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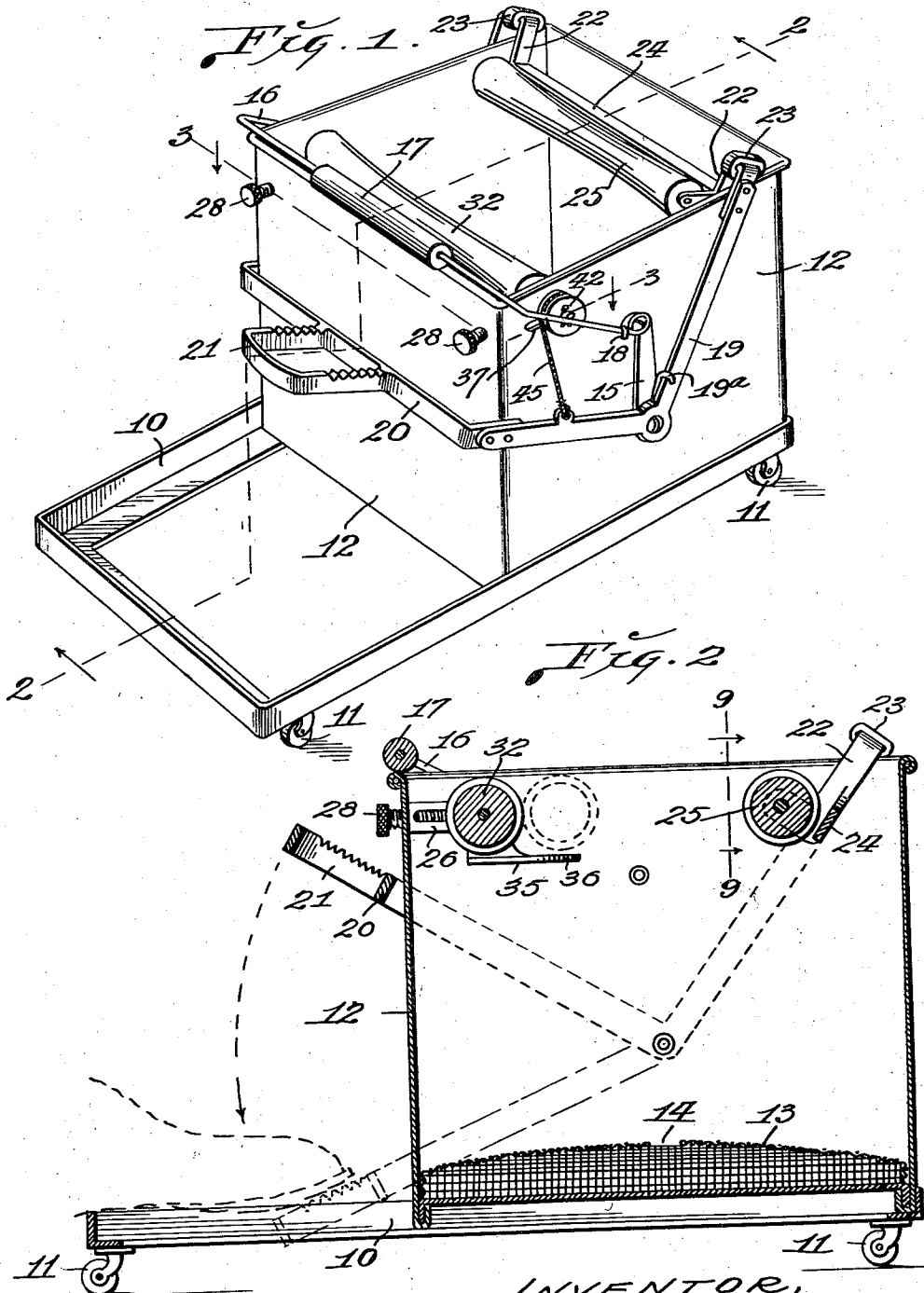
C. C. NEWLAND

