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(54) **A collapsible airer for clothes**

Zusammenklappbare Wäschespinnre für Kleidungsstücke

Étendoir repliable pour vêtements

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(73) Proprietor: **Better Home Products (Zhejiang) Co.,
Ltd.**
Deqing Zhejiang (CN)

(72) Inventor: **Chungen, Mao**
Zhejiang Zhejiang (CN)

(74) Representative: **Wynne-Jones IP Limited**
2nd Floor, 5210 Valiant Court
Gloucester Business Park
Gloucester
Gloucestershire GL3 4FE (GB)

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Description

[0001] This invention relates to a collapsible airer, in particular a tower airer for use in domestic premises for the airing and drying of clothes.

[0002] Airers are of particular use when the weather does not permit the items to be dried outside on a washing line, for example due to rain or another undesirable weather condition. In use, airers are bulky items which take up a significant amount of space, therefore it is desirable to reduce the volume of the airer when the airer is to be stored away, particularly where storage space is limited. There are many different forms of airer which enable the configuration of the airer between a collapsible configuration for storage and an operational configuration for use. In the operational configuration the airer is usually self-supporting or free-standing and able to host items to be aired. It is known for a lazy tongs or concertina airer arrangement to take up a considerable amount of floor space in the operational configuration. To overcome this problem, tower airers are commonly used to dry items, for example clothing in confined spaces, for example a flat. Such airers have a series of racks positioned one on top of the other in a spaced arrangement. The series of racks are secured between two sides of a first substantially rectangular frame which is pivotally connected to a second rectangular frame. It is standard for the first and second frame to be pivotable between the storable configuration whereby the frames are aligned and the operational configuration, whereby the first and second frame are arranged at an angle to each other. The desired angle in operation is usually 90 degrees.

[0003] Whilst the airer is extendable from the collapsible to the operational configuration (and vice versa), when in the operational configuration the drying space is fixed. This can lead to overloading of the airer for high volume loads thereby prolonging the drying time of the items placed thereon and causing the items to possess a musty smell. To overcome this problem, racks have been provided that are horizontally extendable. However, this is undesirable for use in flats or confined drying spaces where the horizontal extension of the airer can become an obstruction.

[0004] Alternatively the capacity of the airer may be increased by forming a taller tower airer of a fixed height. This then requires an increased number of racks to be provided. However, the fixed height of the airer is detrimental to the ability to stow away the airer, since the height of the airer may exceed the height available in a cupboard or other storage space. Also, tall tower airers may be difficult to handle and may be considered unstable and unnecessary for smaller loads, whereby the airer is underutilised.

[0005] Placing airers in front of radiators in a home may speed up the drying process, but the room does not benefit from the heat from the radiator since the clothes act as an insulator.

[0006] To overcome this problem, self-heating airers are now on the market, whereby some have a similar structure and design to the standard tower airers and offer the same storage concerns as described above.

[0007] Embodiments of the present invention are derived from the realisation that there exists the need to provide a reliable and alternative means of increasing the drying capacity of the airer when in the operational configuration whilst also making it more compact for storage. There is also the need for an airer that is versatile and applicable for use in a variety of spaces and to accommodate a variety of airing or drying loads.

[0008] Examples of prior art include Korean patent application KR101347625 "Distortion Preventing Construction for Drying Stand"; European patent application EP1783265 "Collapsible Airer"; and Chinese patent application CN202375800 "Embedded Clothes Hanger".

[0009] Therefore, the present invention as specified in claim 1 and its embodiments according to claims to 18 are intended to address at least some of the above described problems and desires.

[0010] According to the invention there is provided a collapsible airer comprising a first rack assembly selectively moveable between a collapsed configuration and an operational configuration in which is provided at least one rack for receiving items to be aired, the airer further including a second rack assembly on which is provided at least one rack for receiving items to be aired, wherein the first and second rack assemblies comprise co-operable attachment members for adjustably connecting the second rack assembly to the first rack assembly, the attachment member being configured to enable the at least one rack of the second rack assembly to be positioned vertically above the at least one rack of the first rack assembly in use. The second rack assembly is moveable between a collapsed configuration and an operational configuration. This ensures that when the first and second rack assemblies remain connected, the entire airer may be collapsed prior to storing the airer away in a cupboard or other storage area, the airer is also extendable when the first and second rack assemblies are arranged in the operational configuration, where the extension occurs along an effective dimension of the airer. The effective dimension may be the height of the airer. This ensures that when the first and second rack assemblies remain connected, that the airer may be retracted to have a minimal height associated therewith, which aids the storability of the airer.

[0011] This enables the first and second rack member to either be completely separated, such that the first rack member can be collapsed and conveniently stowed away. Alternatively, the first and second rack assemblies remain connected, however the height of the airer can be adjusted from a maximal height to a minimal height prior to stowage so as to reduce the height of the airer for stowage.

[0012] When the first and second rack assemblies are in the operational configuration the first rack assembly

and the second rack assembly may be slidable with respect to each other so as to provide the variation in height of the airer. This property is of particular importance where the airer is a tower airer, which is known to extend a significant distance upwards from its base.

[0013] The respective attachment members of the first and second rack assemblies may be telescopically connected. This enables the attachment members of the first rack member to slide internally of the corresponding attachment members of the second rack member, or vice versa.

[0014] The airer may be electrically heated. This ensures that the items placed on the racks are dried quicker so as to prevent the musty smell sometimes associated with badly dried clothes.

[0015] The attachment members of the first and second rack assembly may comprise means for releasably locking the first rack assembly to the second rack assembly when they are in the operational or collapsed configuration. This ensures that in use the second rack assembly is prevented from moving with respect to the first rack assembly along the longitudinal axis of the airer and ensures that the airer is able to support the items placed thereon without causing relative movement between the first and second rack assemblies.

[0016] The locking means may comprise a first part having a hub with a rack assembly receiving protrusion extending therefrom, the hub further having a lever portion extending therefrom, and a second part comprising a counteracting portion co-operable with the first part, the lever portion configured to cause movement of the rack assembly receiving protrusion on application of a force thereto.

[0017] In use, application of a force on the lever may cause the frame assembly receiving portion to be rotatable about a pivot point located in the hub. This transforms the locking member between the locked and unlocked state and vice versa.

[0018] The rack assembly receiving protrusion, therefore, may be moveable between a first position in which a surface of the rack assembly receiving protrusion makes contact with a surface of an attachment member of the second rack assembly so as to provide a locked state and a second position where the same surface of the rack assembly receiving protrusion is directed substantially away from the surface of the attachment member of the second rack assembly so as to provide an unlocked state.

[0019] In the locked state at least part of the attachment member of the second rack assembly is sandwiched between the rack assembly receiving protrusion and at least part of the counteracting portion. This ensures that the attachment member of the second rack assembly is gripped tightly by the locking means whereby frictional forces prevent relative movement between the first rack assembly and the second rack assembly.

[0020] The counteracting portion may comprise a section of a tube having a "C-shaped" cross section and may

be arranged to extend along and make contact with at least a portion of the outer surface of the respective attachment members of the first and second rack assemblies. A channel is maintained between two ends of the counteracting portion for ensuring contact of the rack assembly receiving projection with the surface of at least one of the attachment members of the second rack assembly.

[0021] An internal edge of the counteracting portion may extend inwardly of the end of the at least one attachment member of the first rack assembly to form an overlapping ledge portion.

[0022] The lower end of the at least one attachment member of the second rack assembly may be terminated by an end cap.

[0023] Part of the end cap may be insertable within at least one attachment member of the second rack assembly and the other part of the end cap may extend from the end of the at least one attachment member of the second rack assembly to form an end cap protruding portion. The end cap protruding portion may have a radius larger than the radius of the at least one attachment member of the second rack assembly. This ensures that the second rack assembly remains connected to the first rack assembly even in the maximally extended state of the airer.

[0024] Therefore, in the maximally extended arrangement between the first and second rack assembly, the end cap protruding portion may make contact with the overlapping ledge of the counteracting portion thereby prohibiting removal of the second rack assembly from the first rack assembly.

