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(54) **Laundry airer of reduced space requirement in its closed position**

Wäscheständer mit reduziertem Platzbedarf in seiner geschlossenen Position

Séchoir à linge à encombrement réduit en position fermée

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FR-A- 2 763 967 GB-A- 1 516 963

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Description

[0001] The present invention relates to a clothes airer in accordance with the precharacterising part of the main claim.

[0002] This type of clothes airer has to be transported, stored and sold partly assembled, i.e. with at least the shelves associated with the relative uprights mounted but with the clothes airer closed (as shown in Figures 8 and 9), because only in this manner can the purchaser view the characteristics and potentiality of the product.

[0003] These special conditions under which the clothes airer has to be presented for sale make it essential to solve those problems related to limiting the volume of the clothes airer when in its closed but partly assembled state. In this respect it is apparent to the expert of the art that a reduction of even a few centimetres or millimetres in the overall dimensions of this type of clothes airer when in its closed but partly mounted state is reflected in a considerable saving in storage and transport costs.

[0004] Further problems of known clothes airers are related to the fact that when undergoing transport to the point of sale, the shelves tend to unhook from the relative supports, and also to the need to use wheels of different type for the clothes airer support structures, and to the uncoupling of the shelves from the relative central coupling supports when the clothes airer is in its position of use.

[0005] A clothes airer according to the preamble of claim 1 is known for example from FR 2 198 020 A.

[0006] An object of the present invention is to overcome the aforesaid drawbacks and in particular to reduce to an absolute minimum the overall dimensions of the clothes airer when in its closed but partly mounted state, in order to reduce storage, distribution and transport costs.

[0007] These and further 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.

[0008] 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 perspective schematic view thereof in its open or operating position,

Figures 2-7 are perspective schematic views of different components thereof,

Figure 8 is a front view thereof in its closed position with the clothes airer partly assembled ready for transport, storage or distribution.

Figure 9 is a view of Figure 8 seen from above.

[0009] With reference to said figures, a clothes airer according to the invention comprises two tubular structures 1, 2 of substantially rectangular shape and, for hinging said two structures together, means 3, 4 provided at

the centre of the lower arms (5A, B) and upper arms (6A, B) of said structures, said structures and said means being shaped in such a manner as to enable one structure (1) to be housed completely within the other structure (2) when in their rest position (Figures 8, 9) such that the overall thickness (S') (Figure 9) of the clothes airer when in its closed position corresponds substantially to the thickness (S) (Figure 9) of only one of said structures. The structures 1, 2 are each formed from two pieces of C-shape, each comprising an upright 1A, 2A and two arms 1B, 2B substantially perpendicular to said upright. The hinge means 3, 4 comprise tubular elements 8, 9, 10 (Figures 6, 7) shaped to achieve a form fit with the ends of said arms and having a cross-section S' (Figure 9) substantially equal to or slightly greater than the cross-section S (Figure 9) of said arms. The hinge means 3, 4 comprise a total of only three components: a first tubular element 10 to be connected at its two ends to the end portions of the arms 1B of the inner C-shaped structures 1 and comprising centrally a first hinging member 11, second tubular elements 8 and third tubular elements 9, each to be connected at one of its ends to an end portion of an arm 2B of the outer C-shaped structures 2 and presenting at its other end a second hinging member 12 and a hinging counter-member 13 respectively. These counter-members 13 and members 11 and 12 are respectively a pin 13A, a through hole 12A and a seat 11A in which the end of said pin 13A is locked by snap-insertion. Preferably the components 8, 9, 10 of the hinge means 3, 4 are of tubular shape identical to that of the tubular structures 1 B, 2B and are entirely made of plastic material. It should be noted that in the illustrated embodiment the hinge means 3, 4 present tubular elements 8, 9, 10 in which to insert the ends of the arms 1B, 2B. In a variant, not shown but falling within the same inventive concept, the ends of the tubular elements 8, 9, 10 could be inserted into the tubular end portions of the arms 1B, 2B.

[0010] In a further variant, the uprights and arms of the C-shaped structures could be separate from each other and be connected together by connection elements of substantially triangular shape made of plastic material.

