

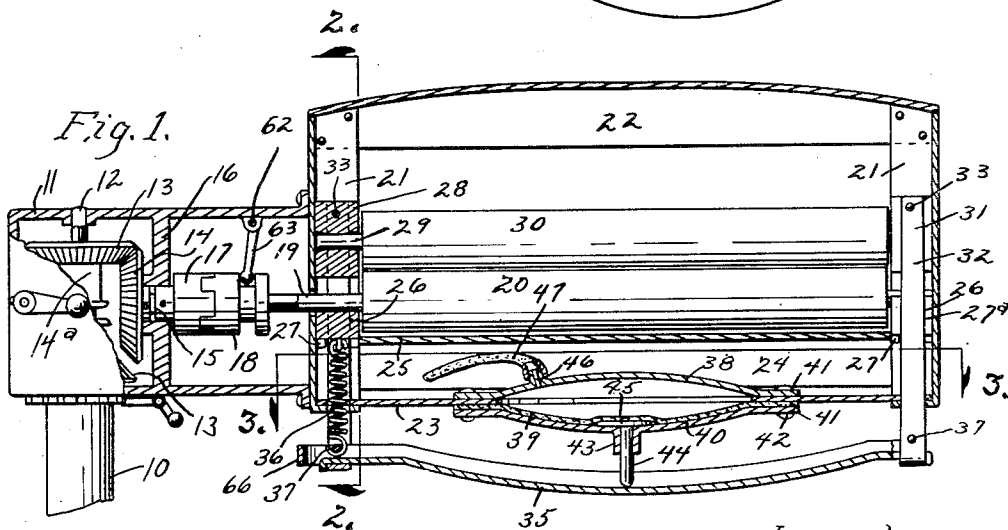
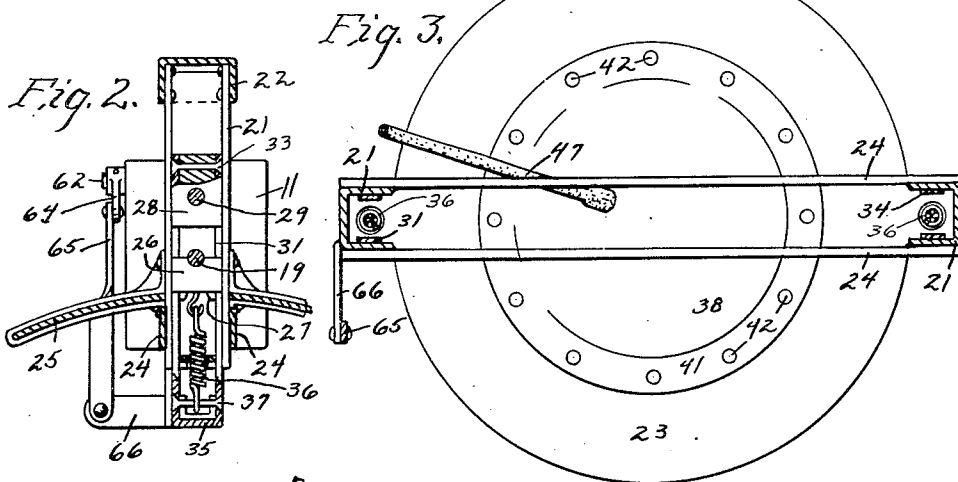
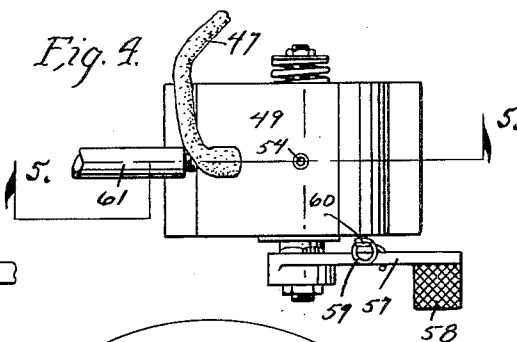
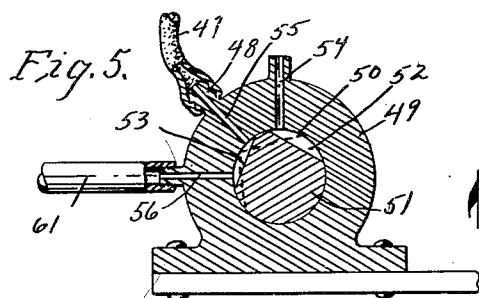
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G. W. LEWIS