[0025] The lever portion may be terminated by a hook. The outer edge of the hook may include a gripping member. Both the hook and the gripping member improve the ergonomics of the lever for a user who must provide a rotational force thereto to select the locked or unlocked state of the locking means. For example, the gripping member may be ribs that improve the user's grip on the lever and the user may hook their finger in the hook. Ultimately, the leverage supplied by the lever improves ease of use of the locking means.

[0026] At least part of the lever between the hook and the rack assembly receiving protrusion may be curved to follow the surface of at least part of the outer edge of the counteracting portion in the locked state. This relative moldability between the lever and the counteracting portion improves the locking effect of the locking means.

[0027] The attachment members may be poles.

[0028] There is additionally described a locking means for an airer of the invention, comprising a first part having a rotatable hub with a rack assembly receiving protrusion extending therefrom, the hub further having a lever portion extending therefrom, the hub being rotatable about a pivot portion located in the hub, the first part for use with a second part comprising an elongate counteracting portion having a "C-shaped" cross section, the first and second part for securing an item there-between in a

locked state.

[0029] Whilst the invention has been disclosed above it extends to any inventive combination of the features set out above, or in the following description, drawings or claims. The invention will now be described, by way of example only, with reference to the accompanying drawings in which:-

Figure 1 is a perspective view of the airer of the invention in a first extended state;

Figure 2 is a perspective view of the airer of the invention in a second retracted state;

Figure 3 is a front view of the airer of the invention in a storable configuration;

Figure 4 is a top view of a locking member in an locked state;

Figure 5 is a top view of a locking member in an unlocked state;

Figure 6 is a sectional view of an attachment region of the first and second rack assembly in a maximally extended state; and

Figure 7 is a sectional view of an attachment region of the first and second rack assembly in a retracted state.

[0030] Referring firstly to Figure 1, there is shown a collapsible airer 1 comprising a first rack assembly 2a selectively moveable between a collapsed configuration and an operational configuration. The first rack assembly 2a has at least one rack 3a for receiving items to be aired. A second rack assembly 2b is also included on which is provided at least one rack 3b for receiving items to be aired. The first and second rack assemblies 2a, 2b comprise co-operable attachment members for adjustably connecting the second rack assembly 2b to the first rack assembly 2a. The attachment member is configured to enable the at least one rack 3b of the second rack assembly 2b to be positioned vertically above the at least one rack 3a of the first rack assembly 2a, in use. The second rack assembly 2b is also moveable between a collapsed configuration and an operational configuration. In the operational configuration the airer 1 is free-standing and in the collapsed configuration the first and second rack assemblies 2a, 2b are aligned so as to reduce the space taken up by the airer 1 prior to it being stored away. When the first and second rack assemblies 2a, 2b are in the operational configuration, the airer 1 is extendable along an effective dimension of the airer e.g. the height of the airer is adjustable between an extended state and a retracted state. Figure 1 shows the airer 1 in an extended state allowing for items to be dried or aired to be placed thereon in a way that such items can be adequately spaced apart so as to permit the flow of air between the items. This is especially required for long items of clothing, for example trousers. Figure 2 shows the same airer 1 in a retracted state.

[0031] The airers 1 of Figure 1 and 2 both show a first rack assembly 2a having a first and second parts 5a, 5b

which are rotatable about a common pivot point 6 which joins the first and second parts 5a, 5b of the first rack assembly 2a together. The first part 5a has a substantially horizontal portion 7a terminated at each end by upwardly extending arms 8a, 8b and the second part 5b also has a substantially horizontal portion 7b terminated at each end by upwardly extending arms 8c, 8d. The pivot point 6a is located at the mid-point of respective substantially horizontal portions 7a, 7b of the first and second parts 5a, 5b. The first and second parts 5a, 5b are rotatable between the collapsed configuration, where the first and second parts 5a, 5b are generally parallel and an operational configuration when the first and second parts 5a, 5b are at an angle with respect to each other. An angle of 90° is desirable to provide a stable stand-alone airer 1. At least one rack 3a is disposed between the two arms of either of the first or second part 5a, 5b. The at least one rack 3a is moveably attached to the first or second part 5a, 5b of the first rack assembly 2a by a bracket arrangement 9 such that the at least one rack 3a can be configured between a stored state in which the plane of the rack 3a lies generally parallel to the arms 8a, 8b, 8c, 8d of the first or second part 5a, 5b and an operable state wherein the planar surface of the rack 3a is configured to be substantially perpendicular to the longitudinal axis of the upwardly and downwardly extending arms 8a, 8b, 8c, 8d of the first and second rack assemblies 2a, 2b respectively, and vice versa. The first rack assembly 2a is shown to have a first and a second rack 3a, 3c whereby the second rack 3c is spaced apart from the first rack 3a in a vertical direction. The relative vertical distributions of the racks 3a, 3c are fixed. The base 10a of the first rack assembly 2a is terminated by four rollers 11, or wheels, one at each corner of the first and second part 5a, 5b of the first rack assembly 2a.

[0032] Similarly to the first rack assembly 2a, the second rack assembly 2b has a first part 5c and a second part 5d which are also rotatably connected at a pivot point 6b. The first part 5c has a substantially horizontal portion 7c with a first and second downwardly extending arm 8e, 8f. The second part 5d has a substantially horizontal portion 7c having a first and second downwardly extending arm 8e, 8f. The top 13 of one part of the second rack assembly 2b comprises a corrugated topper 14 that is capable of receiving coat hangers for holding clothes to be aired or dried. This feature is only for use when the distance between the top 13 of the second rack assembly 2b is enough for the item to be dried to be hung unobstructed by the upper rack 3a of the first rack assembly 2a.

[0033] In the retracted state of the airer 1 the downwardly extending arms 8e, 8f of the second rack assembly 2b are received within the respective upwardly extending arms 8a, 8b of the first rack assembly 2a. This causes the vertical distance between the upper rack 3a of the first rack assembly 2a and the rack 3c of the second rack assembly 2b to be reduced compared to the corresponding distance in the extended state. Therefore, only the upper portion 15 of the downwardly extending arms

8e, 8f of the second rack assembly 2b can be seen in Figure 2. The airer 1 can be moved between the extended configuration to the retracted configuration by sliding the second rack assembly 2b with respect to the first rack assembly 2a. This is of particular importance for a tower airer 1 that by design is a tall structure which can be difficult to store away from sight in, for example, its maximally extended state. Figures 1 and 2 show that the first rack assembly 2a and the second rack assembly 2b are telescopically connected via respective attachment members 16. The attachment members 16 can be considered to be the relevant ends of the upwardly extending and downwardly extending arms 8a, 8b, 8c, 8d, 8e, 8f of the first and second rack assemblies 2a, 2b respectively.

[0034] In summary, the first rack assembly 2a may be adjusted between an extended position and a retracted position with respect to the second rack assembly 2b when the first and second rack assemblies 2a, 2b are in their operational configuration.

[0035] The airer can be electrically heated, whereby electricity is fed into the airer via a connector (not shown) located at the base of the first rack assembly and a heating element (not shown) if disposed within the interior of the airer.

[0036] Figure 3 shows the retracted and collapsed configuration of the airer 1 whereby the airer 1 is ready to be stored away. The first and second rack assemblies 2a, 2b remain connected, but the surface area of the airer 1 as a whole is minimised for storage purposes.

[0037] The attachment members 16 of the first rack assembly 2a and second rack assembly 2b comprise means for releasably locking the first rack assembly 2a to the second rack assembly 2b when they are in the operational or collapsed configuration. Although it is preferable to effect the unlocking when the airer 1 is in the operational configuration.

[0038] The locking means 17 comprises a first part 18a and a second part 18b co-operable with the first part 18a. The first part 18a has a hub 19 with a rack assembly receiving protrusion 20 extending therefrom and the hub 19 further has a lever portion 21 extending therefrom. The second part 18b comprises a counteracting portion 22 having an elongate portion having a "C-shaped" cross section and arranged to extend along and make contact with at least a portion of the outer surface of the respective attachment members 16 of the first and second rack assemblies 2a, 2b i.e. respective upwardly and downwardly extending arms. At least part of an internal edge 22a of the counteracting portion 22 extends inwardly of the end of the at least one attachment member 16a of the first rack assembly 2a to form an overlapping ledge portion 23.

