

SPECIFICATION

Clothes drier

5 This invention relates to a clothes drier particularly, but not exclusively, suitable for use in a multi-storey block of flats.

In high rise residential apartments and multi-storey blocks of flats the provision of clothes drying areas is difficult particularly when it involves use of space otherwise required for living accommodation which may be at a considerable distance from the user's apartment. One way of avoiding this problem is to provide clothes drying facilities externally of the building, attached to the apartment wall outside and adjacent to the apartment window. Traditionally such clothes drying facilities were in the form of bamboo poles held by a metal supporting hanger or frame extending horizontally from the building wall. This traditional solution has many disadvantages not least of which is the danger to passers by of bamboo poles becoming dislodged and falling on them. Additionally it is difficult for the user to put clothes on or take clothes off the bamboo poles in safety as it is necessary to bring the whole pole to the window area for clothes to be attached to or detached from the pole.

There is thus a need for a generally improved clothes drier which affords easier access to a user with greater safety both to the user and to passers by.

Accordingly the present invention provides a clothes drier having at least two elongated spaced apart substantially parallel, in register, frame members mountable on the same one support surface to project therefrom or to extend substantially parallel thereto, at least two spaced apart, elongated support members extending between the two frame members, and extending between the two support members, at least one endless ring of flexible wire or cord having two side by side runs to which clothes to be dried may be removably attached, the wire or cord being movably attached to the support members to permit axial displacement of one run relative to the other and relative to the support members, whereby in operation of the drier a selected point on a run may be displaced into or out of reach of a user of the drier.

Preferably the at least one ring extends between and passes through two facing substantially semi-circular tubes or U-section channels removably or fixedly secured one to each support member. At least one support member, and preferably two, is adapted to be moved towards or away from the other support member to tension or permit replacement of the ring. To this end the or each movable support member preferably is slidably mounted at its end in the two frame members, releasable means being provided for displacing the or each movable support member towards or away from the other support member. Advantageously the release means includes an elongated bar attached at one end, substantially at right angles, to one support member and releasably securable at the other end at various positions along the bar, to the other support

member.

Advantageously, the flexible cord is made from nylon (Trade Mark) or other synthetic fibre, rope or other natural fibre and preferably there is a plurality of said rings.

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:

Figure 1 is a plan view from above of a clothes drier according to a first embodiment of the invention, shown attached to a support surface in the form of a wall,

Figure 2 is a side elevational view of the clothes drier of Figure 1,

Figure 3 is a plan view of a detail referenced A of Figure 1 to an enlarged scale,

Figure 4 is a partially sectioned end view from the bottom of Figure 2,

Figure 5 is a partially sectioned side end view from the left of Figure 3,

Figure 6 is a plan view to an enlarged scale of a detail referenced B of the clothes drier of Figure 1,

Figure 7 is an end view from the bottom of the detail of Figure 6, and

Figure 8 is a partially sectioned side view from the left of the detail of Figure 6.

Referring now to the accompanying drawings, a clothes drier according to a first embodiment of the invention, as illustrated particularly in Figures 1 and 2 thereof, includes at least two spaced apart, preferably in register, substantially parallel, support members 1 and 2 adapted for mounting on the same one support surface 3 such as an exterior wall of a multi-storey block of flats or housing apartments to project therefrom as shown particularly in Figure 2 of the drawings. Extending between the two support members 1 and 2 is at least one endless ring generally referenced 4 of flexible wire or cord having side by side runs 4a and 4b to which clothes to be dried may be removably attached such as, for example, by clothes pegs. In the embodiment of the invention illustrated in Figure 1 of the accompanying drawings four such rings 4 are provided in side by side spaced apart array, although any other convenient number of rings may alternatively be employed.

However many rings 4 are provided each one is movably attached to the support members 1 and 2 in a manner such as to permit axial displacement of one run 4a relative to the other run 4b and relative to the support members 1 and 2. In this way in operation of the clothes drier a selected point on a run 4a or 4b may be displaced into or out of reach of a user of the drier.

