

May 5, 1942.

N. L. ETTEN

2,281,683

ROLL WRINGER MECHANISM

Filed June 8, 1934

5 Sheets-Sheet 1

FIG. 1.

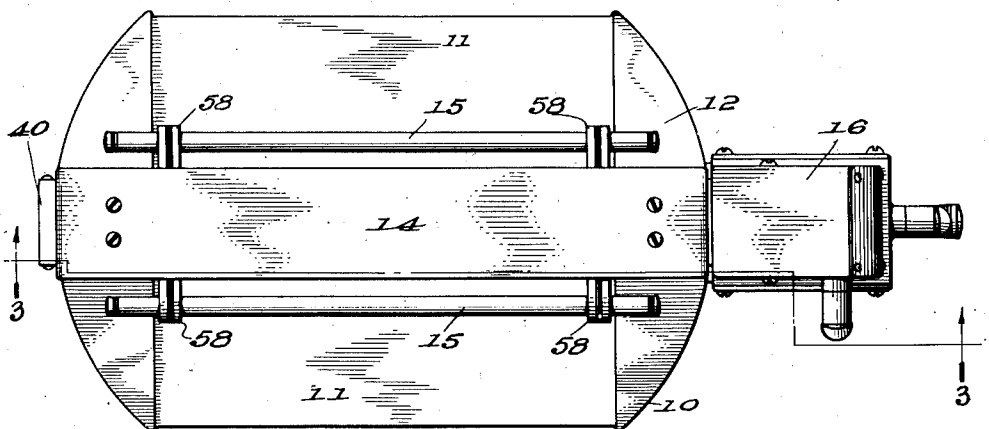
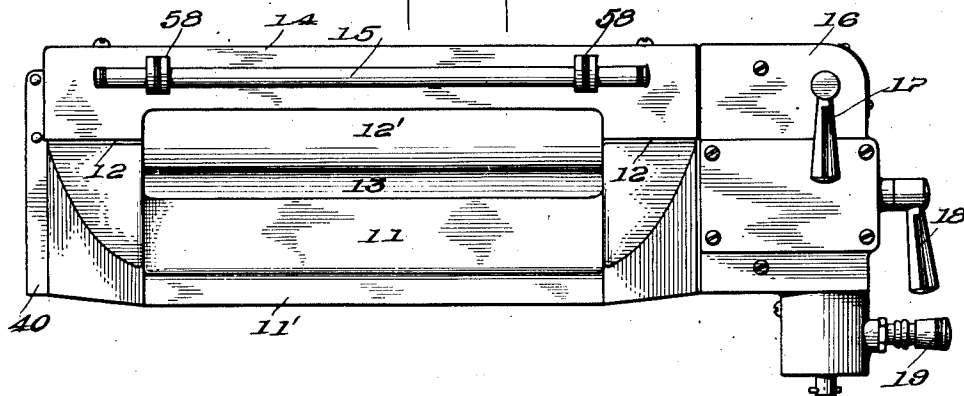


FIG. 2.



