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CLOTHES WRINGER

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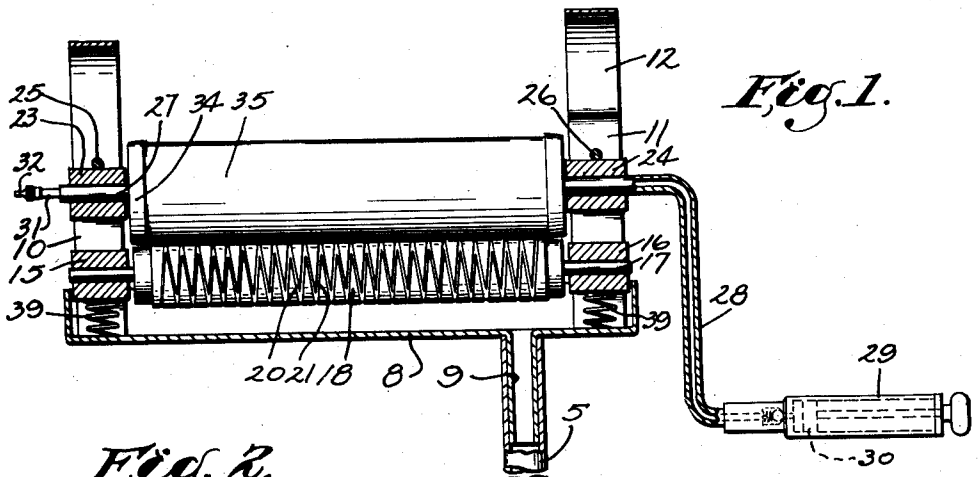


Fig. 1.

Fig. 2.

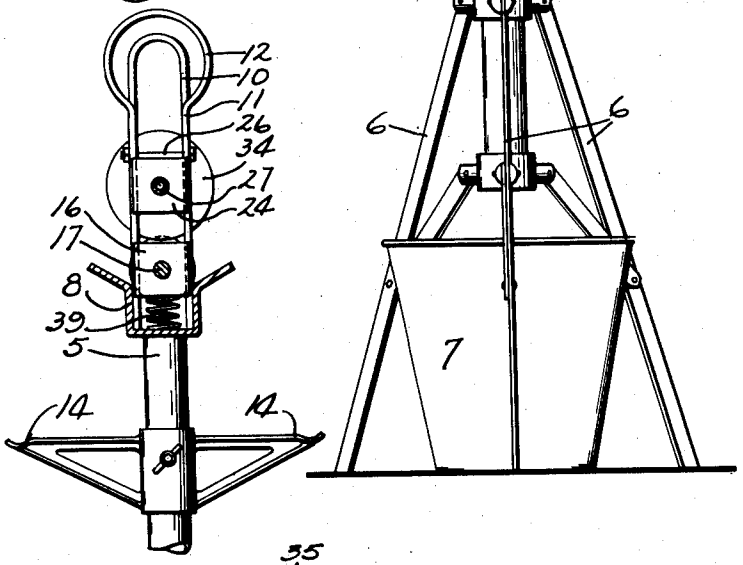
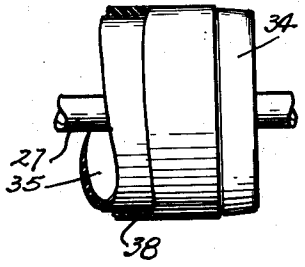


Fig. 4.



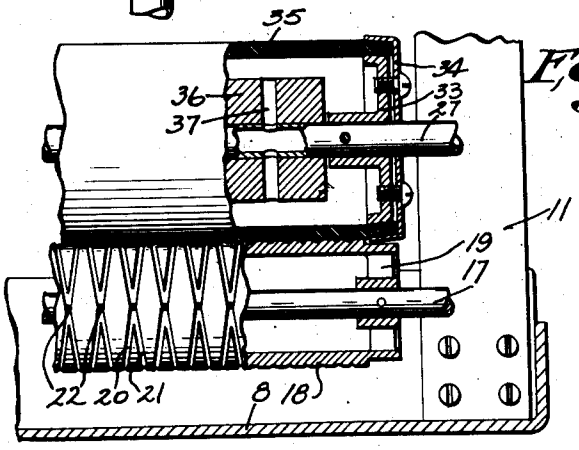


Fig 3.

