May 11, 1937. W. L. KAUFFMAN, 2D 2,080,048

WRINGER

Filed Dec. 5, 1933 3 Sheets-Sheet 1

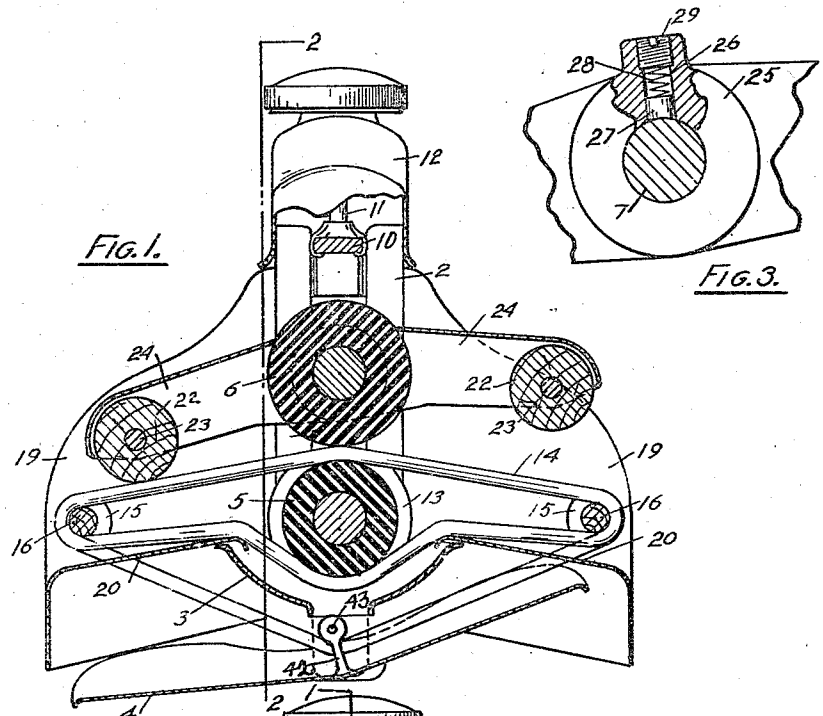

FIG. 1.



FIG. 3.

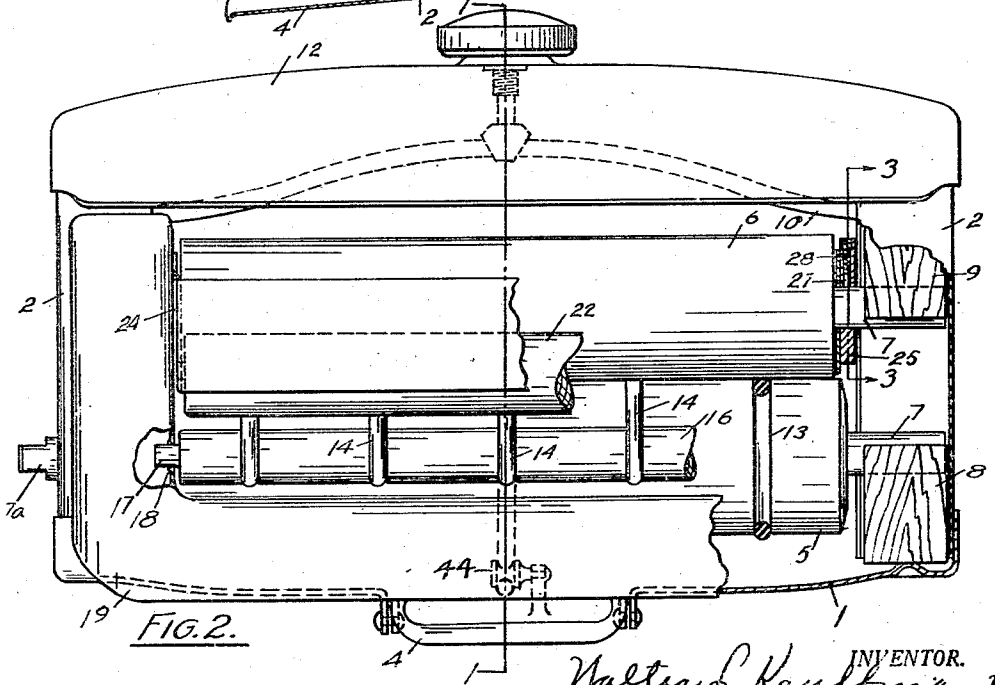

FIG. 2.