2,099,217

MOP WRINGER

Filed Feb. 13, 1935

2 Sheets-Sheet 1



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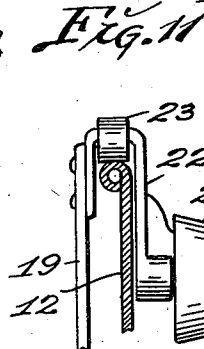
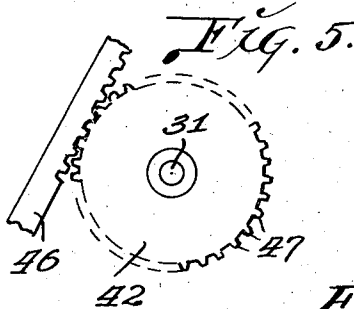
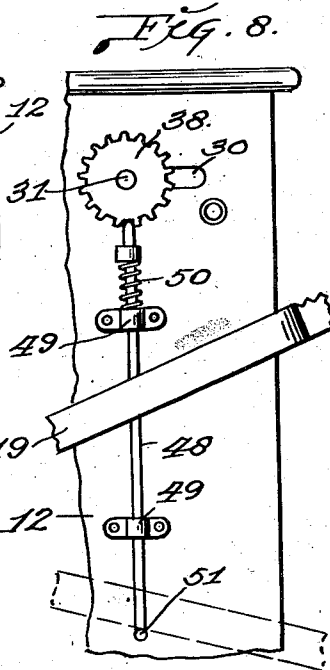
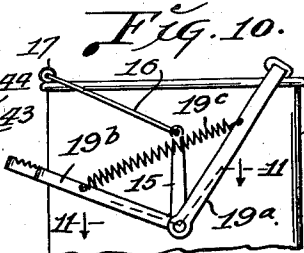
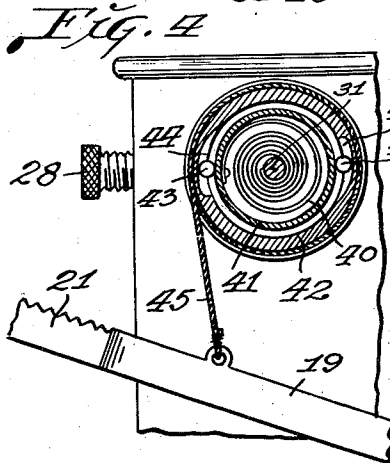
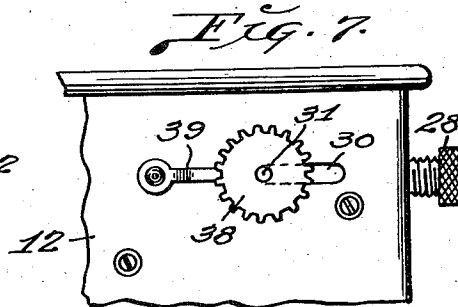
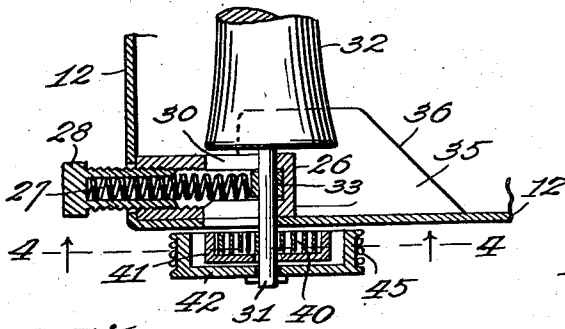
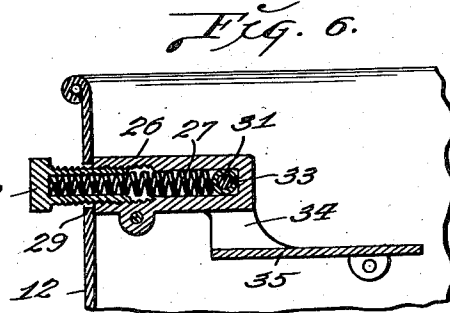
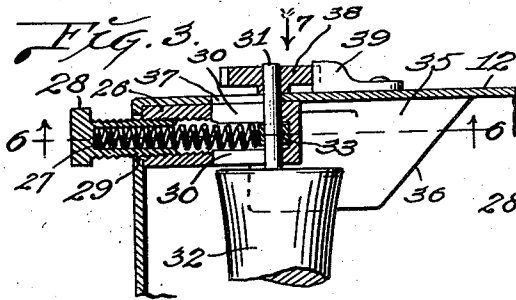
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MOP WRINGER

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,099,217

MOP WRINGER

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Application February 13, 1935, Serial No. 6,294

4 Claims. (Cl. 15-262)

My invention relates to a mop wringer and has for its principal object, the provision of a relatively simple, practical and inexpensive utensil that includes a water container and pedally operated means for wringing water from a mop.