[0011] Means 14 for hinge-coupling shelves 25 on which to extend the clothes are removably connected to the uprights 1A, 2A, for example by snap connection by means of a pin which engages in a hole provided in the uprights. These coupling means 14 comprise a closed ring 15 on which to hook a hook-shaped part 16 of said shelves, this ring 15 being shaped and dimensioned such that the hook 16 cannot be unhooked when the clothes airer is closed (Figures 8, 9) and handled, i.e. when the shelves 25 are in a vertical position. For this purpose the hooks preferably comprise a substantially rectilinear bent portion 17 of length L1 greater than the opening L2 in the ring 15 of the coupling means 14 so that when in the vertical position, if the shelf is urged upwards the curved part of the hook strikes against an upper portion 15A of the ring and the rectilinear portion 17 of the hook is re-

tained by a lower portion 15B of the ring. The ring 15 is preferably of upwardly elongate rectangular shape.

[0012] Lowerly, the clothes airer comprises removable feet 18 connected to the lower corners of the C-shaped structures 1 and 2 and presenting seats 19A, 19B for a pin 20A of a caster wheel 20; the seats 19B of the two feet mounted on those two C-shaped structures 1 which when the clothes airer is closed remain inside the other two C-shaped structures 2 are advantageously longer than the two seats 19A mounted on said other two C-shaped structures 2, to enable wheels having pins of equal length to be used for both feet.

[0013] These wheels advantageously have a thickness P (Figure 2) which is less than or equal to the thickness (R) of the tubular structures 1 and 2.

[0014] The clothes airer comprises means 21 removably connected to the uprights 1A and 2A, for example by snap-connection by means of a pin engaging in holes provided in the uprights, for supporting a preferably arched central portion 25A of the shelves 25 on which the clothes are extended when the clothes airer is in its operative position. These support means 21 comprise a hook-shaped portion 22 having a lower part 22A acting as a support for a corresponding central portion 25A of the shelf and, overlying said lower part, an upper part 22B dimensioned to overlie said portion 25A, in order to prevent accidental unhooking of the shelf when this is subjected to accidental forces urging it upwards, but to allow the shelf to be unhooked from said support means.

[0015] Figures 8 and 9 show a clothes airer in its closed position ready for handling; as can be seen the shelves 25 are associated with the respective coupling means 14 whereas the other components 18, 21, 20 are housed in the top of the clothes airer and retained by plastic sheets, not shown. As can be seen from Figure 9, the volume of the clothes airer under these conditions is extremely small, the thickness S' of the clothes airer being substantially equal to the thickness S of the tubular structures 1 and 2. This is also aided by the fact that the wheels 20 have a thickness P substantially equal to the thickness R (Figure 2) of the tubes of the structures 1 and 2.

Claims

1. A clothes airer of reduced volume when in its closed position, comprising two tubular structures (1, 2) of substantially rectangular shape and means (3, 4) provided at the centre of the upper arms (5A, B) and lower arms (6A, B) of said structures, for hinging said two structures together, said structures and said means being shaped in such a manner as to enable one structure (1) to be housed completely within the other structure (2) when in their rest position such that the overall thickness (S') of the clothes airer when in its closed position corresponds substantially to the thickness (S) of only one of said structures, **characterised in that** said structures (1, 2) are each

formed from two pieces of C-shape, each comprising an upright (1A, 2A) and two arms (1B, 2B) substantially perpendicular to said upright, said hinge means (3, 4) comprising tubular elements (8, 9, 10) shaped to achieve a form fit with the ends of said arms and having a cross-section S' substantially equal to or slightly greater than the cross-section S of said arms.

2. A clothes airer as claimed in claim 1, **characterised in that** the hinge means (3, 4) comprise a total of only three components: a first tubular element (10) to be connected at its two ends to the end portions of the arms (1B) of the inner C-shaped structures (1) and comprising centrally a first hinging member (11), second tubular elements (8) and third tubular elements (9), each to be connected at one of its ends to an end portion of an arm (2B) of the outer C-shaped structures (2) and presenting at its other end a second hinging member (12) and a hinging counter-member (13) respectively.