[0039] The lever portion 21 is configured to cause movement of the rack assembly receiving protrusion 20 on application of a force thereto. In use, application of a force on the lever 21 causes the rack assembly receiving portion 20 to be rotatable about a pivot point 24 located in the hub 19. The rack assembly receiving protrusion 20

is therefore moveable between a first position in which a surface of the rack assembly receiving protrusion 20a makes contact with a surface of an attachment member 16 of the second rack assembly 2b so as to provide a locked state (as shown in Figure 4) and a second position where the same surface 20a of the rack assembly receiving protrusion 20 is directed substantially away from the surface of the attachment member 16 of the second rack assembly 2b so as to provide an unlocked state (as shown in Figure 5). In the locked state at least part of the attachment member 16 of the second rack assembly 2b is sandwiched between the rack assembly receiving protrusion 20 and at least part of the counteracting portion 22.

[0040] The lever portion 21 of the lock assembly 17 is terminated by a hook 25 which can be gripped by a user. The user's grip is improved further with the provision of gripping members, for example ribs 26, on the outer surface of the hook 25.

[0041] To help keep the lever 21 in position in the locked state at least part of the lever 21 between the hook 25 and the rack assembly receiving protrusion 20 is curved to be co-operable with the surface of at least part of the outer edge 27 of the counteracting portion 22 when the lever 21 is positioned in the locked state.

[0042] Figure 6 shows the lower end of the at least one attachment member 16 of the second rack assembly 2b to be terminated by an end cap 28 i.e. the ends of the downwardly extending arms of the second rack assembly are provided with the end caps 28. Part of the end cap 28 is insertable within at least one attachment member of the second rack assembly and the other part of the end cap extends from the end of the at least one attachment member to form an end cap protruding portion 28a.

The end cap protruding portion 28a has a radius larger than the radius of the at least attachment member 16 (or downwardly extending arm 8c) of the second rack assembly 2b. In the maximally extended arrangement between the first and second rack assembly 2a, 2b, as shown in Figure 6, the end cap protruding portion 28a makes contact with the overlapping ledge of the counteracting portion 22 thereby prohibiting removal of the second rack assembly 2b from the first rack assembly 2a. In Figure 7 the retracted state is displayed whereby the bracket 9 for holding the rack 3a is now positioned adjacent the upper end of the counteracting portion 22. Therefore the bracket 9 would provide a stopping effect for further movement of the downwardly extending arm 8e, 8f within the upwardly extending arm 8a, 8b.

[0043] The attachment members 16 (or upwardly extending or downwardly extending arms 8a, 8b, 8c, 8d, 8e, 8f, 8g, 8h) are poles made from steel.

[0044] In summary, Figures 6 and 7 show a locking arrangement 17 or member for a collapsible airer 1, comprising a first part 18a having a rotatable hub 19 with a rack assembly receiving protrusion 20 extending therefrom, the hub 19 further having a lever portion 21 extending therefrom, the hub 19 being rotatable about a pivot

portion located in the hub 19, the first part 18a for use with a second part 18b comprising and elongate counteracting portion 22 having a "C-shaped" cross section, the first and second part 18a, 18b for securing an item there-between in a locked state.

[0045] Various modifications to the principles described above would suggest themselves to the skilled person. For example, more than a single rack may be provided on the second rack assembly. The racks may not be of a dual folding arrangement and may instead be folded in a concertina arrangement. The material for the airer may be aluminium instead of steel and there may be a protective steel powder coating applied on the outer surface of the airer which may prevent corrosion of the metal assembly. The protective material may also provide extra friction for gripping the items of clothing, so as to prevent them from sliding off of the airer.

[0046] Alternatively to using the bracket for acting as a stop for further movement of the downwardly extending arm of the second rack assembly, when the lock means is in the unlocked state, the stopping effect may instead be provided by the lower end of the downwardly extending arm making contact with the base of the first rack assembly.

[0047] The locking arrangement or member may be applied retrospectively subsequently to the purchase of the first and second rack assemblies (which may be separate and distinct items).

[0048] The extendable nature of the airer is beneficial so as to minimise the size of the airer for storage and to maximise the size of the airer when in the maximally extended state so that the airer can be used to hang bigger sized clothes.

Claims

1. A collapsible airer (1) comprising a first rack assembly (2a) selectively moveable between a collapsed configuration and an operational configuration in which is provided at least one rack (3a) for receiving items to be aired, the airer (1) further including at least a second rack assembly (2b) on which is also provided at least one rack (3b) for receiving items to be aired, wherein the first and second rack assemblies (2a, 2b) comprise co-operable attachment members for adjustably connecting the second rack assembly (2b) to the first rack assembly (2a), the attachment members being configured to enable the at least one rack (3b) of the second rack assembly (2b) to be positioned vertically above the at least one rack of the first rack assembly (2a) in use; wherein the first rack assembly (2a) has first and second parts (5a, 5b) which are rotatable with respect to each other about a pivot point (6a) which joins the first and second parts (5a, 5b) of the first rack assembly (2a) together, wherein the first and second parts (5a, 5b)

are rotatable between the collapsed configuration in which the first and second parts (5a, 5b) extend generally parallel to each other, and the operational configuration in which the first and second parts (5a, 5b) extend at an angle with respect to each other; **characterized in that** the first part (5a) has a substantially horizontal portion (7a) terminated at each end by upwardly extending arms (8a, 8b), and the second part (5b) has a substantially horizontal portion (7b) terminated at each end by upwardly extending arms (8c, 8d), and in which the pivot point (6a) is located at the mid-point of the horizontal portions (7a, 7b) of the first and second parts (5a, 5b).

2. A collapsible airer (1) according to claim 1, wherein in the operational configuration the first and second parts (5a, 5b) extend at an angle of 90° with respect to each other.
3. A collapsible airer (1) according to any of claims 1 or 2, wherein the second rack assembly (2b) is also moveable between a collapsed configuration and an operational configuration, in which the second rack assembly (2b) has first and second parts (5c, 5d) which are rotatable with respect to each other about a pivot point (6b) which joins the first and second parts (5c, 5d) of the second rack assembly (2b) together, wherein the first and second parts (5c, 5d) are rotatable between the collapsed configuration in which the first and second parts (5c, 5d) extend generally parallel to each other, and the operational configuration in which the first and second parts (5c, 5d) extend at an angle with respect to each other; and wherein the first part (5c) of the second rack assembly (2b) has a substantially horizontal portion (7c) with a first and second downwardly extending arm (8e, 8f) and in which the second part (5d) of the second rack assembly has a substantially horizontal portion (7c) having a first and second downwardly extending arm (8e, 8f).
4. A collapsible airer (1) according to claim 3, wherein the downwardly extending arms (8e, 8f) of the second rack assembly (2b) are adapted to be received within the respective upwardly extending arms (8c, 8d) of the first rack assembly (2a) in use.
5. A collapsible airer (1) according to any preceding claim, wherein when the first and second rack assemblies (2a, 2b) are in the operational configuration, the airer (1) is extendable along an effective dimension of the airer (1), wherein the effective dimension is the height of the airer (1).
6. A collapsible airer (1) according to any preceding claim, wherein the airer (1) is a tower airer, and is optionally electrically heated.

