Sept. 22, 1936. N. L. ETTEN 2,054,970

SAFETY RELEASE MECHANISM

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FIG. 2.

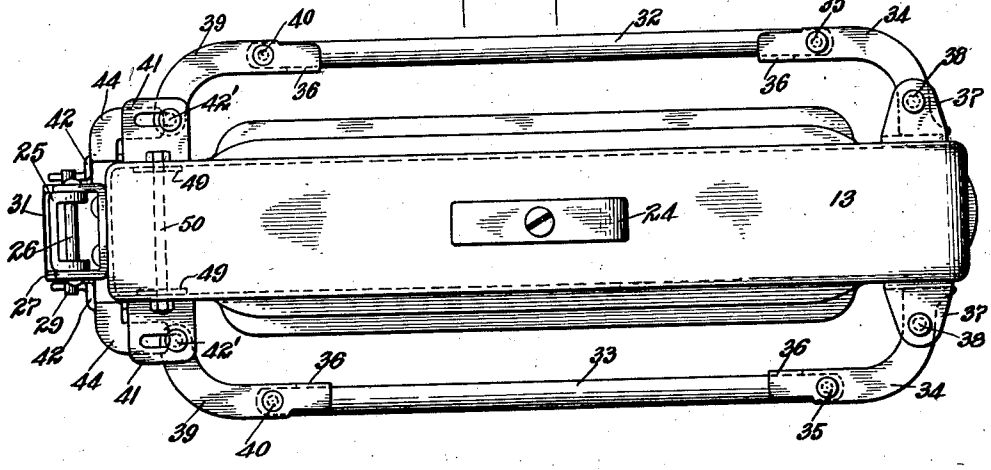
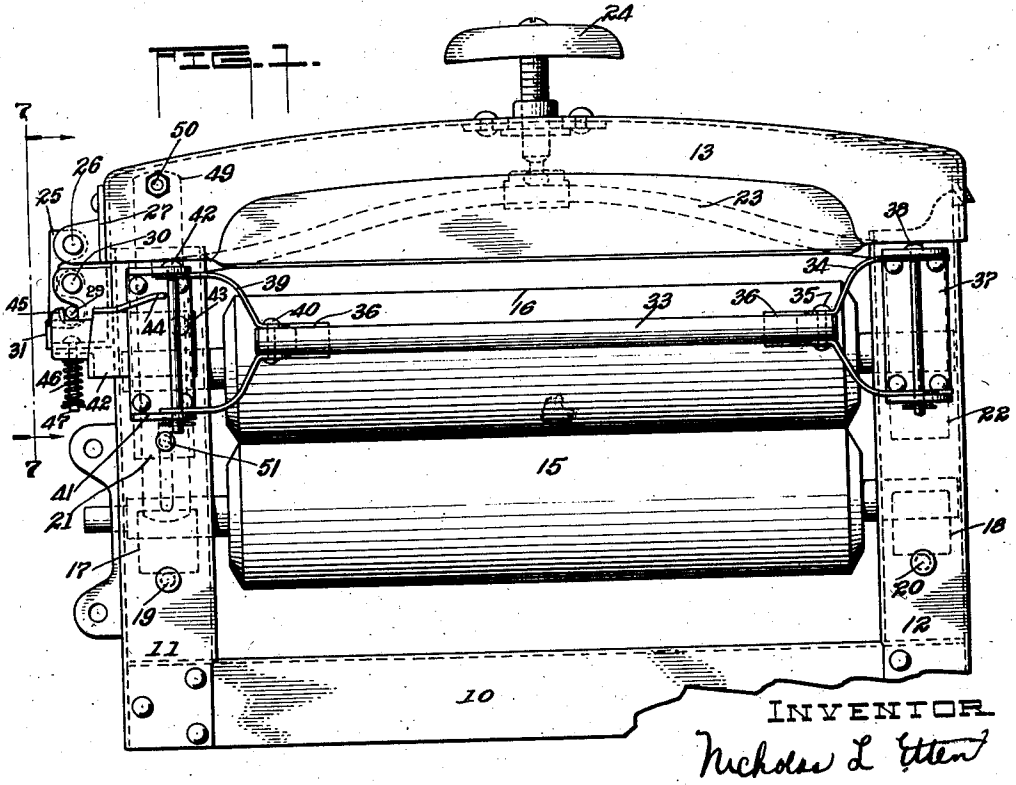


FIG. 1.



