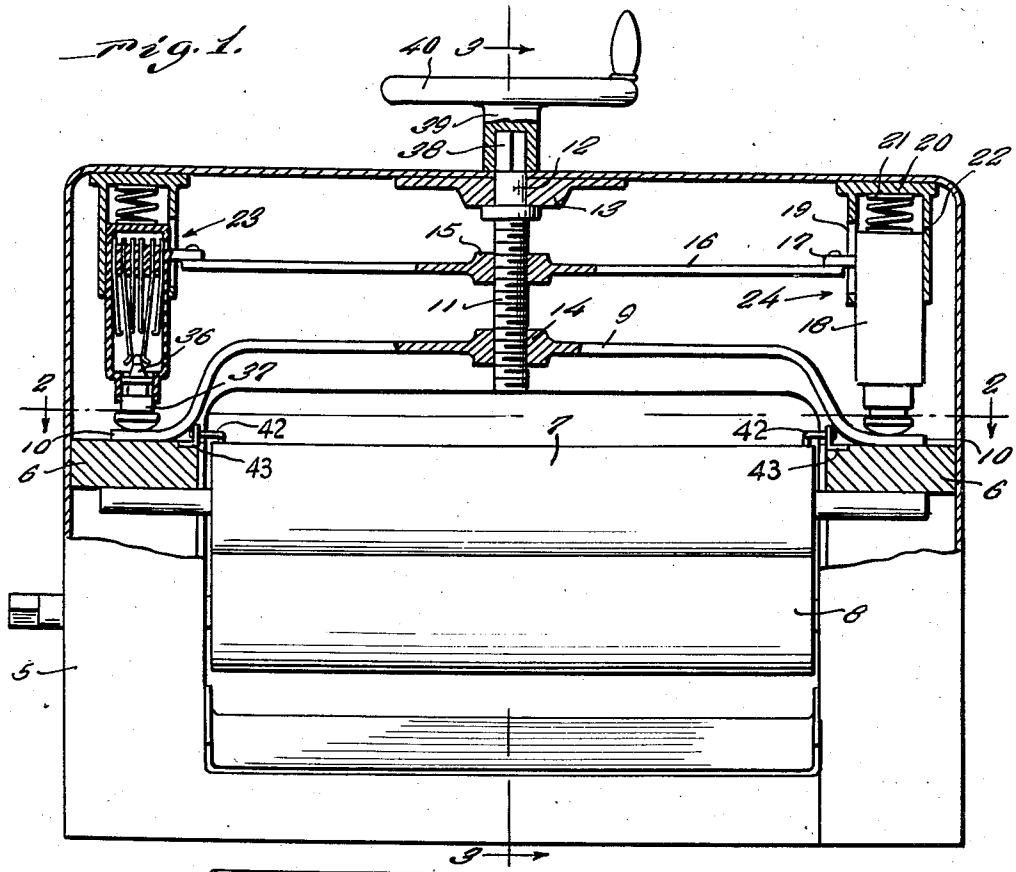
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SAFETY MEANS FOR WRINGER ROLLS

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Fig. 1.



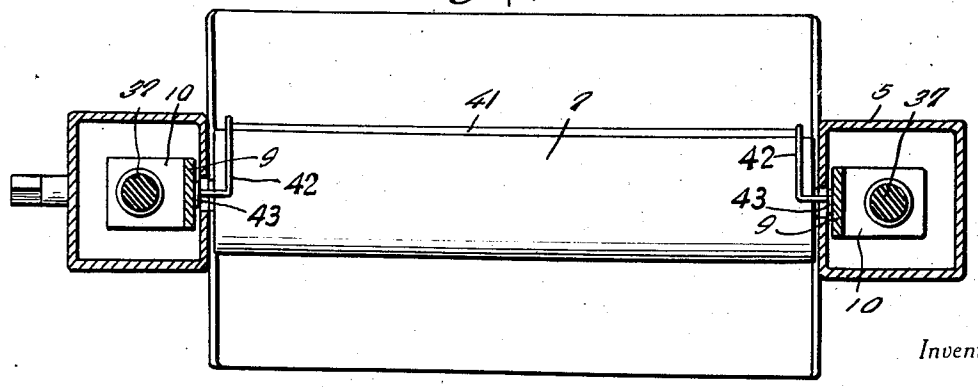


Fig. 2.