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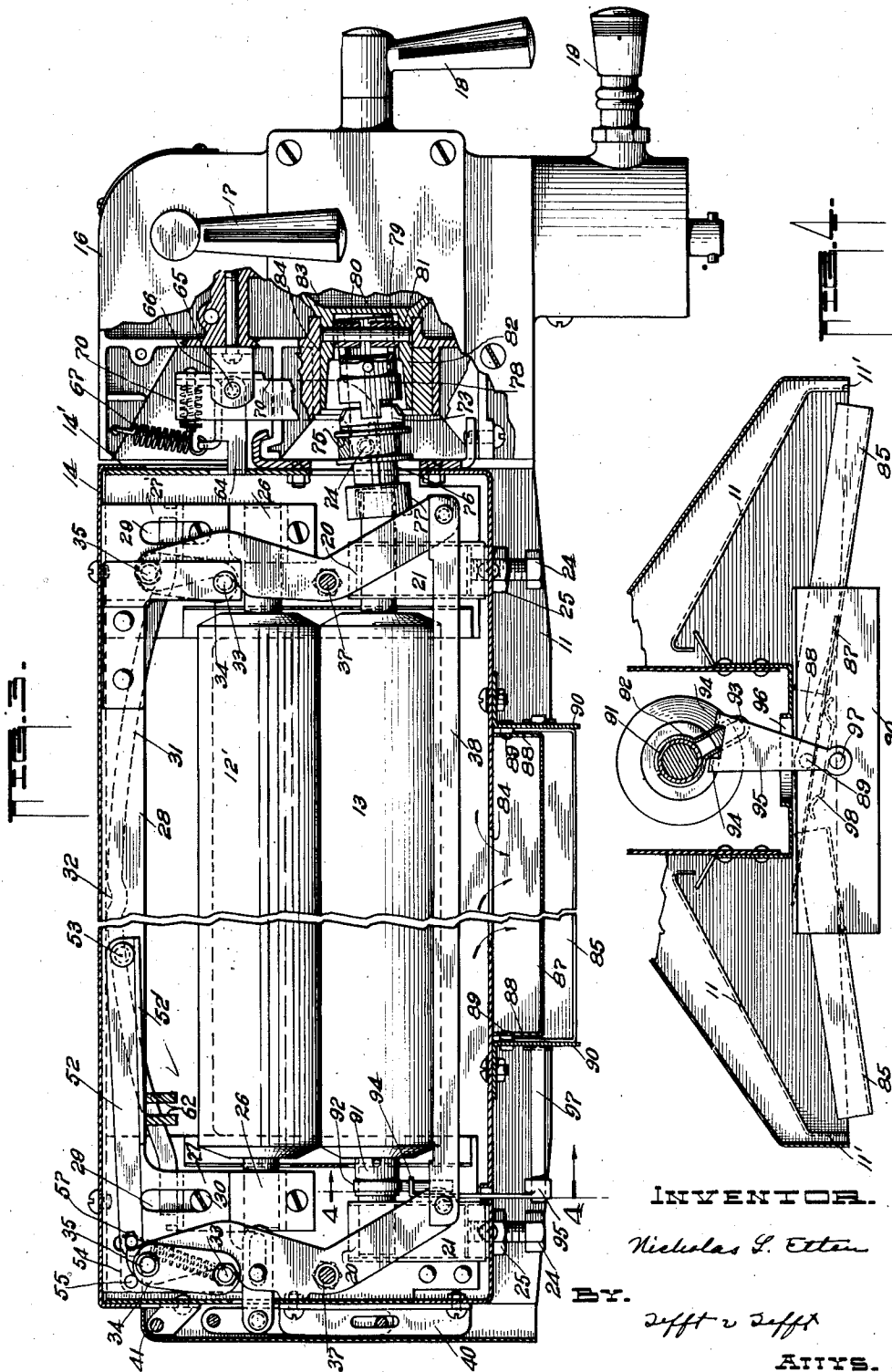
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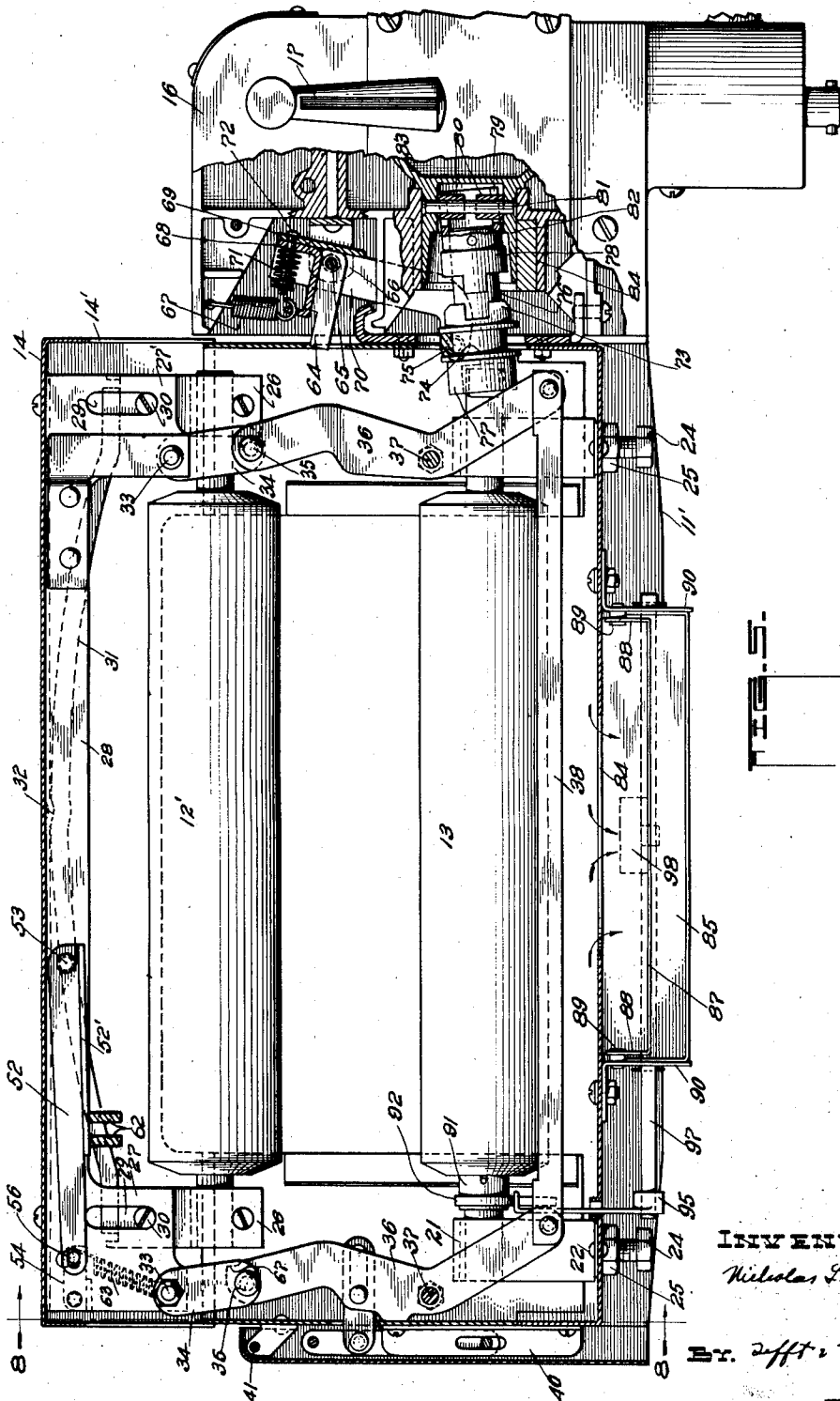
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5 Sheets-Sheet 3