7. A collapsible airer (1) according to any preceding claim, the at least one attachment members of the first rack assembly (2a) and second rack assembly (2b) comprising means for releasably locking the first rack assembly (2a) to the second rack assembly (2b) when they are in the operational or collapsed configuration.
8. A collapsible airer (1) according to claim 7, wherein the locking means (17) comprises a first part (18a) having a hub (19) with a rack assembly receiving protrusion (20) extending therefrom, the hub (19) further having a lever portion (21) extending therefrom, and a second part (18b) comprising a counteracting portion (22) co-operable with the first part (18a), the lever portion (21) configured to cause movement of the rack assembly receiving protrusion (20) on application of a force thereto, and optionally wherein in use, application of a force on the lever (21) causes the rack assembly receiving protrusion (20) to be rotatable about a pivot point (24) located in the hub (19).
9. A collapsible airer (1) according to claim 8, wherein the rack assembly receiving protrusion (20) is moveable between a first position in which a surface of the rack assembly receiving protrusion (20) makes contact with a surface of an attachment member of the second rack assembly (2b) so as to provide a locked state and a second position where the same surface of the rack assembly receiving protrusion (20) is directed substantially away from the surface of the attachment member of the second rack assembly (2b) so as to provide an unlocked state.
10. A collapsible airer (1) according to claim 9, wherein when the locking member (17) is in the locked state, at least part of the attachment member of the second rack assembly (2b) is sandwiched between the rack assembly receiving protrusion (20) and at least part of the counteracting portion (22).
11. A collapsible airer (1) according to claims 8 to 10, wherein the counteracting portion (22) comprises a section of a tube having a "C-shaped" cross section and arranged to extend along and make contact with at least a portion of the outer surface of the respective attachment members (16) of the first and second rack assemblies (2a, 2b).
12. A collapsible airer (1) according to claim 11, wherein an internal edge (22a) of the counteracting portion (22) extends inwardly of the end of the at least one attachment member (16a) of the first rack assembly (2a) to form an overlapping ledge portion (23).
13. A collapsible airer (1) according to claim 12, wherein the lower end of the at least one attachment member (16) of the second rack assembly (2b) is terminated by an end cap (28).
14. A collapsible airer according to claim 13, wherein part of the end cap (28) is insertable within at least one attachment member (16) of the second rack assembly (2b) and the other part of the end cap extends from the end of the at least one attachment member to form an end cap protruding portion (28a), the end cap protruding portion (28a) having a radius larger than the radius of the at least one attachment member (16) of the second rack assembly (2b).
15. A collapsible airer (1) according to claim 14, wherein in the maximally extended arrangement between the first and second rack assembly (2a, 2b), the end cap protruding portion (28a) makes contact with the overlapping ledge (23) of the counteracting portion thereby prohibiting removal of the second rack assembly (2b) from the first rack assembly (2a).
16. A collapsible airer (1) according to any of claims 8 to 15, wherein the lever portion (21) is terminated by a hook (25).
17. A collapsible airer (1) according to claim 16, wherein the outer edge of the hook (25) includes a gripping member.
18. A collapsible airer (1) according to claim 17, wherein at least part of the lever (21) between the hook (25) and the rack assembly receiving protrusion (20) is curved to co-operate with the surface of at least part of the outer edge (27) of the counteracting portion (22) in the locked state.

Patentansprüche

1. Zusammenklappbarer Trockenständer (1), umfassend eine erste Gestellanordnung (2a), die wahlweise zwischen einer zusammengeklappten Konfiguration und einer Betriebskonfiguration bewegbar ist, wobei wenigstens ein Gestell (3a) zum Aufnehmen von Gegenständen, die nachgetrocknet werden sollen, bereitgestellt ist, wobei der Trockenständer (1) ferner wenigstens eine zweite Gestellanordnung (2b) beinhaltet, auf der ebenso wenigstens ein Gestell (3b) zum Aufnehmen von Gegenständen, die nachgetrocknet werden sollen, bereitgestellt ist, wobei die erste und die zweite Gestellanordnung (2a, 2b) zusammenwirkende Befestigungselemente zum einstellbaren Verbinden der zweiten Gestellanordnung (2b) mit der ersten Gestellanordnung (2a) umfassen, wobei die Befestigungselemente konfiguriert sind, um zu ermöglichen, dass das wenigstens eine Gestell (3b) der zweiten Gestellanordnung (2b) vertikal über dem wenigstens einen Gestell der ers-

ten Gestellanordnung (2a) in Verwendung angeordnet wird;

wobei die erste Gestellanordnung (2a) einen ersten und einen zweiten Teil (5a, 5b) aufweist, die hinsichtlich zueinander um einen Drehpunkt (6a) rotierbar sind, der den ersten und den zweiten Teil (5a, 5b) der ersten Gestellanordnung (2a) miteinander verbindet, wobei der erste und der zweite Teil (5a, 5b) zwischen der zusammengeklappten Konfiguration, in der der erste und der zweite Teil (5a, 5b) sich im Allgemeinen parallel zueinander erstrecken, und der Betriebskonfiguration, in der der erste und der zweite Teil (5a, 5b) sich in einem Winkel hinsichtlich zueinander erstrecken, drehbar sind;

dadurch gekennzeichnet, dass der erste Teil (5a) einen im Wesentlichen horizontalen Abschnitt (7a) aufweist, der an jedem Ende durch sich nach oben erstreckende Arme (8a, 8b) abgeschlossen ist, und der zweite Teil (5b) einen im Wesentlichen horizontalen Abschnitt (7b) aufweist, der an jedem Ende durch sich nach oben erstreckende Arme (8c, 8d) abgeschlossen ist, und wobei sich der Drehpunkt (6a) an dem Mittelpunkt der horizontalen Abschnitte (7a, 7b) des ersten und des zweiten Teils (5a, 5b) befindet.

2. Zusammenklappbarer Trockenständer (1) nach Anspruch 1, wobei sich der erste und der zweite Teil (5a, 5b) in der Betriebskonfiguration hinsichtlich zueinander in einem Winkel von 90° erstrecken.
3. Zusammenklappbarer Trockenständer (1) nach einem der Ansprüche 1 oder 2, wobei die zweite Gestellanordnung (2b) ebenso zwischen einer zusammengeklappten Konfiguration und einer Betriebskonfiguration bewegbar ist, wobei die zweite Gestellanordnung (2b) einen ersten und einen zweiten Teil (5c, 5d) aufweist, die hinsichtlich zueinander um einen Drehpunkt (6b) rotierbar sind, der den ersten und den zweiten Teil (5c, 5d) der zweiten Gestellanordnung (2b) miteinander verbindet, wobei der erste und der zweite Teil (5c, 5d) zwischen der zusammengeklappten Konfiguration, in der sich der erste und der zweite Teil (5c, 5d) im Wesentlichen parallel zueinander erstrecken, und der Betriebskonfiguration, in der sich der erste und der zweite Teil (5c, 5d) in einem Winkel hinsichtlich zueinander erstrecken, drehbar sind; und
wobei der erste Teil (5c) der zweiten Gestellanordnung (2b) einen im Wesentlichen horizontalen Abschnitt (7c) mit einem ersten und einem zweiten sich nach unten erstreckenden Arm (8e, 8f) aufweist und wobei der zweite Teil (5d) der zweiten Gestellanordnung einen im Wesentlichen horizontalen Abschnitt (7c), der einen ersten und einen zweiten sich nach unten erstreckenden Arm (8e, 8f) aufweist, aufweist.
4. Zusammenklappbarer Trockenständer (1) nach An-

spruch 3, wobei die sich nach unten erstreckenden Arme (8e, 8f) der zweiten Gestellanordnung (2b) angepasst sind, um innerhalb der jeweiligen sich nach oben erstreckenden Arme (8c, 8d) der ersten Gestellanordnung (2a) in Verwendung aufgenommen zu werden.

5. Zusammenklappbarer Trockenständer (1) nach einem der vorhergehenden Ansprüche, wobei, wenn die erste und die zweite Gestellanordnung (2a, 2b) in der Betriebskonfiguration sind, der Trockenständer (1) entlang einer wirksamen Abmessung des Trockenständers (1) erstreckbar ist, wobei die wirksame Abmessung die Höhe des Trockenständers (1) ist.
6. Zusammenklappbarer Trockenständer (1) nach einem der vorhergehenden Ansprüche, wobei der Trockenständer (1) ein Turmtrockenständer ist, und optional elektrisch erwärmt wird.
7. Zusammenklappbarer Trockenständer (1) nach einem der vorhergehenden Ansprüche, wobei die wenigstens einen Befestigungselemente der ersten Gestellanordnung (2a) und der zweiten Gestellanordnung (2b) ein Mittel zum lösbaren Verriegeln der ersten Gestellanordnung (2a) an der zweiten Gestellanordnung (2b) umfassen, wenn sie sich in der Betriebs- oder zusammengeklappten Konfiguration befinden.
8. Zusammenklappbarer Trockenständer (1) nach Anspruch 7, wobei das Verriegelungsmittel (17) einen ersten Teil (18a), der eine Nabe (19) mit einem Gestellordnungsaufnahmevorsprung (20), der sich daraus erstreckt, aufweist, wobei die Nabe (19) ferner einen Hebelabschnitt (21) aufweist, der sich daraus erstreckt, und einen zweiten Teil (18b) umfasst, der einen Gegenwirkabschnitt (22) umfasst, der mit dem ersten Teil (18a) zusammenwirkt, wobei der Hebelabschnitt (21) konfiguriert ist, um eine Bewegung des Gestellordnungsaufnahmevorsprungs (20) beim Anwenden einer Kraft daran zu bewirken, und optional wobei in Verwendung, eine Anwendung einer Kraft auf den Hebel (21) bewirkt, dass der Gestellordnungsaufnahmevorsprung (20) um einen Drehpunkt (24), der sich in der Nabe (19) befindet, rotierbar ist.
9. Zusammenklappbarer Trockenständer (1) nach Anspruch 8, wobei der Gestellordnungsaufnahmevorsprung (20) zwischen einer ersten Position, in der eine Oberfläche des Gestellordnungsaufnahmevorsprungs (20) eine Oberfläche eines Befestigungselements der zweiten Gestellanordnung (2b) berührt, um einen verriegelten Zustand bereitzustellen, und einer zweiten Position bewegbar ist, in der die gleiche Oberfläche des Gestellordnungsauf-