INVENTOR

Nicholas L Etten

BY

Tifft & Tifft

ATTY'S

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FIG. 3.

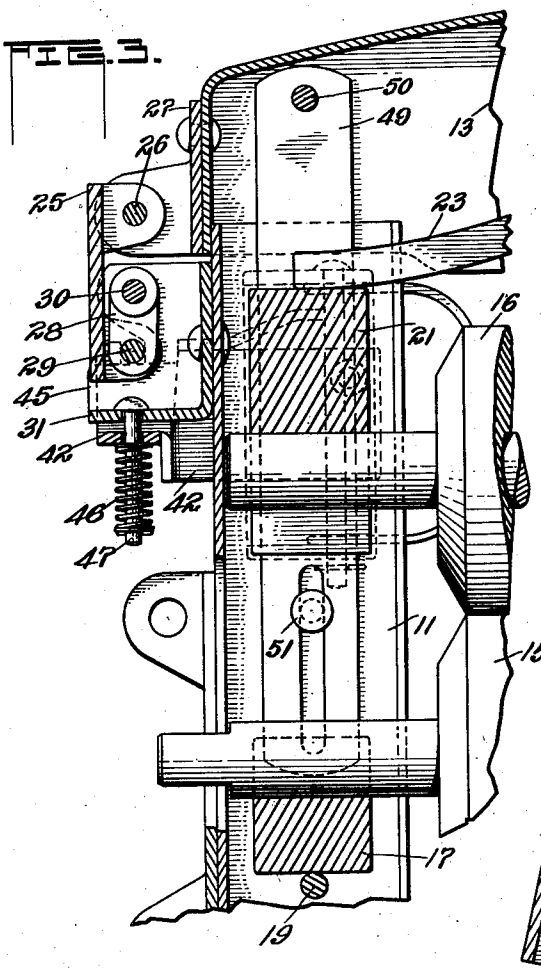
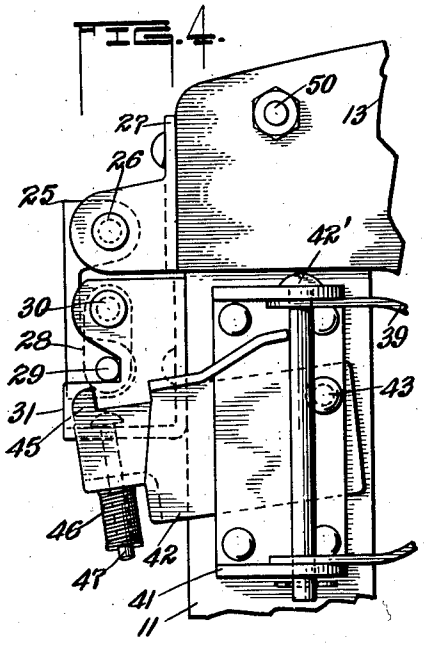


FIG. 4.



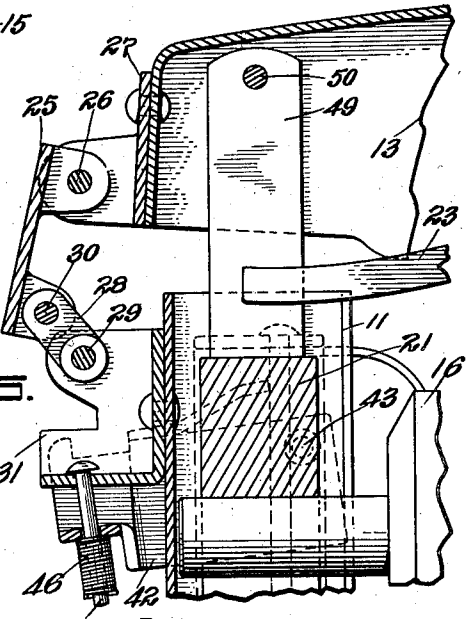


FIG. 5.

