July 5, 1949. K. J. UNWIN 2,474,922

OUTSIDE CLOTHES DRIER

Filed April 12, 1946 2 Sheets-Sheet 1

Fig. 1.

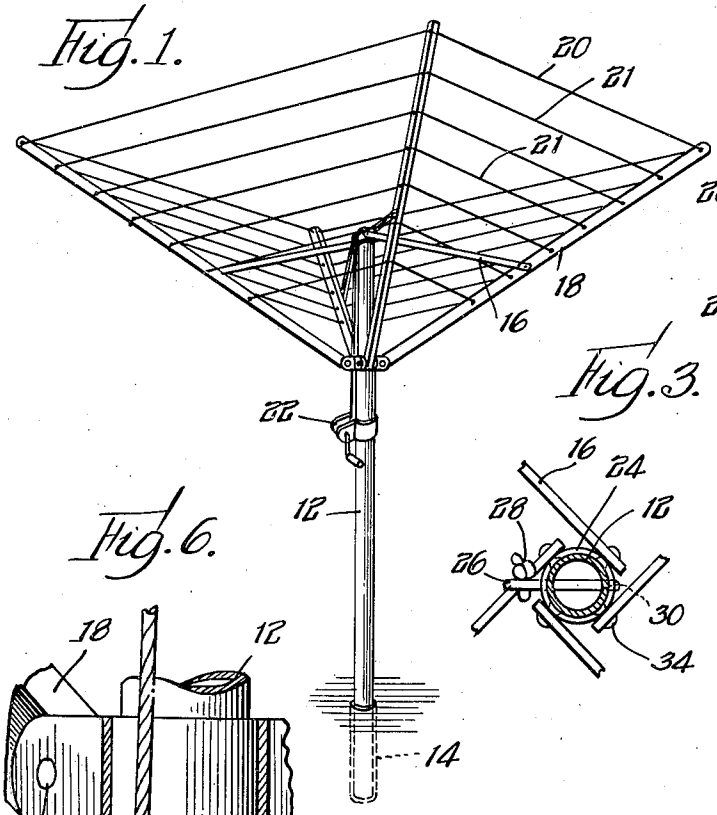


Fig. 2.

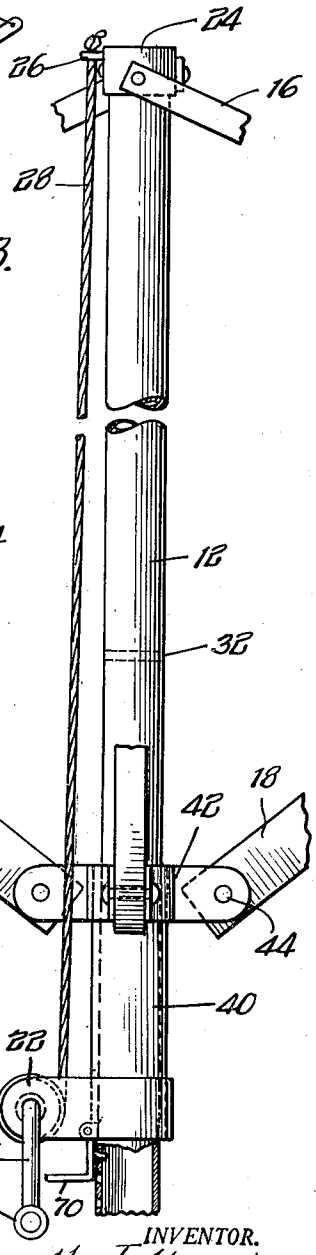


Fig. 3.

Fig. 6.