nahmevorsprungs (20) im Wesentlichen von der Oberfläche des Befestigungselements der zweiten Gestellanordnung (2b) weggerichtet ist, um einen entriegelten Zustand bereitzustellen.

10. Zusammenklappbarer Trockenständer (1) nach Anspruch 9, wobei, wenn das Verriegelungselement (17) sich in dem verriegelten Zustand befindet, wenigstens ein Teil des Befestigungselements der zweiten Gestellanordnung (2b) zwischen dem Gestellanordnungsaufnahmevorsprung (20) und wenigstens einem Teil des Gegenwirkabschnitts (22) eingeschoben ist.

11. Zusammenklappbarer Trockenständer (1) nach den Ansprüchen 8 bis 10, wobei der Gegenwirkabschnitt (22) einen Bereich eines Rohrs mit einem "C-förmigen"-Querschnitt umfasst und angeordnet ist, um sich entlang wenigstens eines Abschnitts der Außenoberfläche der jeweiligen Befestigungselemente (16) der ersten und der zweiten Gestellanordnung (2a, 2b) zu erstrecken und diesen zu berühren.

12. Zusammenklappbarer Trockenständer (1) nach Anspruch 11, wobei eine innere Kante (22a) des Gegenwirkabschnitts (22) sich nach innen aus dem Ende des wenigstens einen Befestigungselements (16a) der ersten Gestellanordnung (2a) erstreckt, um einen überlappenden Leistenabschnitt (23) auszubilden.

13. Zusammenklappbarer Trockenständer (1) nach Anspruch 12, wobei das untere Ende des wenigstens einen Befestigungselements (16) der zweiten Gestellanordnung (2b) durch eine Endkappe (28) abgeschlossen wird.

14. Zusammenklappbarer Trockenständer nach Anspruch 13, wobei ein Teil der Endkappe (28) innerhalb wenigstens eines Befestigungselements (16) der zweiten Gestellanordnung (2b) einführbar ist, und der andere Teil der Endkappe sich aus dem Ende des wenigstens einen Befestigungselements erstreckt, um einen Endkappenvorsprungsabschnitt (28a) auszubilden, wobei der Endkappenvorsprungsabschnitt (28a) einen Radius aufweist, der größer ist als der Radius des wenigstens einen Befestigungselements (16) der zweiten Gestellanordnung (2b).

15. Zusammenklappbarer Trockenständer (1) nach Anspruch 14, wobei in der maximal erstreckten Anordnung zwischen der ersten und der zweiten Gestellanordnung (2a, 2b), der Endkappenvorsprungsabschnitt (28a) die überlappende Leiste (23) des Gegenwirkabschnitts berührt, wobei dadurch eine Entfernung der zweiten Gestellanordnung (2b) von der ersten Gestellanordnung (2a) verhindert wird.

16. Zusammenklappbarer Trockenständer (1) nach einem der Ansprüche 8 bis 15, wobei der Hebelabschnitt (21) durch einen Haken (25) abgeschlossen wird.

17. Zusammenlegbarer Trockenständer (1) nach Anspruch 16, wobei die Außenkante des Hakens (25) ein Greifelement beinhaltet.

18. Zusammenklappbarer Trockenständer (1) nach Anspruch 17, wobei wenigstens ein Teil des Hebels (21) zwischen dem Haken (25) und dem Gestellanordnungsaufnahmevorsprung (20) gekrümmt ist, um mit der Oberfläche wenigstens eines Teils der Außenkante (27) des Gegenwirkabschnitts (22) in dem verriegelten Zustand zusammenzuwirken.

Revendications

1. Séchoir à linge pliable (1) comprenant un premier ensemble de grilles (2a) déplaçable sélectivement entre une configuration pliée et une configuration opérationnelle dans laquelle est fournie au moins une grille (3a) destinée à recevoir des articles à sécher, le séchoir à linge (1) comportant en outre au moins un second ensemble de grilles (2b) sur lequel est également fournie au moins une grille (3b) destinée à recevoir des articles à sécher, dans lequel les premier et second ensembles de grilles (2a, 2b) comprennent des éléments de fixation destinés à coopérer pour raccorder de manière réglable le second ensemble de grilles (2b) au premier ensemble de grilles (2a), les éléments de fixation étant conçus pour permettre à l'au moins une grille (3b) du second ensemble de grilles (2b) d'être positionnée verticalement au-dessus de l'au moins une grille du premier ensemble de grilles (2a) en cours d'utilisation ; dans lequel le premier ensemble de grilles (2a) présente de première et seconde parties (5a, 5b) qui peuvent tourner l'une par rapport à l'autre autour d'un point de pivotement (6a) qui relie les première et seconde parties (5a, 5b) du premier ensemble de grilles (2a) l'une à l'autre, dans lequel les première et seconde parties (5a, 5b) peuvent tourner entre la configuration pliée, dans laquelle les première et seconde parties (5a, 5b) s'étendent de manière essentiellement parallèle l'une à l'autre, et la configuration opérationnelle, dans laquelle les première et seconde parties (5a, 5b) s'étendent à un angle l'une par rapport à l'autre ; **caractérisé en ce que** la première partie (5a) présente une partie sensiblement horizontale (7a) se terminant à chaque extrémité par des bras s'étendant vers le haut (8a, 8b), et la seconde partie (5b) présente une partie sensiblement horizontale (7b) se terminant à chaque extrémité par des bras s'étendant vers le haut (8c, 8d),

et dans laquelle le point de pivotement (6a) est situé au milieu des parties horizontales (7a, 7b) des première et seconde parties (5a, 5b).

2. Séchoir à linge pliable (1) selon la revendication 1, dans lequel, en configuration opérationnelle, les première et seconde parties (5a, 5b) s'étendent à un angle de 90 ° l'une par rapport à l'autre. 5
3. Séchoir à linge pliable (1) selon l'une quelconque des revendications 1 ou 2, dans lequel le second ensemble de grilles (2b) est également déplaçable entre une configuration pliée et une configuration opérationnelle, dans lequel le second ensemble de grilles (2b) présente de première et seconde parties (5c, 5d) qui peuvent tourner l'une par rapport à l'autre autour d'un point de pivotement (6b) qui relie les première et seconde parties (5c, 5d) du second ensemble de grilles (2b) l'une à l'autre, les première et seconde parties (5c, 5d) pouvant tourner entre la configuration pliée, dans laquelle les première et seconde parties (5c, 5d) s'étendent de manière essentiellement parallèle l'une à l'autre, et la configuration opérationnelle, dans laquelle les première et seconde parties (5c, 5d) s'étendent à un angle l'une par rapport à l'autre ; et dans lequel la première partie (5c) du second ensemble de grilles (2b) présente une partie sensiblement horizontale (7c) dotée de premier et second bras s'étendant vers le bas (8e, 8f) et dans lequel la seconde partie (5d) du second ensemble de grilles présente une partie sensiblement horizontale (7c) dotée de premier et second bras s'étendant vers le bas (8e, 8f). 10 15 20 25 30 35
4. Séchoir à linge pliable (1) selon la revendication 3, dans lequel les bras s'étendant vers le bas (8e, 8f) du second ensemble de grilles (2b) sont adaptés pour être reçus à l'intérieur des bras s'étendant respectivement vers le haut (8c, 8d) du premier ensemble de grilles (2a) en cours d'utilisation. 40
5. Séchoir à linge pliable (1) selon l'une quelconque des revendications précédentes, dans lequel lorsque les premier et second ensembles de grilles (2a, 2b) sont en configuration opérationnelle, le séchoir à linge (1) est extensible le long d'une dimension effective du séchoir à linge (1), la dimension effective étant la hauteur du séchoir à linge (1). 45 50
6. Séchoir à linge pliable (1) selon l'une quelconque des revendications précédentes, dans lequel le séchoir à linge (1) est un séchoir à linge tour, et est éventuellement chauffé électriquement. 55
7. Séchoir à linge pliable (1) selon l'une quelconque des revendications précédentes, l'au moins un élément de fixation du premier ensemble de grilles (2a)