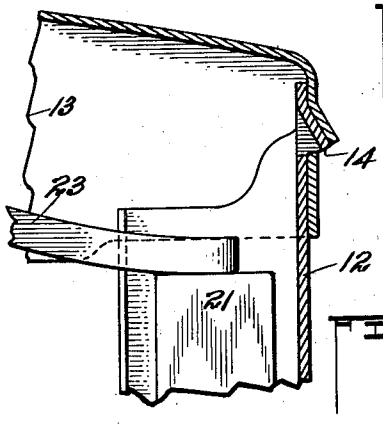


FIG. 6.

INVENTOR.

Nicholas L. Etten

BY Lefft & Lefft

ATTY'S

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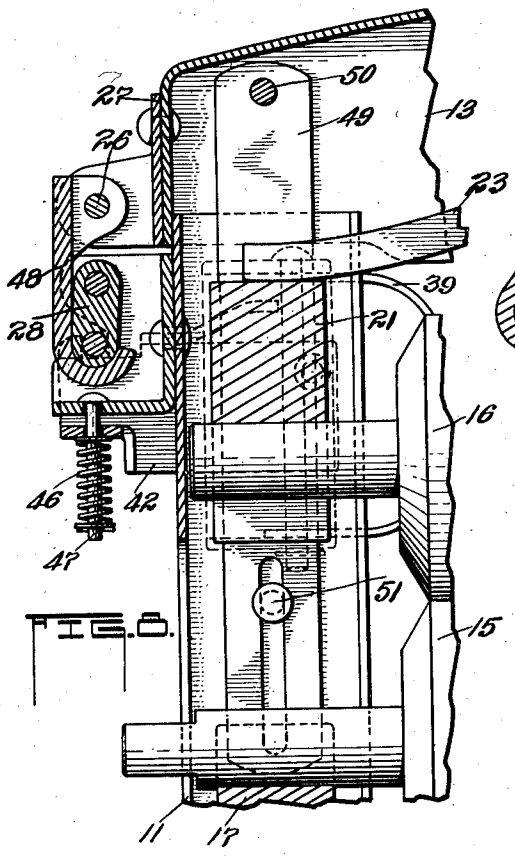


FIG. 8.

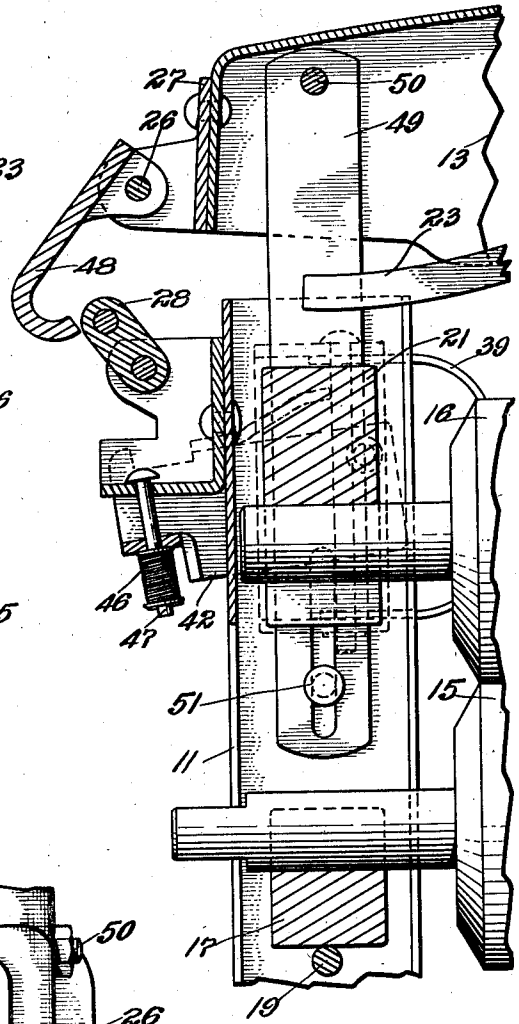


FIG. 9.

