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S. C. LAWLOR

1,805,774

WRINGING MACHINE

Filed Aug. 20, 1927

2 Sheets-Sheet 1

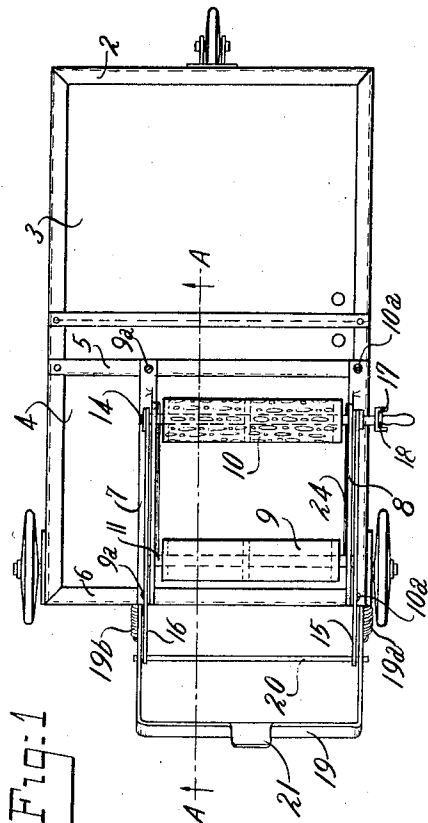
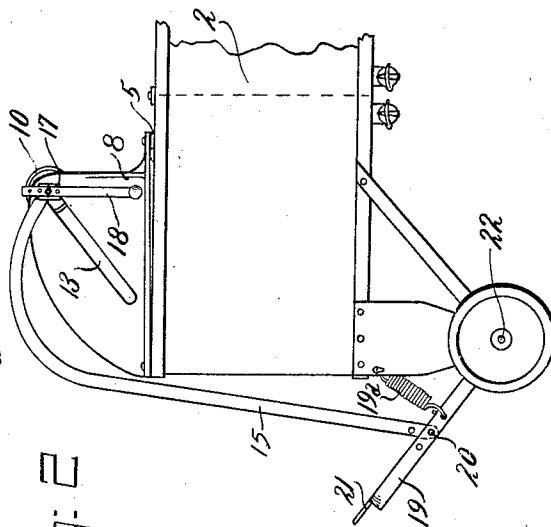
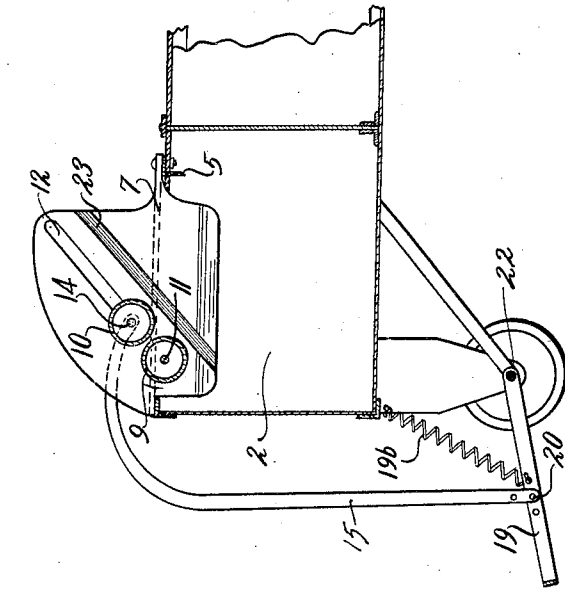


