

March 17, 1942.

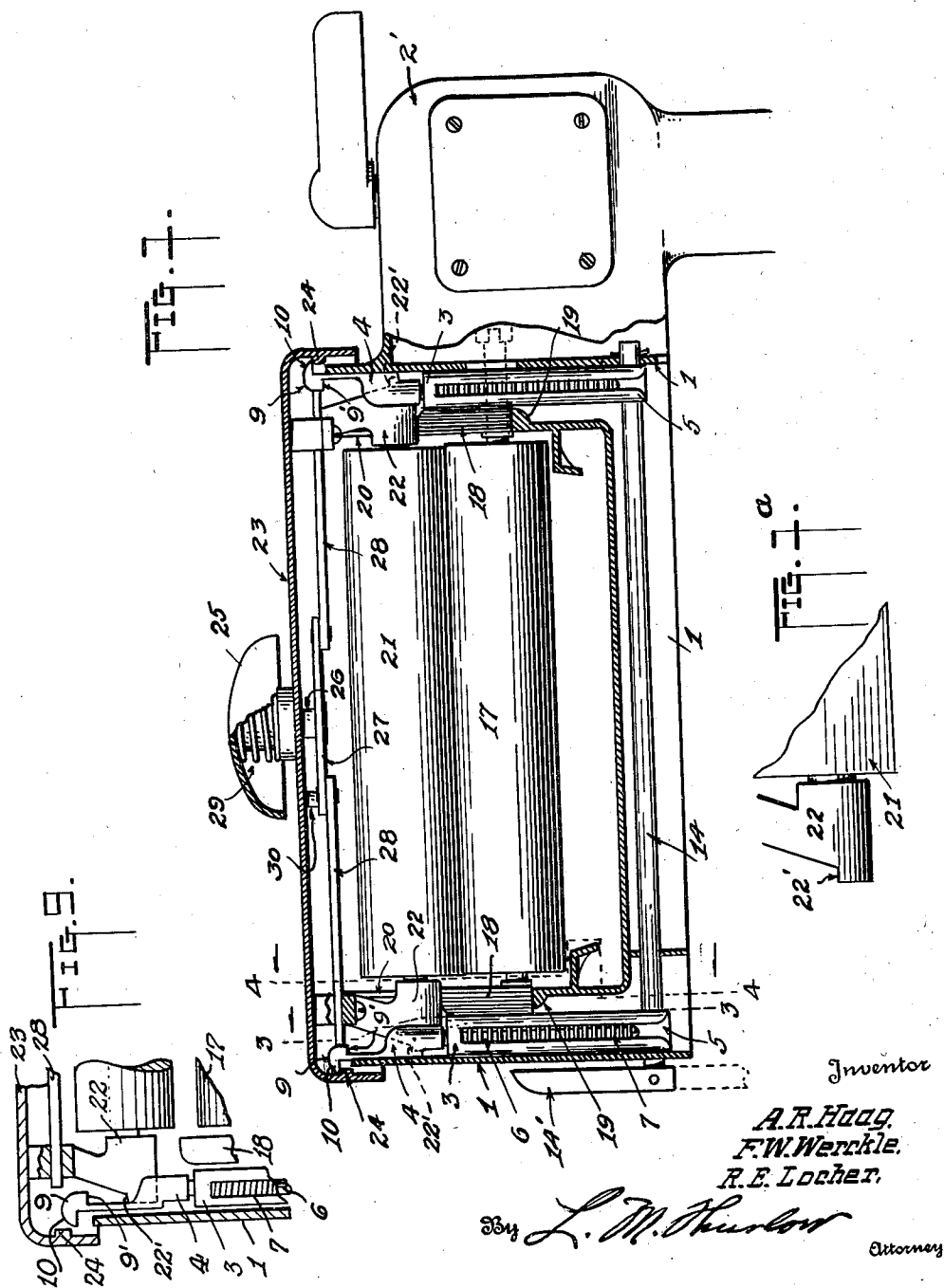
A. R. HAAG ET AL

2,276,574

WRINGER

Filed Nov. 4, 1937

3 Sheets-Sheet 1



March 17, 1942.