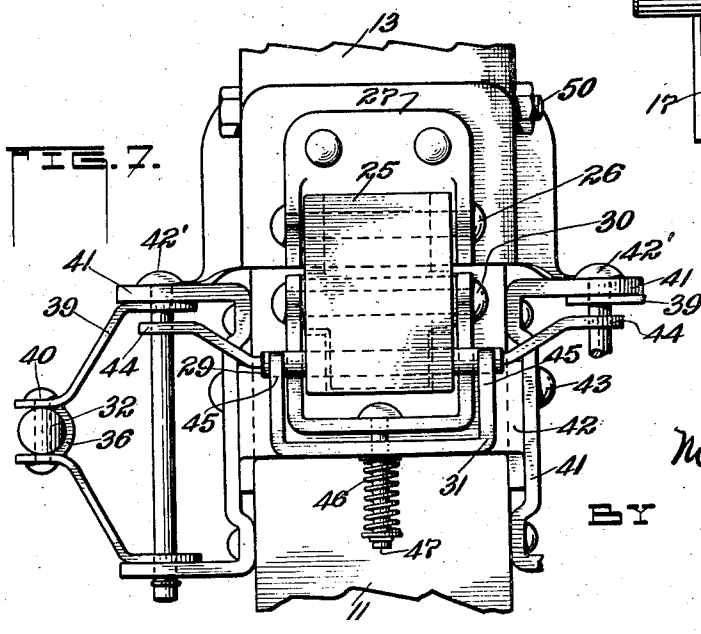


FIG. 7.

INVENTOR.
Nicholas L. Etten

BY

Tiffx & Tiffx
ATTY'S

Patented Sept. 22, 1936 2,054,970

UNITED STATES PATENT OFFICE

2,054,970

SAFETY RELEASE MECHANISM

Nicholas L. Etten, Waterloo, Iowa, assignor to Chamberlain Corporation, Waterloo, Iowa

Application December 23, 1932, Serial No. 648,620

13 Claims. (Cl. 68—32)

This invention relates to safety release mechanism for power driven roll wringers.

It is herein shown as operably embodied in a roll wringer unit, to function in such a manner as to co-act with the several structural members of the said wringer to instantly relieve the normal working pressure between the roll members thereon, this result being accomplished through a slight and simple movement on the part of an operator.

The following description will illustrate that the several structural and operating members of the wringer are retained in normal working relation by means which normally rest in locked engagement.

Hand rails, conveniently disposed and supported upon the wringer structure, are operable to disengage the locking means and remove the normal working pressure between the wringer rolls, thus removing the possibility of accidental injury to the operator, wringer or garments being wrung.

The main object of the invention is to provide a wringer release mechanism which is simple in form and function and which may be effectively operated by inexperienced operators.

A further object is to provide a release mechanism which is rapid in its action and which may be operated with slight manual effort.

Another object is to provide a safety release mechanism which is so assembled with and disposed upon the wringer structure that it is readily reached and operated from either side of the wringer.

A further object is to provide a safety release mechanism the operation of which involves no specific or trained movement on the part of the operator.

It is well known that the conventional power driven roll wringer may, under certain conditions of domestic use, cause injury to the operator, garments being wrung or even to the wringer mechanism.

Wringers which are used in the work of domestic washing are seldom operated more than an hour or two each week and such short periods of use, with comparatively long periods of time elapsing between such periods of use, rarely afford sufficient practice for the operator to become skilled in the operation of devices of this type.

It is also quite possible that such equipment may be used by those whose intelligence is such that it is improbable that considerable skill could ever be acquired by them, or it may be used by persons who are nervous or easily confused. It is also possible that emergencies may arise through the activities of children, whose fingers or hands may be injured by being caught between the revolving rolls.