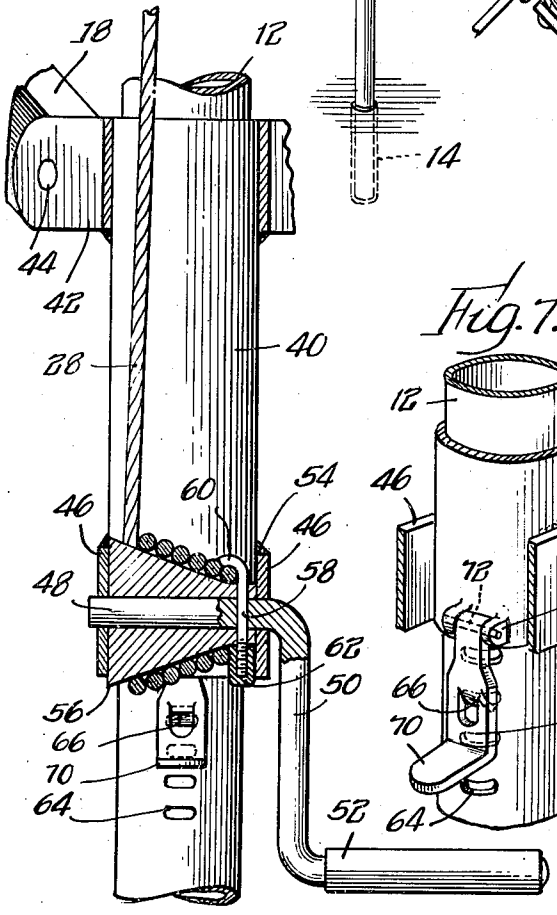


Fig. 7.

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Fig. 8.

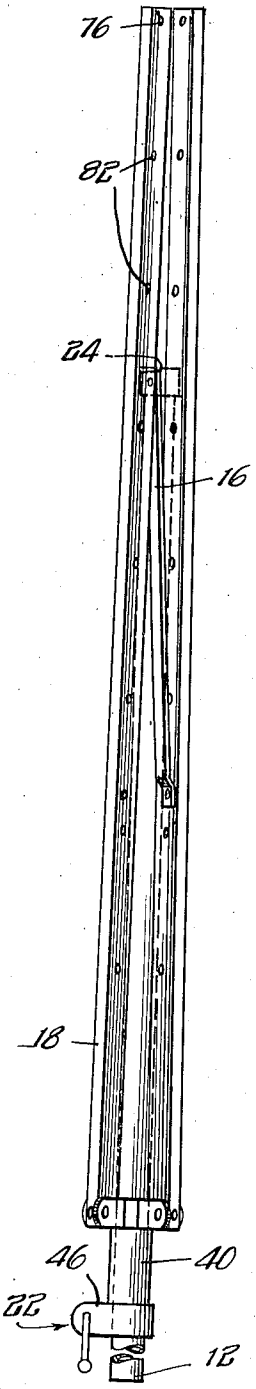


Fig. 4.

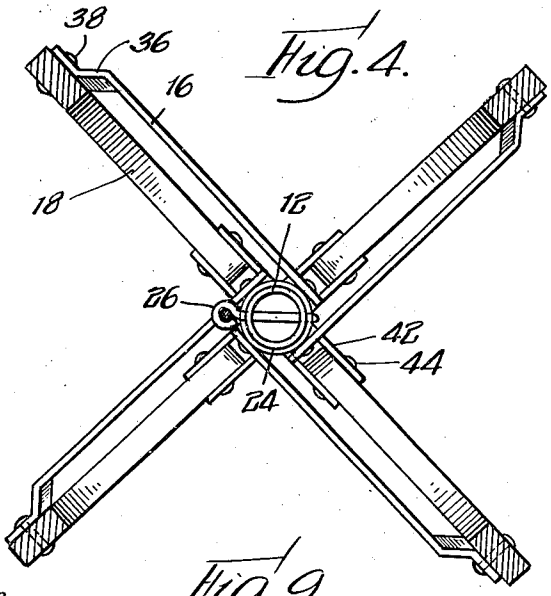


Fig. 9.



Fig. 10.

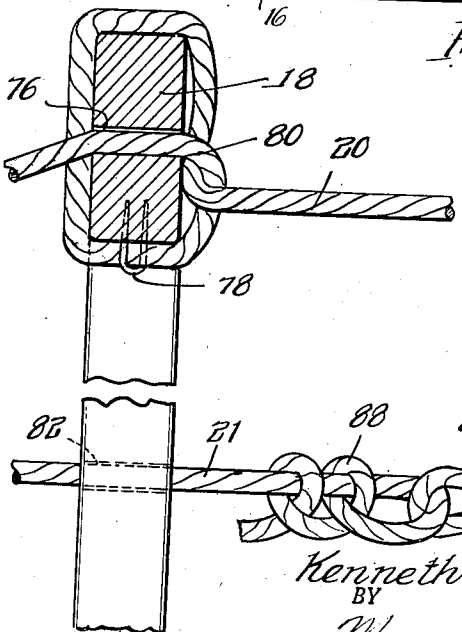


Fig. 5.