Further objects of my invention are, to generally improve upon and simplify the construction of the existing forms of mop wringers, to provide a wringer wherein one of the wringing rolls is carried by a frame that is pedally actuated to move the carried roll into engagement with the mop that is positioned between the rolls and the roll carrying frame being mounted so that when said frame is pedally actuated, a portion of said frame bears on the base of the wringer so that the entire structure is held in a firm and solid condition during the wringing operation or while the mop cloth is being drawn between the rolls to expel the water.

A further object of my invention is, to mount the water container on the rear portion of a base frame so that when the pedally actuated frame is pressed downward by the foot, the latter bears on top of the extended front portion of the base frame so as to hold the entire structure firmly upon the floor during the mop wringing operation.

Further objects of my invention are, to provide a mop wringer wherein the water containing chamber is provided in its lower portion with a screen that permits the passage of dirt and the like to pass into that portion of the chamber below the screen so as to prevent contact of the mop cloth with the dirt that is wrung from the cloth during subsequent wringing operations, further, to mount one of the wringing rolls so that it will move with yielding resistance when the roll carried by the pedally actuated frame is moved into position adjacent the yielding roll and further, to associate with the yielding roll a spring that is wound up by movement of the pedally actuated frame so as to place the spring under tension and such tension utilized to actuate the roll during wringing operations.

A further object of my invention is, to provide in a mop wringer a yieldingly mounted spring pressed and spring actuated roll and to arrange adjacent the ends of said roll a pair of imperforate plates that function to guide the mop cloth toward the center of the roll and thereby increasing the efficiency of the device, particularly during the wringing operation.

With the foregoing and other objects in view my invention consists in certain novel features of construction and arrangements of parts that

will be hereinafter more fully described and claimed and illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of a mop wringer constructed in accordance with my invention.

Fig. 2 is a vertical section taken on the line 2-2 of Fig. 1.

Fig. 3 is an enlarged horizontal section taken on the line 3-3 of Fig. 1.

Fig. 4 is a vertical section taken on the line 4-4 of Fig. 3.

Fig. 5 is an elevational view showing a modified construction for winding up the spring that is associated with the spring pressed wringing roll.

Fig. 6 is a vertical section taken on the line 6-6 of Fig. 3.

Fig. 7 is an elevational view taken looking in the direction indicated by the arrow 7 in Fig. 3.

Fig. 8 is an elevational view showing a modified construction for holding the spring actuated roll against rotation while the spring associated therewith is being wound to store tension therein.

Fig. 9 is a detail vertical section taken on the line 9-9 of Fig. 2.

Fig. 10 is a detail elevational view showing a modified form of the pedally actuated frame that carries one of the wringing rolls.

Fig. 11 is a horizontal section taken on the line 11-11 of Fig. 10.

Referring by numerals to the accompanying drawings which illustrate a preferred embodiment of my invention, 10 designates a base frame preferably formed of angle iron which may be cast or formed in a single piece if desired, and this frame is mounted on casters 11, in order to facilitate its movement over the floor that is being mopped. This base frame is rectangular in form and has a substantially greater length than width, and said frame comprising parallel side rails and parallel rear and front rails.

Mounted upon the rear portion of this frame and suitably secured thereto is a water container 12, preferably constructed of sheet metal and rectangular in shape. The length of the container 12 is less than the length of the base frame 10, so that when said container is positioned on the rear portion of the base frame, the forward portions of the side rails of the base frame and the front rail thereof, project a substantial distance forwardly from the front wall of the container. Removably positioned in the bottom of this container and spaced apart from the bottom wall, is a screen 13 that is slightly arched and formed in the center of said screen

is an opening 14 for the insertion of the finger when the screen is removed.

This screen permits dirt and the like to pass downwardly onto the bottom of the container so that it will not contact with the mop cloth when the same is inserted in the container.