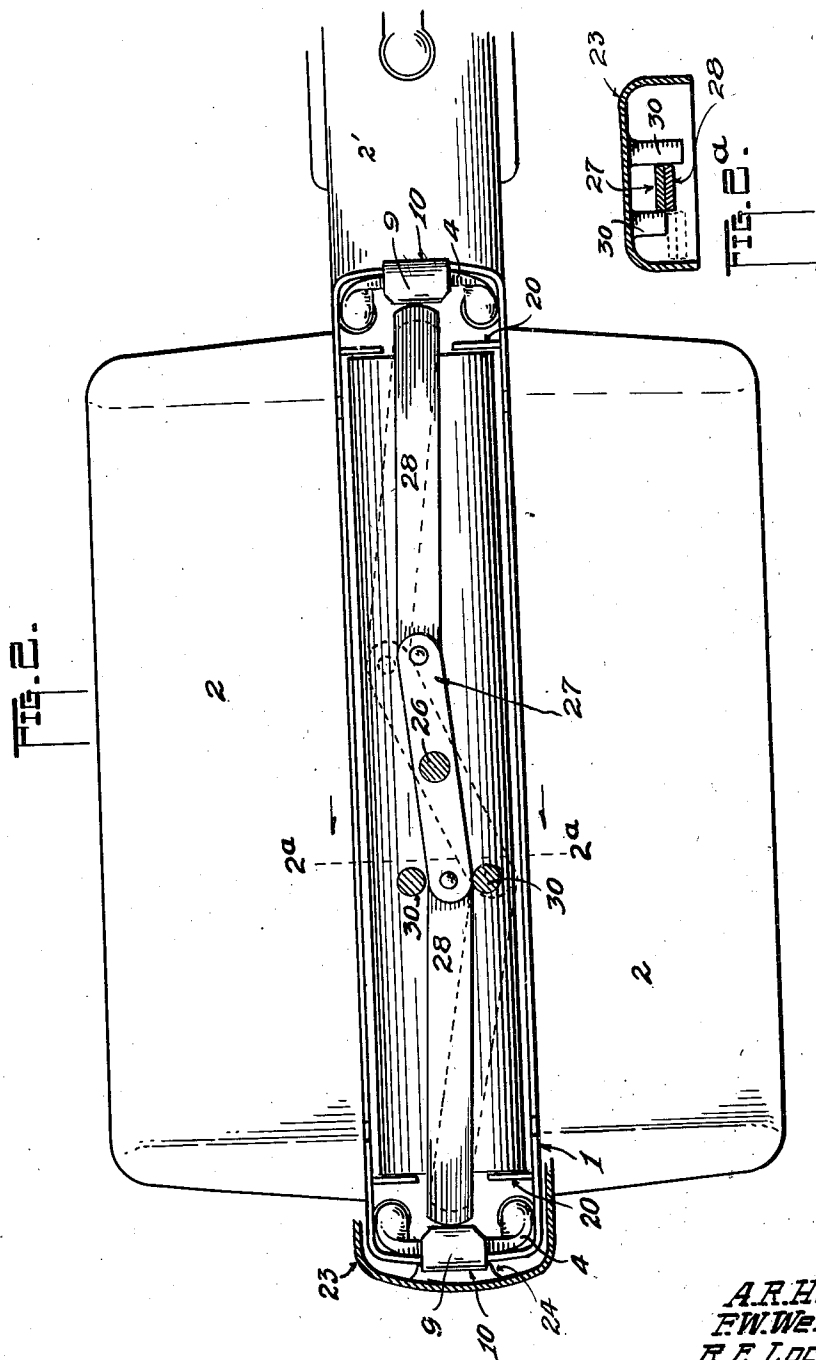
A. R. HAAG ET AL

2,276,574

WRINGER

Filed Nov. 4, 1937

3 Sheets-Sheet 2



Inventor

A. R. Haag,
F. W. Werckle,
R. E. Locher,

L. M. Shurlock

Attorney

March 17, 1942.