3. A clothes airer as claimed in claim 2, **characterised in that** the hinging counter-members (13) and members (11, 12) are respectively a pin (13A), a through hole (12A) and a seat (11A) in which the end of said pin is locked by snap-insertion.

4. A clothes airer as claimed in claim 1, **characterised in that** the components (8, 9, 10) of the hinge means (3, 4) are of tubular shape identical to that of the tubular structures (1, 2).

5. A clothes airer as claimed in claim 1, **characterised in that** the hinge means (3, 4) are made entirely of plastic material.

6. A clothes airer as claimed in claim 1, **characterised in that** the uprights and arms of the C-shaped structures are connected together by connection elements of substantially triangular shape made of plastic material.

7. A clothes airer as claimed in claim 1, comprising means (14) able to be removably connected to the uprights (1A, 2A) for hinge-coupling shelves (25) on which to extend the clothes, **characterised in that** the coupling means (14) comprise a closed ring (15) on which to hook a hook-shaped part (16) of said shelves (25), said ring (15) being shaped and dimensioned such that said hook (16) cannot be unhooked when the clothes airer is closed and handled, i.e. when the shelves are in a vertical position.

8. A clothes airer as claimed in claim 7, **characterised in that** the hooks (16) comprise a substantially rectilinear bent portion (17) of length (L1) greater than the opening (L2) in the ring (15) of the coupling means (14), so that when in the vertical position, if

the shelf (25) is urged upwards the curved part of the hook strikes against an upper portion (15A) of the ring and the rectilinear portion (17) of the hook is retained by a lower portion (15B) of the ring.

9. A clothes airer as claimed in claim 7, **characterised in that** the ring (15) is of upwardly elongate rectangular shape.
10. A clothes airer as claimed in claim 1, **characterised by** lowerly comprising removable feet (18) connected to the lower corners of the C-shaped structures (1, 2) and presenting seats (19A, 19B) for a pin (20A) of a caster wheel (20), the seats (19B) of the two feet mounted on those two C-shaped structures (1) which when the clothes airer is closed remain inside the other two C-shaped structures (2) being longer than the two seats (19A) mounted on said other two C-shaped structures (2), to enable wheels having pins of equal length to be used for both feet.
11. A clothes airer as claimed in claim 1, comprising means (21) to be removably connected to the uprights (1A, 2A) to support a central portion (25A) of the shelves (25) on which the clothes are extended when the clothes airer is in its operative position, **characterised in that** the support means (21) comprise a hook-shaped portion (22) having a lower part (22A) acting as a support for a corresponding central portion (25A) of the shelf and, overlying said lower part, an upper part (22B) dimensioned to overlie said portion (25A), in order to prevent accidental unhooking of the shelf when this is subjected to accidental forces urging it upwards, but to allow the shelf to be unhooked from said support means.
12. A clothes airer as claimed in claim 1, comprising wheels (20) having a thickness (P) substantially equal to the thickness (R) of the tubes of the support structures (1 and 2).

Patentansprüche

1. Wäscheständer mit reduziertem Platzbedarf in seiner geschlossenen Stellung, umfassend zwei rohrförmige Gebilde (1, 2) von im Wesentlichen rechteckiger Form sowie Mittel (3, 4), die in der Mitte der oberen Querstreben (5A, B) und unteren Querstreben (6A, B) der genannten Gebilde vorgesehen sind, um zwei solcher Gebilde gelenkig miteinander zu verbinden, wobei die genannten Gebilde und die genannten Mittel so ausgebildet sind, dass es möglich ist, dass ein Gebilde (1) vollständig innerhalb des anderen Gebildes (2) aufgenommen wird, wenn diese sich in ihrer Ruhestellung befinden, und zwar solcherart, dass die Gesamtdicke (S') des Wäscheständers in seiner geschlossenen Stellung im Wesentli-

chen der Dicke (S) lediglich eines der genannten Gebilde entspricht,

dadurch gekennzeichnet,

dass die genannten Gebilde (1, 2) jeweils aus zwei C-förmigen Teilen gebildet sind, welche jeweils einen Ständer (1A, 2A) und zwei im Wesentlichen senkrecht zum Ständer verlaufende Querstreben (1B, 2B) umfassen, wobei die Gelenkmittel (3, 4) rohrförmige Elemente (8, 9, 10) umfassen, die so ausgebildet sind, dass sie einen Formschluss mit den Enden der Querstreben erhalten, und die einen Querschnitt (S') aufweisen, der im Wesentlichen gleich oder leicht größer als der Querschnitt (S) der Querstreben ist.

