

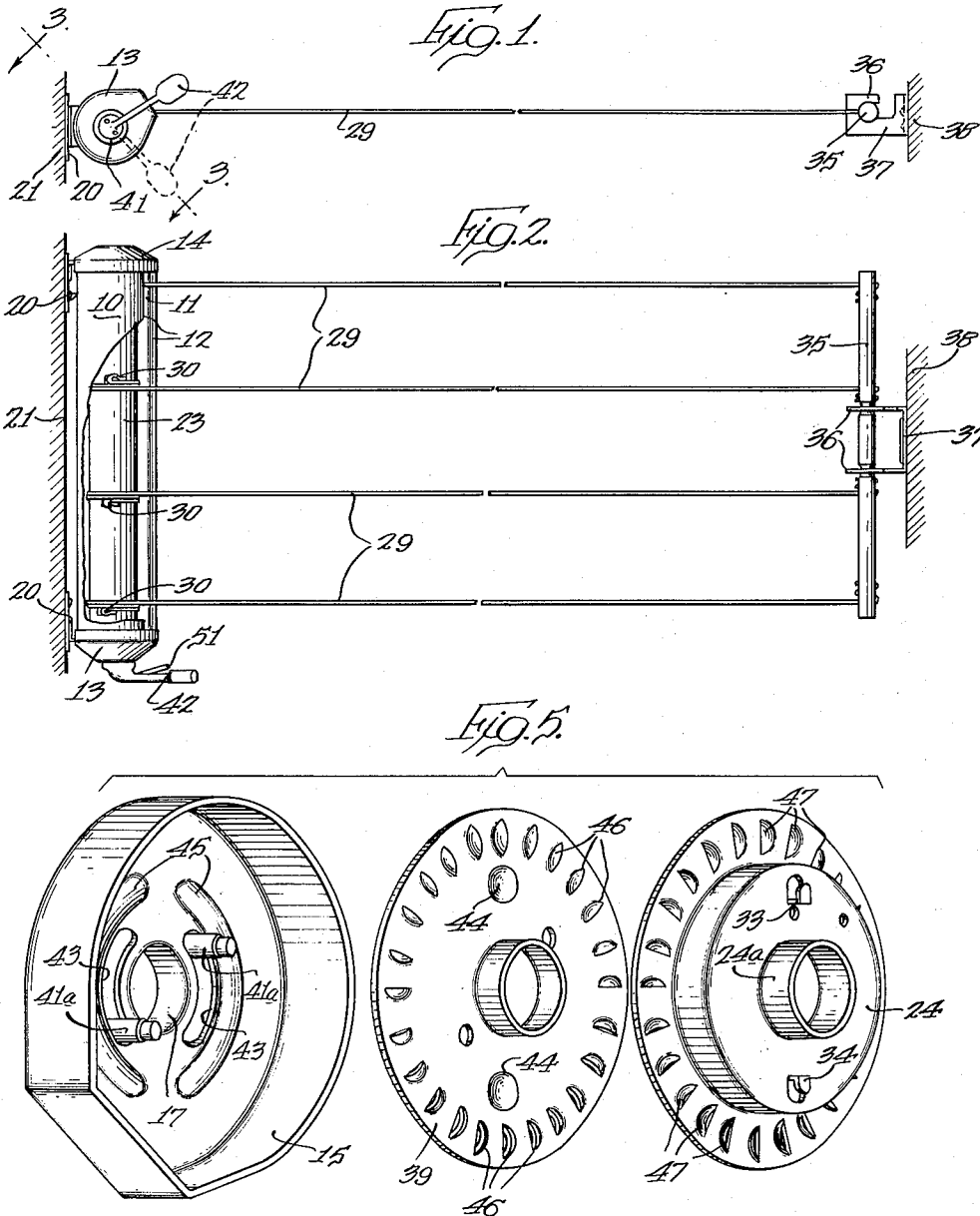
June 20, 1961

R. M. MEHL
CLOTHES DRYING UNIT

2,989,267

Filed Aug. 27, 1957

3 Sheets-Sheet 1



INVENTOR.