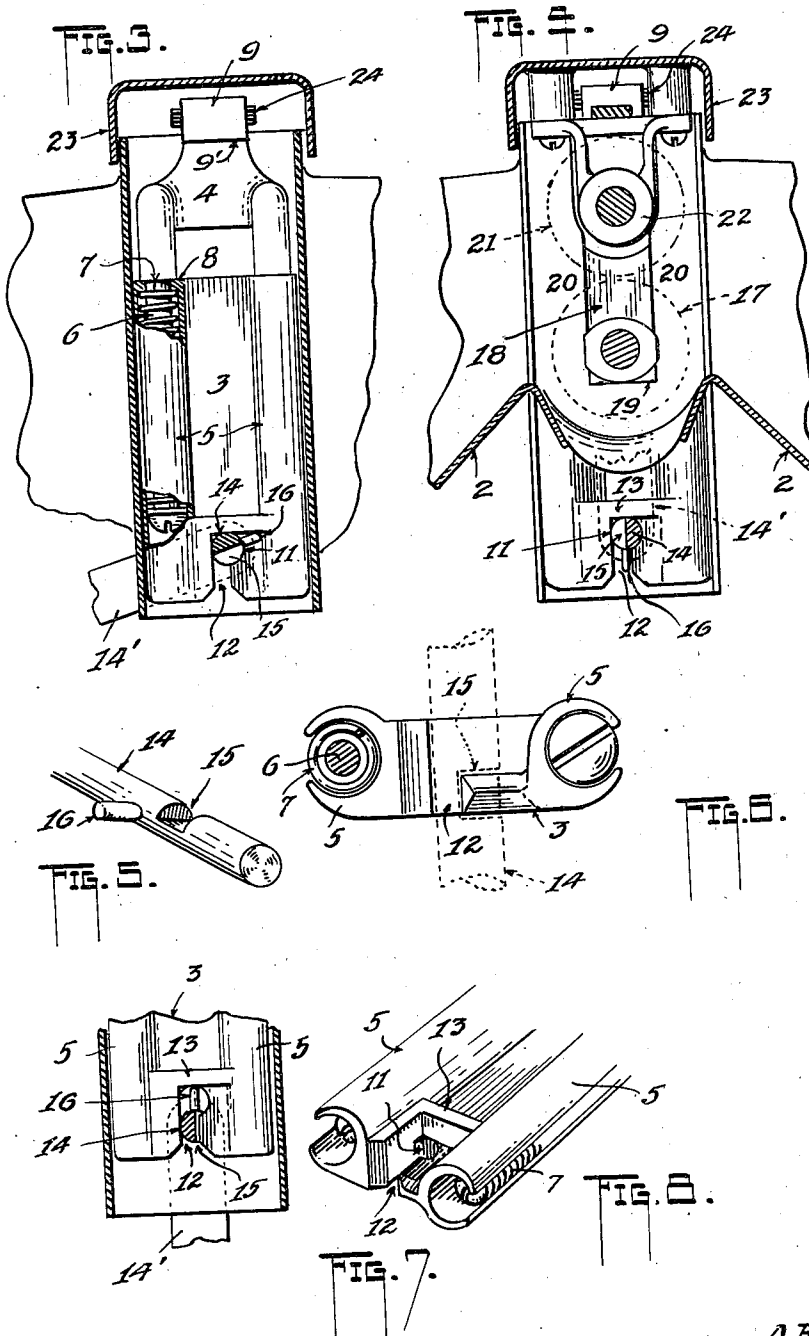
A. R. HAAG ET AL

2,276,574

WRINGER

Filed Nov. 4, 1937

3 Sheets-Sheet 3



Inventor

A.R. Haag,
F.W. Werckle,
R.E. Locher,

By

L. M. Shulow

Attorney

UNITED STATES PATENT OFFICE

2,276,574

WRINGER

Albert R. Haag, Frank W. Werckle, and Ross E. Locher, Peoria, Ill., assignors to Albert R. Haag and George A. Haag, both of Peoria, Ill., doing business as Haag Bros. Co., a copartnership

Application November 4, 1937, Serial No. 172,818

17 Claims. (Cl. 68—263)

This invention pertains to wringers and particularly to wringers of the power driven type as used on washing machines.