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WRINGER

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UNITED STATES PATENT OFFICE

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WRINGER

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The object of my invention is to provide in a wringer improved means for controlling the movement of the wringer rolls one toward the other, while the rolls are either idle or in operation, whereby the said rolls may be normally and yieldably maintained in a separated position; and in connection therewith foot controlled power operated mechanism for applying pressure to move said rolls to closed position and for yieldably retaining them in a closed position while the operator's foot is in position on the said controlling mechanism, and whereby the tension of the rolls will be immediately released upon the removal of the operator's foot.

A further object is to provide in a wringer improved means for applying yieldable pressure to the rolls while in operation for wringing purposes, whereby said pressure will be more uniformly applied to the rolls than heretofore has been possible when springs are employed so that the pressure will not vary to any considerable extent as the rolls are moved from a closed position to a separated position.

A further object is to provide in a wringer foot controlled means for moving the wringer rolls to a closed position and for maintaining a yieldable pressure thereon while in a closed position, and adapted to be instantly released upon the removal of the operator's foot from the controlling mechanism, and in connection therewith means for automatically connecting and disconnecting the wringer rolls with the driving power as the rolls are moved to a closed or open position.

More specifically it is the object of my invention to provide in a wringer pneumatic mechanism for applying pressure to the wringer rolls, and in connection therewith foot controlled mechanism for controlling the movement of the wringer rolls.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a vertical longitudinal sectional view of my improved wringer.

Figure 2 is a detail sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a plan view of the foot controlled mechanism used in connection with my improved wringer.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

In the drawing I have used the reference numeral 10 to indicate a support or standard having a gear box 11 supported on its upper end, in which is mounted a drive shaft 12. The shaft 12 has a pair of miter gears 13, which are rigidly secured to a hub 14 slidably mounted on the shaft 12 and adapted to rotate therewith, whereby either of the gears 13 may be moved into operative relation with a gear 14 mounted on a stub shaft 15, which in turn is rotatively mounted in a partition 16 of said gear casing.

The outer end of the shaft 15 is provided with a clutch member 17 designed to coact with a clutch member 18 slidably mounted on the outer end of the wringer shaft 19 carried by the lower wringer roll 20. The clutch members 17 and 18 provide means whereby the shaft 19 may be either connected to or disconnected from the shaft 15 by mechanism hereinafter described.

My improved wringer comprises a frame formed of a pair of upright channel members 21, which have their upper ends connected by a frame member 22. The lower ends of the channels 21 are secured to an annular frame member 23, and also to cross bars 24. The cross bars 24 support the drain board 25.

Supported in each of the channels 22 is a bearing 26 designed to support the roller shaft 19. Said bearings 26 are held against downward movement by lugs 27. Also mounted in the channels 21 is a set of bearings 28 designed to carry the roller shaft 29 on which is mounted the upper roller 30.

The side faces of the bearings 28 are provided with grooves 31 for receiving stirrup members 32. The upper ends of said mem-

bers 32 are secured therein by means of rivets or bolts 33. The bearings 26 are also provided with grooves 27a for receiving said stirrup members 32, which are slidably mounted therein. The lower ends of the stirrups 32 project downwardly through slots 34 in the member 23 and are designed to support an equalizing bar 35.

The lower ends of the bearings 26 are connected to vertically arranged springs 36 which have their lower ends connected to the member 32 by means of rivets 37. The said springs 36 provide means for normally retaining the stirrups 32 and the roller 30 in an elevated position, with the roller 30 a considerable distance above the roll 20. Thus means is provided whereby the roller 30 will be normally and yieldably supported in an elevated position, relieving the rolls 20 and 30 of any tension between themselves, and any tendency toward flattening, as is the case if the rolls are supported normally in contact with each other under pressure.

Supported on the upper surface of the frame member 23 is a curved plate 38 covering the opening of said member 23. A flexible diaphragm 39 is secured to the under surface of the plate 23, and covering said opening. A second curved plate 40 is supported below the said diaphragm. Said curved plates have flanges 41 which provide means for anchoring the plates and the diaphragm in position by means of suitable rivets 42.