Ross M. Mehl
BY Roy E. Petherbridge

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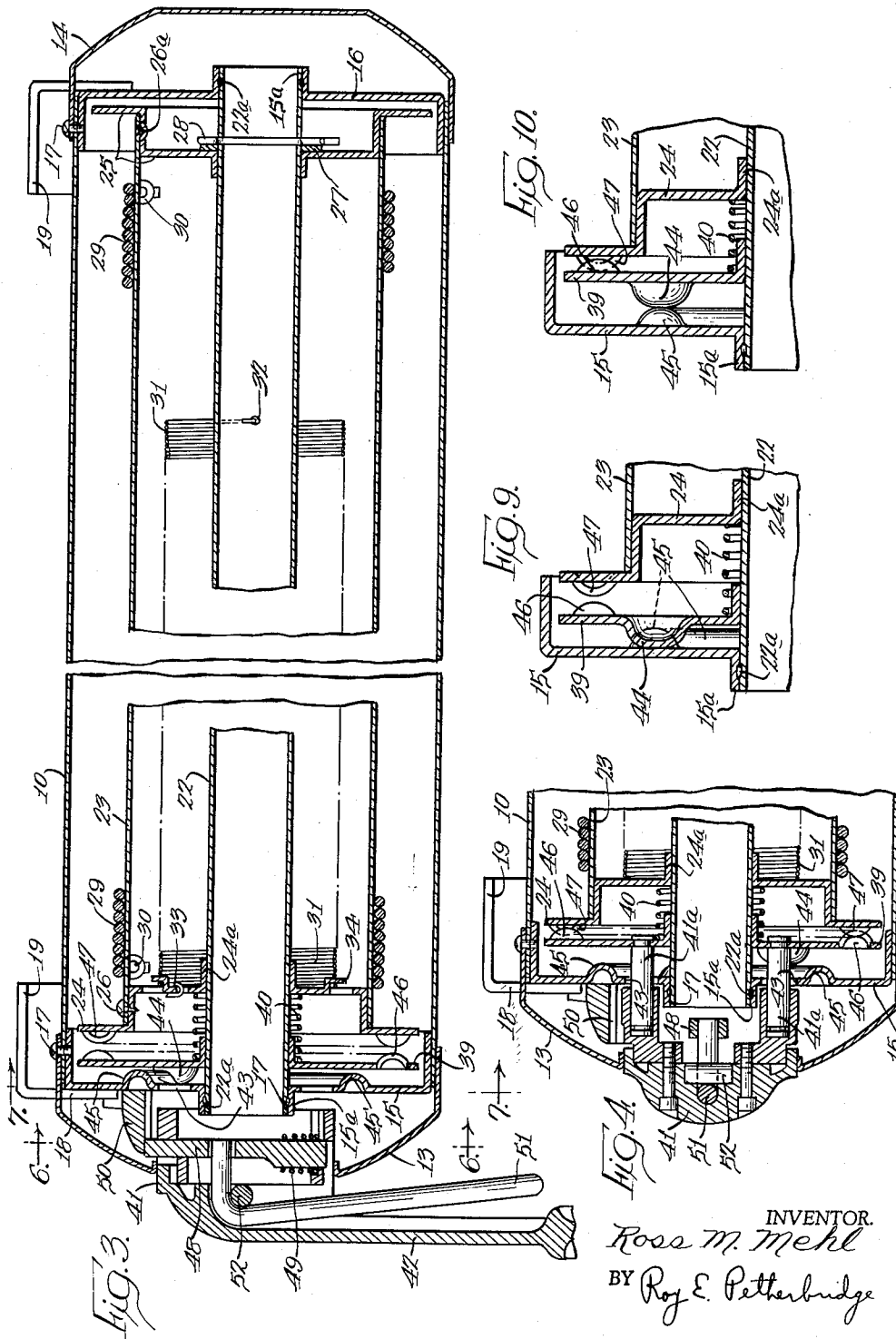