Considering the above, together with the possibility of injury to garments which might occur through such unusual obstructions as improperly straightened buttons or sharp objects in pockets passing between the tightly compressed rollers, it is obviously desirable to provide simple, rapid and easily operated means for rendering the revolving rolls incapable of injury.

Such a means is provided in the present invention which is clearly disclosed in the following description and accompanying drawings, in which—

Fig. 1 is a side elevational view showing the device installed upon a wringer;

Fig. 2 is a plan view of the same;

Fig. 3 is an enlarged sectional view of details of the releasing mechanism showing the mechanism in locked position;

Fig. 4 is an elevational view of the same, showing certain of the parts in operated position;

Fig. 5 is a view similar to Fig. 3, showing parts in fully released position;

Fig. 6 is a sectional detail view showing a method of retaining certain of the wringer parts;

Fig. 7 is an enlarged end elevational view taken from line 7—7 in Fig. 1;

Fig. 8 is an enlarged sectional view showing a variation of the release mechanism to be described; and

Fig. 9 is a sectional view of the same in released position.

Fig. 1 will disclose a roll wringer assembly which is generally composed of a transverse lower frame member 10, to which is attached two upright end frame members 11 and 12, which are of channel section. Joining the upright end members 11 and 12 is a transverse frame member 13 also of channel section. The member 13 is retained in suitable relation upon the end member 12 by a lip portion 14 formed in the body of end member 12, as best shown in Fig. 6.

At the opposite end, member 13 is retained by a suitable linkage which will be explained later.

Disposed between frame members 11 and 12 are upper and lower wringer rolls 15 and 16. The shaft of the lower roll 15 is rotatably mounted in bearing blocks 17 and 18, which are rockably supported in the end frame members by pins 18 and 19, as shown. The shaft of the

upper roll 16 is rotatably mounted in inverted bearing blocks 21 and 22 which are slidably supported in frame members 11 and 12, as best shown in Fig. 3.

Contact pressure between the rollers is maintained by a flat spring member 23, the ends of which rest upon the slidable bearing blocks 21 and 22, as shown, while the central portion is abutted by a hand screw member 24 threadedly mounted in the transverse frame member 13, as shown. Obviously, contact pressure between the rolls 15 and 16 may be adjusted by suitable manipulation of the screw 24.

Referring to Fig. 3, it will be noted that a link member 25 is pivotally mounted, by means of a pin 26, upon a bracket member 27 which latter is affixed to frame member 13.

The link member 25 is pivotally attached at its lower end, to a link member 28 by means of a pin 29. The opposite end of link 28 is pivotally mounted, by means of a pin 30, upon a bracket member 31 which is rigidly affixed to side frame member 11.

Figs. 3 and 5 will illustrate that the left hand end of frame member 13, as viewed in Fig. 1, is retained in working position by the toggle-like arrangement of links 25 and 28, as pivoted by pin 26 on frame 13 and pin 30 on frame 11.

Fig. 3 will indicate that when links 25 and 28 are in working or locking position, pin 29 is disposed somewhat short of a dead center alignment with relation to pins 26 and 30 so that, with the parts placed as shown in Fig. 3, links 25 and 28 are in such position as to retain the wringer parts in the relation shown and support approximately all of the pressure load of the wringer rolls. It will be apparent, however, that since pin 29 is aligned slightly off center with relation to pins 30 and 26, the tensioning pull on link 25 may overcome the toggled locking action of links 25 and 28 and permit the parts to assume the position shown in Fig. 5.

As already noted, links 25 and 28 are adapted to support approximately all of the pressure load of the wringer rolls. Obviously, they will not remain in working position unless suitably retained.

To retain them as described, the following mechanism is provided:

Figs. 1 and 2 will disclose two hand rails 32 and 33 disposed upon either side of the wringer. Since they are identical in form and function, only the mechanism associated with rail 33 will be described.

The drawings will illustrate that rail 33 is supported at its right hand end by a forked link member 34, which is pivotally attached to rail 33 by a pin 35, and similarly attached to a bracket member 37 by a pin 38.

