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(54) **A support for a clothes drier**

(57) A support (3) for a telescopic clothes drier (1), the support comprising an inner tubular support member (7) and an outer tubular support member (5), the outer tubular support member (5) being slidably fitted over said inner tubular support member (7), first latch means (11) for releasably securing a first end of the outer tubular support member to a predetermined position on the inner tubular support member during deployment, retention means (25) for hingeably retaining respective first ends (21,23) of a plurality of arms (17,19) for carrying clothes line and retention latch means for releasably securing the retention means to a predetermined position along one of said inner or outer support members.

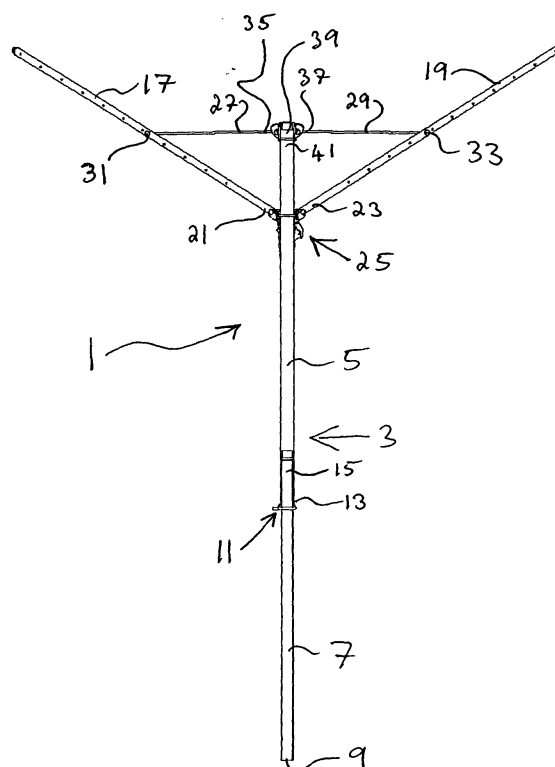


Figure 1

Description

[0001] The present invention relates to a support for a clothes drier, and in particular, to a rotary clothes drier. As used herein, "clothes drier" refers to an arrangement for drying or airing clothes or other laundry items.

[0002] Rotary clothes driers typically comprise a support which is mounted in the ground or a solid base, the support typically having at least three separate side arms extending from the top thereof and spaced at mutually substantially equal angles, between which lines are stretched in an e.g. concentric polygonal array. The clothes or other laundry items are suspended from the lines for the purpose of drying or airing.

[0003] Conventionally, the support may be collapsible from the open position such that the radial arms fold inwardly against the support member when not in use (closed position), thereby minimising the space occupied by the device, and facilitating storage and transport. The support member typically may be a single piece, or it may comprise two or more sections, which may be assembled together by the use of pins or screws.

[0004] It is also known for a multi-part support member to be telescopic, comprising two or more telescoping sections. The use of a telescopic support provides several advantages over e.g. screw or pin-fastened systems, since it does not require assembly such as e.g. screwing together the one or more sections. It only requires extension of the one or more telescoping stem members from the retracted state to form the completely extended stem.

[0005] A conventional rotary airer in the closed position, comprising a retracted telescopic support may be about 5 feet in height, and as such is easier to store and transport than an airer in the closed position comprising a one piece stem, which may be as much as 6-7 feet in height. Telescopic supports tend to be more durable and resilient than conventionally fastened split stems - for example, in the case of a stem where two or more sections are inserted and screwed into each other, rotation of the airer, for example by the wind, can lead to the two or more sections becoming detached from each other, resulting in collapse of the airer.

[0006] Specifically, the use of telescopic stems is disclosed in US-A-4 771 895 and GB-A-2 352 456. The first of these discloses a drier having two telescopic arms, between which rods are placed to support clothes. The second discloses a telescopic post, which can be stored in the ground when not in use and extended in use to hold one end of a clothes line.

[0007] EP-A-0 002 599 relates to a rotary drier to store below ground level and comprising a hydraulically powered upwardly extendable support pole. The pole comprises two support elements, one being located inside the other when stored and both of which are above ground level in use.

[0008] US-A-4 206 847 discloses a clothes horse with

a telescoping "standard" (or support) which is attached to a base embedded in a socket in the ground. The radial arms of the device fold up against the standard as the telescoping pieces close together, such that the device can be stored in the socket in the ground, and a lid can be closed over the socket, protecting the device from the weather.

[0009] A support for a collapsible rotary drier has now been devised which, in the closed position with the support in its retracted state, has a height considerably less than existing telescopic driers of equivalent height when deployed, such that it can be readily transported e.g. on a pallet or in a car boot, or readily stored e.g. in a garden shed or garage.