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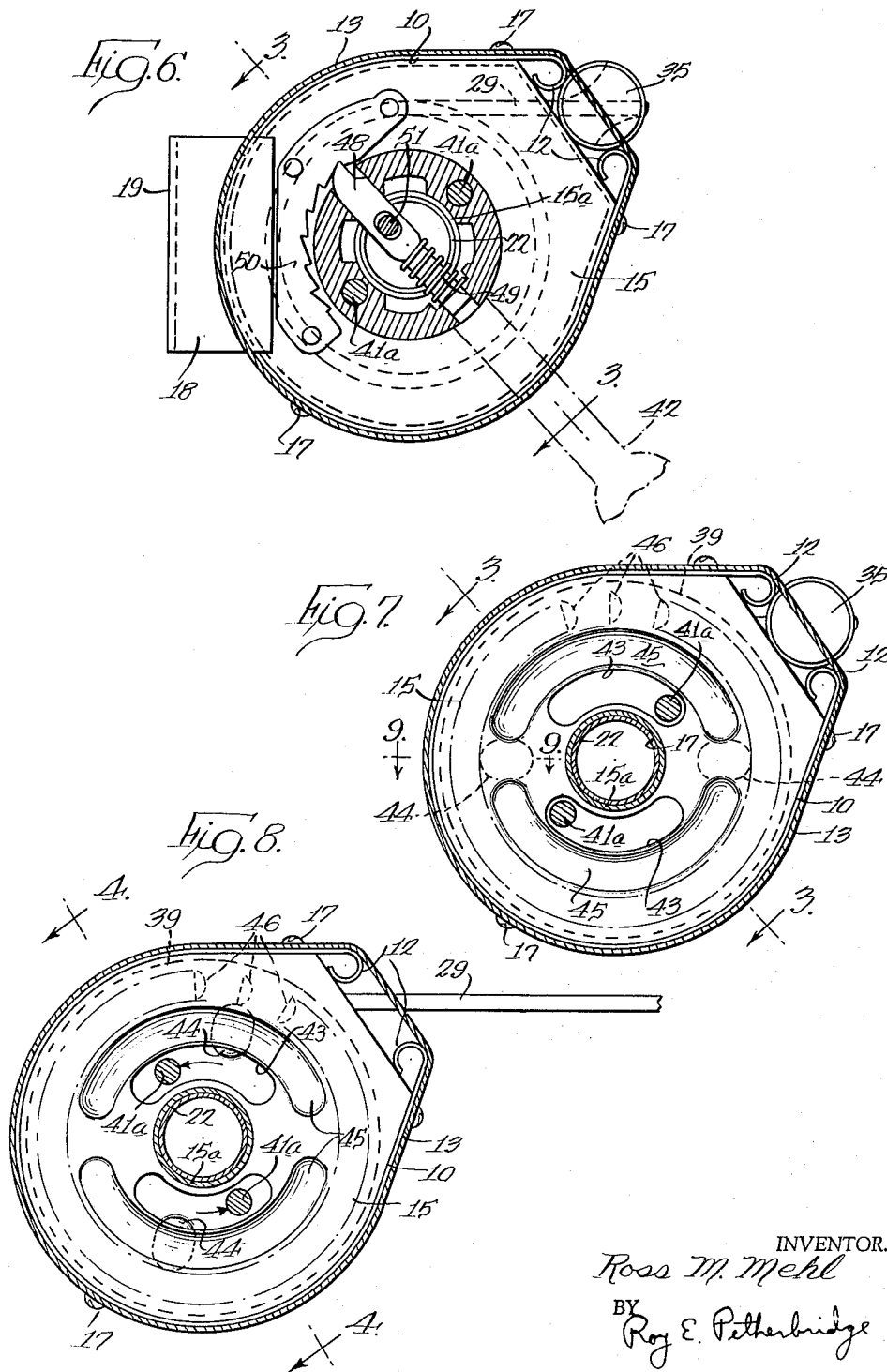
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2,989,267