Fig: 3



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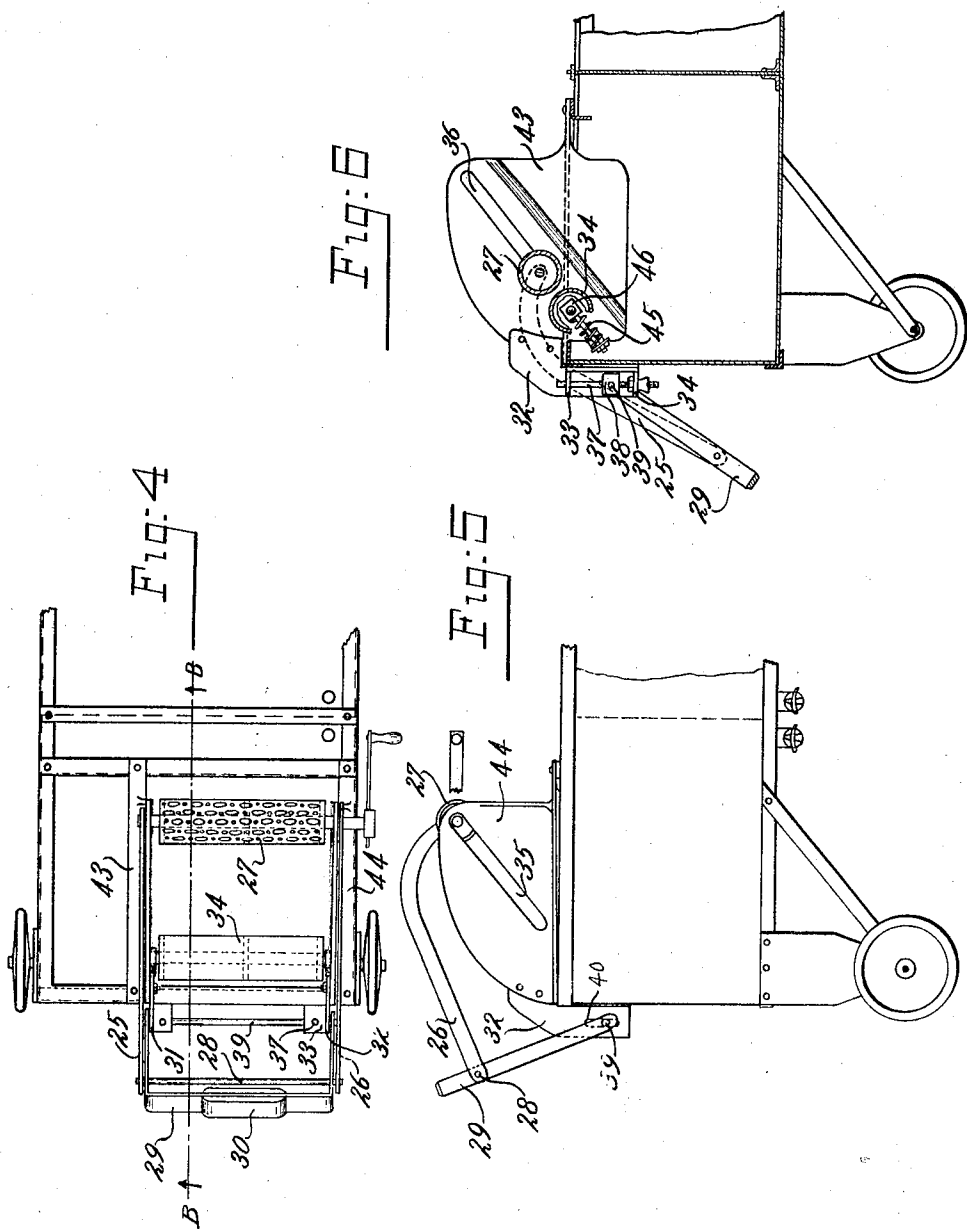
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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WRINGING MACHINE

Application filed August 20, 1927. Serial No. 214,312.

My invention relates in general to a wringing machine and more specifically to a mop wringer for general use, and especially for use with janitors' pails and mop tanks. I have illustrated the mop wringer of my invention in connection with a two compartment steel mop tank of well known design.

Among the objects of my invention are:—
10 to provide a wringer of improved design which is simple to manufacture, easy to attach to a tank, and easy to operate.

Further objects are to provide a wringer using foot or hand pressure to bring the 15 normally separated rolls together and so designed as to provide longer leverage, more direct action, and therefor higher pressure on the mop to efficiently wring the water therefrom.

20 A further object is to provide a hand operated locking wringer of improved design which is adjustable to different sizes of mops and for wet or dry mop and one which comprises few working parts and is of such 25 sturdy construction as to withstand a great amount of wear.

Further features and aspects of my invention will be made apparent by the following detailed description.

30 Referring to the accompanying drawings:—

Figure 1 is a top view of the compartment tank having the foot pressure wringer attached thereto.

35 Figure 2 is a side elevation of the tank and wringer of Figure 1 with only a portion of the tank shown.

Figure 3 is a sectional view of the wringer of Figure 1 taken in the direction of the 40 arrows along the line A—A of Figure 1.