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CLOTHES WRINGER

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5 Claims. (Cl. 68—244)

This invention relates to improvements in clothes wringers.

The invention has for its object the provision of a novel and improved type of wringer employing a pneumatic roll in co-operation with a roll so grooved as to tend to distribute equally between the rolls a fabric material fed therethrough. The invention consists also in the provision of novel means for mounting and inflating the pneumatic roll and for renewing the roll surface and for carrying off the water squeezed by the rolls from the material passing therethrough.

In the drawing:

Figure 1 is a view partially in front elevation and partially in section showing a wringer device embodying the invention.

Figure 2 is a view on an enlarged scale showing in detail a fragmentary end elevation of my improved device, the trough being partially broken away to a section exposing the bearing block for the yielding roll.

Figure 3 is a fragmentary detail view on an enlarged scale showing principally in section, the associated ends of the respective rolls, portions of the rolls being illustrated in elevation.

Figure 4 is a fragmentary detail view showing a replaceable cover or tread for the pneumatic roll.

Like parts are identified by the same reference characters throughout the several views.

As a part of my improved wringer support I provide a tubular standard at 5 having supporting legs 6 which are preferably adjustable as clearly illustrated in Fig. 1, and which preferably provide space within which a pail 7 is receivable beneath the tubular standard 5 to receive water expressed by the wringer. The standard may be provided with bracket arms 14 to support other pails.

At its top the standard 5 carries a trough 8 which drains through the standard 5 to the pail 7 and serves as a part of the wringer frame. The trough 8 has a rigid sleeve 9 projecting into the standard to serve as a fulcrum upon which the wringer may be swung bodily about the standard.

At each end of the trough 8 there are U-shaped guide members 10 and 11 respectively, the latter having a circular loop 12 formed in its upper end of sufficient diameter to pass the pneumatic roll hereinafter to be described, to facilitate the assembly and disassembly of the parts.

Slidable in the respective guides 10 and 11 are the bearing blocks 15 and 16 carrying the trunnion shaft 17 of the lower roll 18. This roll may comprise a tube, preferably metallic, carried by a spider 19 at its end from the trunnion shaft 17. The tube has its periphery provided with intersecting helical grooves 20 and 21 of opposite pitch, which serve to feed the material axially of the rolls in the course of its progress therethrough and to distribute the material between the rolls. At each point of intersection of the grooves 20 and 21, and elsewhere if desired, there are holes 22 which open through the tubular roll 18 to the interior thereof to carry away water which may have been expressed from the material passing between the rolls and may be confined on the surface without opportunity of escape. The grooves and holes together provide means for preventing any such water from accumulating.

The bearing blocks 23 and 24 are removably restrained by bolts 25 and 26 from yielding upwardly in the guides 10 and 11. The shaft 27 which extends through these bearing blocks is tubular and is formed at 28 to provide a crank having a pump barrel 29 as a handle. The usual plunger 30 is mounted in the pump barrel and reciprocable therein to force air under pressure through the tubular crank 28 and shaft 27. For emergencies the other end of the tubular shaft 27 may be provided with a conventional valve stem 31 and cap 32 for connection of an ordinary tire pump to produce the required pressure. When the bolts 25 and 26 are withdrawn the bearing blocks 23 and 24 may be raised toward the top of their respective guides 10 and 11, and the shaft 27 may be withdrawn from the bearing block 23. The block 24 and the wringer roll assembly on shaft 27 is bodily withdrawable through the loop 12.