To this end the ring 4 extends between and passes through two facing substantially semi-circular tubes or U-section channels 5 removably or fixedly secured at their bases one to each support member 1 and 2, these tubes or channels may be made of any convenient material such as plastics, preferably nylon (Trade Mark), or metal and conveniently are secured to the support members 1 and 2 in any convenient way such as by being clamped thereto by a clamp 6 and bolt 7 as shown in Figures 1, 3, 4 and 5

of the drawings. A mounting plate 8 may be provided on the support member 1 and 2 for attachment of the clamp 6 thereto. Preferably the support members 1 and 2 are elongated in form made of plastics or metal, tubular or solid, and the mounting plate 8 is either integrally cast therewith, machined thereon or secured thereto in any convenient manner such as by welding. In the embodiment illustrated the support members 1 and 2 are metal tubes.

As shown in Figure 1 the two support members 1 and 2 extend in register substantially parallel to one another and at least the support member 2 is adapted to be moved towards or away from the other support member 1 to tension or permit replacement of the ring or rings 4 extending therebetween. Therefore, the movable support member 2 is slidably mounted at its ends to 2a and 2b into elongated spaced apart, substantially parallel, in register, frame members 9. Preferably these frame members 9 are made of metal such as galvanised mild steel tubes and are secured at their outer ends by a cross bar 10 made from the same material and connected to the members 9 by elbows 11. Alternatively the members 9 and cross bar 10 may be made of heavy duty plastics material either solid or tubular.

As shown in Figures 3, 4 and 5 which illustrate, to an enlarged scale, the detail referenced A in Figure 1, the end 2b of the movable support member 2 is slidably mounted in an open mouthed guide channel 12 fixedly secured to the side of the frame member 9 directed inwardly of the drier and extending along substantially the whole length of the frame member 9. In the embodiment illustrated the guide channel is provided by an open mouthed section of rectangular tube welded to the metal frame member 9 so that its open mouth is directed towards the tube or channels 5 conveniently locating means such as a nut and washer 14 are provided on the support member ends to locate the member positively against movement axially thereof in the guide channels 12. These nuts 13 preferably are movable along threads provided on the ends of the member 2 to allow for precise axial location of the member. Additionally a slide surface may be provided between the washer 14 and outer edges of the guide channel 12 to reduce friction therebetween. Conveniently this slide surface is a bush 15 made of material having a low coefficient friction such as nylon (Trade Mark) or other suitable plastics material.

In order to locate the movable support member 2 releasably in the guide channels 12 releasable means are provided. These releasable means also enable the movable support member 2 to be displaced towards or away from the support member 1. In the embodiment illustrated the releasable means includes an elongated bar 16 made from any convenient material either plastics or metal, solid or tubular. Preferably the bar 16 is tubular and made of metal such as galvanised mild steel, iron, aluminium or stainless steel. This bar 16 is fixedly attached at one end by means of a socket or tee-piece 16a to the movable support member 2, substantially in the middle of the member 2 and substantially at right

angles to the member 2. The other end of the bar 16 is releasably securable at various positions along the bar to the support member 1. As illustrated in Figures 6, 7 and 8 which show the detail referenced B in Figure 1 to an enlarged scale, the end 16b of the bar 16 is attached by means of a clamp in the form of a U-section portion 17 and co-operating bolt 18 screw threadably engaged with corresponding threaded apertures in the arms of the U-section portion 17 which is secured in any convenient manner to the member 1. Conveniently the portion 17 is made of mild steel and welded to the mild steel tube forming the member 1. As shown in Figures 6, 7 and 8 the end 16b of the bar 16 is threaded and provided with a nut 19 and washer 20 which may be set at various positions along the threaded portion of the end 16b in order to vary the length of the bar 16 between the members 1 and 2. In this way the distance between the bars 1 and 2 may be varied, for example, to tension the runs 4a and 4b of the ring or rings 4 extending between the tube or channels 5 to take up slack in the ring or rings 4 occurring either through use or under load. This adjustment may be made by slackening the bolt 18 of the clamp portion 17 and screwing the nut 19 in either direction along the threaded portion of the bar end 16b as desired. Additionally, the end 16b of the bar 16 can be unclamped from the clamp portion 17 and removed therefrom, preferably by first removing the bolt 18 from the arms of the clamp portion 17, and the movable support member 2 drawn back along the guide channels 12 towards the member 1 by pulling back the bar 16 over the member 1. In this way the movable support member 2 can be brought back to an accessible position in which the tube or channels 5 attached thereto are likewise accessible in order to permit them to be removed from the member 2 for replacement or repair or to enable a new ring or rings 4 to be inserted in the appropriate tube or channel 5 on the member 2.