Suitably secured on the outer faces of the central portions of the sides of container 12, are brackets 15, to the upper ends of which are pivotally connected the ends of a bail 16 and the central portion of which bail carries a handle 17, thus providing means for conveniently lifting and carrying the mop wringer.

Associated with the pivots between the ends of the bail and brackets 16, are springs 18 which normally hold the bail in position with the handles 17 located on top of the front wall of container 12 so that during wringing operations the bail and handle occupy an out-of-the-way position.

Pivotally mounted on the lower portions of brackets 15 and occupying planes parallel with the side walls of the receptacle 12, are substantially L-shaped arms 19 and connecting the forward ends of these arms is a transverse bar 20 that occupies a position in front of the front wall of the receptacle.

Associated with the pivots of the brackets 19, are springs 19^a that exert pressure to normally hold said arms in the position illustrated in Fig. 1, with the upper ends of said arms positioned adjacent the upper rear portion of receptacle 12.

Formed integral with and projecting forwardly from the central portion of bar 20, is a pedal or foot piece 21, the upper face of which may be corrugated if desired, to prevent the foot from slipping when the frame comprising the arms 19 and 20 is swung upon its axis.

Suitably connected to the upper rear ends of arms 19, which terminate near the top portions of the side walls of the receptacle, are inverted U-shaped brackets 22, on the central portions of which are located blocks 23 of rubber or rubber composition and which serve as buffers and silencers to prevent undue noise when the frame comprising the arms 19 and bar 20 returns to its normal position. These rubber buffers normally rest on the upper edges of the side walls 12 adjacent the rear wall of the receptacle as illustrated in Figs. 1 and 2.

The lower portions of the inner legs of the inverted U-shaped brackets 22 are connected by an integral cross bar 24 and journaled on the inner legs of said brackets 22 directly in front of cross bar 24, are the ends of a wringer roll 25. This roll, as illustrated, is of the concave type, that is, its periphery gradually increases in diameter from its center toward its ends.

Suitably secured to the inner faces of the side walls of the receptacle 12, immediately to the rear of the front wall and adjacent the upper edges of said side walls, are horizontally disposed housings 26, the forward ends of which bear against the inner face of the front wall of the receptacle and arranged within these housings are expansive springs 27.

The forward portions of the housings 26 are internally threaded for the reception of the threaded portions of tubular nuts 28, which latter receive the forward portions of the springs 27 and the threaded shanks of said nuts passing through openings 29 that are formed in the front wall of the receptacle. This construction enables the tension of the springs 27 to be increased or decreased as desired.

The rear portions of the side walls of housings 26 are provided with horizontally disposed slots 30 for the accommodation of spindles 31 that project from the ends of a wringing roll 32. This wringing roll is the duplicate of roll 25 and its peripheral face gradually increases in diameter from its center toward its ends.

Loosely mounted on the spindles and positioned within the housings 26, are sleeves 33 against which bear the rear ends of the springs 27, thus eliminating the friction that would develop if the rear ends of the springs were in direct engagement with the spindles.

Formed integral with and depending from the rear portions of the housings 26, are short vertically disposed plates 34 and formed integral with the lower portions of said plates are inwardly presented horizontally disposed plates 35. The forward ends of these horizontal plates 35 are inclined as designated by 36 so as to provide guides that cause the side portions of the mop cloth to be directed or guided toward the center of roll 32 during wringing operations. These plates 35 are imperforate so as to prevent strands of the mop body from being engaged in the guiding means as the mop head is moved downwardly into the receptacle.

Formed in the side walls of the receptacle 12 and coinciding with the slots 30 in the outer walls of the housings 26, are horizontally disposed slots 37, through which the ends of the spindles 31 project.

Secured to the end of one of the spindles 31 immediately adjacent the side wall of the receptacle, is a toothed disc 38 and fixed on the outer face of the side wall adjacent this disc, is a detent 39, the point of which engages between the teeth of the disc when the spindle 31 is at the rear ends of the slots 30 and 37, as illustrated in Figs. 3 and 7. Thus the spindle and wringing roll 32 are normally held against rotary movement.