Figure 4 is a top view of the wringer end of a mop tank showing a wringer of similar type to that of Figure 1 except that the same is operated by hand pressure.

45 Figure 5 is a side elevation of the wringer of Figure 4 showing the hand lever.

Figure 6 is a sectional view of the wringer of Figure 4 taken in the direction of the 50 arrows along line B—B thereof.

I will now describe the wringer more in

detail having reference to the above drawings. The tank 2 shown in Figs. 1-3 inclusive, has two compartments 3 and 4, one for clean and the other for rinse water. On the rinse water compartment 4 is 55 mounted a cross angle iron bar 5 which acts as part of the support for the wringer mechanism. Attached to the angle iron 5 and to the angle iron 6 on the end of the tank by means of screws 9^a and 10^a are a 60 pair of castings or plates 7 and 8 which are specially designed to provide proper bearings and support for the wringer rollers. The casting 7 is shown clearly in Fig. 3, and the opposite side or outer side of casting 8 is shown clearly in Fig. 2. 65

The wringer proper consists of a stationary roller 9, and a movable roller 10, together with mechanism for bring the movable roller into operative engagement 70 with the stationary roller 9. The stationary roller 9 is constructed of a sheet of steel or other suitable material rolled and riveted or otherwise fastened rigidly to a shaft 11 by means of metal heads. The shaft 11 of 75 the stationary roller is inserted at each end through holes in the two plates 7 and 8 so that it rotates freely in these holes as bearings. In each of plates 7 and 8 is provided a slot shown at 12 in plate 7 and at 13 in 80 plate 8. These slots are angularly displaced and extend from the stationary roller bearings upward and act as guides for the ends of the shaft 14 of the movable roller 10. The roller 10 is similar to roller 9 except that 85 it is perforated to assist in drawing the mop through the rollers and has a somewhat longer shaft. In addition to passing through plates 7 and 8 the shaft 14 has bearings in the ends of a pair of long curved 90 steel arms 15 and 16. The shaft 14 is held from endwise movement by any suitable washers or nuts on the outside of arms 15 and 16. On one end of shaft 14 is a rectangular shaped piece 17 which is of channel 95 shape and into which the flat handle 18 fits. The length of the handle may be adjusted and set by using any one of a plurality of holes in the end thereof to fasten the handle in the channel shaped member 100

17 by means of a thumb screw. The steel arms 15 and 16 are long and curved around as shown in Figs. 2 and 3. On the ends opposite the roller 10 the arms 15 and 16 are fastened to an iron frame 19 by means of a bar 20. There are a plurality of holes in the frame 19 and also in each arm 15 and 16, so that the arms may be adjusted with relation to the frame 19. The frame 19 has a foot platform 21 by means of which it may be pushed down and is pivoted on the axle 22 of the tank. There are a pair of strong springs 19a and 19b which normally tend to hold the frame in its uppermost position thereby maintaining the rollers separated normally.

Referring now to Fig. 3 the construction of the casting 7 can be clearly seen. This casting has the pivot hole of shaft 11 and the slot 12 extending radially therefrom at an angle of about 45 degrees or more from perpendicular. In addition the casting has its mounting rib extending across horizontally with screw holes at each end shown in dotted lines in Fig. 3. A strengthening rib 23 is also provided which projects on the inner side of the casting and acts as a guide for the lower edge of movable roller 10, also preventing the mop from becoming entangled in the bearings of said roller. The casting 8 is identical to 7 except reversed and its slot 13 is directly opposite slot 12 as is its strengthening rib 24 shown only in Fig. 1. The wringer is shown in operated position in Fig. 3 where the frame 19 has been pressed down and therefore roller 10 has been drawn directly down the slots and into engagement with stationary roll 11. Of course in its regular operation a mop would be inserted between these rollers and they would not come as close together. It will be seen from Figures 2 and 3 that when frame 19 is pushed down a direct pressure is exerted on movable roller 10 in a line with the slots in plates 7 and 8 and that the roller 10 is moved downward freely and against practically no resistance except from the springs 19a and 19b.

In Figs. 4, 5, and 6, I have shown a modified form of my invention in which the wringer proper consisting of the frame, wringer rolls, side slotted castings etc., are identical with those of Figs. 1, 2 and 3.