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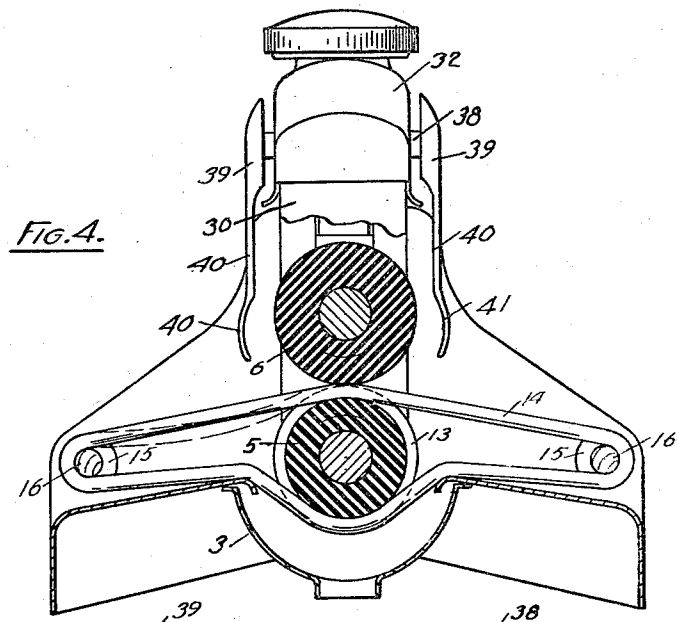
FIG. 4.



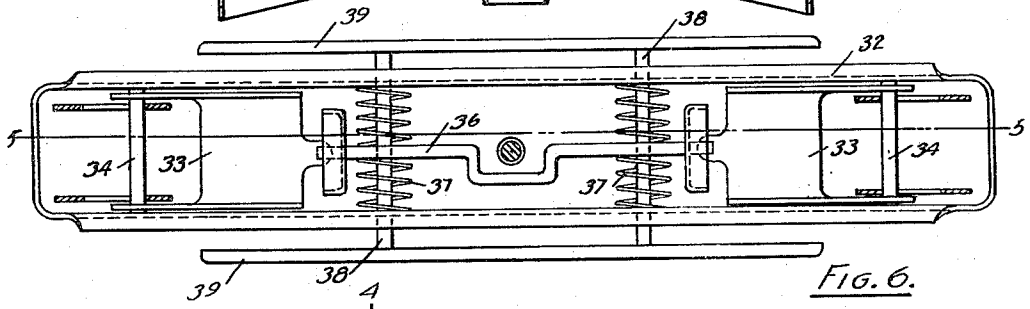




FIG. 6.

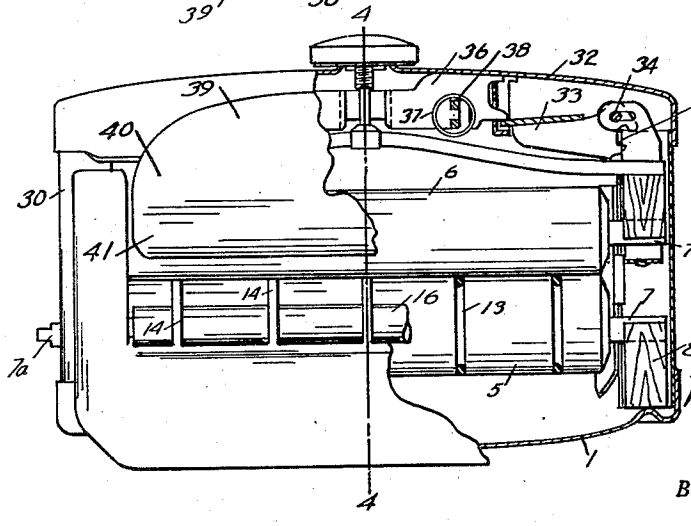



FIG. 5.