[0010] In accordance with a first aspect of the present invention, there is provided a support for a telescopic clothes drier, the support comprising an inner tubular support member and an outer tubular support member, the outer tubular support member being slidably fitted over said inner tubular support member, first latch means for releasably securing a first end of the outer tubular support member to a predetermined position on the inner tubular support member during deployment, retention means for hingeably retaining respective first ends of a plurality of arms for carrying clothes line and retention latch means for releasably securing the retention means to a predetermined position along one of said inner or outer support members.

[0011] Either the inner or the outer tubular support member may be the lower support member in use. However, preferred is the arrangement wherein the inner tubular support member is adapted to be inserted into the ground or into a base and the retention means is arranged to be secured by the retention latch means to said predetermined position which is a position somewhere along said outer support member. The tubular support members are preferably straight along their entire length and may be any shape in cross-section but a circular cross-section is preferred. The outer tubular support member needs to be hollow along at least part of its length but preferably is hollow along substantially the whole of its length. The inner tubular support member may be solid or may be tubular. More than two tubular support members, all telescoped together, are also within the ambit of the invention. However, in the most preferred embodiments, there are just two, namely the aforesaid outer and inner tubular members.

[0012] The first latch means is conveniently provided as a first collar slidably fitted over the inner tubular support member, said inner tubular support member and said first collar being respectively provided with mutually cooperating engagement means for engaging with said first collar and said inner tubular support member to fix the relative positions of the inner and outer tubular members. Preferably, the engagement means is constituted by one of the inner tubular support member and the first collar being provided with a latch and the other being provided with a detent. In an especially preferred em-

bodiment, this arrangement is provided by a hole or recess in the outer tubular member and a lug is provided on the first collar.

[0013] A plurality of recesses or holes and lugs may be respectively arranged circumferentially around the collar and the outer tubular support member. In order to stop the upper support member sliding down the lower support member, the inner tubular support member is conveniently provided with at least one hole and the engagement means further comprises a peg receivable in the hole. Such a hole may be a single hole in the circumference of the inner tubular support member or such a hole may extend completely radially through the inner tubular support member.

[0014] Further to aid securement, it is preferred for the collar and peg to be respectively provided with mutually cooperating third latch means for releasably securing the peg to the first collar. Again, one of the peg and the first means is preferably provided with the latch and the other is provided with the detent. In an especially preferred arrangement, a yoke extends from an outer end of the peg for gripping the inner tubular support member. The arms of the yoke may then spring apart when the peg is inserted in the hole.

[0015] A preferred arrangement for the retention means is a second collar slidably mounted over the outer support member. Preferably, during deployment, the second collar can be held in place by a pin provided for insertion into a hole in the outer tubular support member. A releasable grip sleeve may also form part of the retention means.

[0016] As is conventional, the drier is preferably provided with a plurality of link rods connecting the arms to the support. This is conveniently effected by hingeable mounting of the link rods, at one end to a cap, on the upper of the tubular support members and at the other end, to a position along the respective arm(s).

[0017] According to a second aspect of the present invention there is provided a framework for a clothes drier, the framework comprising an upright telescopic support member defining top and bottom ends, said support member comprising a plurality of telescoping sections and a locking means, a bottom collar defining a hole, said bottom collar being mounted on said stem and being slidably movable between said top and bottom ends of said stem and being provided with an additional locking means, a plurality of side arms each being pivotally connected at the proximal end to said bottom collar and extending from said bottom collar at substantially equal angles from one another, a top collar fixed to said top end of said support member, and a plurality of tension members each being pivotally connected at one end to said top collar and pivotally connected at the other end to said side arm, wherein said stem can be extended from a retracted position to an extended position and fixed using said locking means, and said side arms are extendable between a closed position where said side arms lie substantially parallel to said stem and an open

position where said arms lie substantially perpendicular to said support member by sliding said bottom collar between said bottom and top end of said support member, wherein said additional locking means is used to lock said side arms at said open position.

[0018] Using the terminology of the second aspect of the invention, the telescopic stem may comprise substantially coaxial top and bottom members, wherein the bottom member may be positioned inside the top member and be slidably movable along the longitudinal axis of the top member.

[0019] The top member may comprise an outer end cap positioned at its bottom end, and the bottom member may comprise an inner end cap positioned at its top end. The outer end cap may define a hole in which the bottom member is positioned, and the outer end cap may be shaped or provided with a means so as to minimise movement of the bottom member in any other direction than other than along the longitudinal axis of the top and bottom members. Similarly, the inner end cap may be provided with a means to minimise movement of the top member in any other direction than other than along the longitudinal axis of the top and bottom members. The outer end cap may be provided with a means to engage the inner end cap thereby defining the limit of extension of the telescopic stem, and preventing removal of the bottom member from the top member. The inner end cap may be provided with a means to lockingly engage said locking means.