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OUTSIDE CLOTHES DRIER

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8 Claims. (Cl. 211—167)

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The present invention relates to a collapsible clothes drier of the type commonly employed outdoors in the yard.

Heretofore collapsible clothes driers have been provided for use out in the yard. Generally such driers have been mounted in a socket or receptacle so that the drier could be collapsed and moved to a place of storage. The conventional driers have the clothesline arms secured in position so that when the arms are folded they naturally extend a considerable distance beyond the top of the central supporting post. The folded or collapsed drier, therefore, has an over-all length greatly in excess of the central post which makes it extremely inconvenient to carry the drier to the place of storage.

It, therefore, would be desirable if some improved arrangement could be provided whereby the collapsed or folded drier were of a lesser over-all length.

Conventional driers have had clothesline arms connected to pivoted levers which generally have been in the same plane as the arm. Such an arrangement does not permit collapsing the arms into a compact position adjacent the central post. This arrangement of having the support levers in the same plane as the clothesline arms also encounters a further disadvantage in that frequently the clothesline becomes wedged between the arm and the lever. Conventional clothesline driers of this type have a further disadvantage in that the means for raising and lowering the arms does not provide a convenient leverage whereby a relatively small force might be employed for raising the arms to extended position. It, therefore, becomes apparent that several improvements could be made in clothes driers of this type.

In accordance with the present invention these and other disadvantages of the prior clothesline driers are overcome by an improved structure which permits a telescopic movement between the folded arms and the central post so that the over-all collapsed length of the drier does not exceed the length of the central support post.

Furthermore in accordance with the present invention an improved arrangement of supporting the clothesline's arm is provided which avoids entanglement and binding with the clothesline loops.

An improved arrangement is also provided for raising and lowering the arms, and the arms are furthermore connected to the uppermost clothesline in a manner so as to limit the movement of

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the arms in an angular direction in a generally horizontal manner when in extended position.

It, therefore, is an object of the present invention to provide an improved collapsible clothes drier which will overcome the above mentioned disadvantages and prior constructions.

A further object of the present invention is to provide an improved collapsible clothes drier which when folded or collapsed has an over-all length not in excess of the central supporting post.

A further object of the present invention is to provide an improved clothes drier which has an improved line arm supporting arrangement which permits a more compact collapsed package and which avoids binding entanglements with the clothesline loops.

A still further object of the present invention is to provide an improved raising and lowering mechanism for a collapsible clothes drier.

Other and further objects of the present invention subsequently will become apparent by reference to the following description taken in conjunction with the accompanying drawing wherein

Figure 1 is a perspective view of the clothes drier embodying the present invention when in open or expanded position;

Figure 2 is a partial side view illustrating certain details of the structure shown in Figure 1;

Figure 3 is a partial top view showing certain details at the center post;

Figure 4 is a partial top view showing certain details of the arm and lever construction;

Figure 5 is a detail view showing the manner of fastening the clotheslines to the arms;

Figure 6 is a detail view of the raising and lowering mechanism;

Figure 7 is a detail view of the latch of the mechanism shown in Figure 6;

Figure 8 shows the drier in folded or collapsed position;

Figure 9 shows the center pole position when the drier is first collapsed; and

Figure 10 shows a central post position when the drier is collapsed and telescoped for storage.

Referring to the drawing Figure 1 shows a clothesline drier embodying the present invention having a central supporting post 12 which is supported in a vertical position in a suitable fixture or socket 14 mounted in the ground. The central post 12 has a plurality of levers 16 hingedly secured adjacent the top of the post and hingedly secured to intermediate points on a plurality of clothesline arms 18 . A plurality of

clotheslines 20 are strung on the arms 18. A suitable lowering and raising mechanism 22 is provided so that the clothes drier may be collapsed or expanded. Since more commonly clothesline driers of this type have four arms 18, such construction has been illustrated in Figure 1 although it is to be understood that a lesser or greater number of arms and a corresponding number of levers may be employed.

Certain details of the construction and mounting of the arms and levers will become readily apparent by reference to Figures 2, 3 and 4 from which it will be seen that the upper extremity of each of the levers 16 is carried by a collar 24 which is secured to the top of the post 12 by a removable pin or cotter key 26. The cotter key 26 is provided with an eye for receiving the raising and lowering rope or cord 28 which is knotted at its upper end.