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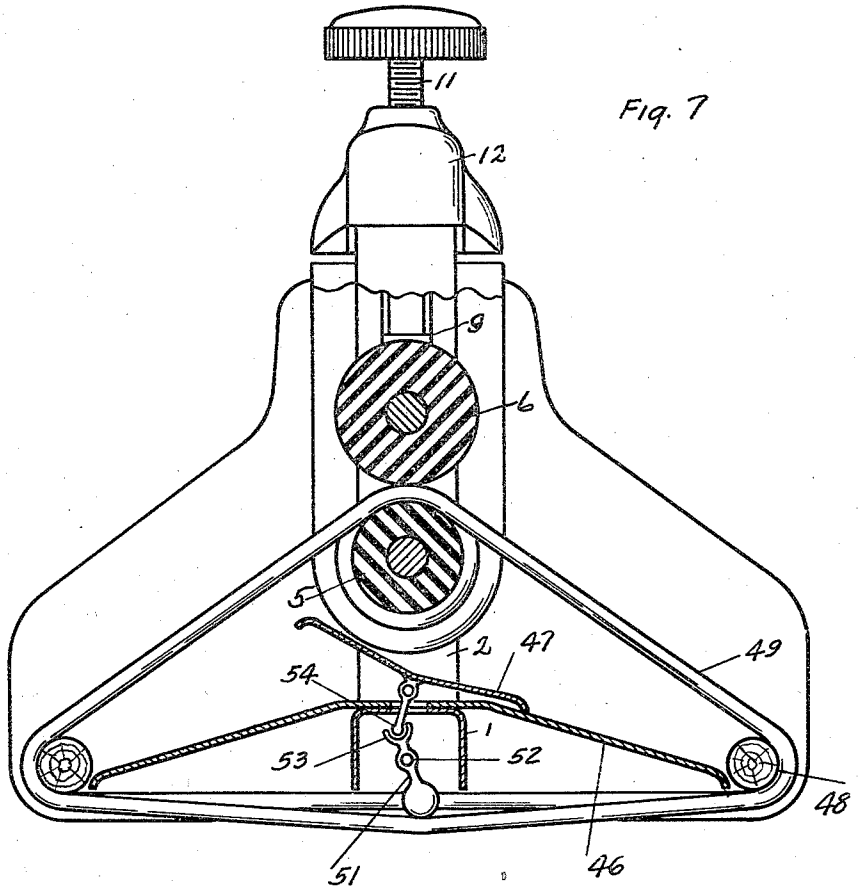


Fig. 7

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2,080,048

# UNITED STATES PATENT OFFICE

2,080,048

## WRINGER

Walter L. Kauffman, II, Erie, Pa., assignor to Lovell Manufacturing Company, Erie, Pa., a corporation of Pennsylvania

Application December 5, 1933, Serial No. 701,004

11 Claims. (Cl. 68—32)

This invention is designed to improve wringers particularly with relation to the feeding of clothes to the wringer rolls. With wringers, particularly power wringers, the feeding of the clothes to the wringer rolls is attended with some danger and the present invention is designed to obviate largely this danger and also to add to the convenience with which the clothes may be fed to the wringer. In carrying out the invention, a series of spaced belts are used for carrying the clothes to the bite of the wringer. Guards are provided which assist in the feeding of the clothes by the belts, preferably the guards automatically shifting their position with a shifting in the side of the wringer used. The invention also contemplates an automatic release on the feeding of an abnormal bulk to the wringer. Features and details of the invention will appear from the specification and claims.

A preferred embodiment of the invention is illustrated in the accompanying drawings as follows:—

Fig. 1 shows a section on the line 1—1 in Fig. 2.

Fig. 2 a front elevation of the wringer, partly in section, on the line 2—2 in Fig. 1.

Fig. 3 a section on the line 3—3 in Fig. 2.

Fig. 4 a section of a modification on the line 4—4 in Fig. 5.

Fig. 5 an elevation of the wringer, partly in section, on the line 5—5 in Fig. 6.

Fig. 6 a bottom view of the top bar.

Fig. 7 a cross sectional view of a modification of belt arrangement and a modification of tilting drip board.

The wringer is made up of a base 1 with side stiles 2. The base forms a trough 3 for collecting the water from the wringer and this trough discharges to a tilting spout 4.

Rolls 5 and 6 are formed of rubber, or resilient material, secured on roll shafts 7—7. The lower shaft is journaled in bearings 8 and the upper shaft in bearings 9 these bearings being arranged with the walls of the side stiles, these stiles being formed of sheet metal. The lower roll shaft has an extension 7a by which the roll may be driven and the upper bearing 9 is slidingly mounted in the stile permitting of upward movement of the upper roll. A spring 10 rests on the upper bearing blocks and exerts yielding pressure on the rolls. This pressure is adjusted by a screw 11 carried by a top bar 12.