[0020] The bottom member may be retracted inside the top member to almost the entire length of the bottom member, thereby decreasing the height of the stem in its retracted state.

[0021] The distal ends of the side arms may comprise end caps. The end caps may comprise a projection defining a hole, through which fibre e.g. a washing line may be threaded. The end caps may comprise a means to secure the fibre to the side arm, e.g. a cleat. The arrangement and shape of the end caps means that the side arms of the framework may be shorter than the side arms of existing frameworks or airers, thus, when the framework is in the closed position such that the side arms lie flat against and substantially parallel to the top member, the overall height of the framework is less than existing prior art frameworks or airers.

[0022] The combination of shorter side arms and the maximally telescoping stem of the present invention results in a framework which in the closed position with the telescopic stem fully retracted, has a height of approximately 1200 mm. The fact that the framework comprises one-piece and is 1200 mm in height means it can be readily packed and transported on UK and Euro pallets in greater numbers than prior art airers which are comprise two or more pieces, or have a height greater than 1200 mm. For example, the dimensions of a standard UK pallet are 1200 x 1000mm, and it is estimated that ten rows of thirteen frameworks according to the present invention could be stored on such a pallet (130

in total), compared to an estimated maximum total of thirty two-piece prior art frameworks. As such, frameworks according to the present invention can be transported in greater numbers per pallet than prior art frameworks, and transport costs for a manufacturer would be considerably reduced.

[0023] The framework may comprise a lock collar defining a hole, said lock collar being mounted on said top member of said stem below said top collar, wherein said bottom collar engages with said locking collar when said side arms are in said open position, wherein said additional locking means is used to lock said bottom collar to said locking collar thereby locking said side arms at said open position.

[0024] In accordance with a third aspect of the present invention, there is provided a support for a telescopic clothes drier, the support comprising a tubular support member and retention means for hingeably retaining respective first ends of a plurality of arms for carrying clothes line and retention latch means for releasably securing the retention means to a predetermined position along the tubular support member, the retention latch means comprising an engagement member mounted on the tubular support member and a movable latch member movably mounted on the retention means for movement between an engaged position, in which the latch member engages with the engagement member when the retention means is in the predetermined position to retain the retention means in the predetermined position, and a release position, in which the latch member is disengaged from the engagement member and the retention means is movable along the tubular support member.

[0025] Preferably, the engagement member comprises an engagement profile.

[0026] Preferably, the latch member is mounted on a pivot on the retention means and is pivotally movable between the engaged and the release positions.

[0027] Typically, the retention latch means comprise a latch retention mechanism to aid retention of the latch in the engaged position. Typically, the latch retention mechanism may comprise mutually engageable formations on the latch member and the retention means, which are releasable when the latch member is moved to the release position. The mutually engageable formations may comprise a protrusion on one of the latch means and the retention means and a recess on the other of the latch means and the retention means.

[0028] Typically, the engagement profile comprises an engagement surface engaged by the latch member when the latch member is in the engaged position and the portion of the engagement surface engaged by the latch member is substantially perpendicular to a line between the engagement surface and the pivot.

[0029] The invention will now be described in more detail by way of the following nonlimiting description of preferred embodiments and with reference to the accompanying drawings in which:

Figure 1 is a sectional view of a drier support according to the present invention when deployed in the open position;

Figure 2 is a cut away sectional view of the telescopic components of the support shown in Figure 1;

Figure 3 is a cut away sectional view detailing the telescopic components of the support shown in Figures 1 and 2 and the locking pin with the framework in the open position;

Figure 4 is a cut away sectional view of the top collar set up with the airer in the open position;

Figure 5 is a cut away sectional view of the grip collar and additional locking means with the framework in the open position; and

Figure 6 is a more detailed view of the features shown in Figure 3.

[0030] Turning now to Figure 1, there is shown a rotary clothes airer or drier 1 comprising a support 3. The support 3 comprises an upper tubular support member 5 and a lower tubular support member 7. The lower end 9 of the lower tubular support member 7 is supported by being stuck into the ground or otherwise mounted on a base, e.g., secured in the concrete.

[0031] The upper tubular support member 5 is hollow and has an internal diameter wider than the outer diameter of the lower tubular support member 7. It may therefore slide over the entire length of the lower tubular support member 7.

[0032] A mechanism denoted by numeral 11 releasably secures the upper tubular support member 5 in an extended position so that its lower end 13 is positioned towards the upper end 15 of the lower tubular support member 7 when the drier is deployed.