As aforesaid the clothes drier of the invention, in use, is attached to the support surface 3 to extend therefrom. In the illustrated embodiment the frame members 9 are attached at their ends remote from the cross bar 10 to the support surface 3. This is done by locating the ends of the frame members 9 in sockets 21 secured to brackets 22 fixed in any convenient way such as by masonry bolts 23 to the support surface 3. In the illustrated embodiment the sockets 21 are made of mild steel pipe welded to the brackets 22 which are in the form of angle steel. In order to support the extended frame members 9 at least partially, in use, struts 24 are provided to extend between the members 9 and lowermost portions of the appropriate brackets 22. These struts 24 can be made of any convenient material and attached to the members 9 and brackets 22 in any convenient manner such as by rivets or bolts.

Thus in use the clothes drier of this embodiment of the invention is secured by means of the brackets 22 and sockets 21 to the exterior wall of an apartment of a block of flats to project therefrom preferably immediately below a window of the apartment. The clothes drier can project at any convenient angle but preferably, as illustrated, pro-

jects substantially horizontally from the surface 3. In this location the rings 4 extend with their runs 4a and 4b substantially at right angles to the support surface 3 between the movable member 2 which is outermost and the fixed member 1 which is innermost with respect to and spaced from the support surface 3. The releasable end 16b of the bar 16 is located on the member 1 adjacent the window in the support surface 3. This ensures that the runs 4a and 4b of the rings 4 may be easily tensioned by means of the clamp portion 17, bolt 18 and nut 19 on the end 16b of the bar 16. Likewise the support member 2 may be slid back along the guide channels 12 for access by appropriate release of the end 16b of the bar 16 and axial displacement of the bar 16 through the window aperture in the support surface 3.

With the clothes drier of the illustrated embodiment attached as aforesaid to the support surface 3, clothes may be attached, for example by pegs, to one or other of the runs 4a, 4b of the rings 4 by the user leaning out of the window in the support surface 3. Thus for example if clothes are attached to the run 4b immediately adjacent the appropriate semi-circular tube or channel 5 on the support member 1, it is possible to move the thus attached item of clothes away from the support member 1 by pulling the other run 4a towards the support member 1. By pulling the run 4a axially towards the support member 1 sufficiently to provide a further clear section on the run 4b immediately adjacent the support member 1 it is possible to attach a further unit of clothes to the thus provided clear portion on the run 4b. Proceeding in this manner a run 4b may be completely filled with units of clothes to be dried which thus extend from the support member 1 to the support member 2. In order to bring back the items of clothes attached to the run 4b into reach of a user leaning from the window in the support surface 3, the user merely detaches the nearest unit of clothes from the run 4b and pulls the run 4b back through the semi-circular tube or channels 5 until the next unit of clothes on the run 4b becomes accessible. Of course, it is possible at this stage to attach further items of clothes to be dried to the run 4a with the result that when all the clothes on the run 4b have been removed successively a further series of clothes to be dried completely fills the run 4a and extends between the members 1 and 2.

Alternatively instead of attaching the clothes drier of the invention to a wall surface 3 so that the frame members 9 extend substantially at right angles thereto, it is possible in a manner not shown to mount the clothes drier such that one of the frame members 9 is attached to the support surface 3 to extend substantially parallel thereto so that the support members 1 and 2 project therefrom substantially at right angles to the support surface 3. In this embodiment of the invention a cross bar (not shown) similar to cross bar 10 is attached at the other ends of the two frame members 9 to complete the rectangular frame. One of the frame members 9 is attached to the wall surface 3 in any convenient manner such as by clamps and support struts such as 24 are provided between the wall surface and the cross bars. In this embodiment items of clothes to be

dried are attached to the runs 4a and 4b and removed therefrom when necessary in the same manner as described in connection with the previous embodiments, by axial displacement of the appropriate run of the ring 4. With this form of construction a long clothes drier can extend across a relatively small window opening and points on the runs of the ring 4 may be brought to a position of access opposite the window by axial displacement of the runs as described in connection with the foregoing embodiment. In this way the otherwise inaccessible space on either side of the window opening can be utilised for clothes drying.