One of the rolls, and preferably the lower roll, is provided with a series of grooves 13 and belts 14, preferably of resilient rubber, operate in these grooves, the belt being carried into the groove through the bite of the wringer. The outer loops of the belts which preferably extend from both sides of the roll operate in grooves 15, of rollers 16, the rollers having pintles 17 which pintles are journaled in bearings 18. The bearings 18 are carried by a frame extension and drip board carrier 19, these walls 19 being secured to the sides of the stiles. Drip boards 20 are arranged between the extensions 19 under the belts. The inner edges of the boards 20 are rounded over within the trough 3 and the belts 14 are carried over this rounded edge and deflected so as to make a definite engagement in the walls of the grooves on the lower side of the roll. This double engagement of the belts increases the driving action of the belts through the rolls.

In operation the clothes are placed on the belts 14. These are spaced so as to give ample drainage to the clothes through the belts. The clothes are carried up to the bite and fed through the wringer. Preferably the grooves are semi-circular and the belts are substantially circular in cross section, but are of a size and have a relation to the grooves and roll surfaces so that as the belt passes the bite the grooves are sealed by the belts and consequently there is no tendency to carry water through the bite at the grooves.

The belts may be placed closer, or farther apart, as the nature of the material being wrung may vary, but for ordinary clothes a spacing such as shown in the drawings operates satisfactorily.

It is preferable to provide guards compelling a feeding action to the wringer at a point remote from the rolls so as to practically preclude the possibility of an operator being caught in the rolls. Guard rollers 22 are mounted on rods 23 and these rods are journaled in rock arms 24, one at each end of the wringer, the rock arms being preferably journaled on the shaft 7 of the upper roll. The arm is of a length so as to position the rolls toward the outer ends of the belts and when the arm at one end is rocked downwardly that roll is brought onto the belts and the opposite roll elevated from the belts, that is to say, the roll at the intake side operates on the belt and the roll at the discharge side of the wringer is elevated so as not to interfere with the free discharge of the clothes.

In order to automatically place these rolls into feeding position at one side and in position away from the belts at the opposite side I preferably provide bearing hubs 25 for rock arms 24. These hubs are provided with openings 26 in which friction blocks 27 are arranged. The friction blocks

are yieldingly forced inwardly by springs 28 secured by screw plugs 29. With this construction, the friction block 27 rubs the pintle of the upper roll and by reason of the direction of rotation this roll rocks the intake side of the rock arms to bring the guard roll yieldingly into engagement with the belts.

In the modification shown in Figs. 4, 5 and 6 the same structure applies except for a slight modification in the stiles and the inclusion of a guard mechanism which releases the pressure on the rolls through the action of this guard mechanism. The side stiles 30 of the modification have catch slots 31 formed in their upper ends. A top bar 32 has latches 33 pivotally mounted in the top bar by pins 34. The latches have catch shoulders 35 which engage the slots 31 to lock the top bar on the stiles. The latches 33 are tripped by a trip bar 36 which is pivotally mounted in the underside of the top bar. A trip plate 36 is maintained in neutral position by springs 37. Push rods 38 are secured to the trip bar and extend through the sides of the top bar and are provided with release bars 39 at the front and rear of the top bar by which the top bar may be released and thus pressure on the rolls released. The specific release device so far described forms the subject matter of my application, Serial Number 670,461. Guard loops having arms 40 and cross bars 41 are secured to the bars 39. The cross bars 41 are adjacent to the bite of the wringer and in position to be in the path of an abnormal bulk of material being advanced by the belts. When engaged by such abnormal bulk the release is automatically accomplished and if engaged by the operator's hands the release is also accomplished. Thus the pressure may be manually released, or automatically released.

It is desirable in wringers of this type to automatically reverse the drain system as the wringer is reversed. In the structure shown in Fig. 1 a post 42 is arranged in the trough 4. A pin 43 extends from this post. A pulley 44 is locked on the pin. One of the belts 14 is carried below the collector 3 around the pulley 44 and by its drag reverses the trough 4 with a reversal of the wringer.