The post 12 adjacent its top is provided with a suitable aligned pair of openings 30 into which the pin 26 is fitted. At an intermediate point on the post another pair of aligned openings 32 is provided so that the collar 24 may be secured by the same pin 26 in a lowered position when a telescopic movement is to be obtained between the collapsed arms 18 and the central post 12 as subsequently will become apparent. Each of the arms 16 is pivotally mounted on the collar 24 by a suitable pivotal connection such as a rivet 34 so that the arm is in a plane tangential to the sleeve 24. The arms 16 are formed of metal and have adjacent their other extremity an offset portion 36 which is secured to an intermediate point on the arm 18 by another rivet or bolt 38. From Figure 4 it will be seen that the levers 16 and the arms 18 are arranged in parallel spaced apart planes so that adequate clearance is provided between the arms and levers to avoid pinching or binding the clothesline loops when the drier is being collapsed or folded.

Each of the arms 18 adjacent its lower extremity is pivotally secured to a movable sleeve 40 which surrounds the central post 12. The sleeve 40 is provided with a plurality of pairs of outwardly extending ears 42 which fit on opposite sides of the wooden clothesline arms 18. A rivet or bolt 44 is passed through an aperture in each of the ears 42 and in the arm 18. The sleeve 40 adjacent its lower end carries the raising and lowering mechanism 22.

The details of the raising and lowering mechanism are illustrated in Figures 6 and 7. This mechanism includes a pair of arms 46 provided with suitable apertures for receiving the crank shaft 48. The crank shaft 48 has an arm portion 50 and a handle portion 52. The arms or brackets 46 may be formed of a single strip of metal which partially surrounds the sleeve 40 as is apparent from Figure 7 and which may be secured by welding or brazing which forms a fillet 54. The crank shaft 48 is provided with a frusto-conical drum 56 so as to form a winch about which the raising and lowering cord or rope 28 is wound and unwound. The frusto-conical drum 56 may be secured to the crank shaft 48 in any suitable manner including a clamp 58 which consists of a hook member having a hook portion 60 for engaging one extremity of the rope 28. The other extremity of the member 58 is threaded and provided with a nut 62. The nut 62 when tightened causes the hook portion 60 to frictionally engage the end of the rope 28 so as to secure the rope to the winch or frusto-conical drum 56.

The post 12 in the region of the lower extremity of the sleeve 40 when the arms 18 are in expanded position as shown in Figure 1 is provided with a plurality of apertures 64. The apertures or recesses 64 are adapted to be engaged by a projection 66 on a latch 68 which has a finger grip portion 70. The latch 68 is hingedly connected to the sleeve 40 by a pin 72 which passes through outwardly extending ears 74 which may be integrally formed with the lower portion of the sleeve 40. This latch 68 is designed so that its projection 66 will enter the apertures or recesses 64 when they become aligned by gravity.

When the central post 12 is placed into the socket 14 and the sleeve 24 is positioned adjacent the top of the post 12, the arms 18 are arranged in a vertical position such as shown in Figure 8. Actuation of the handle 52 will cause the winch to wind the cord or rope 28 around the frusto-conical drum 56 thus causing the sleeve 40 to move upwardly and move the arms 18 outwardly. When the sleeve 40 has moved up sufficiently to bring the arms 18 to their normal open position so that the clotheslines 20 are substantially taut, the projection 66 automatically enters by gravity one of the recesses or apertures 64 so as to hold the sleeve 40 in locked position.

The outer extremities of the arms 18 are interconnected by the outer clothesline 20 which is secured to each of the arms 18 in the manner illustrated in Figure 5. Each arm 18 adjacent its outer extremity is provided with an aperture 76 through which the clothesline 20 is passed. The clothesline 20 surrounds the entire arm 18 and is further secured in position by suitable means such as a staple 78. It will be noted that the line 20 adjacent the opening 76 crosses over itself in the form of a knot 80, spacing the arms 18 by the friction of the loop and also by the fastener 78. Thus the outer extremities of each of the arms 18 are protected against angular displacement in a generally horizontal plane due to the limiting action of the outer clothesline 20. Thus if heavier clothes are hung on one side of the structure than on the other, there will be no tendency toward distorting the normal extended position or configuration of the clothes drier, which is a cause of breakage in the conventional type. Each of the arms 18 is further provided with other apertures 82 through which are passed the secondary or inner clotheslines 21. Preferably all of the clotheslines are joined together in a manner illustrated in Figure 5 where one end of the clotheslines is provided with a loop 84 formed by the use of a suitable ferrule or clamp 86. The other end of the clothesline 21 is passed through the loop 84 and then secured in a suitable knot 88. For purposes of clarity in disclosure the clothesline 21 in Figure 5 has been shown with considerably more space between the convolutions of the line than as practically used, in order to illustrate more clearly the structure of the loop 84 and the knot 88.