With this alternative embodiment of the invention the runs of the rings from the innermost ring to the outermost ring of the clothes drier may be accessible to the user from the window in the support surface. However, if this is not so the support members 1 and 2 may be made movable in a plane passing vertically through their longitudinal axes, with respect to the wall surface 3 in any convenient manner such as by hinging on the frame member 9 nearest to the wall surface. Additionally, in this embodiment both support members 1 and 2 are made movable in the guide channels 12 for the purpose of tensioning the runs of the rings 4 or in order to bring both sets of semi-circular tube or channels 5 into a position of access for the user leaning out of a window in the wall surface 3 so that the rings may be replaced when necessary or the channels 5 repaired or otherwise attended to. This conveniently is done by mounting the support member 1 in the guide channel 12 in the same manner as the support member 2 in the previous embodiment and by making the bar 16 releasably securable to the member 2 in the same way as it is made releasably securable to the member 1 in the first embodiment. Alternatively, or additionally, the bar 16 can be provided with adjustment means intermediate its ends whereby it can be varied in length or even releasably separated into two half lengths so that individual members 1 and 2 can be brought back separately by axial displacement of the appropriate half length of the disconnected bar 16.

Of course, the components of the clothes drier of the invention can be made in any convenient manner from any convenient material. Thus the semi-circular tubes or channels five can be made of metal but preferably are made of a low friction material such as a synthetic plastics, preferably nylon (Trade Mark). Similarly the members 1, 2, 9, 21, 22 and 24 can be made of any convenient material such as angle iron, galvanised mild steel or iron pipe, aluminium or stainless steel. The flexible wire or cord constituting the endless ring or rings 4 can be made of metal wire, synthetic fibres such as nylon (Trade Mark) or natural fibres such as rope. A length of such wire or cord can be made into an endless ring by connecting the two free ends thereof together in any convenient manner provided that the connected ends do not foul the semi-circular tubes or channels 5 in a manner such as to prevent the desired axial movement of the runs of the ring 4 through the respective tubes or channel 5.

CLAIMS

1. A clothes drier having at least two elongated spaced apart substantially parallel, in register, frame members mountable on the same one support surface to project therefrom or to extend substantially parallel thereto, at least two spaced apart, elongated support members extending between the two frame members, and extending between the two support members, at least one endless ring of flexible wire or cord having two side by side runs to which clothes to be dried may be removably attached, the wire or cord being movably attached to the support members to permit axial displacement of one run relative to the other and relative to the support members, whereby in operation of the drier a selected point on a run may be displaced into or out of reach of a user of the drier.
2. A clothes drier according to claim 1, wherein the at least one ring extends between and passes through two facing substantially semi-circular tubes or U-section channels removably or fixedly secured one to each support member.
3. A clothes drier according to claim 2, wherein the tubes or channels are made of nylon (Trade Mark).
4. A clothes drier according to any one of claims 1 to 3, wherein the two support members extend in register substantially parallel to one another and at least one support member is adapted to be moved towards or away from the other support member to tension or permit replacement of the ring.
5. A clothes drier according to claim 4, wherein the movable support member is slidably mounted at its ends in or on the two frame members, releasable means being provided for displacing the movable support member towards or away from the other support member.
6. A clothes drier according to claim 5, wherein the releasable means includes an elongated bar attached at one end, substantially at right angles, to the movable support member, the other end of the bar being releasably securable, at various positions along the bar, to the other support member.
7. A clothes drier according to claim 6, wherein one of the frame members is attachable to the one support surface to extend substantially parallel thereto so that the support members project therefrom.
8. A clothes drier according to claim 7, wherein the other support member also is movably slidably mounted at its ends in the two frame members, the bar being actuatable to permit movement of both support members towards or away from one another.
9. A clothes drier according to claim 6, wherein both frame members are attachable at one end thereof to the same one support surface to project therefrom.
10. A clothes drier according to any one of claims 1 to 9, wherein the flexible cord is made from nylon (Trade Mark) or other synthetic fibre, rope or other natural fibre.
11. A clothes drier according to any one of claims 1 to 10, having a plurality of said rings.
12. A clothes drier substantially as hereinbefore-

described with reference to the accompanying drawings.

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