Shaft 27 carries at each end a pair of heads such as those shown in Fig. 3. The inner head 33 provides the roll hub and is pinned to shaft 27. Screwed thereto is the clamping outer head 34 which holds the end of the tube 35 of rubber or the like, which comprises the pneumatic roll. I preferably employ an inner solid roll at 36 which prevents the pneumatic tube 35 from being unduly collapsed. There are ducts 37 affording communication from the interior of the hollow shaft 27 through the solid roll 36 to the interior of the tube 35, whereby the inner surface of the tube may be subjected to air pressure.

If the tube 35 becomes worn it may be replaced readily by loosening the clamping members 34 and removing the upper roll as above described. It may, however, also be covered by a supplemental tube 38 drawn over the tube 35 as shown

in Fig. 4 to provide a new surface and to co-act with the metallic roll 18.

It is to be noted that the compression springs 39 act upwardly on the trunnion blocks 15 and 16 of the lower roll only. The upper blocks 23 and 24 are held stationary against the bolts 25 and 26, and the yielding of the upper roll surface is entirely pneumatic.

With the upper roll tube 35 properly inflated either by means of the pump in the handle or by means of the valve connection 31, the pump casing handle may be used to rotate the upper roll whereby to feed material between it and the lower roll 18. The flexible tube 35 assures a substantially equal distribution of pressure regardless of the different thicknesses of material passing at different points between the rolls. The grooves 20 and 21 of the lower roll, however, tend to distribute the material to avoid unequal thickness and at the same time they serve to carry off expressed water from the bite of the rolls, either allowing such water to run about roll 18 to a point where it can fall by gravity into trough 8, or allowing such water to pass through the holes 22 to the interior of the roll 18 and through the open end thereof into trough 8. In either case the water is discharged through the rotatable sleeve 9 into the tubular column 5 and thence to the pail 7.

I claim:

1. In a wringer roll, the combination with supporting means, of a solid inner roll carried by said means, a flexible tubular sleeve carried by said means in sufficiently closely spaced relation to said inner roll to comprise an auxiliary support for said sleeve effective following a moderate distortion thereon, a supporting shaft extending through said inner roll, and means for inflating the space between said inner roll and sleeve.

2. In a wringer roll, the combination with a supporting shaft, of an inner mounted head, a flexible tubular sleeve having its end engaged over said head, a cup-shaped clamping outer head holding the end of said sleeve in clamped engagement with said inner head, and means connecting said heads and adjustable axially of said shaft for applying clamping pressure to said sleeve.

3. In a wringer, the combination with a solid cylindrical support, of a flexible tubular sleeve sufficiently larger in diameter than the support to be normally out of contact therewith except when distorted under pressure, said sleeve being mounted over said support in sufficiently closely spaced relation to receive auxiliary support therefrom upon distortion of said sleeve, means hermetically connecting said sleeve with said support, means for inflating said sleeve, means mounting said support for rotation with said sleeve, a coacting roll with which said sleeve is engageable, and a frame in which said coacting roll and mounting means are disposed in operative relation.

4. In a wringer, the combination with a solid cylindrical support, of a flexible tubular sleeve sufficiently larger in diameter than the support to be normally out of contact therewith except when distorted under pressure, said sleeve being mounted over said support in sufficiently closely spaced relation to receive auxiliary support therefrom upon distortion of said sleeve, means hermetically connecting said sleeve with said support, means for inflating said sleeve, means mounting said support for rotation with said sleeve, a coacting roll with which said sleeve is engageable, and a frame in which said coacting roll and mounting means are disposed in operative relation, said frame comprising members with which said mounting means is detachably connected for the bodily withdrawal of said support from said frame.

5. In a wringer, the combination with a rotatable support comprising an inner head, of a flexible tubular sleeve having its end engaged over the periphery of the head, a cup-shaped clamping member having a face closely adjacent the end of said head and having a peripheral wall engaged over the end of said sleeve for holding said sleeve to said head, and screw threaded means connecting the face of said cup-shaped clamping member to the end of said head for maintaining the end of said sleeve under clamping pressure.

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