The central portion of the plate 40 has a downwardly extending lug 43 in which is slidably mounted a vertical pin 44, the upper end of which is provided with a flattened head 45 resting between the diaphragm 39 and the plate 40. The lower end of the pin 44 rests on the equalizing bar 35 in the manner clearly illustrated in Figure 1.

The upper plate 38 is provided with a nipple 46 to which a flexible hose 47 is connected. The other end of the hose 47 is connected to a nipple 48 forming a part of a valve casing 49, provided with a valve seat 50 in which is rotatively mounted a valve 51. The valve 51 is provided with passages 52 and 53. The casing 49 has an inlet port 54, an outlet port 55 communicating with the nipple 48, and an exhaust port 56. A lever 57 is connected to one end of the valve 51, the free end of which has a foot pedal 58.

A spring 59 has one end connected to a lever 57 and the opposite end to a pin 60 supported in the valve casing 49 and provides means for supporting the free end of the lever 57 in an elevated position, and the valve 51 in the position shown by dotted lines in Figure 5. The port 54 is connected to a pipe 61, which in turn is connected to any suitable tank for containing compressed air.

Supported in the gear casing 11 is a rock shaft 62 having a downwardly extending arm 63 designed to engage the clutch member 18

for moving the same to an open or closed position. The outer end of the shaft 62 is provided with an arm 64, to which one end of a link 65 is connected. The opposite end of the link 65 is connected to a bracket 66 secured to the lower end of one of the guide members 21, in such a manner that as the stirrup 32 is moved to its elevated position, the clutch member 18 is pulled out of engagement with the clutch member 17, so that said clutch members are normally retained in open position.

The operation of my device is as follows:

Assuming that the shaft 12 is being rotated, and that the clutch member 17 is also being rotated, and that the valve 51 is in its normal position, and that air pressure is being maintained in the pipe 61, and that the roller 30 is in its elevated position above the roll 20, then the operator may place clothes between said rolls and at the same time apply downward pressure to the pedal 58, causing the valve 51 to be rotated from the dotted line position to the solid line position shown in Figure 5. Then air will enter the port 54 and pass through the port 55 into the flexible hose 47 and into the interior of the chamber between the plate 38 and the diaphragm 39, causing said diaphragm to be moved downwardly as well as the pin 44, and the equalizing bar 35, which in turn will cause the stirrups 32 to be lowered and the roller 30 to be brought into engagement with the clothes.

Downward movement of the stirrup 32 causes the clutch members 17 and 18 to be closed and the wringer rolls 20 to be rotated. The wringer may then be continuously operated so long as the operator's foot remains on the pedal 58.

A variation in the thickness of the clothes being fed to the rolls will cause the equalizing bar 35 to be elevated and lowered, the elasticity of the air permitting said yieldable movement. It will be seen that either end of the roller 30 may be elevated in advance of the other.

The equalizing bar 35 is loosely supported on the lower ends of the stirrups 32 to permit pivotal action between said members.

If clothes should become wound on either of the rolls 20 or 30, then the operator releases the pedal 58, permitting the valve 51 to return to its normal position, causing the port 55 to be placed in communication with the exhaust 54 through the passage 52. The pressure on top of the diaphragm 39 is immediately released. The springs 36 then cause the roller 30 to be elevated. The clutch members 17 and 18 are also instantly released. Both of the rollers 20 and 30 are then free to be manipulated for unwinding the clothes.

Thus it will be seen that I have provided a wringer of simple, durable and inexpensive construction, in which the rollers are nor-

normally supported in spaced relation with each other, and in which power mechanism is employed for moving the rollers together and yieldably maintaining them in a closed position, said means being controlled by a foot actuated lever, and which normally tends to throw the rolls and operating mechanism into normal or neutral condition, with the rolls out of gear with the driving mechanism and out of engagement with each other.

This arrangement has considerable advantage over the roller release devices heretofore used inasmuch as if an operator's hand should become caught between the rollers, the foot pedal 58 would be instantly released, thereby releasing the pressure on the rollers and at the same time throwing them out of operation.

I claim as my invention:

1. A wringer comprising a supporting frame having vertical guide members, a pair of lower bearing members supported therein, a roller shaft carried by said lower bearing members, a pair of upper bearing members slidably mounted in said guides, a roller supported by said upper bearing members, yieldable means for supporting said upper bearing members at their upper limit of movement with said rollers spaced apart. pneumatically operated means for moving said upper bearing members downwardly, foot controlled means for controlling said pneumatically operated means, a driving mechanism including a clutch device, a co-acting clutch member mounted to operate said lower wringer roll and adapted to be moved into and out of engagement with the first clutch member, and means actuated by the upward movement of the upper roll for throwing said clutch member out of operative relation with each other, or vice versa.