2. Wäscheständer nach Anspruch 1,

dadurch gekennzeichnet,

dass die Gelenkmittel (3, 4) aus lediglich drei Teilen bestehen: aus einem ersten rohrförmigen Element (10), das an seinen beiden Enden an den Endabschnitten der Querstreben (1 B) der inneren C-förmigen Gebilde (1) befestigt wird und mittig ein erstes Gelenkteil (11) umfasst, aus zweiten rohrförmigen Elementen (8) sowie aus dritten rohrförmigen Elementen (9), die jeweils an einem ihrer Enden an einem Endabschnitt einer Querstrebe (2B) der äußeren C-förmigen Gebilde (2) angebracht sind und an ihren anderen Enden ein zweites Gelenkteil (12) bzw. ein Gelenk-Gegenstück (13) aufweisen.

3. Wäscheständer nach Anspruch 2,

dadurch gekennzeichnet,

dass die Gelenk-Gegenstücke (13) und die Teile (11, 12) ein Bolzen (13A), eine Durchgangsbohrung (12A) bzw. ein Sitz (11A) sind, in welchem das Ende des Bolzens einschnappend gesichert ist.

4. Wäscheständer nach Anspruch 1,

dadurch gekennzeichnet,

dass die Teile (8, 9, 10) der Gelenkmittel (3, 4) von gleicher rohrförmiger Form sind wie die rohrförmigen Gebilde (1, 2).

5. Wäscheständer nach Anspruch 1,

dadurch gekennzeichnet,

dass die Gelenkmittel (3, 4) vollständig aus Kunststoffmaterial hergestellt sind.

6. Wäscheständer nach Anspruch 1,

dadurch gekennzeichnet,

dass die Ständer und die Querstreben der C-förmigen Gebilde mittels Verbindungselementen von im Wesentlichen dreieckiger Form, die aus Kunststoffmaterial hergestellt sind, miteinander verbunden sind.

7. Wäscheständer nach Anspruch 1,

umfassend lösbar an den Ständern (1A, 2A) befe-

stigbare Mittel (14) zum gelenkigen Anbringen von Ablageplatten (25), auf welchen die Kleider ausgebreitet werden,

dadurch gekennzeichnet,

dass die Anbringmittel (14) einen geschlossenen Ring (15) umfassen, in welchem ein hakenförmiger Teil (16) der Ablageplatten (25) eingehängt werden kann, wobei der Ring (15) so geformt und dimensioniert ist, dass der Haken (16) nicht ausgehängt werden kann, wenn der Wäscheständer geschlossen ist und gehandhabt wird, d.h. wenn die Ablageplatten sich in einer vertikalen Stellung befinden.

8. Wäscheständer nach Anspruch 7,

dadurch gekennzeichnet,

dass die Haken (16) einen im Wesentlichen geradlinig abgewinkelten Abschnitt (17) einer Länge (L1) umfassen, die größer ist als die Öffnung (L2) des Rings (15) der Anbringmittel (14), so dass der gebogene Teil des Hakens, wenn die Ablageplatte (25) in der vertikalen Stellung nach oben gedrückt wird, gegen einen oberen Abschnitt (15A) des Rings aufläuft und der geradlinige Abschnitt (17) des Hakens von einem unteren Abschnitt (15B) des Rings zurückgehalten wird.

9. Wäscheständer nach Anspruch 7,

dadurch gekennzeichnet,

dass der Ring (15) eine aufwärts langgezogene rechteckige Form aufweist.