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SAFETY MEANS FOR WRINGER ROLLS

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Fig. 3.

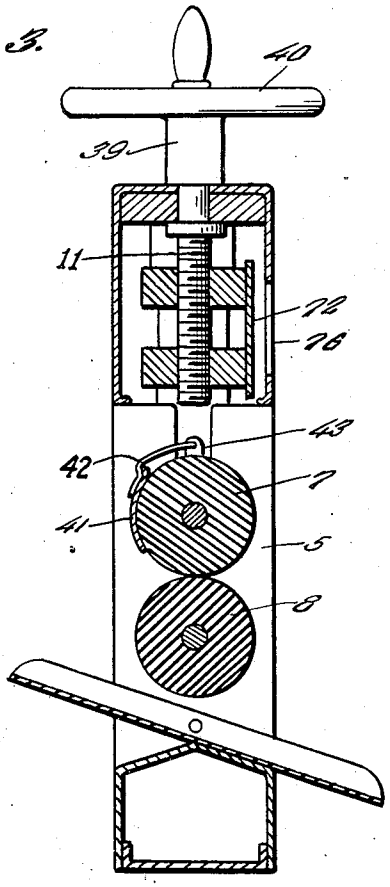
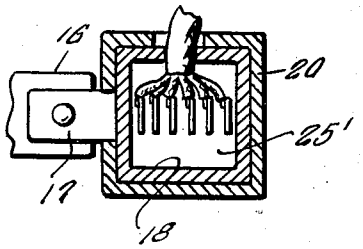


Fig. 5.



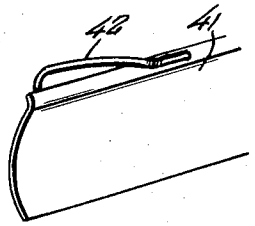


Fig. 6.

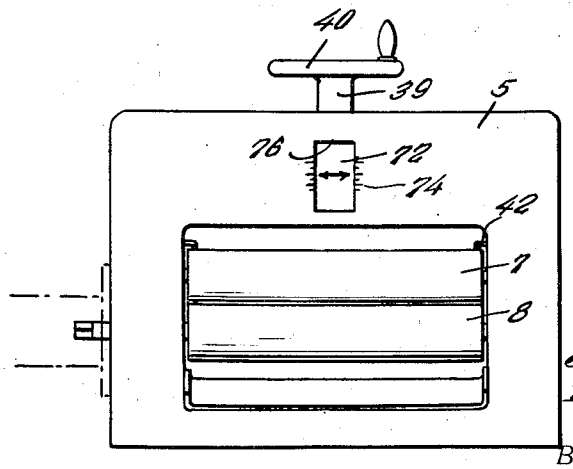


Fig. 4.

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SAFETY MEANS FOR WRINGER ROLLS

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Fig. 7.

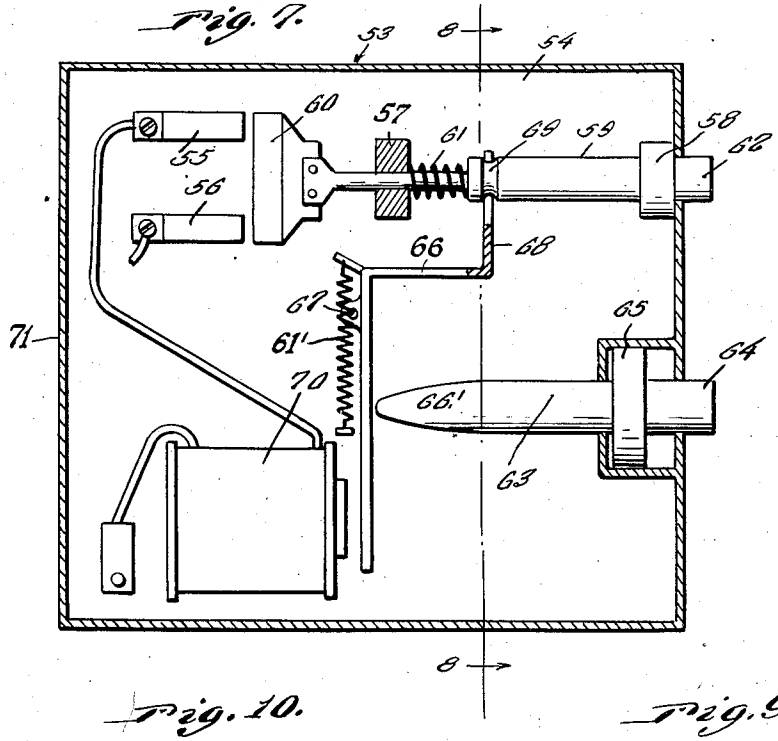


Fig. 10.