An object of the invention is to provide a wringer structure wherein the wringer rolls and other parts used in connection therewith may be quickly assembled and disassembled in a very easy manner without the use of a wrench or tools of any type.

Another object lies in the provision of novel mechanism for clamping the wringer rolls in operating position and by which said rolls may be instantly released from their wringing relation in providing safety for the hands of the operator.

Still another object is to provide a spring tension member and a new type of locking mechanism for securing the same within the wringer frame.

Other objects and advantages will appear hereinafter in the description of the construction and operation of the machine.

In the appended drawings:

Figure 1 is a longitudinal sectional elevation of a wringer involving the invention.

Figure 1^a is an elevation of a wringer roll bearing shown in Figure 1.

Figure 2 is a plan of a wringer illustrating a new type of wringer roll locking mechanism.

Figure 2^a is a transverse sectional elevation of a top housing for the wringer showing therein certain parts illustrated in Figures 1 and 2.

Figures 3 and 4 are elevations of a spring tension member as produced on lines 3—3 and 4—4, respectively, of Figure 1 but on a much enlarged scale.

Figure 5 shows part of a rock-shaft in perspective.

Figure 6 illustrates the lower end of the spring tension member of Figures 3 and 4 showing the relation of the rock-shaft of Figure 5 therewith.

Figure 7 is an elevation of part of the spring tension member of Figures 3 and 4 in a different relation to certain other parts shown in said figures.

Figure 8 illustrates part of the spring tension member in perspective; and

Figure 9 is a fragmentary view of the structure shown at the upper lefthand portion of Figure 1, somewhat enlarged, after the top cover has been released, the securing member being shown in tilted position and the top cover being shown elevated more than normal in order to illustrate which parts move with the top cover.

Any usual type of wringer frame is denoted at

1 while 2 indicates each of its drain boards, and 2' its gear box.

Erected in each end of the frame is a spring-tension member of two parts 3 and 4, the former in this instance including two spaced tubular legs 5 each receiving through its upper end a rod 6 depending from the yoke portion of said member 4, Figure 3. A spring 7, but one of which is shown, surrounds each rod and is compressed between a shoulder 8 of said leg 5 and the head of a screw, for example, let into said rod 6.

The upper end of the yoke portion of the member 4 is provided with a head 9 from which a hook portion 10 extends laterally for a purpose to be made known later, said head having a shoulder 9' also for a purpose to be named. The lower end of said member 3 is provided with a circular opening 11 between the legs 5, and a slot 12 communicating therewith opens through the extremity of said member. The said slot at one side of the center of the opening and lying just above the latter is an abutment 13 whose purpose is to be made known.

Lying lengthwise of the wringer frame and journaled in parts of the same is a rock-shaft 14 provided with an operating lever 14' and having a notch 15 near each end severing the same for substantially one half its diameter, in this instance, the resultant reduced neck portion adapted when in the position shown in Figure 7 to pass through the described slot 12 of the member 3 as the latter is dropped thereover. Adjacent the notch and paralleling the flat surface of said neck the shaft carries a pin 16 adapted in a rocking movement of said shaft to engage the named abutment 13, and, normally, the member 3, 4 is supported on the rock shaft as shown in Figure 4.

The lower wringer roll is denoted at 17 its shaft ends extending through bearing blocks 18 supported on abutments 19 of the wringer frame, said blocks lying between flanges 20 of said frame, see Figure 4 particularly, and the upper roll 21 is carried by bearings 22 depending from a top closure member 23 as best shown in the figure last named, said bearing likewise lying between the named flanges 20, said bearings each having an extended lug 22'.

The depending walls of the closure member enclose the upper portion of the wringer frame and extending from the inner surface of each end wall thereof is a projection or abutment 24 in position to receive upon it the hook portion 10 of the head 9 on the member 4. In the fastening movement, the outer ends of the portions 10 engage the under and facing surfaces of the pro-

jections 24, and the latter ride down until the upper edge of the projections 24 slip under the laterally projecting jaw of the portions 10.