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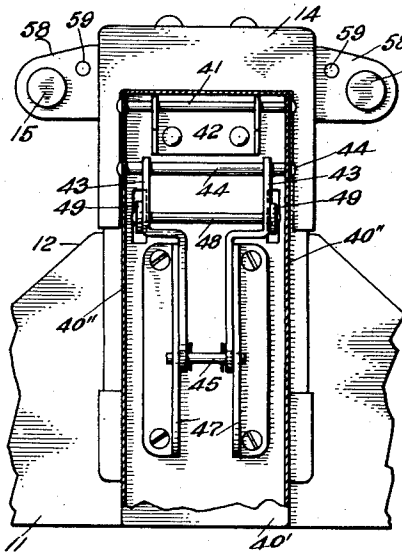


FIG. 7.

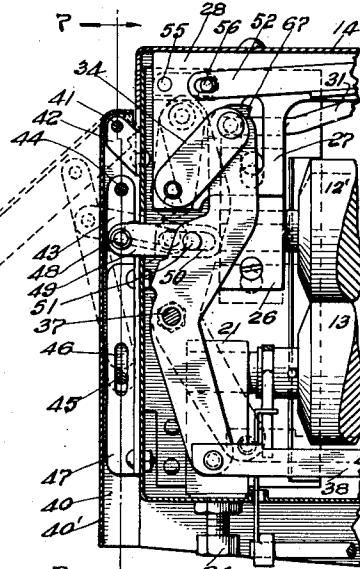


FIG. 6.

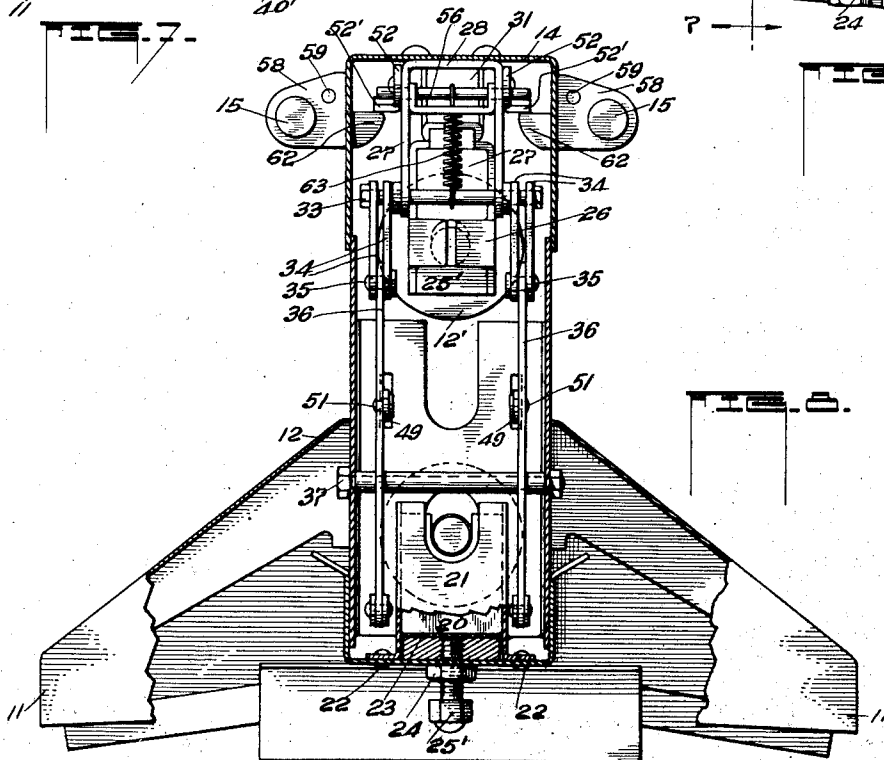


FIG. 5.