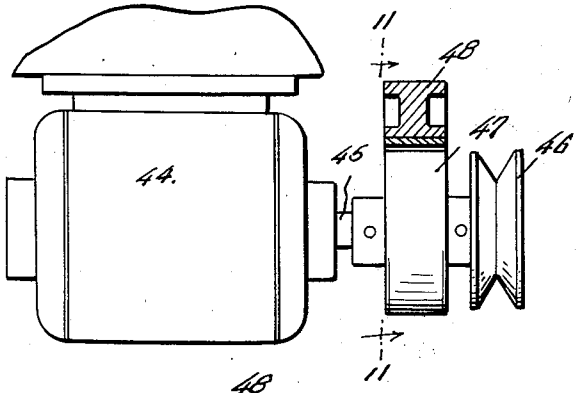
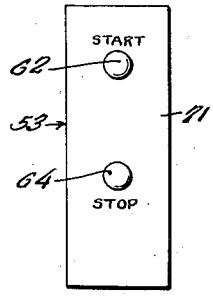


Fig. 9.



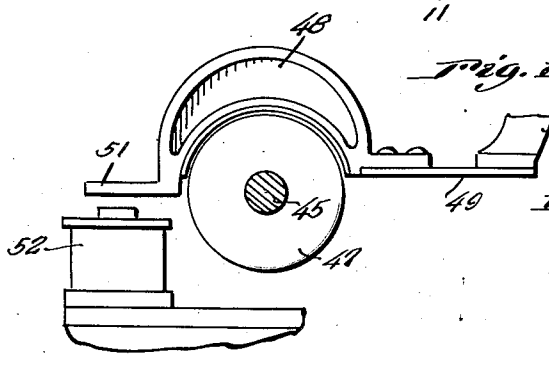


Fig. 11.

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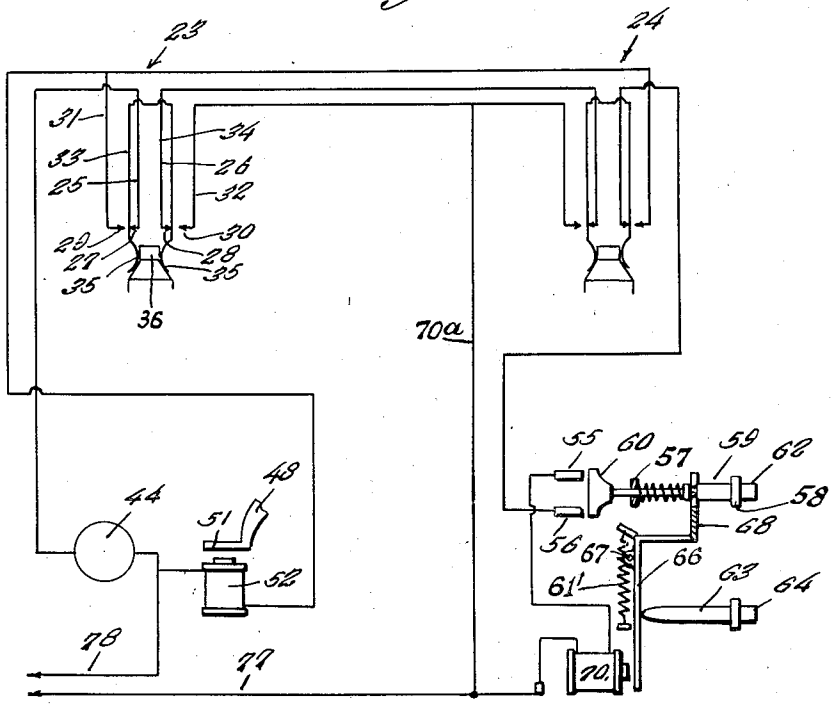
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Fig. 12.



