

Fig. 3B

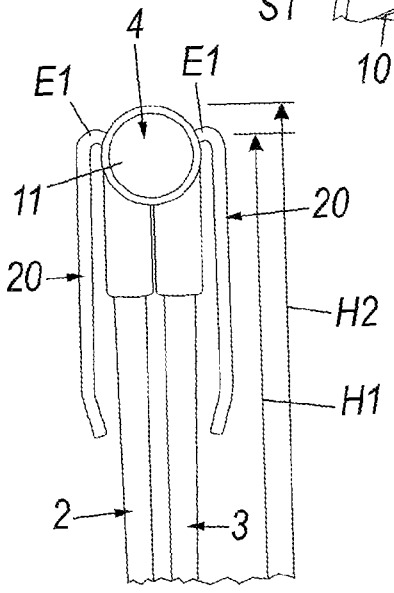

Fig. 4