Secured upon the end of the spindle 31 opposite the end that carries the toothed disc 38, is the inner end of a spiral spring 40 and the outer end thereof is secured to the wall of a circular housing 41 that is loosely mounted on the spindle.

Surrounding housing 41 and spaced apart therefrom, is a second circular housing 42 that is loosely mounted on the spindle and arranged between the housings 41 and 42 is a clutch arrangement which when housing 42 is rotated in one direction picks up and imparts rotary motion to housing 41 so as to wind up the spring 40 and when the housing 42 moves in the opposite direction, the clutch will automatically disengage from housing 42.

This clutch is preferably of the type illustrated in Fig. 4 and includes balls or rollers 43 that occupy recesses 44 formed in the inner face of housing 42 and said recesses having inclined faces that are effective in producing a wedging effect of the balls or rollers between the two housings.

Secured to and adapted to wind on the peripheral face of drum 43, is a flexible member 45, preferably a cable, the opposite end of which extends downwardly and is secured to the forward portion of the corresponding arm 19 in front of the pivot or fulcrum thereof.

Thus as the forward portion of the arm 19 is moved downward, housing 42 will be rotated and the clutch or clutches within said housing will impart corresponding rotary movement to housing 41 so as to wind spring 40 around spindle 31, thereby storing tension in said spring.

During this spring winding operation, the spindle 31 and wringing roll 32 are held against rotary movement by the engagement of toothed disc 38 with detent 39.

In some instances it may be found desirable to dispense with the cable 45 and provide a driving connection for housing 42, by a rack bar such as 46, the teeth of which rack bar engage teeth 47 that are formed on the periphery of housing 42.

This modification is illustrated in Fig. 5.

A modified arrangement for holding the spindle 31 against rotation while spring 40 is being wound, is illustrated in Fig. 8 and this construction includes a vertically disposed rod 48 that is mounted to slide in bearings 49 on the outer face of the side wall of the receptacle below the toothed disc 38.

This rod is normally forced upward under the influence of a spring 50 and the upper end of said rod is normally held in engagement with the teeth of disc 38.

The lower end of rod 48 is bent outwardly to form a horizontally disposed finger 51 which is engaged and moved downward a short distance as the corresponding one of the arms 19 approaches its downward limit of travel.

In Figs. 10 and 11 I have shown a modified arrangement of the arms 19 that form a part of the pedally actuated wringing roll carrying frame and in such construction each side arm is formed in two parts (19^a and 19^b), the lower ends of said parts being pivoted to the lower portions of the brackets 15 on the sides of the receptacle.

The intermediate portions of the members of each pair of arms 19^a and 19^b are connected by retractile coil springs such as 19^c.

In the use of my improved mop wringer the mop cloth is inserted in the receptacle between the rollers 25 and 32 and the mop is reciprocated vertically several times to thoroughly saturate the mop cloth and wash or remove any accumulations therefrom.

The mop head is now drawn upward until it is positioned just above the top of the receptacle and the operator now places the foot on pedal 21 and moves same downward until the cross bar 20 rests firmly on the upper edge of base 10 immediately in front of the receptacle.

With the operator's foot on the pedal 21 and also bearing on the front rail of the extended portion of frame 10, the entire wringer structure is held in a firm and substantial manner upon the floor, thereby resisting any tendency of the rear portion of the wringer to tilt upwardly during wringing operations.

As the arms 19 are swung on their pivots as just described, the roll 25 is brought into position immediately adjacent roll 32 with the mop cloth interposed between the rolls.

As roll 25 engages and forces the mop cloth to this roll 32 the side portions of the mop cloth engage the beveled edges 36 of plates 35, thus condensing the mop cloth and moving the same toward the central portion of roll 32.

As the pedal 21 and forward portions of the arms 19 are swung downward as just described, the cable 45 is unwound from housing 42 and through the clutches 43 the rotary movement of housing 17 will be transmitted to housing 41, thereby winding spring 40 around the spindle 31. During this spring winding operation, the roller 32 carrying spindle 31 is held against rotation by the engagement of detent 39 with the teeth of disc 38.