In order to lower the clothesline arms to collapsed or folded position, the crank is rotated by the handle 52 causing tension on the cord 28. This releases the load on the latch 68 which then may be manually moved outwardly to disengage the projection 66 from the aperture 64 in the post 12. Thereafter the winch is actuated to release the wound up cord 28 with the result that sleeve 40 and arms 18 are lowered until they eventually reach a position such as shown in Figure 8. From this figure and also from Figure 9 it will be seen that the upper extremity of the post 12 as indicated by the sleeve 24 is an ap-

preciable distance below the extremities of the arms 18. The central post 12 is then removed from its socket 14 and may be laid down. Thereafter the pin 26 is removed from the sleeve 24 and the post 12 is shifted so that its upper end is substantially in alignment with the upper end of the arms 18 so as to be in a position such as shown in Figure 10. The collar or sleeve 24 thereupon is located at an intermediate point on the post 12 and the pin 26 thereupon is inserted in the apertures 32 illustrated in Figure 2. This will then retain the arms and levers in the position shown in Figure 10 wherefrom it will be seen that the collapsed structure is of a great deal lesser length than that illustrated in Figure 9. Due to the off-set construction of the levers 16, the arms 18 assume positions substantially parallel to the post 12. The off-set construction of the arms 18 also prevents any entanglement with the loops of the clotheslines 20 and 21 which are formed when the structure is folded or collapsed. The telescoped drier as shown in Figure 10 is then conveniently and readily transported to a storage place.

The frusto-conical drum 56 of the raising and lower winch 22 has the advantage of providing a mechanical arrangement so that when the weight of the arms is at its maximum such as in the position shown in Figure 8, the drum 56 has its smallest diameter with respect to the rope 28, when the operator is in a stooped position. As the arms move outwardly toward the position shown in Figure 1, a lesser force is required to raise them. Hence as this position is approached, the diameter of the drum 56 increases. Thus the arms continue to move outwardly by an increasing rate so that considerable speed is obtained in unfolding the drier without requiring excessive force. When the arms are lowered to a collapsed or folded position as the weight of the arm becomes greater, again an advantageous moment arm relation is obtained due to the frusto-conical construction of the drum 56. In fact, upon releasing the latch 70 the winch is so designed so as to fold up substantially by itself without much if any unwinding of the crank arm 50.

By the provision of the latch 68 which cooperates selectively with the recesses 64, it is possible to elevate the arms 18 so that practically all slack in the lines will be taken up. A plurality of recesses 64 therefore makes it possible to take up the slack from time to time which otherwise occurs in a construction where only a single position is provided for the sleeve 40. The simplified manner of securing the intermediate lines 21 by the loop and knot method illustrated in Figure 5 also permits taking up the slack in the remaining lines without the necessity of undoing a complicated knot, or having two adjacent holes for each rope as is usual.

From the foregoing it will be seen that the clothes drier thus described embodies many unique features which provide certain definite advantages. In order to describe the invention and to set forth there advantages, the drawings show a particular embodiment. It is to be understood, however, that the invention is not to be limited thereby since such variations in the construction and the arrangement of parts and use of different materials are contemplated as may be commensurate with the spirit and scope of the invention set forth in the following claims.

This invention is hereby claimed as follows:

1. A clothes drier comprising a central post

adapted to be mounted vertically, a first sleeve surrounding said post, a plurality of clothesline arms pivotally mounted on said sleeve, a winch having a frusto-conical drum mounted on said sleeve, a latching member mounted on said sleeve and restraining movement of said sleeve relative to said post, a second sleeve normally positioned adjacent the top of said post, a plurality of offset levers pivotally connected to said second sleeve and to intermediate portions on said arms, each lever being in a plane parallel to the movement of its associated arm, and a rope interconnecting said second sleeve with said winch to raise said first sleeve.