CLOTHES DRYING UNIT

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7 Claims. (Cl. 242-100.1)

This invention relates to a clothes drying unit of the type featuring a reel upon which one or more clotheslines may be wound when not in use and from which the clothesline or lines may be conveniently unwound for use.

An important object of the present invention resides in the provision of means for preventing unwinding of the lines when the same are in extended and work-supporting position, which means incorporate structural details of novel design and assembly.

It is also an important object of this invention to provide a clothes drying unit of the character indicated embodying features of design and construction which increase its strength and durability as well as simplify its manufacture.

Other objects and advantages will be apparent from the following description of one embodiment of the invention and the novel features will be particularly pointed out hereinafter in connection with the appended claims.

In the drawings:

FIG. 1 is an end elevation of a clothes drying unit embodying this invention showing the line in extended position ready for use and the mechanism for controlling the reel between rotating and non-rotating positions shown as operative to lock the reel against rotation.

FIG. 2 is a plan view thereof.

FIG. 3 is an enlarged fragmentary transverse sectional view of the unit taken on line 3-3 of FIG. 6 showing the relationship of parts when the reel is in free rotating position.

FIG. 4 is a similar view taken on line 4-4 of FIG. 8 showing relationship of parts when operative to lock the reel against rotation.

FIG. 5 is an enlarged expanded perspective view of the parts of the reel locking mechanism to show details of design and construction.

FIG. 6 is an enlarged partial end view with parts in section taken at line 6-6 of FIG. 3, with the reel locking mechanism in non-operative position.

FIG. 7 is a similar view taken on line 7-7 of FIG. 3.

FIG. 8 is similar to FIG. 7 illustrating the relative position of the parts when operative to lock the reel against rotation.

FIG. 9 is a fragmentary section taken on line 9-9 of FIG. 7.

FIG. 10 is similar to FIG. 9 showing the relative position of parts as in FIG. 8.

Referring now to the drawings, there is shown an elongated housing or jacket 10 having a longitudinal mouth or opening 11. The jacket 10 preferably consists of a single sheet of metal rolled upon itself into the shape of a cylinder except for marginal edge portions of the sheet arranged parallel to the axis of curvature which form tangential extensions of the cylindrical portion with said edge portions in such relation as to present an included acute angle therebetween. The opening 11 is defined by inwardly curled sections 12 at the confronting outer limits of each of said planar edge portions of the sheet forming the jacket 10. Applied to the opposite ends of the jacket 10 are end caps 13 and 14, each formed with a marginal axially extended flange adapted to embrace corresponding end portions of the jacket 10. Arranged with in opposite ends of the jacket 10 are heads or end plates 15 and 16, each formed with a marginal axially extended

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flange engaging the inner surface of the jacket end portions overlapped by the flanges of the end caps 13 and 14, except that the plates 15 and 16 are shortened across the open area facing the curled sections 12 of the jacket and the opening 11 whose opposite longitudinal edges are defined by the curled sections 12. The flanges of the end plates 15 and 16 are provided with tapped openings for threaded engagement by screws 17 passed through registering openings in the flanges of the end caps 13 and 14 and the portions of the jacket 10 overlapped thereby, and such screws 17 accordingly establish a rigid assembly of said end caps 13 and 14, the jacket 10 and the end plates 15 and 16.

In order that the jacket 10 may be appropriately fixed to a stationary support, each end plate 15 and 16 has a mounting plate 18 secured thereto and projecting radially outwardly of the jacket 10 through openings provided in the end caps 13 and 14. An arm 19 extending axially from the projecting end of each plate 18 is adapted to enter a socket provided by a mounting bracket 20 suitably fixed to an upright supporting surface 21. As shown in FIG. 6, the jacket 10 when so mounted by the mounting plates 18 and the cooperating mounting brackets 20, presents one of the planar sections adjoining the opening 11 in horizontally projecting upwardly facing relation.

The end plates 15 and 16 each have an opening in axial alignment with a similar opening in the other for reception therein of a tubular shaft 22. The shaft 22 is fixed against relative axial movement by means of a soldered or welded connection 22a between the shaft 22 and an integral outwardly extending boss 15a formed on the plates 15 and 16 about the shaft receiving opening.

A reel in the form of a hollow cylindrical shell 23 has centrally apertured hub plates 24 and 25 at respective opposite ends of the shell through which the shaft 22 extends axially to provide a bearing support for the reel. Each hub plate 24 and 25 includes an inwardly axially offset central portion so as to provide an annular shoulder fitting within the periphery of the shell 23. The hub plate 24 is rigidly fastened to the shell 23 by a screw 26 while the hub plate 25 is fixed to the shell 23 as at 26a. Each hub plate 24 and 25 is provided with an annular marginal flange extending radially outwardly from the shell 23. A washer 27 having its axial movement limited by key 28 on the shaft 22 is engaged by hub plate 25 to hold the reel 23 against relative axial movement on the shaft 22 in one direction.

A line 29 of suitable flexible material having its inner end fixed to the reel 23 as at 30 so as to be wound thereon and unwound therefrom by rotation of the reel has passage to and from the area within the jacket 10 by means of the opening 11. The reel 23 is resiliently urged in a direction of rotation to wind the line 29 thereon by a coil spring 31 having one end thereof fastened to shaft 22 and its opposite end fastened as at 33 to the hub plate 24. Thus as the line 29 is withdrawn or unwound from the reel 23, power is stored in the spring 31 to effect rotation of the reel in the direction on which it is turned to rewind the line 29 thereon.