[0033] A plurality of arms 17, 19 carrying line (not shown) etc. are hingably supported at their lower ends 21, 23 etc. on a retention mechanism 25 which is releasably secured to the upper tubular support member 5.

[0034] Each arm 17, 19 is held in angled position relative to the tubular support members by means of link rods 27, 29 etc. which at one end, are hingably connected to points 31, 33 etc. approximately one-third of the way along the length of the respective arms 17, 19 etc. from their first lower end 21, 23 etc. The other ends 35, 37 etc. of the link rods are hingably secured to a cap member 39 fixed to the top end 41 of the upper tubular support member 5.

[0035] When the drier is collapsed for storage, the mechanism 11 is released to allow the upper tubular support member 5 to slide over the length of the lower tubular support member 7. At the same time, the releasable retention mechanism 25 allows the lower ends of the arms 17, 19 to slide down the outside of the upper tubular support member 5 so that the height of the total is considerably reduced.

[0036] Referring now to Figures 2 and 3, it can be seen that the top end of the inner tubular support mem-

ber 7 is capped with a cap member 43, retained by a pin 45. A collar 47 surrounds the inner tubular support member and protrudes into the lower end 13 of the outer tubular support member 5. The collar 47 is provided with a plurality of protrusions 49 etc. which extend into corresponding holes 51 etc. in the circumference of the outer tubular support member 5 from the inside.

[0037] Turning especially to Figure 3, it can be seen that holes 53 etc. are also provided in the inner tubular support member 7 to receive a retaining peg 55. The lower rim 57 of the collar 47 rests on the peg, thereby preventing the outer tubular support member from sliding down the inner support member when the drier is erected. However, the peg 55 is provided with a releasable catch 59 which engages with the lower rim 57 of the collar but can be released by depressing a tab 61 to enable the peg to be removed so that the telescopic structure can be collapsed.

[0038] Figure 4 shows details of how the ends 35, 37 of the link rods 27, 29 etc. engage with a collar structure 63 extending below the cap 39 at the top end of the upper outer tubular support member. The collar 63 also includes arcuate recesses 80 with which the arms 17, 19 engage when the drier is collapsed.

[0039] To enable the lower ends 21, 23 etc of the arms 17, 19 to be fixed to a position towards the top of the upper outer tubular support member 5, the releasable retention mechanism 25 comprises a handle 67 with a catch 69 that are mounted on a grip sleeve 73 that is slidably mounted on the tubular support member 5. To expand the arms 17, 19 of the drier, the grip sleeve is slid up the support member 5 towards a collar 81 until the catch 69 engages on upper surface 82 of an annular ring 71 on the collar 81 (see Figure 5) surrounding the upper outer tubular support member 5. The collar is fixed to the tubular support member 5 by a lock pin or rivet 65. When the catch is released, the lower ends of the arms slide down the outside of the upper tubular support member so that the drier can be stored for future use.

[0040] The profile of the surface 82 and the catch 69 is such that the more weight that is placed on the arms, the greater the locking force of the catch 69 on the surface 82. That is, the catch 69 and surface 82, operate on an over dead centre pivot principle.

[0041] The lever 67 also includes a latch protrusion 88 that locates in a hole 89 in the sleeve 73. The latch protrusion 88 clips into the hole 89 when the lever 67 is moved to the position shown in Figure 5 and helps to prevent accidental release of the lever 67.

[0042] To release the retention mechanism 25, the handle (or lever) 67 is moved outwards from the grip sleeve 73. This causes the latch protrusion 88 to move out of engagement with the hole 89. The movement of the lever 67 outwards also causes the catch 69 to disengage from the surface 82 enabling the grip sleeve 73 to be moved downwards away from the collar 81 to collapse the arms 17, 19.

[0043] Returning to the peg 55, which is used to keep the respective tubular support members in the extended position, it can be seen from Figure 6 that extending from the end of the peg 55 which is connected to tab 61, extends a pair of springable yoke arms 85, 86 which snap around the lower tubular support member 7. The lower rim 57 of the collar rests not only on the peg 55 but also these yoke arms.

[0044] In the light of the described embodiments, other modifications of this embodiment and other embodiments, all within the scope of the appended claims will now become apparent to persons skilled in the art.