Means for locking the portions 10 and projection 24 will now be described. Mounted centrally upon the closure member 23 is a knob 25 from which a shaft 26 extends adapted to reciprocate within said member, its inner end having affixed thereto a cross-arm 27. Pivotaly connected to each end of the cross-arms is a member 28 the free end of each of the latter adapted to abut one of the heads 9 just referred to, the said free ends of the members 28 being supported on parts of the bearings 22 for the upper roller 21, the thus connected parts 27 and 28 forming a toggle arrangement.

A spring 29 is interposed between the knob 25 and the closure member whose purpose is to constantly maintain a lifting action of the said cross arm, the latter in one of its positions adapted to lie between a pair of posts 30, Figure 2^a, of unequal length, which depend from said member 23.

The wringer structure described is so designed that the operating parts thereof may be removed and replaced in exact working positions without the need of a tool of any nature, such removal and replacement being attended with perfect freedom and exactness of results.

The members 3, 4 which serve, as will presently be understood, to secure the wringer rolls in operative positions, are positively secured in position during wringer operation on said rock shaft and yet may be readily removed from the latter as occasion demands. That is to say, when the rock-shaft 14 lies in the position shown in Figure 4 within the opening 11 of said member 3, 4 it is clear that the latter is firmly held without respect to the degree of upward pull transmitted thereto in the wringing operation of the rolls. On the other hand when the parts lie as shown in Figure 7 the member 3, 4 is free to be raised and may be lifted by the operator's fingers. However, lifting may also be done mechanically as the pin 16 rotates with the rock-shaft from the position of the latter shown in Figure 4 to that shown in Figure 7, said pin while moving from the intermediate position of Figure 3, to that in said Figure 7 lifting said member 3, 4 by engaging the named abutment 13.

It is noted that the lower roll 17 since supported on the abutments 19 receives the pressure of the upper roll 21 the latter rising and falling according to the bulk of material treated.

It has been stated that the hook portion 10 of the member 4 engages upon the projection 24 of the closure member 23. This relation exists while the wringer is in condition for operation. It is to be observed that when the toggle arrangement made up of the cross-arm 27 and members 28 lies as shown in Figure 2 the ends of said members are held in firm engagement with the heads 9 having said hook-portions 10 thus maintaining positive engagement of the latter with the projections 24.

At this time the toggle lies between the posts 30 and it is thus prevented changing position, the knob 25 being held in its highest position due to the expanding action of the spring 29. In said Figure 2 the toggle as shown in broken lines has been depressed by a downward pressure on said knob and has passed below and has been shifted beneath the shorter of the two said posts 30 as the "off" position which releases

the closure member when the hook-portions 10 leave the projections 24.

When assembled for operation the springs 7 of the spring-tension member are placed under compression. This is due to the fact that the distance between the rock-shaft 14 and the top surfaces of the projections 24 of the closure-member 23 is greater than the distance between the said shaft opening 11 of the part 3 and the hook-portions 10 of the member 4 of the said spring-tension member when the latter is not under strain. Thus a downward pull is exerted upon the closure-member 23 and a consequent pressure of the upper wringer-roll upon the lower roll. Supposing that all of the described inner parts of the wringer lie outside the wringer-frame the assembling operation is as follows: The spring-tension members 3, 4 are lowered into the frame upon the rock-shaft.

Following this, the shaft of the lower roll 17 with its bearings 18 is lowered to position while causing it to engage with the power shaft of the gear-box 2', the said bearings lodging upon the abutments 19.

The closure-member 23 with the suspended roll 21 is now placed in position. At this time if it so happens that the spring-tension members 3, 4 have been placed in locking engagement with the rock-shaft, the latter is rotated to cause its pins to lift the said members to a position to carry the hook-portions 10 thereof above the projections 24 of the closure-member 23, whereupon the knob 25 of the latter is turned to cause the members 28 of the toggle to abut the heads 9 to spread them apart as far as possible so that the said hook portions are positively held in overlying engagement with said projections 24. At this time the toggle parts assume the position shown in continuous lines in Figure 2 between the posts 30 where it is positively held after the spring 29 of the knob raises it. At this time, also the rock-shaft 14, which has been lying in the position shown in Figure 7, is rotated clockwise, looking at Figure 7. This action, as a study of Fig. 7 will show, causes the half portion of said shaft to engage at one corner with the corner of the member 4 at the opening 11, and acting as a cam, draws the member 4 downward so that finally the rounded half-portion of the shaft lies wholly within said opening 11, see Figure 4. This action has placed the spring 7 under tension and a yielding strain has been placed upon the upper roll 21 through the closure-member 23 due to engagement of the projection or abutment 24 thereof and said hook portion 10 of the member 4.