The wringer here is however of the hand operated type instead of foot operated. The arms 25 and 26 in these figures are fastened to the shaft of the movable wringer roller 27 in a similar manner to that in which the arms 15 and 16 of Figs. 1, 2 and 3 are fastened. These arms 25 and 26 are shorter however and are fastened by a bar 28 to a frame 29 having a handle 30 thereon. The frame 29 is pivoted on adjustable bearings in brackets 31 and 32 which are fastened as shown to the inner sides of castings 43

and 44. The bar 28 may either be permanently riveted in place as shown, or be held by nuts and washers on the ends of the bar 28 outside of arms 25 and 26. The stationary wringer roller 34 of these figures, instead of being rigidly mounted as in Fig. 1, has cushion bearings allowing a slight movement of the same in a direction in line with the slots 35 and 36. These bearings are arranged so that when the movable roller is brought down into engagement with it or onto a mop held against the roller 34, the roller 34 gives slightly to allow a locking of the rolls together. This cushion bearing consists of a heavy spring 45 holding a bearing 46 for the shaft of the roller which shaft moves in a short slot in the castings so that the complete roller may move downward a short distance under tension. One cushion bearing is shown in Fig. 6 and one cushion is supplied on each end of shaft of roller 34. Referring again to the frame 29 it will be seen that the points where this frame is pivoted in the brackets 31 and 32 are adjustable to provide for different size mops and so that the rollers may be brought closer together if desired. The bracket 32 for instance is quite clearly shown in Fig. 6 and has a pair of lugs 33 and 34 through holes in which passes a stud 37 held in place by a hexagonal nut above and a wing nut below the lug 34. At the center of stud 37 is a bearing 38 for the rod 39 which acts as a pivot for both ends of frame 29. This rod 39 passes through bearing 38 also through a similar bearing on bracket 31 on its opposite end. The adjustment of the hexagonal and wing nuts will raise the rod 39 up and down and such movement is permitted by the slot 40 through which rod 39 passes. The upper end of stud 37 works freely up and down in the hole in lug 33. It will thus be seen that when bearing 38 and the other bearing on bracket 31 are moved upward the frame 29 will, when pulled down, pass the center or have its toggle movement sooner and therefore movable roller 27 will not be brought down as close to roller 34. In this manner the mop may be wrung dry or wet as desired.

To further explain the operation of this hand operated wringer it will be seen that the pivot consisting of rod 39 of frame 29 is substantially in a line with the pivot points of the roller 34 and the inclined slots 35 and 36. Now when the handle is seized and the frame 29 drawn down the arms 25 and 26 are pulled down carrying roll 27 to the position shown in Fig. 6. The frame 29 has now moved about its pivots to such an extent that it is now past center and the tension of the springs in the cushion bearings of the stationary roll 34 are tending to move the frame 29 downward instead of

up and thus press the arms 25 and 26 tightly against the top edge of the tank to hold the wringer rolls locked together. When a heavier mop is used it is necessary to move the pivot points or bearings of frame 29 upward so that they will be further away from the line of the slots 35 and 36 and the pivot or bearings of shaft of roll 34 so that the frame 29 will move past center at an earlier point in its downward movement and thus will lock before the rolls are as close together as they are shown in Fig. 6.

It will thus be seen that I have provided a very simple and sturdy type of wringer in which direct acting levers are provided to operate the movable roller and that said roller slides down a straight slot in a pair of castings directly to the stationary roller.

What I consider to be new and desire to have protected by Letters Patent will be pointed out in the appended claims:

What is claimed is:

1. In a wringer mechanism, a pair of rigidly mounted parallel plates, a stationary roller mounted between said plates and having a bearing in each plate in a corner thereof, an inclined slot in each plate extending diagonally from a point near the bearing of the stationary roller in a straight line to the opposite upper corner of the plate, a movable roller having a shaft inserted at its ends through the slots of both plates, an operator operated rigid steel frame connected to the ends of the shaft of said movable roller for moving the same up and down in a straight line in said inclined slots into engagement with the stationary roller, and a spring means for returning the movable roller to its upper position.

2. In a wringer mechanism, a pair of parallel plates, a pair of wringer rollers having bearings at each end thereof in one of said plates, one roller having its bearings in inclined slots in each plate, a pivoted frame and arms for moving said last roller up and down in said slots, in a straight line, and an adjustable connection between the frame and the arms for varying the movement of the movable roller in proportion to the movement of the frame.

In witness whereof, I hereunto subscribe my name this 18th day of August, A. D. 1927.

SIMEON C. LAWLOR.