At its left hand end, rail 33 is pivotally attached to a forked link member 39 by a pin 40. Link 39 is pivotally and slidably supported by a pin 42' in a slotted bracket member 41 which is affixed to frame member 11.

As best shown in Fig. 7, brackets 41 are so formed, at their base portions, as to retain the legs of a U-shaped lever member 42. The legs of lever 42 are pivotally supported between brackets 41 and frame 11 by pins 43, as shown. Lever 42 has, upon either side, extensions 44 which are adapted, as shown, to be engaged by sliding pins 42'; it also carries hooked portions 45 which are adapted to engage pin 29 of links 25 and 28, as shown.

A compression spring 46 reacts between the lower end of a loosely mounted pin 47 and lever 42 to urge hooks 45 into engagement with pin 29. Pin 47 is suitably supported by its head in bracket 31, as shown.

The drawings referred to will illustrate that the leg portions of links 34 and 39 are joined by connecting portions as 36 which pass around the inner side of rail 33 in such a manner as to permit rail 33 to be moved toward the wringer rolls but to retain the said rail against outward movement. Obviously, any movement of rail 33 toward the wringer will tend to arrange the linkage in a straight line, which will result in greater center to center length as between pins 38 and 42'. Pin 38 being mounted in a stationary manner, it is clear that straightening of the linkage train would result in sliding movement of pin 42' in the slots of bracket 41 thereby displacing extension 44 of lever 42 to rotate lever 42 upon pins 43 to withdraw hooks 45 from engagement with pin 29. The movement is clearly illustrated in Fig. 4. The linkage train of link 39, rail 33 and link 34 is retained in the normal operable position shown in Fig. 2 by the spring 46 acting through bracket 31 and pin 47 to urge lever 42, together with extensions 44, against sliding pins 42' resulting in obvious movement of links 34 and 39 to abut connecting portions 36 against rail 33.

The device may be operated as follows:

With the parts assembled as in Figs. 1 and 3, a slight manual push or knock against either of rails 33 will straighten the link train as described and slide pin 42', as described, to rotate lever 42 to withdraw hooks 45 and release pin 29, thus allowing links 25 and 28 to rotate upon their supporting pins as shown in Fig. 5, with consequent upward movement of frame 13 to relieve the pressure of spring 23 against bearing block 21 and remove the contact pressure between rolls 15 and 16. The described upward movement of frame 13 at the right hand end, together with the sudden release of tension in spring 23 disturbs the parts sufficiently to unhook the right hand end of member 13 from lip 14. Thus a slight manual touch upon rail 33 will result in immediate removal of pressure between rolls 15 and 16 and release of any object caught between them. The several parts may be restored to their original working position by rotating screw 24 to withdraw spring 23 somewhat, re-hooking the right hand end of frame 13 over lip 14 and bearing down upon the right hand end, which will automatically replace the described locking devices in position as shown in Fig. 3.

A variation of the above described releasing device is shown in Figs. 8 and 9, wherein the link 25 has been replaced with a link of somewhat different form, designated as 48, which instead of being pivoted upon pin 29, is so formed as to hook around the body of link 28, as shown. The operation and effect is identical with that already described with the exception that frame 13, when released may be separated a greater distance from member 11 than is possible with the former arrangement.

A link member 49 pivotally attached to frame member 13 by a pin 50, and slidably attached to frame member 11 by a pin 51 permits removal of frame member 13 to a considerable distance but assists in maintaining alignment so as to facilitate re-assembly of the parts into working position.

What I claim is:

1. A roll wringer releasing device comprising an upright wringer frame, parallel rolls and means to urge said rolls into peripheral contact, two parallel hand rails disposed each on an opposite side of said frame, pivoted means on the frame for supporting the hand rails at both ends to permit movement in a horizontal plane, and means making the rails effective to release the contact pressure between the rolls, when the rails are moved in a horizontal plane while remaining parallel to the wringer frame.