Attention is again drawn to the toggle arrangement in the closure 23. In the released position of the toggle the connected end of a member 28 and the cross-arm, as shown in broken lines in Figures 2 and 2^a, lies beneath the shortest post 30. When the knob 25 is turned to hold the portions 10 against the closure 23 above the lugs 24 the members 28 are moved endwise and both bear upon the heads 9. As the members are brought more nearly in line with each other they span the space between said heads which are forced apart sufficiently to permit an end of the cross-arm 27 to pass just beyond and behind the short post 30 where it lodges due to the expanding action of the spring 29.

The release of the pressure of the upper roll is accomplished by a sharp blow upon the knob 25. This act depresses the cross-arm 27 to a position where in passing below the short post 30

the toggle due to the tension thereon in holding the heads 9, against the downward action of the spring tension members 3 and 4 will shift its position to the named broken lines position of Figure 2. The engagement between the hooked portion 10 and the projection 24 is unstable, the former being prevented from slipping off from the latter by the thrusting action of the arms 28 when the closure is in the operative position and the rolls are under compression. The position of the hook portion 10 and the projection 24 after disengagement is illustrated in Fig. 9, the tilted position of the members 3 and 4 being apparent in that the lower end of the member 3 is closer to the wringer frame 1 at the bottom than at the upper portion of 3. In Fig. 9, the member 28 is retracted and no longer thrusts against the head 9 of the hook portion 10. As illustrated in Figure 9, the cover 23 and the parts including the upper roller 21 are shown substantially suspended in the air, thus to illustrate which parts move with the cover when the hook 9 leaves the projection 24. In the position shown, the lug 22' and the shoulder 9' may be considered as having struck each other and 22' having fallen downward somewhat, or it might be considered that 22' is illustrated as moving upward and approaching the shoulder 9'. Since, now, the heads 9 are released by the retraction of the members 28 the springs 7 of the spring-tension member 3, 4 withdraw the hook-portions 10 from the projections 24, freeing the roll 21, the members 3, 4 tilting sufficiently to permit such action.

The sudden release of the roll 21, especially when work lies between the roll, tends to lift the closure-member 23 and the upper roll clear of the body 1, but this is prevented by the lugs 22' of the bearings 22, see Figure 1^a, meeting the extended shoulder 9' of the head 9.

The whole arrangement is such, as is now clear, that the parts are all independent of each other and of the body 1 so they may be removed and replaced readily and without tools. Also, that such arrangement provides for full control of all of the parts while in action besides having a proper and positive locking of all such parts as require it. While a preferred structure has been shown and described it is understood that equivalent means may be used such as may be considered to lie within the meaning of the claims to follow.

The manner in which the elements 28 engage the heads 9 to hold the hook portions 10 over the projections 24 is also disclosed and illustrated in our co-pending application Serial No. 172,819, filed November 4, 1937.

We claim:

1. In a wringer structure including a wringer frame, a pair of rolls, and a closure member for the frame normally fixed with respect thereto and including an abutment, a two-part member erected at each end of the frame, means to secure one of the parts of said member with respect to the frame, the other part thereof having a hook portion adapted to engage upon the abutment for holding the closure member upon the frame, and releasable laterally from said abutment, a spring between the parts of each two-part member, and means adapted to draw the hook portions upon the abutments, and releasable manually operated means normally engaging and holding the hook portions in positive engagement with the abutments, the last named means adapted by a manual action to release the said hook portions.

2. In combination with a wringer frame and its rolls, one of the rolls being movable to and from the other, a two part member at each end of the frame, a spring interposed between the parts of each member to be placed under compression in a separating movement of the said parts, a closure member for the top of the frame, the movable roll being carried thereby, a projection on said closure, a hook portion on one of the parts of the said two part member for engaging said projection, and means to interlock with the other of the parts of said member adapted to impart a shifting action thereto with respect to the part thereof having the hook-portion to carry the movable roll toward the companion roll when the projection and hook portion are in engagement.