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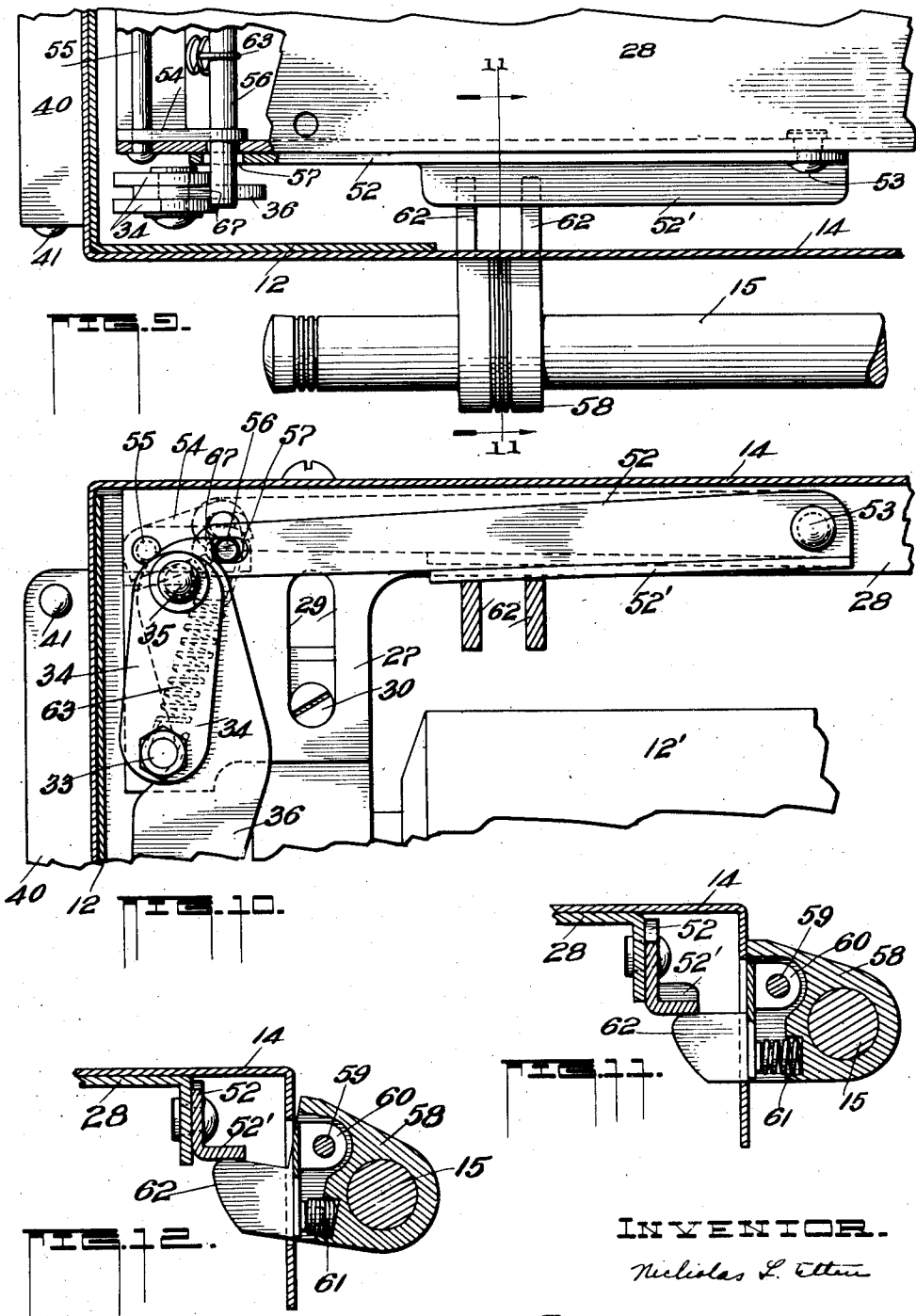
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ROLL WRINGER MECHANISM

Filed June 8, 1934

5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

2,281,683

ROLL WRINGER MECHANISM

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Application June 8, 1934, Serial No. 729,548

16 Claims. (Cl. 68—253)

This invention has reference to roll wringer mechanism, particularly to rolls and clutch mechanisms associated therewith.

An object of the invention is to provide novel means for retaining wringer release in pressure relation and for releasing the same.

Another object is to provide connection between the top frame of a wringer and a clutch mechanism disposed between the wringer driving mechanism and rolls whereby releasement of the top frame brings about de-clutching of the driving means to stop the wringer roll.

An additional object is to provide manually operated lever means disposed at one end of the wringer for operating the pressure elements to bring the wringer release into pressure relationship and retain the same thereat.

A further object is to provide roll mechanism comprising pressure retaining means disposed on either end of the releasable roll and connections between the mechanism of one end and that of the opposite end whereby manual operation of the mechanism at one end brings about identical operation of that at the opposite end.

Another object is to provide spring pressure mechanism operating on the upper roll, and means for adjusting the pressure associated with the lower roll.

A further object is to provide a manual watershed mechanism disposed below the lower roll and novel means for operating the same in accordance with the direction of rotation of the lower roll.

Other objects will appear in the following description and accompanying drawings in which:

Fig. 1 is a plan view of my wringer.

Fig. 2 is a side elevational view, somewhat enlarged, taken from line 3—3 in Fig. 1.

Fig. 4 is a fragmental end elevational view taken from line 4—4 in Fig. 3.

Fig. 5 is an enlarged side elevational view with certain portions broken away to permit clear view of the mechanism in operated position as will be described.

Fig. 6 is a fragmental side elevational view showing portions of the mechanism in operated position as will be explained.

Fig. 7 is an end elevational view taken from line 7—7 in Fig. 6.

Fig. 8 is an end elevational view taken from line 8—8 in Fig. 5.

Fig. 9 is a fragmental plan view showing details of the mechanism to be referred to.

Fig. 10 is a fragmental side elevational view showing details of parts disclosed in Fig. 9.

Fig. 11 is a fragmental detailed view taken from line 11—11 in Fig. 9 and

Fig. 12 is a view similar to Fig. 11 showing parts in operated position as will be referred to.

Figs. 1 and 2 of the drawings show the external portions of my wringer which may be briefly described as follows:

The numeral 10 designates a lower frame member which includes conventional drain board portions 11 disposed on either side and upright end members 12 in which upper and lower wringer rolls 12' and 13 are mounted.

A transverse top member 14 is removably attached to the lower frame by means to be described and carries on either side a hand rail 15 the function of which will be later referred to.

The wringer frame is supported upon a head member 16 which is adapted to be mounted upon a post support not shown.