Claims

1. A support for a telescopic clothes drier, the support comprising an inner tubular support member and an outer tubular support member being slidably fitted over said inner tubular support member, first latch means for releasably securing the outer tubular support member to a predetermined position on the inner tubular support member during deployment, retention means for hingeably retaining respective first ends of a plurality of arms for carrying clothes line and retention latch means for releasably securing the retention means to a predetermined position along one of said inner or outer support members.
2. A support according to claim 1, wherein the inner tubular support member is arranged to be inserted into the ground or into a base and the retention means is arranged to be secured by the retention latch means to said predetermined position being a position along said outer support member.
3. A support according to claim 1 or claim 2, wherein said first latch means comprises a first collar slidably fitted over the inner tubular support member, said inner tubular support member and said first collar being respectively provided with mutually cooperating engagement means for engaging with said first collar and said inner support member to fix the relative positions of the inner and outer tubular members.
4. A support according to claim 3, wherein said engagement means is provided by means of one of said inner tubular support member and said first collar being provided with a latch and the other being provided with a detent.
5. A support according to claim 3 or claim 4, wherein a wall of said inner tubular support member is provided with a hole and said engagement means further comprises a peg receivable in the hole.

6. A support according to claim 5, wherein said first collar and said peg are respectively provided with mutually cooperating third latch means for releasably securing the peg to the first collar. 5
7. A support according to claim 6, wherein said third latch means is provided by one of said peg and said first collar being provided with a latch and the other being provided with a detent. 10
8. A support according to any of claims 5 to 7, wherein a yoke extends from an outer end of the peg, for gripping the inner tubular support member.
9. A support according to any preceding claim, said retention means comprises a second collar slidably mounted over said outer support member. 15
10. A support according to any of the preceding claims, wherein the retention latch means comprises a latch member and an engagement member, one of the latch member and the engagement member provided on the retention means and the other of the latch member and the engagement member being provided on the one of said inner or outer support members. 20
11. A support for a telescopic clothes drier, the support comprising a tubular support member and retention means for hingeably retaining respective first ends of a plurality of arms for carrying clothes line and retention latch means for releasably securing the retention means to a predetermined position along the tubular support member, the retention latch means comprising an engagement member mounted on the tubular support member and a movable latch member movably mounted on the retention means for movement between an engaged position, in which the latch member engages with the engagement member when the retention means is in the predetermined position to retain the retention means in the predetermined position, and a release position, in which the latch member is disengaged from the engagement member and the retention means is movable along the tubular support member. 25 30 35 40 45
12. A support according to claim 11, wherein the engagement member comprises an engagement profile. 50
13. A support according to claim 11 or claim 12, wherein the latch member is mounted on a pivot on the retention means and is pivotally movable between the engaged and the release positions. 55
14. A support according to claim 12 or claim 13 when dependent on claim 12, wherein the engagement profile comprises an engagement surface engaged by the latch member when the latch member is in the engaged position and the portion of the engagement surface engaged by the latch member is substantially perpendicular to a line between the engagement surface and the pivot.
15. A support according to any of claims 11 to 14, wherein the retention latch means comprise a latch retention mechanism to aid retention of the latch in the engaged position.
16. A support according to claim 15, wherein the latch retention mechanism comprises mutually engageable formations on the latch member and the retention means, which are releasable when the latch member is moved to the release position.
17. A support according to claim 16, wherein the mutually engageable formations may comprise a protrusion on one of the latch means and the retention means and a recess on the other of the latch means and the retention means.
18. A support according to any of claims 11 to 17, further comprising the features according to any of claims 1 to 10.
19. A kit of parts for a drier support according to any of the preceding claims.
20. A clothes drier comprising a support in accordance with any of claims 1 to 18.
21. A support for a clothes drier substantially as hereinbefore described with reference to any of the accompanying drawings.
22. A clothes drier substantially as hereinbefore described with reference to any of the accompanying drawings.