2. A wringer comprising a supporting frame having upright guide members, a pair of fixed bearing members and a pair of movable bearing members in said guide members, rollers for each corresponding set of bearing members, stirrups connected to the movable bearing members projecting downwardly beyond the fixed bearing members, an equalizing bar connecting the free ends of said stirrups, yieldable means for moving said movable bearing upwardly from the fixed bearings, a diaphragm casing supported in said frame between said rolls and said equalizing bar, a diaphragm in said casing, an operating pin between said diaphragm and said equalizing bar, means for admitting air to the space between said diaphragm and one wall of its casing for moving said movable bearing members and the roll carried thereby toward the fixed roll, and means for controlling the supply of air to said diaphragm casing.

3. A wringer frame comprising upright guides, a cross member connected to the upper

ends of said guide members, a drain board connecting the lower ends of said guide members, rollers supported in said frame between said drain board and said upper cross member, a diaphragm casing supported beneath the said drain board, a diaphragm in said casing, a pin adapted to be moved into and out of said casing actuated by movement of said diaphragm, an equalizing bar supported against the outer end of said pin, means for connecting the ends of said equalizing bar with one of said rolls whereby said roll will be moved toward and from the other roll as said diaphragm is operated within its casing, means for admitting air to said casing under pressure, and means for controlling the flow of air into and out of said diaphragm casing.

4. A wringer comprising a supporting frame having upright guide members, a pair of fixed bearings and a pair of movable bearings mounted above the fixed bearing in said guides, rollers for each corresponding set of bearing members, stirrups connected to the upper bearing members projecting downwardly beyond the fixed bearing members, an equalizing bar connecting the free ends of said stirrups, a diaphragm casing supported to said frame between said rollers and said equalizing bar, a diaphragm in said casing, means for operatively connecting the central portion of said diaphragm with the central portion of said equalizing bar, and means for admitting air to the space between said diaphragm and one wall of its casing for moving said movable bearing members and a roll carried thereby toward the fixed roll.

5. A wringer comprising a supporting frame having upright guide members, a pair of rolls mounted in said guides one above the other, a diaphragm casing supported to said frame beneath the central portion of said rolls, a diaphragm for said casing, means for operatively connecting said diaphragm with one of said rolls, and means for admitting air to said casing between one of its sides and between said diaphragm whereby one of said rolls will be moved toward the other roll as air is admitted to said casing.

6. A wringer comprising a supporting frame having upright guide members, a pair of rolls mounted in said guide members one above the other, a diaphragm casing supported adjacent to said frame, a diaphragm in said casing, means for operatively connecting said diaphragm with one of said rolls whereby movement of the diaphragm will cause the said roll to be moved toward and from the other roll, and means for admitting fluid to said casing between one of its sides and between the adjacent side of said diaphragm.

7. A wringer comprising a supporting frame, a pair of rolls mounted therein, yieldable means for normally supporting said rolls

in spaced relation, fluid operated means for moving said rolls together, a foot controlled means for controlling said fluid operated means, and a driving mechanism including
5 a clutch member.

8. A wringer comprising a supporting frame, a pair of rolls mounted in said frame, one being adapted to move toward and from the other, a diaphragm casing supported adjacent to said frame, a diaphragm in said
10 casing, means for operatively connecting said diaphragm with one of said rolls, whereby movement of the diaphragm will cause the said roll to be moved toward and from the
15 other roll, and means for admitting fluid to said casing between one of its sides and between the adjacent side of said diaphragm.

9. A wringer comprising a supporting frame, a pair of rolls mounted in said frame, one being adapted to move toward and from the other, a diaphragm casing supported adjacent to said frame, a diaphragm in said casing, means for operatively connecting said
20 diaphragm with one of said rolls, whereby movement of the diaphragm will cause the said roll to be moved toward and from the other roll, foot controlled means for admitting fluid to said casing between one of its sides and between the adjacent side of said
25 diaphragm, and means for driving one of said rolls.

Des Moines, Iowa, June 13, 1930.

GEORGE W. LEWIS.

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