10. Wäscheständer nach Anspruch 1,

dadurch gekennzeichnet,

dass er unten entfernbare Füße (18) aufweist, die an den unteren Ecken der C-förmigen Gebilde (1, 2) befestigt sind und Sitze (19A, 19B) für einen Bolzen (20A) einer Laufrolle (20) aufweisen, wobei die Sitze (19B) der beiden Füße, die an denjenigen C-förmigen Gebilden (1) angebracht sind, die innerhalb der anderen beiden C-förmigen Gebilde (2) verbleiben, wenn der Wäscheständer geschlossen ist, länger sind als die beiden Sitze (19A), die an den genannten anderen beiden C-förmigen Gebilden (2) befestigt sind, so dass Laufrollen mit Bolzen gleicher Länge für beide Füße verwendet werden können.

11. Wäscheständer nach Anspruch 1, umfassend lösbar an den Ständern (1A, 2A) befestigbare Mittel (21) zum Halten eines mittigen Abschnitts (25A) der Ablageplatten (25), auf welchen die Kleider ausgebreitet werden, wenn der Wäscheständer sich in seiner Arbeitsstellung befindet,

dadurch gekennzeichnet,

dass die Haltemittel (21) einen hakenförmigen Abschnitt (22) umfassen, der einen als Halterung für einen entsprechenden mittigen Abschnitt (25A) der Ablageplatte fungierenden unteren Teil (22A) sowie einen über dem unteren Teil liegenden oberen Teil

(22B) aufweist, der den Teil (25A) derart überlagert, dass er ein unbeabsichtigtes Aushängen der Ablageplatte verhindert, wenn die Ablageplatte unbeabsichtigten Kräften ausgesetzt ist, die sie nach oben drücken, während er jedoch ermöglicht, dass die Ablageplatte aus den Haltemitteln ausgehakt werden kann.

12. Wäscheständer nach Anspruch 1,

umfassend Rollen (20) mit einer Dicke (P), die im Wesentlichen gleich der Dicke (R) der Rohre der Haltegebilde (1 und 2) ist.

15 **Revendications**

1. Séchoir à linge ayant un volume réduit lorsqu'il est dans sa position fermée, comportant deux structures tubulaires (1, 2) de forme sensiblement rectangulaire et des moyens (3, 4) agencés au centre des bras supérieurs (5A, B) et des bras inférieurs (6A, B) desdites structures pour faire pivoter lesdites deux structures ensemble, lesdites structures et lesdits moyens étant formés de manière à permettre à une première structure (1) d'être reçue entièrement à l'intérieur de l'autre structure (2) lorsqu'elles sont dans leur position de repos de telle sorte que l'épaisseur totale (S') du séchoir à linge lorsqu'il est dans sa position fermée correspond sensiblement à l'épaisseur (S) d'une seule desdites structures, **caractérisé en ce que** lesdites structures (1, 2) sont chacune formées à partir de deux pièces en forme de C, chacun comportant un montant (1A, 2A) et deux bras (1B, 2B) sensiblement perpendiculaires audit montant, lesdits moyens d'articulation (3, 4) comportant des éléments tubulaires (8, 9, 10) formés pour obtenir un ajustement de forme avec les extrémités desdits bras et ayant une section transversale S' sensiblement égale ou légèrement supérieure à la section transversale S desdits bras.

2. Séchoir à linge selon la revendication 1, **caractérisé en ce que** les moyens d'articulation (3, 4) comportent un total de seulement trois composants : un premier élément tubulaire (10) à raccorder au niveau de ses deux extrémités aux parties d'extrémité des bras (1B) des structures intérieures en forme de C (1) et comportant centralement un premier élément d'articulation (11), des deuxièmes éléments tubulaires (8) et des troisièmes éléments tubulaires (9), à raccorder chacun au niveau d'une de leurs extrémités à une partie d'extrémité d'un bras (2B) des structures extérieures en forme de C (2) et présentant à leur autre extrémité un second élément d'articulation (12) et un élément complémentaire d'articulation (13) respectivement.