3. In combination with a wringer frame, its wringer rolls, and a closure member for the top of said frame, a structure including a pair of two part members in said frame in erected spaced positions, a spring interposed between the parts of the member to be placed under compression in a shifting action of said parts, one of the parts of each member adapted to engage a part of the said closure member, releasable manually operated means on the latter for engagement with and for positively maintaining engagement of the named parts with the said closure member, and means engageable with the other parts of the two part members adapted to shift the same in a direction away from the closure member and to fix such parts relative to said frame.

4. A wringer structure including with a frame, wringer rolls, and a closure for the top of said frame, a pair of two part members erected in said frame in spaced positions each lying beneath an extremity of said closure member, a spring interposed between the parts of each member adapted to be placed under compression in a shifting action of said parts, one of the parts of each member adapted for engagement with the closure member but separable therefrom, and means on the frame below the position of the rolls engageable with the other of the parts of the two part members adapted to secure said other parts with respect to the frame and also adapted to impart a raising and lowering movement to those parts.

5. A wringer structure including with a frame, wringer rolls, and a closure for the top of the frame, a pair of two part members erected in said frame in spaced positions each lying beneath an extremity of said closure member, a spring interposed between the parts of each member adapted to be placed under compression in a shifting action of said parts, one of the parts of each member adapted for engagement with the closure member but separable therefrom, and rockable means on the frame below the position of the rolls engaging the other of the parts of the two-part members, each of said latter parts having an opening to receive such rockable means, and said means adapted to secure the parts with respect to the frame and also adapted to impart a movement to them in the direction of the rolls.

6. In combination, a wringer frame, a releasable top closure member therefor, a stationary wringer roll in said frame, an upper roll whose bearings are in control of the closure, a two part member seated in the frame at each end thereof outward from the ends of the rolls and tiltable in a lateral direction, rockably mounted means

carried by the frame adapted to releasably engage one of the parts of each of said two part member and fix it with respect to the frame, the other part of each said two part member adapted to positively engage the closure, and a spring interposed between the two parts of each said member constantly tending to draw said parts toward each other.

7. In a wringer structure, a frame, a support for the bearings of a lower wringer roll freely removable from said frame, there being a space between each bearing and the end of said frame, a closure member for the top of the frame, a wringer roll between the first named roll and said member and arranged to be urged by the latter upon said first named roll, said closure and the second named roll being freely removable from the frame, a two part member seated in each of the named spaces of the frame and removable therefrom, a spring interposed between the two parts of each member and placed under compression in a separating action of said parts, one of said parts of each member adapted to be engaged with the closure member, means in the wringer frame to releasably engage and secure the other of the parts of the named two part member with respect to the said frame, and mechanism carried by the closure member adapted to maintain engagement of the latter and the part engaging it and to permit separation of those portions.

8. The combination with a wringer frame, a closure member for its top having an abutment on each of two opposite walls, a part carried at each end of the frame, each tiltable to and from each of said abutments and including a portion to engage upon one of the latter, of mechanism mounted on the closure member including a pair of shiftable members each adapted to engage one of the named portions, and a manually operated knob for shifting the members in opposite directions to maintain positive engagement of the portions with the named abutments and to permit release of the same therefrom.

9. The combination with a wringer frame, a top closure member therefor, two parts, one at each end and carried by the frame and engageable with said closure member, of mechanism mounted on the latter comprising a cross member swingably mounted between its ends, an operating knob, a shaft fixed thereon and affixed to said cross member, said shaft having a bearing in the closure member and shiftable axially therein, an expanding spring interposed between the knob and the member, a rod pivotally connected to each end of the cross member each adapted to engage one of the named parts for holding it in positive engagement with the closure member, and a pair of posts extending from the latter in the direction of the said cross member, the latter adapted to engage between the two.