The head member carries driving and control mechanism for the wringer rolls, only a portion of which is considered a part of my invention.

That part of the mechanism not included in my invention will not be herein described further than to say that handles 17, 18 and 19 appearing in the drawings are connected with various elements of the mechanism to facilitate manual control of the wringer during practical use thereof.

Reference to Figs. 3 and 8 will disclose that the lower roll 13 is rotatably supported in the frame by means of bearing blocks 20 slidably supported in cage members 21 which are secured as at 22 to a lower portion of the frame. Fig. 8 most clearly illustrates that metal plates 23 are disposed below the bearing blocks whereby a bearing is formed for the ends of adjustment screws 24 which are threadedly mounted in a lower portion of the frame and are provided with lock nuts 25 whereby they may be locked in adjusted position. The screws are obviously effective to adjust the vertical position of the lower roll.

Upper roll 12' is rotatably supported by means of bearing blocks 25' secured in cage members 26 which latter are slidably supported in depending end portions 27 and 27' of a longitudinally disposed bracket member 28. The bracket member is secured in transverse top frame member 14 and the depending end portions are provided with slots 29 which slidably confine shoulder screws 30 projecting from the sides of cages 26. Thus the cages are mounted in the top frame 14 in a manner to be freely movable but not entirely separable therefrom.

A bar spring 31, abutting the underside of top frame 14 at 32 has its ends resting upon cages 26 and is effective to urge the cages and upper roll away from the top frame when the same is moved into elevated position, all as indicated in Fig. 5.

Pivotally attached at 33, to either side of bracket member 28 are depending link members 34 having pivotal connection at 35 with lever members 36 which latter are pivotally supported at 37 upon the end frames 12 and are connected to operate in unison by means of connecting links 38.

Figs. 3 and 5 indicate that top frame 14 is movable relative to the lower frame into an elevated position shown in Fig. 5 wherein the link 34 and lever 36 are in toggle extended relationship or a lowered position shown in Fig. 3 wherein the link 34 and lever 36 are in toggle collapsed relationship.

It will be noted that with the parts in elevated position, Fig. 5, a lowering movement of the top frame will bring about rotation of links 34 on pivots 35 to place the mechanism in position shown in Fig. 6 wherein the upper wringer roll is placed in contact with the lower roll.

Figs. 6 and 7 also illustrate a lever member 40 pivotally supported on end frame 12 by means of a pivot pin 41 secured in a bracket 42. The normal position of the lever is as shown lying adjacent the end frame 12.

The lever is fashioned to have a back wall 40' and side portions 40'' and is thus adapted to conceal underlying mechanism when placed in closed position.

The lower end of the lever is left open so that the fingers of an operator may be inserted within its lower end to manipulate it to the angular position shown in dotted lines in Fig. 6.

A bifurcated link member 43 is pivotally connected at 44 with lever 40 and carries a pin 45 at its lower end. The pin extends from either side of the link and is slidably confined in slots 46 formed in bracket members 47 secured to the end frame.

Adjacent the pin 44, link 43 carries a pin 48 upon extending ends of which are attached link members 49 which latter have slots 50 at their opposite ends. The slots are fitted to slide upon studs 51 secured in the body portions of levers 36.

Figs. 9 and 10 show in detail a lever or arm member 52 pivotally secured at 53 to one side of bracket member 28. A similar arm is likewise mounted upon the opposite side of the bracket.

A bifurcated arm 54 is pivotally mounted by a pin 55 in bracket 28. The outer ends of the arm carry a pin 56 the ends of which extend toward either side, through clearance holes in bracket 28 and slots 57 in arms 52, to a point in the operating path of levers 36 as shown in Fig. 9.

Since the ends of arm 54 operate as a unit, the pin 56 supports the ends of arms 52 in such a manner that the arms 52 move as a unit.

Figs. 9, 11 and 12 illustrate in detail that hand rails 15, already referred to, are supported upon the top frame 14 by means of lever members 58 which are pivotally mounted at 59 upon the top frame structure by means of enclosed brackets 60.

Coil springs 61 abutting the levers and brackets operate to retain the levers 58 in the horizontal relation shown in Fig. 11.

The levers are provided with inwardly extending finger portions 62 and those on the left

hand end, Figs. 3 and 5, lie just below extending lip portions 52' of arms 52.

Fig. 12 indicates that downward movement of hand rails 15 brings about rocking movement of the levers as indicated in Fig. 12 whereby arms 62 are caused to move the pin 56 upwardly. A spring 63, hooked to pin 56 and pin 33 urges pin 56 and attached mechanism downwardly toward the portion shown in Fig. 10. This movement will be referred to shortly.

Reference has formerly been made to the position of parts in Fig. 6 wherein the frame has been lowered to a point where the upper roll is resting upon the lower roll but with no pressure save that of the weight of the mechanism, and the parts are arranged in position for final manual actuation into pressure position.

It will be noted that the upper ends of levers 36 are fashioned to have a lip or hook portions 67 which are adapted, when placed in position shown in Fig. 10, to engage the cross pin 56 and be confined thereby.

In order to place the parts in the described locked position the lever 40 is moved outwardly toward the dotted line position of Fig. 6 whereby the link 43 is moved upwardly and outwardly to engage the ends of slots 50 in links 49 with studs 51 and thereby urge levers 36 counterclockwise. The described movement will obviously operate links 34 in a toggle manner to force the top frame downwardly to a closed position in which pin 33 abuts a recessed portion of levers 36 as shown best in Fig. 10.