3. Séchoir à linge selon la revendication 2, **caractérisé**

- en ce que** les éléments complémentaires (13) et les éléments d'articulation (11, 12) sont respectivement un axe (13A), un trou traversant (12A) et une embase (11A) dans laquelle l'extrémité dudit axe est bloquée par encliquetage. 5
4. Séchoir à linge selon la revendication 1, **caractérisé en ce que** les composants (8, 9, 10) des moyens d'articulation (3, 4) ont une forme tubulaire identique à celle des structures tubulaires (1, 2). 10
5. Séchoir à linge selon la revendication 1, **caractérisé en ce que** les moyens d'articulation (3, 4) sont entièrement constitués de matière plastique. 15
6. Séchoir à linge selon la revendication 1, **caractérisé en ce que** les montants et les bras des structures en forme de C sont réunis ensemble par des éléments de liaison ayant une forme sensiblement triangulaire, constitués de matière plastique. 20
7. Séchoir à linge selon la revendication 1, comportant des moyens (14) pouvant être raccordés de manière amovible aux montants (1A, 2A) pour coupler de manière articulée des grilles (25) sur lesquelles sera étendu le linge, **caractérisé en ce que** les moyens de couplage (14) comportent un anneau fermé (15) sur lequel est accrochée une partie en forme de crochet (16) desdites grilles (25), ledit anneau (15) étant formé et dimensionné de telle sorte que ledit crochet (16) ne peut pas être décroché lorsque le séchoir à linge est fermé et manipulé, c'est-à-dire lorsque les grilles sont dans une position verticale. 25 30
8. Séchoir à linge selon la revendication 7, **caractérisé en ce que** les crochets (16) comportent une partie pliée sensiblement rectiligne (17) ayant une longueur (L1) plus grande que l'ouverture (L2) dans l'anneau (15) des moyens de couplage (14), de telle sorte que lorsqu'elle est dans la position verticale, si la grille (25) est poussée vers le haut, la partie courbe du crochet frappe contre une partie supérieure (15A) de l'anneau et la partie rectiligne (17) du crochet est retenue par une partie inférieure (15B) de l'anneau. 35 40 45
9. Séchoir à linge selon la revendication 7, **caractérisé en ce que** l'anneau (15) a une forme rectangulaire allongée vers le haut. 50
10. Séchoir à linge selon la revendication 1, **caractérisé en ce qu'il** comporte dans sa partie inférieure des pieds amovibles (18) reliés aux coins inférieurs des structures en forme de C (1, 2) et présentant des embases (19A, 19B) pour un axe (20A) d'une roulette (20), les embases (19B) des deux pieds montés sur ces structures en forme de C (1) qui, lorsque le séchoir à linge est fermé, restent à l'intérieur des 55
- deux autres structures en forme de C (2) étant plus longues que les deux embases (19A) montées sur lesdites deux autres structures en forme de C (2), pour permettre d'utiliser des roulettes ayant des axes de longueur égale pour les deux pieds.
11. Séchoir à linge selon la revendication 1, comportant des moyens (21) pour être raccordé de manière amovible aux montants (1A, 2A) pour supporter une partie centrale (25A) des grilles (25) sur lesquelles le linge est étendu lorsque le séchoir à linge est dans sa position fonctionnelle, **caractérisé en ce que** les moyens de support (21) comportent une partie en forme de crochet (22) ayant un tronçon inférieur (22A) agissant comme un support pour une partie centrale correspondante (25A) de la grille et, sus-jacent à ladite partie inférieure, un tronçon supérieur (22B) dimensionné pour être au-dessus de ladite partie (25A), afin d'empêcher un décrochage accidentel de la grille lorsqu'elle est soumise à des forces accidentelles la poussant vers le haut, mais pour permettre à la grille d'être décrochée desdits moyens de support.
12. Séchoir à linge selon la revendication 1, comportant des roulettes (20) ayant une épaisseur (P) sensiblement égale à l'épaisseur (R) des tubes des structures de support (1 et 2).