et du second ensemble de grilles (2b) comprenant un moyen de verrouillage de manière libérable du premier ensemble de grilles (2a) au second ensemble de grilles (2b) lorsqu'ils sont en configuration opérationnelle ou pliée.

8. Séchoir à linge pliable (1) selon la revendication 7, dans lequel le moyen de verrouillage (17) comprend une première partie (18a) dotée d'un moyeu (19) équipé d'une saillie de réception de l'ensemble de grilles (20) s'étendant à partir de celui-ci, le moyeu (19) étant en outre équipé d'une partie levier (21) s'étendant à partir de celui-ci, et d'une seconde partie (18b) comprenant une partie équilibrante (22) pouvant coopérer avec la première partie (18a), la partie levier (21) étant conçue pour amener un déplacement de la saillie de réception de l'ensemble de grilles (20) lors de l'application d'une force sur celle-ci, et, éventuellement, dans lequel, en cours d'utilisation, l'application d'une force sur le levier (21) amène la saillie de réception de l'ensemble de grilles (20) à pouvoir tourner autour d'un point de pivotement (24) situé dans le moyeu (19). 5 10 15 20 25 30 35 40 45 50
9. Séchoir à linge pliable (1) selon la revendication 8, dans lequel la saillie de réception de l'ensemble de grilles (20) est déplaçable entre une première position, dans laquelle une surface de la saillie de réception de l'ensemble de grilles (20) entre en contact avec une surface d'un élément de fixation du second ensemble de grilles (2b) de manière à fournir un état verrouillé, et une seconde position, dans laquelle la même surface de la saillie de réception de l'ensemble de grilles (20) est dirigée sensiblement de manière à s'écarter de la surface de l'élément de fixation du second ensemble de grilles (2b) de manière à fournir un état déverrouillé. 55
10. Séchoir à linge pliable (1) selon la revendication 9, dans lequel lorsque l'élément de verrouillage (17) est à l'état verrouillé, au moins une partie de l'élément de fixation du second ensemble de grilles (2b) est intercalée entre la saillie de réception de l'ensemble de grilles (20) et au moins une partie de la partie équilibrante (22). 60
11. Séchoir à linge pliable (1) selon les revendications 8 à 10, dans lequel la partie équilibrante (22) comprend une section d'un tube ayant une section transversale en « C » et étant agencée pour s'étendre le long de la surface extérieure des éléments de fixation respectifs (16) des premier et second ensembles de grilles (2a, 2b) et entrer en contact avec au moins une partie de celle-ci. 65
12. Séchoir à linge pliable (1) selon la revendication 11, dans lequel un bord interne (22a) de la partie équilibrante (22) s'étend vers l'intérieur de l'extrémité de

l'au moins un élément de fixation (16a) du premier ensemble de grilles (2a) pour former une partie rebord en chevauchement (23).

13. Séchoir à linge pliable (1) selon la revendication 12, dans lequel l'extrémité inférieure de l'au moins un élément de fixation (16) du second ensemble de grilles (2b) se termine par un capuchon d'extrémité (28). 5
- 10
14. Séchoir à linge pliable selon la revendication 13, dans lequel une partie du capuchon d'extrémité (28) peut être insérée au sein d'au moins un élément de fixation (16) du second ensemble de grilles (2b) et l'autre partie du capuchon d'extrémité s'étend depuis l'extrémité de l'au moins un élément de fixation pour former une partie saillante de capuchon d'extrémité (28a), la partie saillante de capuchon d'extrémité (28a) présentant un rayon plus grand que le rayon de l'au moins un élément de fixation (16) du second ensemble de grilles (2b). 15
20
15. Séchoir à linge pliable (1) selon la revendication 14, dans lequel, dans l'agencement étendu au maximum entre le premier et le second ensemble de grilles (2a, 2b), la partie saillante du capuchon d'extrémité (28a) entre en contact avec le rebord en chevauchement (23) de la partie équilibrante, empêchant ainsi le retrait du second ensemble de grilles (2b) du premier ensemble de grilles (2a). 25
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16. Séchoir à linge pliable (1) selon l'une quelconque des revendications 8 à 15, dans lequel la partie levier (21) se termine par un crochet (25). 35
17. Séchoir à linge pliable (1) selon la revendication 16, dans lequel le bord extérieur du crochet (25) comporte un élément de préhension.
18. Séchoir à linge pliable (1) selon la revendication 17, dans lequel au moins une partie du levier (21) entre le crochet (25) et la saillie de réception de l'ensemble de grilles (20) est incurvée pour coopérer avec la surface d'au moins une partie du bord extérieur (27) de la partie équilibrante (22) à l'état verrouillé. 40
45

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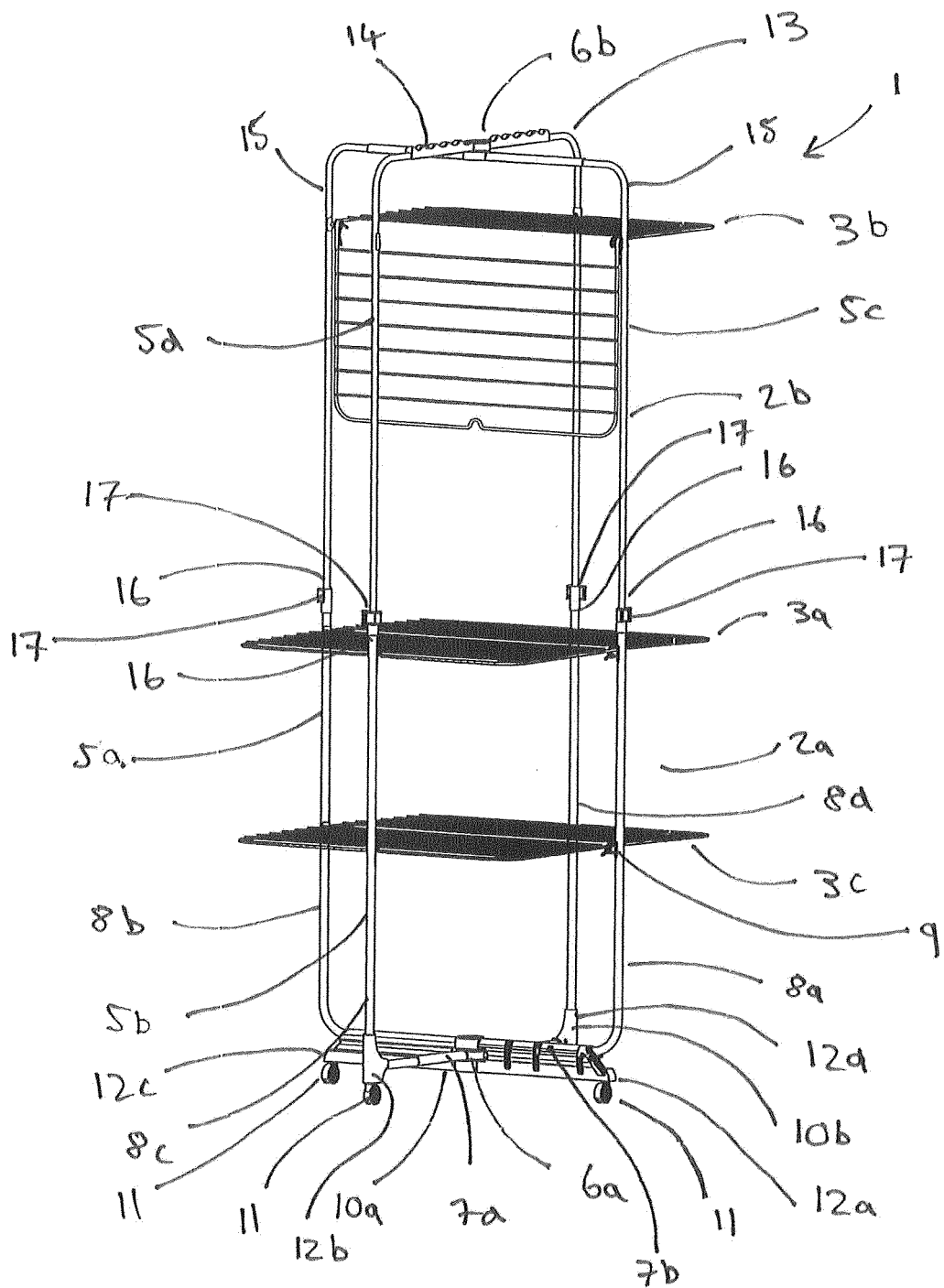