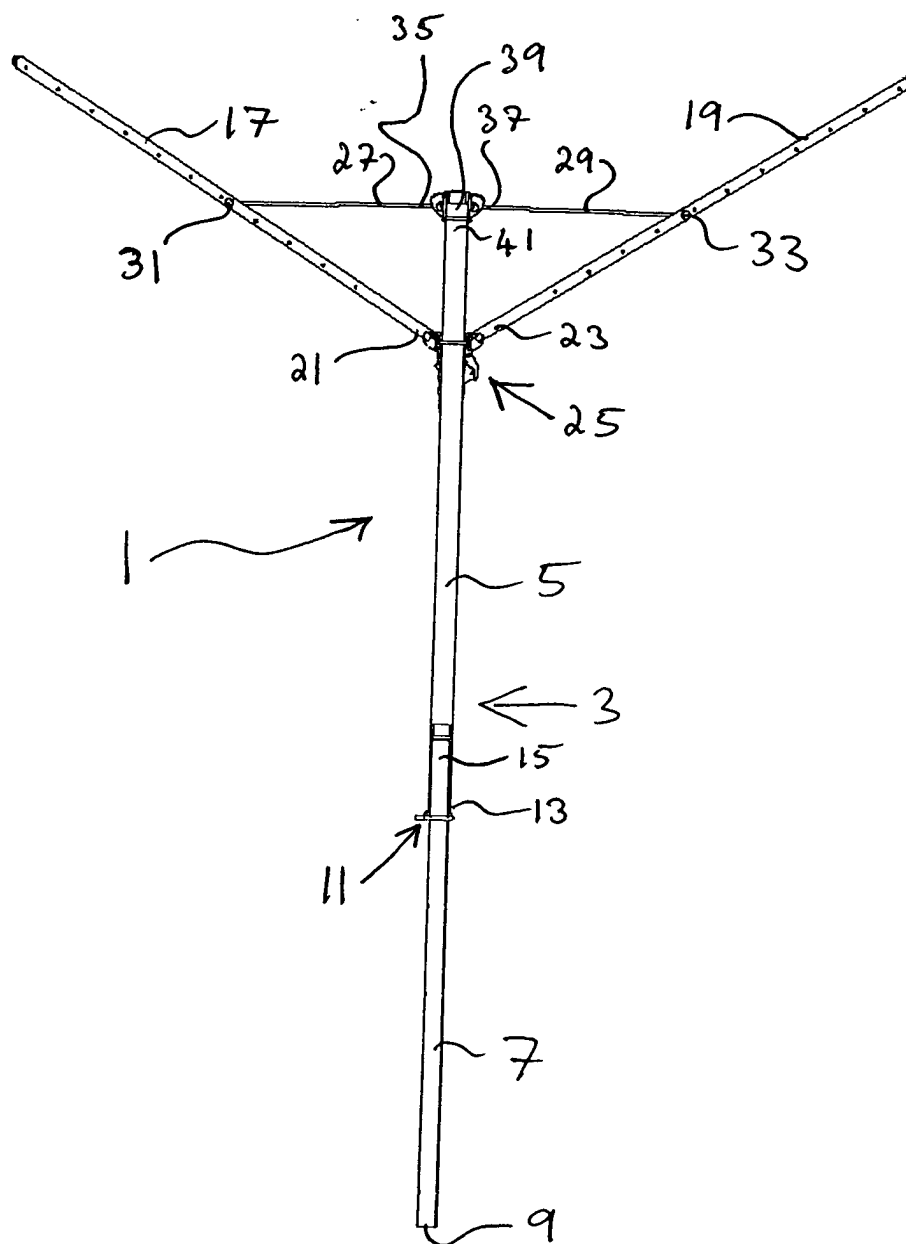


Figure 1