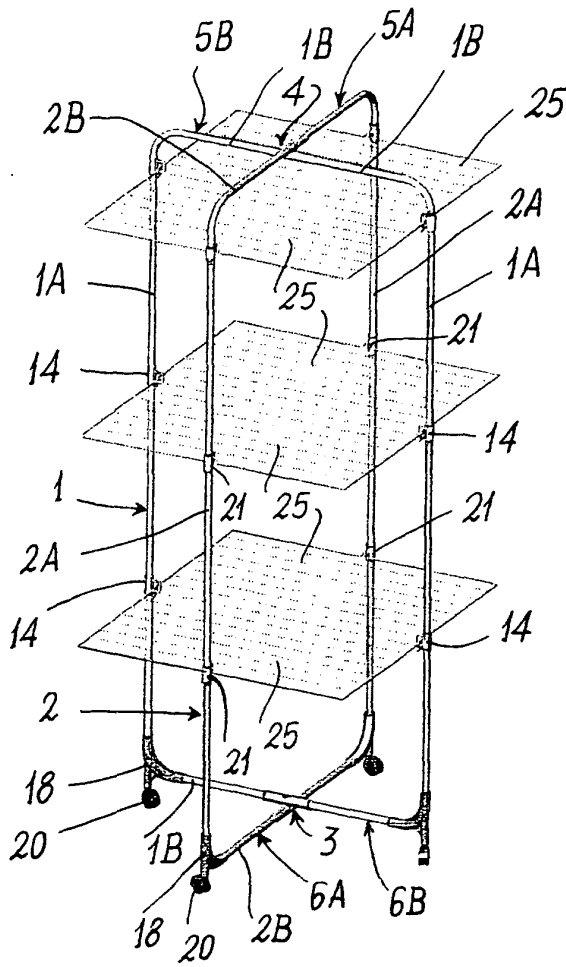


FIG. 1

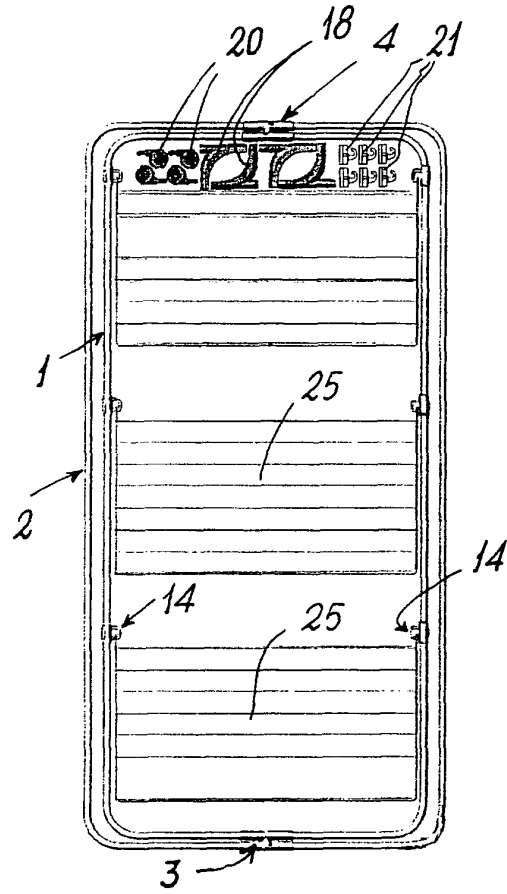


FIG. 8

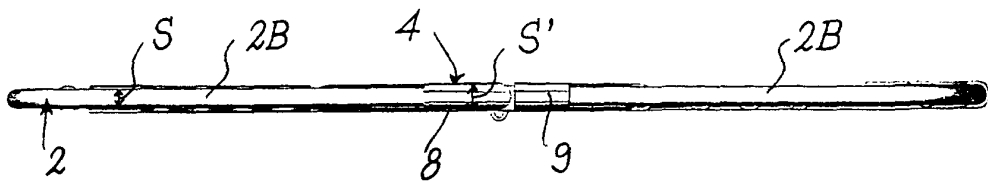


FIG. 9

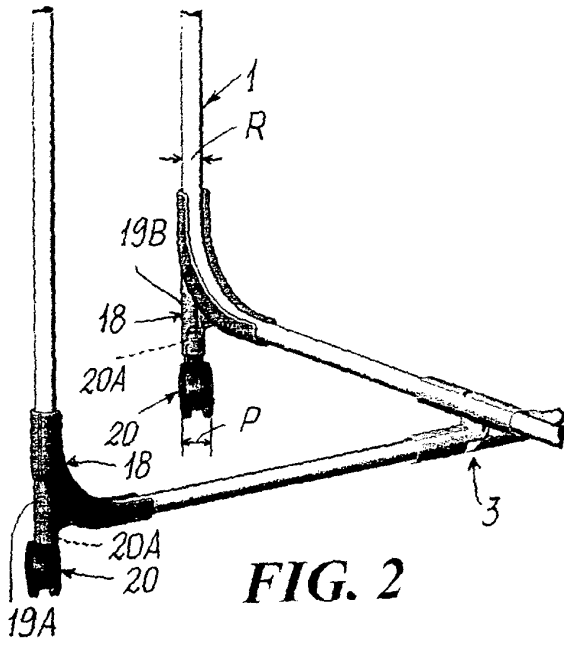


FIG. 2

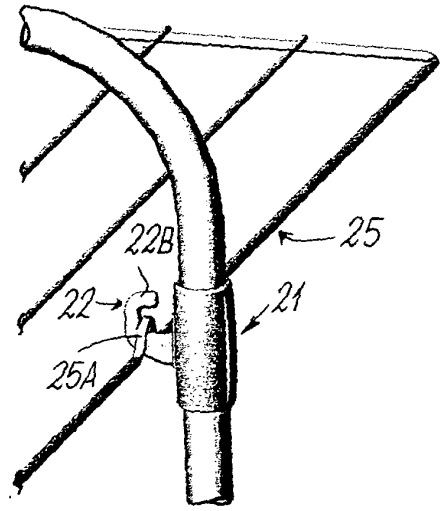


FIG. 3

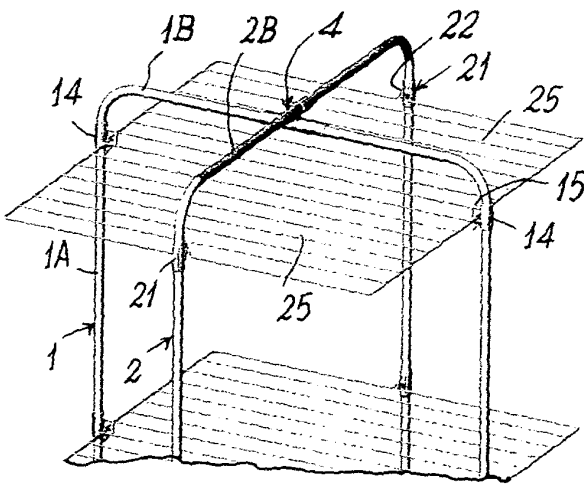