FIG. 1

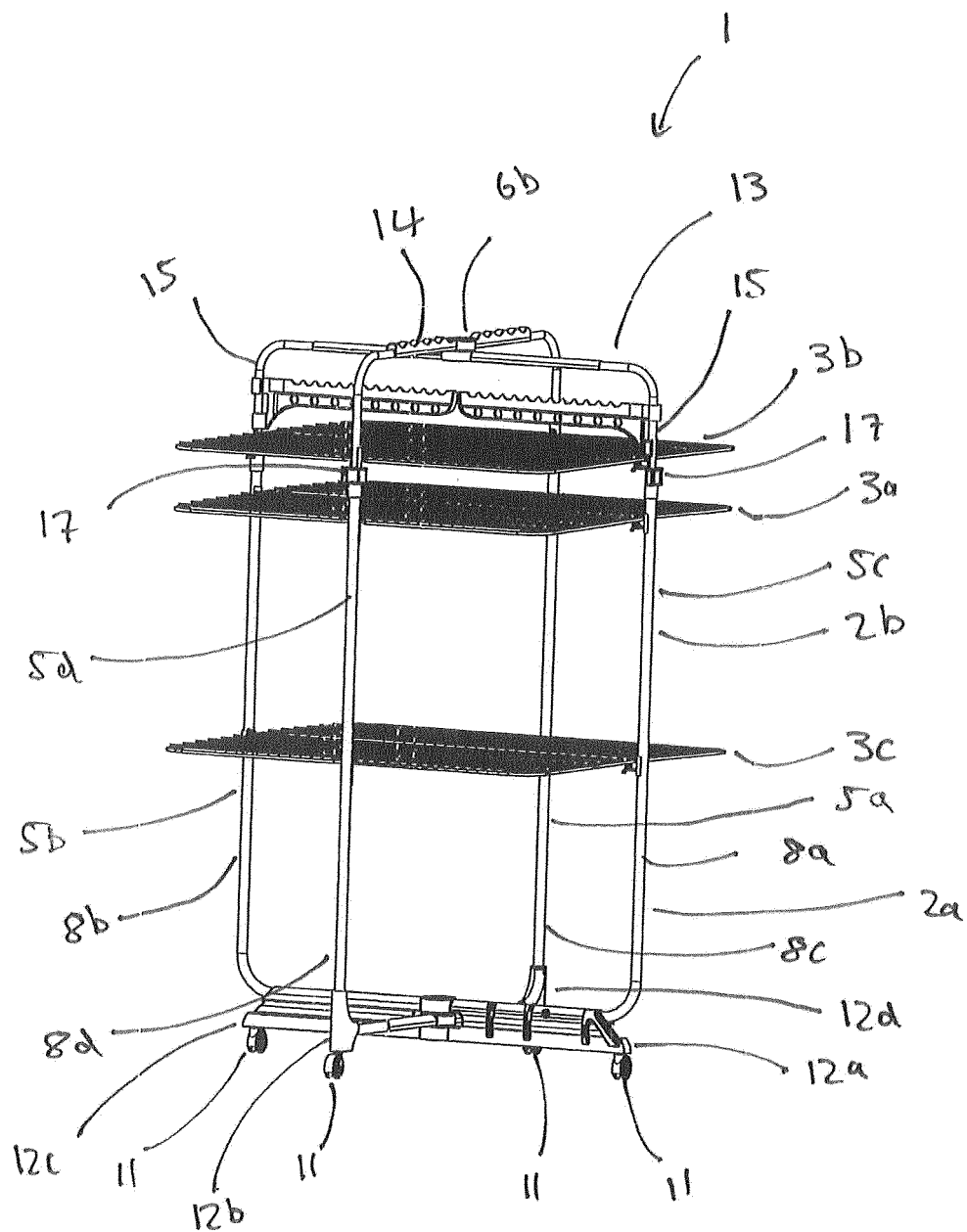


FIG. 2

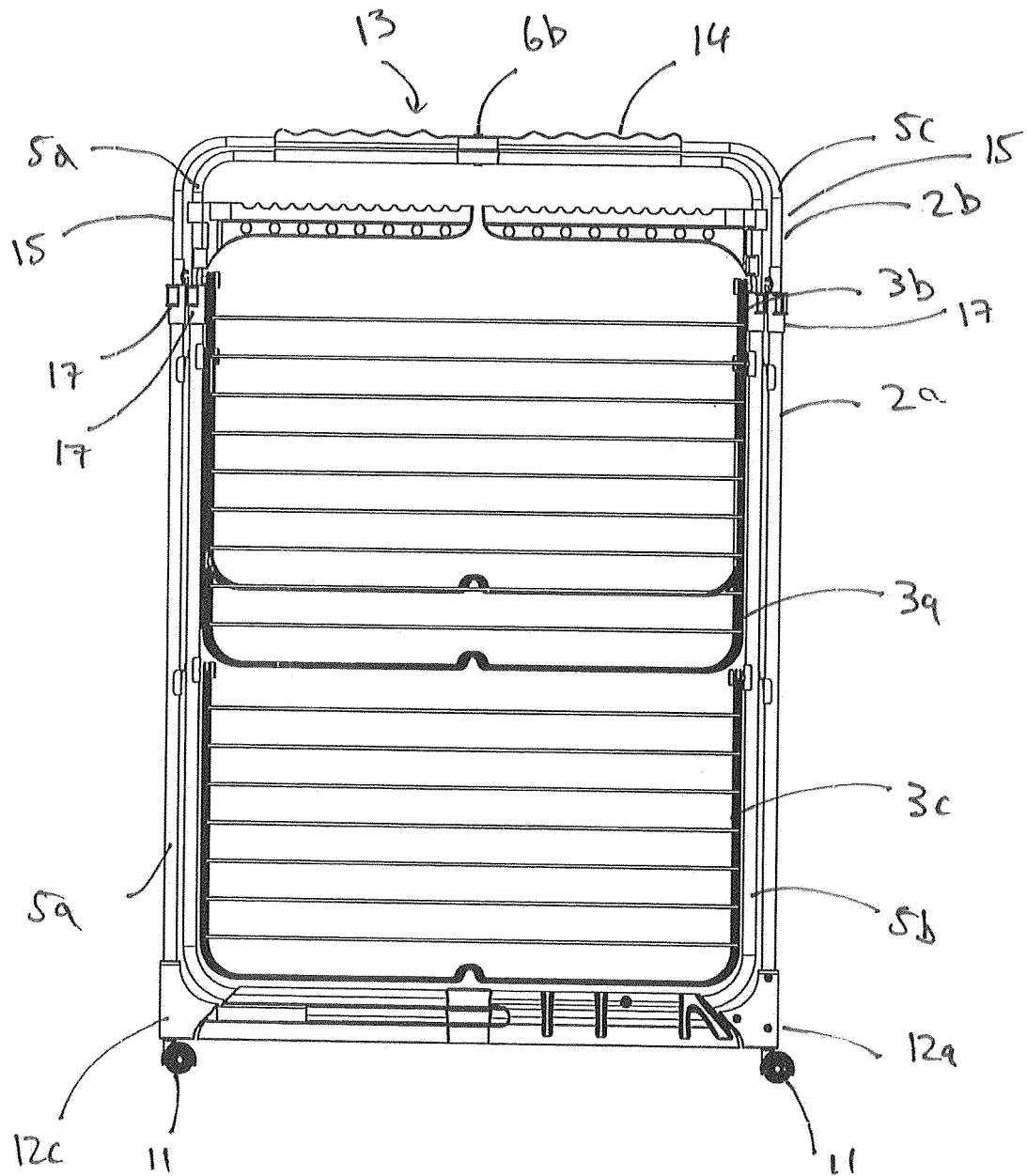


FIG. 3

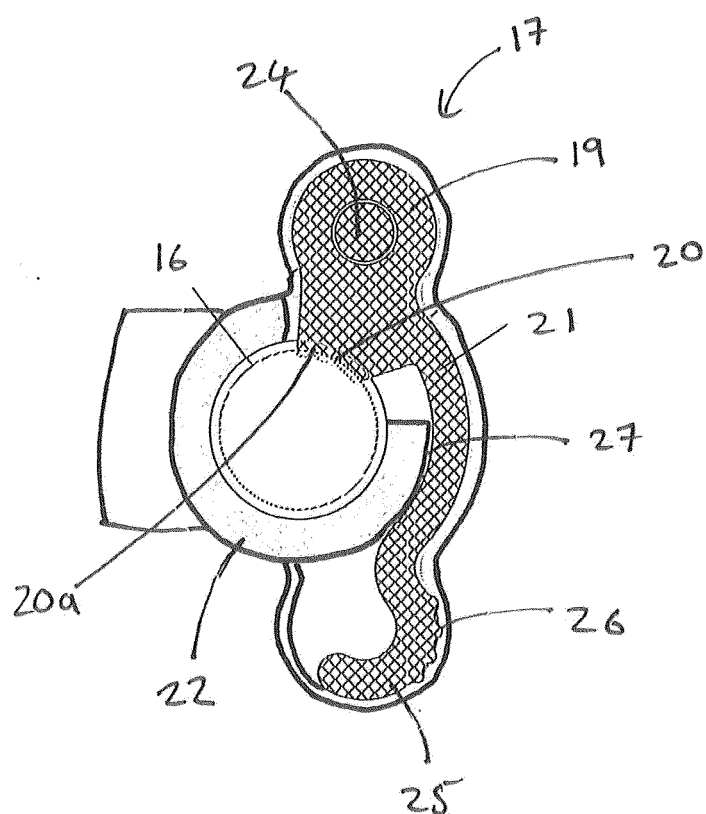


FIG. 4

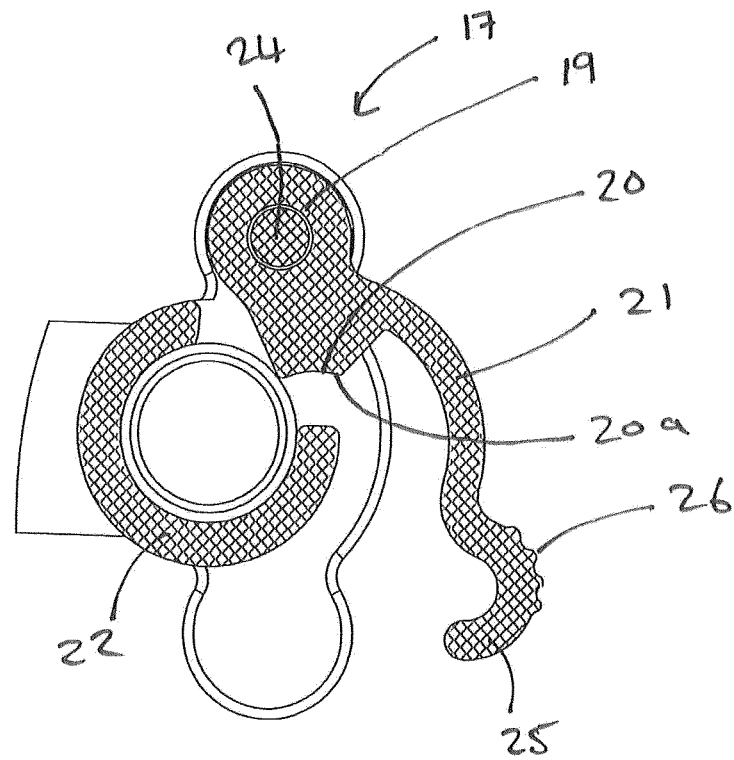