The present invention contemplates use of a plurality of lines 29 arranged in succession axially of the reel 23 so that they may be located apart in parallel relation during winding and unwinding of the lines. The outer end of each line 29 is accordingly fastened to a spreader bar 35. This bar, as shown, is adapted to be engaged by hooks 36 of a bracket 37 suitably fastened to a fixed support 38 at a distance removed from the reel unit compatible with the length of the lines 29 on said unit. When the bar 35 is thus disengaged from the hooks of the bracket 37 and the lines 29 are allowed to be retracted to a fully wound up state on the reel 23, the bar 35 forms a

closure for the opening 11 in the jacket 10 and is so retained in this position through the force of the spring 31 acting on the reel 23.

When the spreader bar 35 is moved away from the jacket 10 to withdraw the lines 29 from the reel 23, and the bar is initially positioned for engagement by the hooks of the bracket 37 preparatory to conditioning the lines 29 for carrying clothes or the like, it is necessary to lock the reel 23 against further rotation to prevent pay out of additional line as weight of wet clothes are applied to the lines 29. This locking action is also preferably arranged to tension the lines 29 so as to maintain a desired taut condition in the lines. The present invention, in providing for such locking and tensioning action utilizes a cam plate 39 which is mounted on the shaft 22 for relative axial sliding movement between the end plate 15 and the hub plate 24. A coil spring 40 surrounding the shaft 22 acts between the hub plate 24 and the cam plate 39 to normally position the latter in axially spaced relation to the hub plate 24 and in engagement with the end plate 15. The end cap 13 is provided with a central opening in which the head portion 41 of a crank arm or handle 42 has bearing support for rotation coaxially with the reel 23. A pair of arcuate slots 43 spaced uniformly circumferentially apart in the end plate 15 provide clearance for integral pins 41a on the head 41 which project into the area between the end plate 15 and the hub plate 24. The cam plate 39 is fastened to the inner ends of the pins 41a whereby the cam plate 39 is rotated about the shaft 22 in unison with rotation of the crank arm 42 about its head portion 41 as an axis according to the range of travel of the pins 41a between opposite ends of the cooperating slots 43. When the pins 41a are located in their most clockwise rotated position relative to the slots 43 as shown in FIG. 7, a pair of cams 44 on the plate 39 arranged at 180° spaced apart positions circumferentially of a circle concentric with the axis of the reel 23, have engagement with face portions of the end plate 15 opposite thereto under pressure of the spring 40 acting between the plate 39 and the hub plate 24 to maintain the reel 23 in free rotating relation to the shaft 22, as in FIG. 9. When the crank arm 42 is rotated from an initial rotated position as shown in FIG. 7 toward an advanced rotated position in a counter-clockwise direction, the cams 44, in response to corresponding rotation of the cam plate 39 under control of the pins 41a, will be moved into engagement with arcuately arranged cam faces 45 on the end plate 15 as in FIG. 10. Such interengagement of the cams 44 with the cam faces 45 causes the cam plate 39 to be moved axially along the shaft 22 toward the hub plate 24. By thus axially shifting the cam plate 39, locking lugs 46 on the latter having driving engagement with corresponding lugs 47 on the flange of the hub plate 24 as in FIG. 4, whereby the reel 23 is rotated counterclockwise in accordance with such rotation of the crank arm 42, which is the direction of rotation of the reel 23 to wind the lines 29 thereon and thereby tighten the same. A retractable latch pin 48 mounted on the crank handle 42 is normally urged into extended position, as shown in FIG. 6, by a spring 49. A ratchet bar or segment 50, having teeth with which the pin 48 is selectively engageable when in extended position, is operative to prevent rotation of the crank handle 42 in a direction to unwind the lines 29 from the reel 23. These teeth, however, cooperate with the pin 48 to allow the latter to slide thereover as the handle 42 is rotated from the position shown in FIG. 6 in a counter-clockwise direction to wind the lines 29 on the reel 23, as in FIG. 8. Thus while latch pin 48 engages one of the teeth of the ratchet bar or segment 50 in a selected advanced rotated position of the crank handle 42 and it is desired to further rotate the latter in a direction to unwind the lines 29 from the reel 23, it is necessary to move the latch pin into a retracted position out of engagement with said tooth. Such retraction of the pin 48 is accomplished by a release