During this lowering movement of the top frame the spring 31 is forced into abutment with bearing blocks 25' to bring the upper roll into pressure relation with the lower roll, the lips 67 are moved toward pin 56 and the pin is resiliently urged downward in such a manner that when lever 36 is rotated a sufficient distance the pin will drop ahead of the lips to lock the levers in closed position.

After the locking operation is completed, lever 40 may be returned to normal position, which movement is obviously permitted by slots 50.

The foregoing has described operation of the mechanism disposed in the left hand end of the wringer. It will be noted that the lever 36-link 34 mechanism just referred to is duplicated at the right hand end. Through connecting links 38, movements originating at the left hand end are duplicated at the right hand end whereby the top frame is made to operate in a uniform manner.

Release of the mechanism is obviously accomplished by manual downward movement of either of hand rails 15 to bring about upward movement of arms 52 and pin 56 as already noted, thus permitting lips 67 to escape the pin and levers 36 to rotate clockwise sufficiently to permit rotation of links 34 on pivot 35 and consequent upward movement of the top frame to relieve the pressure exerted by spring 31.

After release movements are completed the top frame and upper roll may be elevated a considerable distance as indicated in Fig. 5 to permit removal of large obstructions from between the rolls, however the position of the parts after release would normally be as indicated in Fig. 6 wherein they are disposed ready for final closure and lock as described.

The foregoing has described the pressure and release mechanism of my wringer.

Figs. 3 and 5 of the drawings disclose a clutching mechanism co-operating with the top frame

14 in such a manner that release movements of the frame bring about de-clutching movements of the roll drive.

In Fig. 2 it is shown that the top frame includes an exterior casing having depending side and end walls adapted to completely cover the underlying mechanism.

Figs. 3 and 5 show an end portion 14' extending downwardly adjacent the right hand end frame 12, in Fig. 3 it is shown that when the top frame is disposed in lowered, locked position, the lower edge of portion 14' engages an extending end of an arm member 64 which is pivotally supported on a pin 65 mounted on the wringer head by means of a bracket 66 and urged upwardly by a spring 67 anchored in the head structure.

Fig. 5 best illustrates that arm 64 has an upstanding portion 68 resting upon an adjacent portion 69 of a lever member 70 which is also pivotally supported on pin 65.

Arm 64 and lever 70 are independently movable on pin 65 but are normally induced to operate as a unit by reason of the portions 68 and 69 being held together by a spring 71.

Spring 71 is retained by an elongated rivet or pin 72 secured in portion 69 and passing through a clearance opening in portion 68. A washer on the end of member 72 confines the spring in such a manner as to abut portion 68 to hold it in contact with portion 69. It will be apparent that arm 64 may rock upon pin 65 without accompanying movement of lever 70 but the resultant compression of spring 71 tends to urge lever 70 to rotate in unison with it.

It is to be assumed that lever 70 is bifurcated and its arms extend downwardly upon either side of a clutch member 73.

The arms are angulated at their lower ends and each arm carries an inwardly directed roller 74 engaged in a groove 75 formed in the clutch member whereby rocking movement of lever 70 on pin 65 is effective to propel the clutch laterally as will be explained.

The clutch is slidably keyed upon a coupling member 76 which has an enlarged end portion 77 in which is formed a squared end portion of the shaft of lower wringer roll 13. The opening and shaft are so proportioned that the coupling member may be moved out of axial alignment with the shaft without destroying the driving connection therebetween.

The opposite end of the coupling member is rotatably supported within a clutch element 78 which has slots 79 formed in its outer end. In the slots are engaged rollers 80 mounted upon a pin 81 which is secured in the wall of a hollow hub portion 82 of a gear 82 not fully shown.

It is assumed that gear 83 is rotated by the driving elements of the wringer and has its bearing in the head structure at 84.

It will be apparent that the coupling member is freely rotatable within clutch element 78, that the coupling between the latter and gear 83 is such that it is axially moveable relative to the gear, that the clutch element is held in alignment by reason of its being sleeved upon coupling member 76 and that the coupling member is supported at its opposite end by means of its connection with the wringer roll shaft.

With the foregoing in mind it will be obvious that with parts in position shown in Fig. 3, wherein the top frame is placed in lowered position, arm 64 is rotated downwardly and lever 70 is moved into position to move clutch member 73 into engagement with element 78 to establish

driving connection between gear 83 and the lower wringer roll.

It will further be clear that when the top frame is released and moves upwardly, spring 67 is effective to rotate arm 64 upwardly as in Fig. 5, to bring about de-clutching movement of clutch member 73 to break the driving connection.

The function of the coupling described in connection with spring 71 is to provide a means whereby the top member may be reset when the tooth and denture portions of the clutch are not in alignment. In such a case clutch member 73 is prevented from moving responsively to movement of arm 64 in which event the arm may be reset with spring 71 urging coupling movement of the clutch parts. Initial rotation of gear 83 will bring the clutch parts into alignment whereupon spring 71 will force clutch member 73 into coupling position.

As a further feature of my wringer I provide a novel water shed mechanism which may be described as follows:

Figs. 1 and 2 show conventional drain boards 11 disposed upon either side of the wringer.