FIG. 4

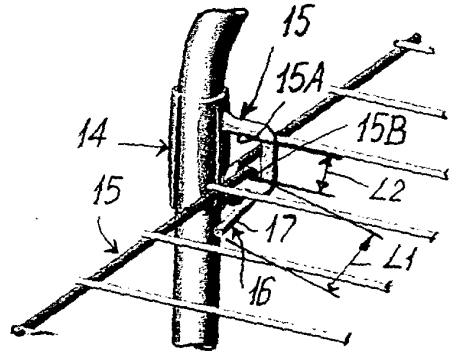


FIG. 5

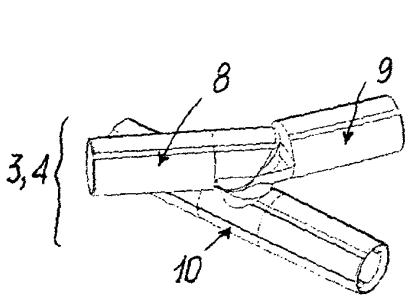


FIG. 7

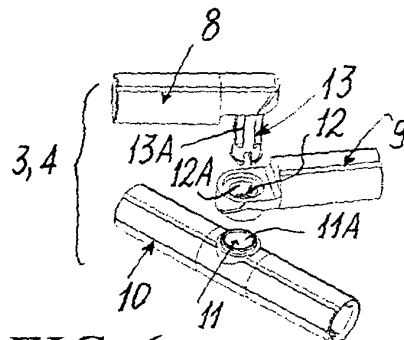


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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