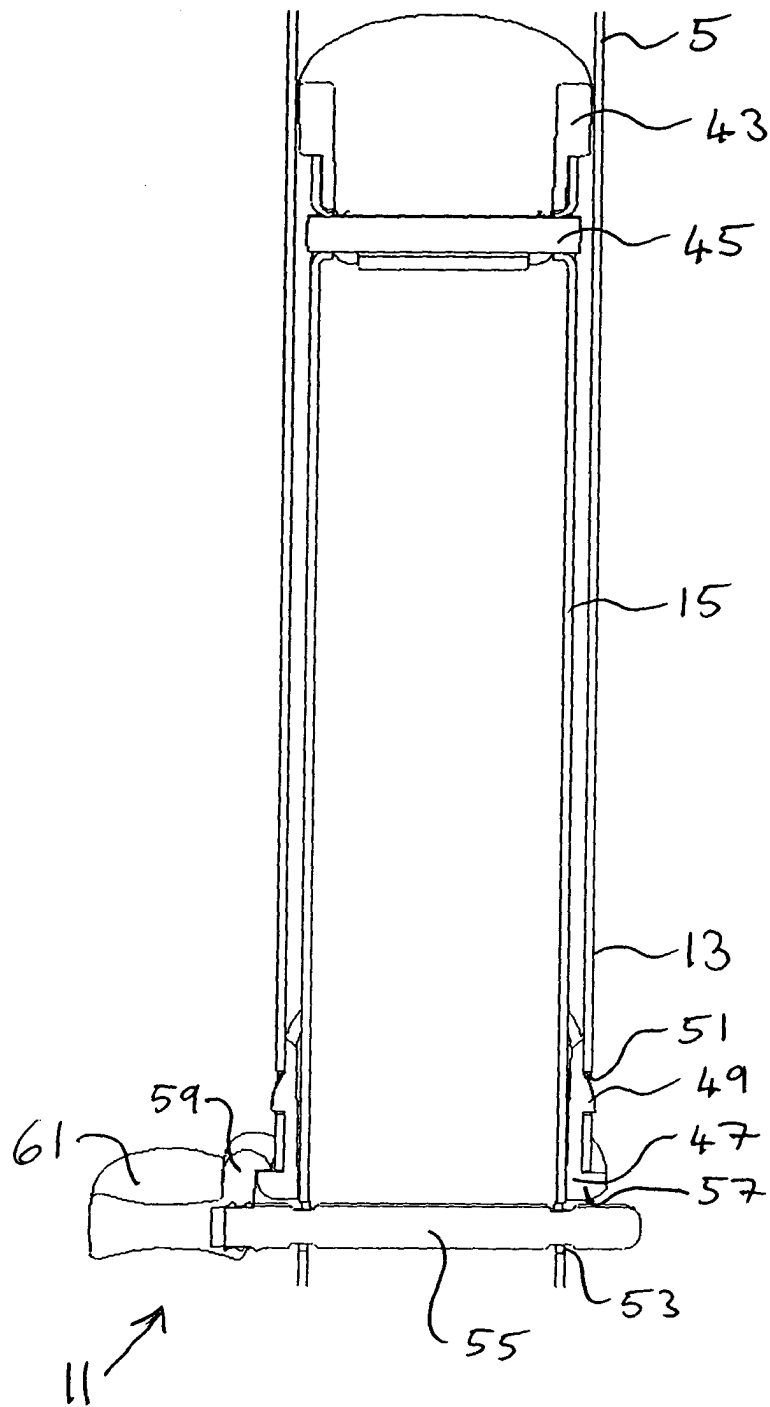


Figure 2

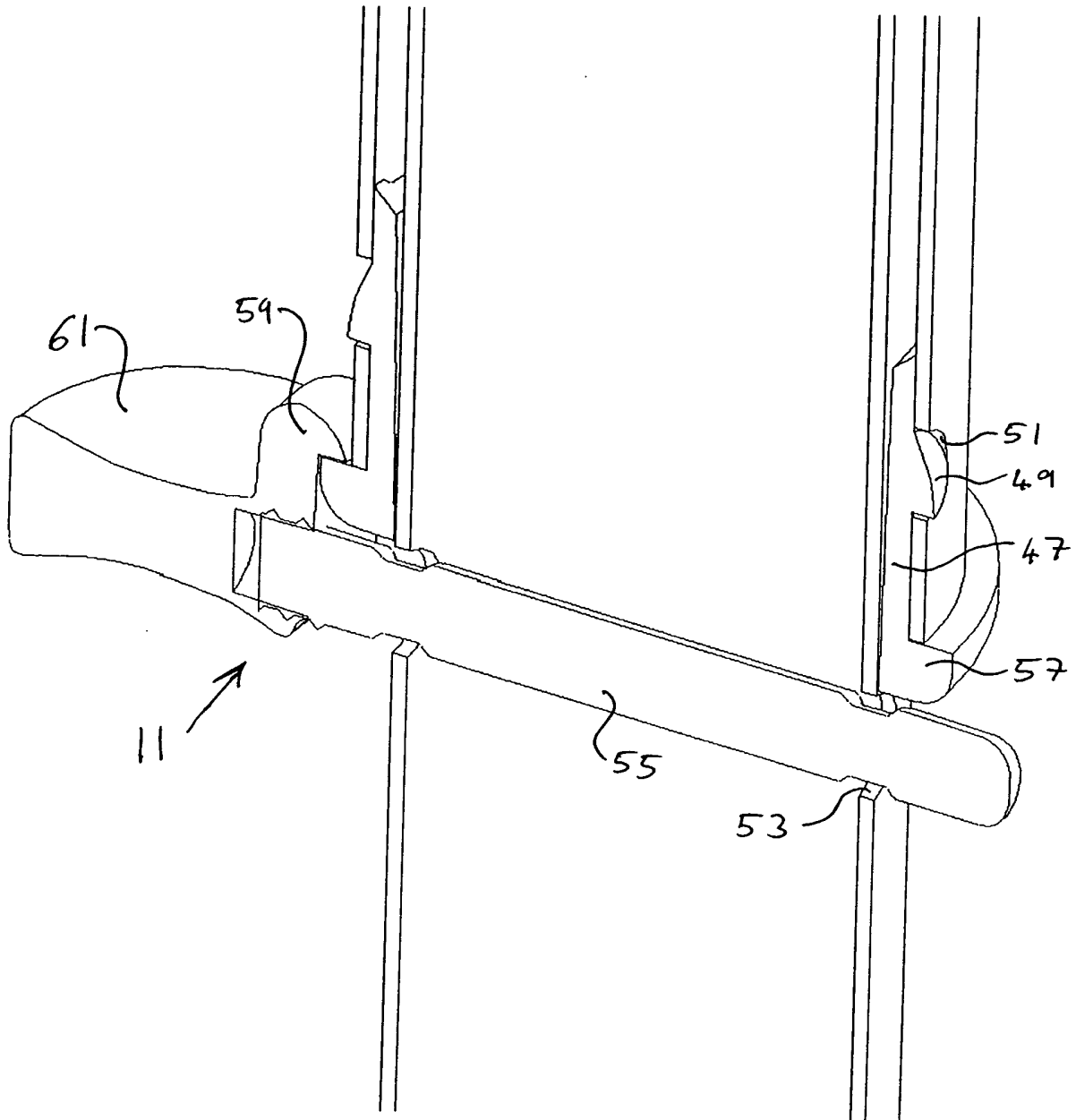