Figs. 3 and 4 illustrate that the members 11 extend outwardly and downwardly and terminate in a depending edge portion 11'.

Below the drain boards 11 and the floor portion of the wringer frame are secured oppositely disposed trough members 85 extending from either side of the wringer frame to points below and inside of the drain board portions 11'.

Fig. 3 illustrates that members 85 are considerably narrower than the drain boards and are placed approximately central thereof.

A flipper board 87, having upright end portions 88, is pivotally mounted at 89 upon bracket members 90 secured to the floor portion of the wringer frame. It is so proportioned so as to overlie trough members 85 as indicated in Fig. 4 and by means of its pivotal mounting is adapted to be tilted in either direction to shed water into either of troughs 85. An opening 84 is provided in the floor of the wringer frame whereby water falling from the rolls is conducted to a point above the flipper board.

The flipper is automatically actuated to shed water toward the side of the wringer receiving washed items by a mechanism comprising a grooved collar 91 secured upon the shaft of lower roll 13.

A hairpin spring 92 is disposed in the groove and is slidably retained thereon in frictional relationship.

An extending portion 93 of the spring is loosely engaged between angulated forked portions 94 of an arm member 95 which passes through an opening 96 in the floor of the wringer frame and is secured to a shaft 97 the same being rotatably supported in brackets 98.

Upstanding edges surrounding the opening 96 prevent water accumulating on the wringer frame floor from flowing through the opening.

Below the flipper board and secured to shaft 97 is a double arm member 98 and this is adapted to communicate movements of the shaft to the flipper board.

It will be apparent that rotation of the lower wringer roll in either direction will bring about similar movement of spring 93 to rotate arm 95 upon shaft 97 to tilt the flipper board in a direction toward the feeding side of the wringer. Continued rotation of the roll, through the

frictional coupling afforded by spring 93, will tend to hold the board in position.

Initial opposite rotation of the roll will obviously bring about tilting of the flipper board toward the opposite side.

Thus the water from the wringer is automatically drained toward the feeding side without attention from the operator and the water thus drained does not again come in contact with materials being wrung.

The foregoing has described the structure and functions of an embodiment of my wringer mechanism numerous modifications of which may be devised without alteration of the principle of the invention. I do not wish to be limited as to modifications except within the scope of the appended claims.

What I claim is:

1. A roll wringer mechanism having in combination, a lower frame, a relatively movable top frame, mechanism disposed in either end of the lower frame capable of moving the top frame, said mechanism comprising lever members pivotally mounted in either end of the lower frame, link members connecting the levers with the top frame in toggle relationship whereby rocking movement of said levers produces vertical movement of the top frame, manual means for rocking the lever at one end, and connections between said lever and that in the opposite end to rock the latter in unison with the former.

2. A roll wringer mechanism having in combination, a lower frame, a movable top frame, upper and lower rolls, separate similar mechanisms disposed in each end of the lower frame and comprising vertically disposed levers pivotally secured in the lower frame and mounted to rock in a plane parallel with the axes of the rolls, and links connecting said levers with adjacent ends of the upper frame in such a manner that rocking movement of the levers brings about vertical movement of the top frame, and a link connecting the levers in such a manner as to cause the levers to rock in unison about their pivots whereby simultaneous identical vertical movement of the ends of the top frame may be accomplished.

3. In a roll wringer mechanism the combination of a lower frame, a movable top frame, a driven roll in the lower frame, an upper roll mounted in the top frame, a spring member co-operative with the upper roll to move the roll relative to the top frame, a first lever rockably mounted in one end of the lower frame, a second lever similarly mounted in the opposite end of the lower frame, each lever connected with like ends of the upper frame through toggle link mechanisms in such a manner that rocking movement of the levers in one direction brings about downward movement of the top frame to place the top roll in pressure relation with the lower roll, latching means co-operative with the first lever to retain the same in rocked position and a connection between the first lever and second lever whereby movement of the first lever brings about similar movement of the second lever and latching of the first lever retains the second lever in similar position.

4. A roll wringer mechanism as set forth in claim 3 wherein said latching means comprises a movable member mounted upon the top frame adapted to be moved into latching or unlatching position and having in combination hand rails mounted upon the top frame the same having connection with said latching member where-

by the latching member may be manually operated into unlatching position.

5. A roll wringer mechanism having in combination a lower frame, a movable top frame, a driven roll in the lower frame, an upper roll mounted in the top frame, a spring member co-operative with the upper roll to move the roll relative to the top frame, a first lever rockably mounted in one end of the lower frame, a second lever similarly mounted in the opposite end of the lower frame, each lever being connected with an adjacent end of the upper frame through toggle link mechanisms in such a manner that rocking movement of the levers in one direction brings about downward movement of the top frame to place the top roll in pressure relation with the lower roll, latching means co-operative with the first lever to retain the same in rocked position, a connection between the first and second levers whereby movement of the first lever brings about similar movement of the second lever and latching of the first lever retains the second lever in similar position, and manually operative lever means connected with the first lever whereby the mechanism described may be operated into latched position.

6. A roll wringer mechanism as set forth in claim 5 having in combination a wringer head and wherein said manually operative lever means is disposed on the end of the wringer frame opposite the head, the same comprising a lever member pivotally mounted upon the lower frame in such a manner as to be swingable in a plane perpendicular to that of rotation of the rolls and connected with said first lever in such a manner that manual operation of the lever member outwardly from the frame brings about movement of said first lever into latched position.