10. The combination with a wringer frame, a top closure member therefor, two parts, one at each end and carried by the frame and engageable with said closure member, of mechanism mounted on the latter comprising a cross member swingably mounted between its ends, an operating knob, a shaft fixed thereon and affixed to said cross member, said shaft having a bearing in the closure member and shiftable axially therein, an expanding spring interposed between the knob and the member, a rod pivotally connected to each end of the cross member each adapted to engage one of the named parts for holding it in positive engagement with the closure member, and a

pair of posts extending from the latter in the direction of the said cross member, one of said posts being shorter than the other, said cross member adapted to engage between said posts.

11. In a wringer structure, the combination with a wringer frame and a closure member therefor, of spaced members seated in the wringer frame freely liftable therefrom, each adapted at one end to engage and secure said closure member in position, the closure member and said end adapted for quick separation one from the other, means adapted to fix the said spaced members relative to the frame and for quickly releasing them, a wringer roll having bearings seated upon a part of the frame between the members and wholly independent of said frame and said members and free to be removed from said frame, and a wringer roll interposed between the closure member and the first named roll and freely liftable from said frame.

12. In combination, a wringer frame including end walls, abutments erected each in spaced relation to a wall, wringer-roll bearings mounted on the abutments and each also spaced from a wall, a closure member for the top of the frame including a projection at each end, a wringer roll and bearings therefor interposed between the closure and the first named bearings and wringer roll, a laterally tiltable tension means at each end of the frame lying in the space between the said first named bearings and a wall and withdrawable from the frame, a manually controlled rockable part mounted in the frame to engage and secure one end of the tension means with respect to said frame, the other end of said means being engageable with said projection of said closure member and adapted to elastically hold the latter and its roller in the direction of the first named roll and automatically releasable from said projection.

13. The invention according to claim 12 including manually controlled releasing means carried by the closure member adapted to maintain engagement of the tension means with said projection of said closure member.

14. A wringer structure including a wringer frame having a wringer roll space, and having a recess in each end thereof outward from said wringer roll space, a two part member erected in each recess and withdrawable therefrom as a unit, a spring interposed between the two parts of each said two part member, and means to normally secure one of the parts of each said member relative to the frame, the other of the parts being yieldable in the direction of the wringer roll space.

15. In a wringer structure including a wringer frame, a pair of rolls, and a closure member for the frame normally fixed with respect thereto and including an abutment, a two-part member erected at each end of the frame, means to secure one of the parts of each said two-part member with respect to the frame while permitting a lateral tilt thereof, the other of the parts of each member having a hook portion adapted to engage said abutment to hold the closure member upon the frame but releasable laterally therefrom to release said closure, a spring between the parts of each said two-part member, the named means being adapted to force the hook portions upon the abutments, a member engageable with each hook portion for holding the latter securely against said abutments, and a manually operated part in control of each said member adapted to release the said hook portions.

16. In a wringer structure including a wringer frame, a pair of rolls, and a closure member for the frame normally fixed with respect thereto and including an abutment, a two-part member erected at each end of the frame, means to secure one of the parts of each said two-part member with respect to the frame while permitting lateral tilt of such member, the other of the parts of the member having a hook portion adapted to engage upon the abutment to hold the closure member upon the frame and releasable laterally, freeing said closure member, a spring between the parts of each two-part member, the named means being adapted to position the hook portions upon said abutments, a pair of members each engageable with one of the hook portions for holding the same securely against the abutments, and a manually operated part in control of the members for simultaneously bringing about their said engagement and the release thereof from said hook portions.

17. A wringer structure including, in combination, a frame, wringer rolls, and a liftable closure

member adapted to bear upon one of the rolls, said closure member including opposed abutments, a toggle carried by the closure including a swinging cross-arm and a pair of members to extend between the named abutments and in one of their positions lying in spaced relation to the latter, said cross-arm adapted to shift the members in opposite directions, a part at each end of the frame elastically held with respect thereto including a hook portion interposed between a free end of one of the latter members and one of said abutments to engage elastically downward upon the latter and adapted to tilt laterally to and from said abutment, each of said members adapted to abut upon one of the hooks and maintain engagement thereof with an abutment, and means to normally maintain the cross-arm in position to releasably press said members against said hook portions.

ALBERT R. HAAG.
FRANK W. WERCKLE.
ROSS E. LOCHER.