lever 51 which pivots as at 52 between outwardly and inwardly rocked positions relative to the crank handle 42. Release lever 51 is conveniently gripped by the fingers of the hand operating the handle 42. Thus when release lever 51 is held in inwardly squeezed position to retract the latch pin 48 from the teeth of the ratchet 50, the handle 42 can be rotated from a selected advanced locked position to its initial position as in FIG. 7, whereupon the cams 44 are disengaged from the cam surfaces 45, through action of the spring 40, and thereby freeing the hub 23 for rotation in a direction to wind or unwind the lines 29.

What is claimed:

1. A clothes drying unit including a pair of spaced apart supporting heads, a shaft supported between said heads, a reel having hub members at opposite ends thereof supported on said shaft for rotation, a line having one end thereof fastened to said reel, means for locking said reel against rotation relative to said shaft to prevent unwinding said line from said reel including an operating member supported on said shaft in the area between one of said heads and the hub of the reel opposite thereto, said operating member being movable relative to said shaft about said shaft as an axis and shiftable axially on said shaft between first and second axially displaced positions, said operating member and said last named head member each having a cam portion adapted to mate with a cam portion on the other in a selected rotated position of the operating member and the axial movement of the operating member being between said first and second positions effected by means including said cam portions when the latter are in mating position and interengaging means on said operating member and said hub member of the reel opposite thereto operative to lock the reel against rotation in one direction when said operating member is in one of said axially displaced positions.

2. A clothes drying unit including a pair of spaced apart supporting heads, a shaft supported between said heads, a reel having hub members at opposite ends thereof supported on said shaft for rotation, a line having one end thereof fastened to said reel, means for locking said reel against rotation relative to said shaft to prevent unwinding said line from said reel including an operating member supported on said shaft in the area between one of said heads and the hub of the reel opposite thereto, said operating member being movable relative to said shaft about said shaft as an axis and axially of said shaft, said operating member having an axial extension projecting through said last named head member in a direction away from the area containing the reel, said extension having a handle connected thereto for rotating said operating member between an initial rotated position and an advanced rotated position.

3. A clothes drying unit as defined in claim 2, wherein said handle is provided with a retractable pawl, and a ratchet member is fixed to said last named head member, said ratchet member being selectively engageable with said pawl to retain said operating member against rotation from an advanced rotated position to an initial rotated position.

4. A clothes drying unit as defined in claim 3, wherein a latch release lever is mounted on said handle for movement between initial and advanced positions and is operable to move said pawl into retracted position relative to said ratchet when in advanced position.

5. A clothes drying unit as defined in claim 3, wherein a latch release lever is mounted on said handle for rocking movement about an axis at right angles to the axis of rotation of the operating member between initial and advanced positions and is operable to move said pawl into retracted position relative to said ratchet when in advanced position.

6. A clothes drying unit including a pair of spaced apart supporting heads, a shaft supported between said heads, a reel having hub members at opposite ends thereof supported on said shaft for rotation, a line having one

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end thereof fastened to said reel, means for locking said reel against rotation relative to said shaft to prevent unwinding said line from said reel, including an operating member supported on said shaft in the area between one of said heads and the hub of the reel opposite thereto, said operating member being movable relative to said shaft about said shaft as an axis and axially of said shaft, said operating member having an axial extension projecting through said last named head member in a direction away from the area containing the reel, said extension having a handle connected thereto for rotating said operating member between an initial rotated position and an advanced rotated position, and releasable latch mechanism for controlling rotation of said operating member between said advanced rotated position of said operating member to said initial rotated position of said operating member.

7. A clothes drying unit including a pair of spaced apart supporting heads, a shaft supported between said heads, a reel having hub members at opposite ends thereof supported on said shaft for rotation, a line having one end thereof fastened to said reel, means to prevent unwinding said line from said reel including an operating

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member supported on said shaft in the area between one of said heads and the hub of the reel opposite thereto, said operating member being movable relative to said shaft about said shaft as an axis and axially of said shaft, and said operating member having an axial extension projecting through said last named head member in a direction away from the area containing the reel, said axial extension having a handle connected thereto for rotating said operating member, and releasable latch mechanism for cooperation with said handle to retain said operating member in one of several different advanced rotated positions.

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