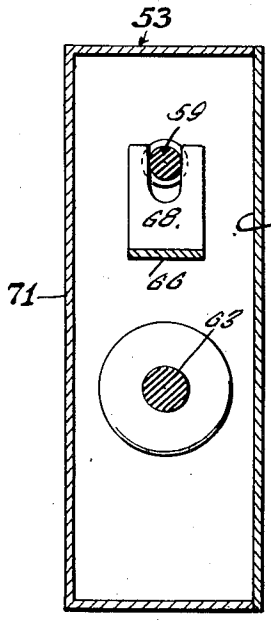


Fig. 8.

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UNITED STATES PATENT OFFICE

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SAFETY MEANS FOR WRINGER ROLLS

James E. Peterson and Edward Saul,
Camden, N. J.

Application March 28, 1938, Serial No. 198,526

2 Claims. (Cl. 68—253)

The present invention appertains to new and useful improvements in means associated with wringer rolls of the power driven type whereby the rolls can be automatically stopped in the event the attendant's fingers or clothes get caught between the rolls.

An important object of the invention is to provide safety means for washing machine wringer rolls whereby the power to the rolls will be shut off and a brake applied in the event anything over a predetermined thickness starts to pass between the rolls.

Other objects and advantages reside in the positive action and fool-proofness of the mechanism.

Various other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:

Figure 1 is a front elevational view with parts broken away.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a vertical section on the line 3—3 of Figure 1.

Figure 4 is a front elevational view.

Figure 5 is a fragmentary horizontal sectional view.

Figure 6 is a fragmentary perspective view of the guard plate.

Figure 7 is a sectional view through the switch box and through a part of the mechanism therein.

Figure 8 is a section on the line 8—8 of Figure 7.

Figure 9 is an elevational view of the switch box.

Figure 10 is a side elevation of the motor and brake means therefor, the latter being shown in section.

Figure 11 is a sectional view approximately on line 11—11 of Figure 10.

Figure 12 is a diagrammatic view disclosing the electrical connections between the electrical devices involved.

Referring to the drawings wherein like numerals designate like parts, it can be seen in Figure 1, that numeral 5 represents the frame of the wringer in the side portions of which are the vertically movable bearing blocks 6—6 resting upon the shaft ends of the upper roll 7. Numeral 8 denotes the lower roll and numeral 9 denotes the pressure bar which is provided with downwardly disposed end portions having feet 10 resting upon the bearing blocks 6.

To adjust the spring bar 9, a screw shaft 11 is provided and has its upper smooth end portion 12 journaled through the bearing 13 in the top of the frame 5, this screw shaft being threadedly disposed through the thickened portion 14 of the bar 9 and also through the thickened portion 15 of the bar 16, which at its ends is connected to lugs 17 which project from the switch cases 18 through slots 19 in the guide barrels 20. Springs 21 are located in the guide barrels 20 between the switch cases 18 and the attaching plates 22 of the barrels 20.

These switches are generally referred to by numerals 23 and 24 and each consists of an insulating block 25' having a pair of parallel centrally disposed contact fingers 25—26 provided with contacts 27—28 respectively at their lower ends and opposed spacially from the complementary contacts 29—30 of the opposed contact fingers 31—32, respectively. Extending from the block 25 downwardly between the fingers 25—31 and 26—32 are the spring contact fingers 33—34 which have their lower ends depending below the complementary contacts and flaring laterally as at 35 so that the tapered upper end 36 of the corresponding spreader 37 can readily ride between the same to move the fingers 33—34 from the contacts 27—28 to engage the contacts 29—30, when the roll 7 is extensively raised as when the operator's fingers are caught between the same and the roll 8. To adjust the tension of the spring 9 and the bar 16, the upper end of the screw shaft 11 is provided with a polygonal-shaped extension 38 over which the socket 39 on the hand wheel 40 can engage.

It can be seen at this point that it is also preferable that the upper roll 7 be provided with a guard plate 41 connected by spring members 42 to ears 43 on the bearing blocks 6 as is clearly shown in Figure 1.

The drive motor 44 of the wringer is provided with the armature shaft 45 and on this is the usual drive pulley 46 (or other driving element) connected in any suitable manner with the drive roll.