Figure 3

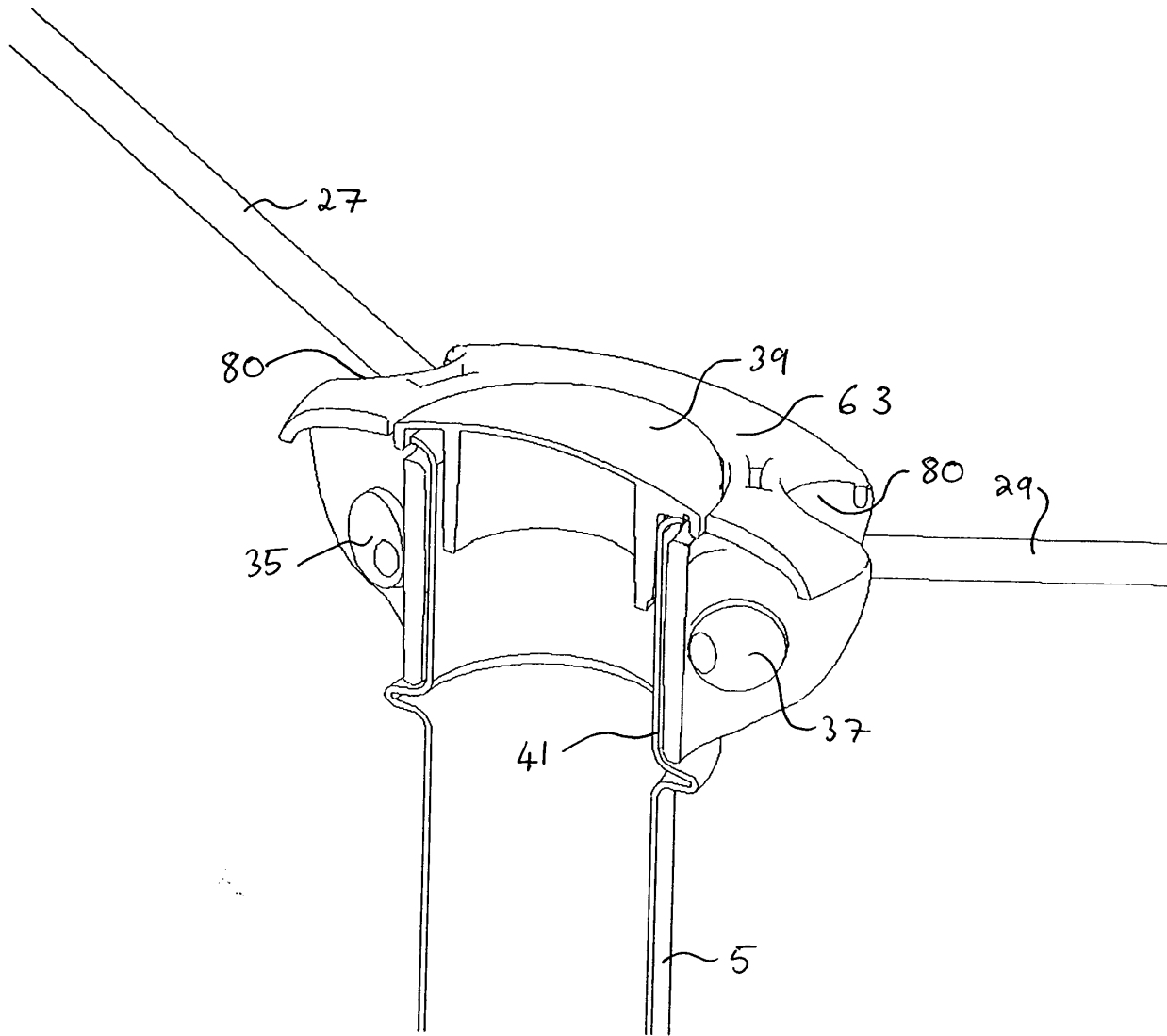


Figure 4