In Fig. 7 a drain board 46 is used on which is mounted a tilting drip plate 47. Rollers 48 are mounted on the drain board and belts 49 are carried between the rolls and around the rollers 48, the return reach of the belts being under the drain board and frame. One of the belts engages the bottom end of a lever 51. The lever is pivotally mounted on a pin 52 arranged in the base of the frame. The upper end of the lever has a fork 53 which engages an arm 54 extending from the tilting drip plate. As the wringer is reversed it will readily be seen that the drag on the lever 51 will reverse the position of that lever and at the same time reverse the direction of the drip plate 47.

What I claim as new is:—

1. In a wringer, the combination of a frame; rolls mounted in the frame, one only of the rolls having circumferential grooves therein spaced at intervals along the central squeezing portion of the rolls, the rolls being normally in contact at each side of the groove; and a series of spaced belts operating in the grooves and extending through the bite of the rolls in driving relation to the walls of the grooves, said belts being adapted to feed clothes to the bite of the rolls on the face of the belts next the ungrooved roll.

2. In a wringer, the combination of a frame; rolls mounted in the frame, one of the rolls having circumferential grooves therein spaced at intervals along the central squeezing portion of the rolls, the rolls being normally in contact at each side of the groove; and a series of spaced belts operating in the grooves and extending through the bite of the rolls in driving relation to the walls of the grooves, the belts being related to the grooves to seal the grooves at the bite.

3. In a wringer, the combination of a frame; rolls mounted in the frame one above the other, the bottom roll having circumferential grooves therein spaced at intervals along the central squeezing portion of the rolls, the rolls being normally in contact at each side of the groove; and a series of spaced belts operating in the grooves and extending through the bite of the rolls in driving relation to the walls of the grooves, said belts being adapted to feed clothes to the bite of the wringer with the clothes between the belts and the upper roll.

4. In a wringer, the combination of a frame; rolls mounted in the frame, the bottom roll having circumferential grooves therein spaced at intervals along the central squeezing portion of the rolls, the rolls being normally in contact at each side of the groove; and a series of spaced belts operating in the grooves and extending through the bite of the rolls in driving relation to the walls of the grooves, the belts being related to the grooves to seal the grooves at the bite.

5. In a wringer, the combination of a frame; rolls mounted in the frame, one of the rolls having circumferential grooves therein; a series of belts operating in the grooves and extending through the bite of the rolls in driving relation to the walls of the grooves; a drip board carried by the frame and positioned below the belts; rollers spaced parallel at the front and rear of the wringer around which the belts pass and from which the belts are led in feeding relation to the rolls; and means deflecting the return reach of the belts into engagement with the underside of the bottom roll, said means being formed on the drip board.

6. In a wringer, the combination of a frame; rolls mounted in the frame; feeding devices having moving surfaces adapted to feed clothes to the bite of the rolls from each side of the rolls; guards at each side of the wringer; and rock arms carrying the guards and frictionally engaging a roll to reverse the position of the guards at the intake and discharge sides of the wringer.

7. In a wringer, the combination of a frame; rolls mounted in the frame; shafts for the rolls; feeding devices having moving surfaces adapted to feed clothes to the bite of the rolls from each side of the rolls; guards above the feeding devices; rock arms carrying the guards, said rock arms being pivotally mounted on the shaft of the upper roll; and a friction device in one of the rock arms yieldingly pressing the shaft of the upper roll to reverse the guards.

8. In a wringer, the combination of a frame; rolls mounted in the frame; a feed belt leading into feeding relation with the rolls; and a water drain, said belt and drain having operative connections reversing the drain with a reverse of the wringer.

9. In a wringer, the combination of a frame; rolls mounted in the frame; a series of feeding belts leading into feeding relation with the rolls; and a water drain, one of said belts and drain

having an operative connection reversing the drain with a reverse of the wringer.

10. In a wringer, the combination of a frame; rolls mounted in the frame; a feed belt leading into feeding relation with the rolls; and a tilting water drain, said belt and drain having an operative connection reversing the drain with a reverse of the wringer.

11. In a wringer, the combination of a frame; rolls mounted in the frame; a series of feeding belts leading into feeding relation with the rolls; a water drain; and a pulley connected with the drain, one of the belts having an operative connection with the pulley reversing the drain with a reversal of the wringer.

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