2. A collapsible clothes drier comprising a tubular post adapted to be mounted vertically in a socket, a sleeve surrounding said post, a plurality of clothesline arms of wood pivotally mounted on said sleeve, a winch mounted on said sleeve, a latching member pivotally mounted on said sleeve, said latching member having means to engage said post for restraining movement of said sleeve relative to said post, a second sleeve for said post arranged to be located in either of two positions and normally positioned adjacent the top of said post, a plurality of off-set metal levers pivotally connected to said latter sleeve and to intermediate points on said arms, each lever being in a plane parallel to the plane of movement of its associated arm, and a rope interconnecting said latter sleeve with said winch to raise the clothesline arms.

3. A collapsible clothes drier comprising a cylindrical central post adapted to be mounted vertically in a socket, a movable sleeve surrounding said post, a plurality of clothesline arms pivotally mounted on said sleeve, a winch of frusto-conical shape mounted on said sleeve, a latching member mounted on said sleeve and having means for latching said sleeve on said post in any one of a predetermined number of adjacent positions, a second sleeve adjustably mounted adjacent the top of said post, a plurality of levers pivotally connected to said latter sleeve and to intermediate points on said arms, each of said levers adjacent to said arms being off-set so as to be in a plane spaced parallel to the plane of movement of its associated arm, and a rope interconnecting said latter sleeve with said winch to raise or lower the movable sleeve.

4. A collapsible clothes drier comprising a central post adapted to be mounted in a vertical position in a support member, a movable sleeve surrounding said post and carrying a latch having means for securing said sleeve to said post in a plurality of positions, a frusto-conical winch, a plurality of hingedly connected clothesline arms of wood, a second sleeve adjustably mounted adjacent the upper extremity of said post, a rope interconnecting said second sleeve and said winch, and a plurality of levers each connected at one end to said second sleeve and at the other end to one side of one of said arms, said levers being formed of metal with an off-set portion adjacent its associated arm so that the body of the lever is in a plane spaced from the plane of movement of its associated arm.

5. A collapsible clothes drier comprising a central post adapted to be mounted in a vertical position in a support member, a movable sleeve surrounding said post and carrying a latch having means for securing said sleeve to said post in different positions, a frusto-conical winch mounted on said post, a plurality of hingedly connected clothesline arms of wood, a second

sleeve adjustably mounted at the upper extremity of said post, a rope interconnecting said sleeve and said winch, a plurality of levers each connected at one end to said latter sleeve and at the other end to one side of one of said arms, said levers being formed of metal with an off-set portion adjacent its associated arm so that the body of the lever is in a plane spaced from the plane of movement of its associated arm, and a clothesline interconnecting the extremities of said arms and being fixedly secured to each arm to limit the movement thereof in extended position.

6. A collapsible clothes drier comprising a central post adapted to be mounted in a vertical position, a movable sleeve surrounding said post and carrying means for securing said sleeve in certain positions on said post, a plurality of clothesline arms hingedly connected at one end to said movable sleeve, a second sleeve, a plurality of levers each connected at one end tangentially to said second sleeve and at the other end to one side of one of said arms, said levers being formed with an off-set portion adjacent the associated arm so that the body of the lever is in a plane spaced from the plane of movement from its associated arm, said second sleeve being arranged to be fixed in either of two positions one of which is at the upper extremity of said post, the other of which is at an intermediate point on said post whereby in collapsed position the arms and interconnecting levers may be telescoped relative to said central post, and means interconnecting said sleeves for raising and lowering said arms and levers.

7. A clothes drier comprising a central post adapted to be mounted vertically, a sleeve surrounding said post, a plurality of clothesline arms each pivotally mounted at one end on said sleeve, a second sleeve positionable adjacent the

end of said post, a plurality of levers pivotally connected at one end tangentially to said latter sleeve and at the other end to intermediate portions on said arms, each lever being off-set in a plane parallel to the plane of movement of its associated arms, means interconnecting said sleeves for raising and lowering said arms, said means including a winch having a frusto-conical drum mounted on said first sleeve and means for securing said first sleeve in any one of a number of predetermined positions.

8. A clothes drier comprising a central post adapted to be mounted vertically, a sleeve surrounding said post, a plurality of clothesline arms each pivotally mounted at one end on said sleeve, a plurality of levers pivotally connected at one end to intermediate portions on said arms and at the opposite end to said post adjacent one extremity, each lever being in a plane parallel to the movement of its associated arm, a winch mounted on said sleeve, a gravity operated latching member mounted on said sleeve and having means for restraining movement of said sleeve relative to said post, and a rope interconnecting said winch and said post adjacent its extremity to raise or lower the winch.

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