FIG. 5

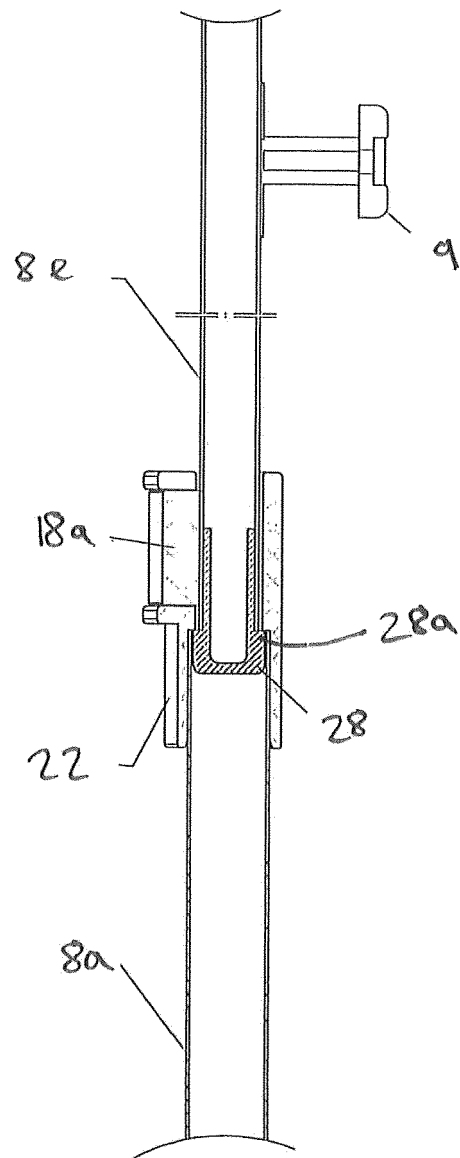


FIG. 6

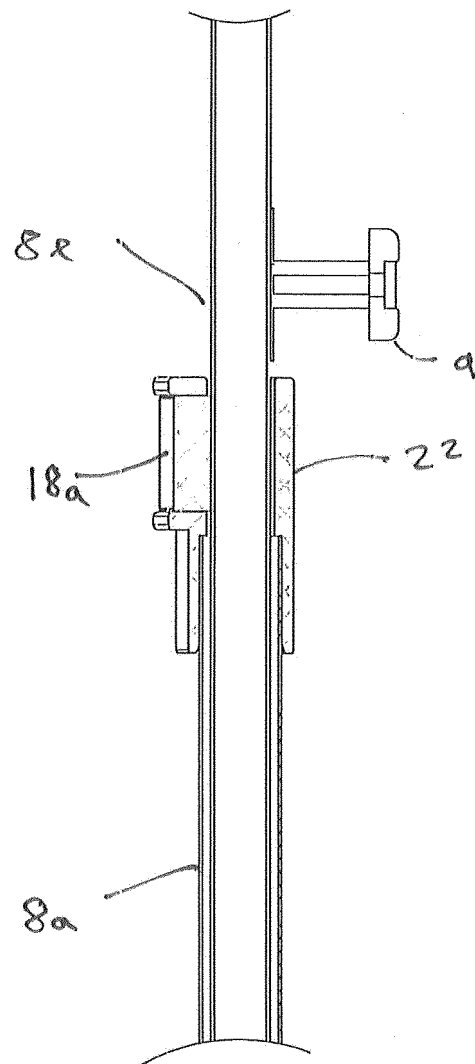


FIG. 7

REFERENCES CITED IN THE DESCRIPTION

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