7. In a roll wringer mechanism, a lower frame attached to a driving head, a lower roll journaled in said frame, an upper frame mounted on a dual toggle mechanism pivotally supported in the lower frame, an upper roll in bearings supported in vertical slots by the upper frame, a spring supported by said upper roll bearings and tensionable against the top frame, a lever mechanism pivotally mounted on the end of the lower frame and connected to said toggle lever mechanism to actuate said mechanism into lowered locked position forcing the top frame into closed position with the rolls tensioned together by the spring, and a dual bar lock and release mechanism mounted on the top frame and associated with said toggle mechanism to release the toggle and the upper frame to open position.

8. In a roll wringer mechanism the combination of a lower frame, a roll mounted in the lower frame, a dual toggle lever mechanism mounted in the lower frame, a top frame connected with said dual lever mechanism, top roll bearings mounted in the top frame and slidable vertically therein, a pressure spring on said top roll bearings and tensionable against the top frame, a pressure mechanism mounted on the end of the lower frame and coacting with said dual lever mechanism to tension said spring to create pressure between the rolls, and a holding and release mechanism coacting with said pressure mechanism and releasable by a release bar on one side of the wringer.

9. In a roll wringer mechanism, the combination of a frame, cooperating rolls therein, a pressure device therefor including a pressure reset lever, release bars on each side of the frame and dual toggle levers mounted in the frame and co-

acting with said pressure reset lever mounted on the end of the frame, and a release mechanism for said pressure device actuated by said release bars.

10. In a roll wringer mechanism, a frame, cooperative rolls mounted in said frame, pressure spring means tensionable to apply pressure between said rolls, means for substantially instantaneously relieving the tension of said pressure spring means for releasing the pressure between said rolls, and lever means mounted on said frame for movements with respect thereto, said lever means being provided with a lost motion connection to permit releasing pressure between said rolls without imparting movement to said lever and associated with said pressure spring means through said lost motion connection for resetting the pressure between said rolls when moved in one direction with respect to said frame.

11. In a roll wringer mechanism, a frame, cooperating rolls therein, a dual toggle lever pressure device therefor, a locking and releasing device for said pressure device, and release bars extending across the sides of the wringer to release said pressure device, and a pressure reset lever on the frame and normally disconnected from the release means for resetting the pressure on the rolls.

12. In a roll wringer mechanism, cooperating rolls including a driven roll, a lower frame containing said rolls, dual toggle lever pressure mechanism mounted in the lower frame, an upper frame connected with said dual lever mechanism and movable relative to the lower frame, a pressure reset lever on the lower frame contacting with the dual lever mechanism to create pressure between the rolls, driving means for said driven roll, and a clutch mechanism between the driven roll and the driving means, said clutch mechanism being actuated by the top frame whereby the clutch is engaged when the top frame is in closed pressure position and disengaged when the top frame is in open position.

13. A wringer mechanism having in combination, a lower frame, a relatively movable top frame, spring means normally tending to move one frame relatively away from the other frame, releasable means for automatically securing said frames together when in predetermined relative positions, levers pivotally mounted one in each end of said lower frame, links pivotally connected with said levers and with said top frame in toggle relationship whereby rocking movement of said levers will produce movement of said top frame relative to the bottom frame, and manually operable means for rocking said levers to effect said relative movement between said frames

whereby to move the frames to said predetermined relative positions.

14. In a wringer, relatively movable top and bottom frame members, cooperative rolls mounted between said frame members and movable relatively toward and from one another, spring means normally reacting between one of said rolls and one of said frame members for creating pressure between the rolls, a lever pivotally secured to one of said frame members on a substantially horizontal axis, a link pivotally connected by spaced pivots to said lever and the other frame member in toggle relationship, means for releasably securing said lever and link in toggle collapsed relationship whereby to secure said rolls under pressure, said link and lever being so associated as to move to toggle extended relationship upon relative movement of said rolls from one another when said lever and link are released, and means for releasing said securing means.

15. In a wringer, relatively movable top and bottom frame members, cooperative rolls mounted between said frame members and movable relatively toward and from one another, spring means normally reacting between one of said rolls and one of said frame members for creating pressure between the rolls, a lever pivotally secured to one of said frame members on a substantially horizontal axis, a link pivotally connected by spaced pivots to said lever and the other frame member in toggle relationship, means releasably securing said lever and link in toggle collapsed relationship whereby to secure said rolls under pressure, said link and lever being so associated as to move to toggle extended relationship upon relative movement of said rolls from one another when said lever and link are released, means for releasing said securing means, and manipulative means having a lost motion connection with said lever and link for moving said lever and link relatively to toggle collapsed relationship thereby to restore said pressure relationship between said rolls.

16. A roll wringer mechanism having in combination a lower frame, a movable top frame, upper and lower rolls, separate similar mechanisms disposed in both ends of the lower frame comprising vertically disposed levers in the lower frame mounted to rock in a plane parallel with the axes of the rolls, links connecting said levers with adjacent ends of the upper frame in such manner that rocking movement of the levers brings about vertical movement of the top frame, a link connecting the levers, and manually operable devices connected with one of said levers whereby both of said levers may be rocked.

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