Also on this armature shaft 45 is the drum 47 with which the brake shoe 48 is engageable. This brake shoe 48 is connected by the spring strip 49 to a suitable bracket 50 carried by the frame of the machine. This shoe 48 is also provided with the extension 51 which is disposed in the magnetic field of the electromagnet 52 which is suitably supported by the frame of the machine.

The switch assembly is generally referred to

by numeral 53 and consists of the plate or panel 54 forming part of a casing 71, and on which are located the contacts 55—56. Slidable through guides 57—58 is the plunger 59 carrying the bridge piece 60 which is capable of bridging the contacts 55—56 and the spring 61 on this plunger 59 is adapted to urge the bridge piece 60 toward non-bridging position with respect to the contacts 55—56. The outer end of this plunger 59 is provided with the push button formation 62. Also mounted on this plate 54 is the plunger 63 having the push button formation 64 at its outer end. This is slidably disposed through the guide 65 and has a tapered extension 66' at its inner end opposed to the end portion of the angularly-shaped armature 66 which has its fulcrum point as at 67 and which at one end is provided with a yoke 68 for disposition into the channeled portion 69 of the plunger 59. A spring 61' suitably connected to the casing 71 and to the armature 66 oposes the action of the spring 61 so that said springs 61, 61' normally balance the plunger 59 into a retracted position in which the bridge piece 60 is in non-bridging relation to the contacts 55, 56 and the switch open. However, the relation of the parts is such that if the plunger 59 is advanced the spring 61' will hold the same in such position and the switch closed.

Opposed to the opposite end of the armature 66 is the electro-magnet 70.

As shown in Figure 4, the tension on the roll 7 can be adjusted by comparing the plate 72 carried by the screw 11 which has the arrow 73 thereon with the scale 74 on the shell 5 at the edge portion of the opening 76.

It can now be seen that numeral 77 represents the positive side of the current supply line while numeral 78 represents the return side. The side 77 extends to contacts 28, 27 of the switches 23, 24, by way of electro-magnet 70 and contacts 55, 56 and to one side of motor 44. Said side 77 also extends to contacts 30, 29 of said switches 23, 24 by way of a shunt lead 70a and from said switches to one side of the brake electro-magnet 52 and through the latter to the return side 78.

So long as the fingers 33—34 are engaged with the contacts 27—28 current is supplied to the motor 44, that is, provided the contacts 55—56 are bridged by the bridge-piece 60. In this connection, when the button 62 is pressed, it is held in pressed position until the starting winding of the motor 44 has released and is operating as an induction motor, due to the fact that it takes more current to start a motor than it does when the motor has reached full speed. Therefore, there is not sufficient current flowing through the magnet 70 when the motor has obtained full speed to attract the armature 66 which has been held in locked position by the tension of the spring 61'. If the motor stops because something in the machine has prevented from turning, the starting winding of the motor would then be engaged causing sufficient current to flow through the magnet 70, to attract the armature 66 resulting in the retraction of the button 62 and retraction of the bridge-piece 60 into non-bridging relation. The function of the switch 53 is to prevent any serious damage to the motor by having current left on the motor when the motor has been stopped by a too heavy load or by some part of a machine becoming jammed.

When the contacts 33, 34 are engaged with the contacts 29, 30, as under the conditions previously described, the current flows from side 77 by way of lead 70a and said contacts to one side of the brake electro-magnet 52 and through the same to return side 78, thus energizing said electro-magnet and attracting brake shoe 48 to apply the same to the armature shaft 45 of the motor 44.

The plunger 64, as will be clear, may be operated at any time to move the bridge-piece 60 into non-bridging, switch-opening position to thereby manually stop the motor 44.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

1. In a wringer comprising a frame, a pair of rolls rotatably mounted in said frame and relatively separable, pressure means opposing separation of said rolls, a drive for rotating said rolls including an electric motor, a motor circuit, and switch means responsive to separation of said rolls in predetermined degree to break said circuit.

2. In a wringer comprising a frame, a pair of rolls rotatably mounted in said frame and relatively separable, pressure means opposing separation of said rolls, a drive for rotating said rolls including an electric motor, a motor circuit, switch means responsive to separation of said rolls in predetermined degree to break said circuit, and an electric brake for said rolls operative under control of said switch means simultaneously with the breaking of said motor circuit.

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