During the final portion of the forward movement of roll 25, it engages the mop cloth and presses the same against roll 32, thereby moving said roll and parts carried thereby forwardly, during which movement the spindles 31 move forwardly through the slots 37 in the sides of the receptacle and through the slots 30 in housings 26. This forward movement of the spindle is yieldingly resisted by the springs 27 and as soon as the toothed disc 38 moves away from detent 39, spiral spring 40 is free to act to impart rotary motion to roll 32 and which action is of great assistance in effecting the wringing operation as the mop cloth is drawn upwardly between the rolls 25 and 32.

Where the construction illustrated in Fig. 8 is employed, the spindle carrying roll 32 is released as the arm 19 approaches its downward limit of movement and at such time the arm 19 engages finger 51 to pull rod 48 downward and thereby disengage the upper end of said rod from the toothed disc 38.

The springs 27 yieldingly resist the movement of roll 32 away from roll 25 and the collars 33 on the spindles within the housings 26 permit said spindles to rotate freely without the friction that would be produced if the springs engaged directly against the spindle.

Thus it will be seen that I have provided a mop wringer that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

A very desirable feature of my invention is the extension of the base or supporting frame a substantial distance in front of the receptacle, for such construction, together with the arrangement of the pedal and frame which swings one of the rolls into position adjacent the other roll, enables the entire structure to be firmly held on the floor during the wringing operation and there is no tendency of the structure to tilt while under strains by reason of the fact that the operator's foot holds the pedal carrying cross bar 20 firmly on the side rails of the base 10 and the operator's foot also rests on the front and cross rail of the base frame.

It will be understood that minor changes in the size, form and construction of the various parts of my improved mop wringer may be made and substituted for those herein shown and described without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. In a mop wringer, a base having a front cross rail, a receptacle rigidly secured on the rear portion of said base so that the forward portion of said base including said front cross rail projects a substantial distance in front of said receptacle, a wringing roll journaled in the upper front portion of said receptacle, a frame pivotally mounted on the sides of the receptacle, said frame including a rail that extends across the front of the receptacle, a wringing roll carried by the upper rear portion of said frame, a pedal projecting forwardly from the front portion of said pivoted frame, the sides of the extended front rail of said base forming a bearing and stop for the front rail of said pivoted frame when the same is pedally actuated to position the wringing roll carried by said frame adjacent the roll in the upper front portion of the receptacle and said pedal and the front rail of said base combining to provide a support and bearing for

the foot that is utilized in depressing the pedal when the latter is at its lower limit of movement.

2. In a mop wringer, a base including a front cross bar, a receptacle mounted on the rear portion of said base so that the latter including said front cross-bar projects a substantial distance in front of the receptacle to permit the front cross bar of said base to form a foot rest, a frame pivotally mounted on the sides of the receptacle, a wringing roll carried by the upper rear portion of said pivoted frame and normally occupying a position in the upper rear portion of the receptacle, a wringing roll journaled in the upper front portion of the receptacle, a cross bar on the front portion of said pivoted frame which cross bar is adapted to engage and rest upon the sides of the extended front portion of said base when the forward portion of said pivoted frame is moved downward to its limit of movement and a foot plate projecting forwardly from said cross bar which foot plate and front cross bar of the base cooperate in providing a bearing for the foot that is utilized in depressing said foot plate when the latter is moved to its lower limit of movement.

3. In a mop wringer, a receptacle, a wringing roll positioned within said receptacle, spindles

projecting from the ends of said wringing roll, bearings for said spindles, a spiral spring having its inner end connected to one of said spindles, a housing loosely mounted on said spindle and enclosing said spring, the outer end of said spring being connected to said housing, a drum enclosing said housing, a clutch arranged between said housing and drum, a cable secured to and carried by said drum, a pedal to which said cable is connected and readily releasable means for holding said wringing roll against rotation.

4. In a mop wringer, a receptacle, a wringing roll arranged therein, spindles projecting from the ends of said roll, bearings for said spindles, a spiral spring having its inner end secured to one of said spindles, a housing enclosing said spring and connected to the outer end thereof, which housing is loosely mounted on the spindle with which it is associated, a member enclosing said housing, a clutch between said housing and the member enclosing same, a pedal, connections between said pedal and said enclosing member whereby the latter is rotated during the downward movement of said pedal and readily releasable means for holding the wringing roll against rotation.

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