2. In a wringer structure in combination a frame having upright portions, wringer rolls supported by the upright portions of said frame, a separable cross head member supported by said upright portions, adjustable spring means carried by said cross head member for normally holding said wringer rolls in pressure contact, toggle link mechanism having inseparable members for retaining said cross head member in normal working position and joining the cross head to at least one of the upright portions, a movable latch member for holding the toggle mechanism in operable relation when retained in holding position and so that the pressure load is divided between the toggle mechanism and latch, said spring means being operable to move the toggle mechanism when the latch is not retained in holding position whereby the pressure between the rolls is released.

3. In a wringer structure in combination a frame having upright portions, wringer rolls supported by the upright portions of said frame, a separable cross head member supported by said upright portions, adjustable spring means carried by said cross head member for normally holding said wringer rolls in pressure contact, toggle link mechanism having separable members which when joined retain the cross head member in normal working position, and joining said cross head to at least one of the upright portions, a movable latch member for holding the toggle mechanism in operable relation when retained in holding position so that the pressure load is divided between the toggle mechanism and latch, said spring means being operable to move the toggle mechanism when the latch is not retained in holding position whereby the pressure between the rolls is released.

4. In a wringer structure as in claim 2, in combination, a link member pivotally attached to the pressure supporting cross member and slidably attached to the roll supporting structure to prevent misalignment and separation as between the said cross member and the said roll supporting structure.

5. In a wringer mechanism, in combination, wringer rolls, an adjustable pressure sustaining means therefor which is retained at one end partly by toggled links and partly by a removable hook, which hook is adapted to be removed from its pressure supporting position by the operation of one or more hand rails disposed adjacent the wringer rolls.

6. In a releasing mechanism, the combination of toggled links and retaining hook as in claim 5, the said hook being operable by movement of hand rails located adjacent and parallel to the wringer rolls.

7. In a releasing mechanism comprising hand rails located adjacent and parallel to the wringer rolls, the said hand rails being pivotally supported to operate in a horizontal plane in one direction only, the said pivotal supporting means being adapted, when the said rail is operated in the permitted direction, to displace one of the said pivotal supporting means to rotate a lever carrying a hook which partly supports the contact pressure between the wringer rolls.

8. In a releasing device as in claim 7, a lever carrying a hook which partly supports the contact pressure between the wringer rolls, the said lever being retained in normal operable position by a spring which spring is adapted, through the said lever, to retain the pivoted hand rail supporting means in normal operable position.

9. In a releasing mechanism, in combination, a wringer comprising contiguous rolls and a pressure applying means therefor, a frame for said rolls and said pressure means, hand rails disposed adjacent and parallel to wringer rolls, said hand rails being pivotally supported at both ends, the pivotal support means comprising links which are pivotally supported upon the frame members of the wringer mechanism and pivotally attached to the said hand rails.

10. In a releasing mechanism, in combination, a wringer comprising contiguous rolls and a pressure applying means therefor, a frame for said rolls and said pressure means, parallel hand rails each pivotally supported at both ends by pivotally mounted links, one of said links being supported by a fixed pivot the other supported by a displaceable pivot, both of said pivots being supported upon said frame.

11. In a releasing mechanism, in combination, a wringer structure including contiguous rolls and a pressure applying means therefor, a frame for said rolls and said pressure means, said frame having affixed thereto, bracket members adapted to support pivoted link members, which link members are adapted to support the two ends of adjacent parallel hand rails.

12. A releasing mechanism for a wringer structure having a frame, there being affixed thereto bracket members on either side of the frame adapted to support pivoted link members which link members are adapted to support each end of a parallel hand rail, the bracket member supporting the pivoted link carrying one end of said hand rail adapted to support said link upon a fixed pivot, the bracket member supporting the pivoted link carrying the other end of the said hand rail being adapted to support the pivot of its associated link in a displaceable manner.

13. In a roll wringer releasing device, the combination of a lower wringer frame, a releasable top frame therefor, wringer rolls disposed in the lower frame, tensioning means for the rolls supported in the upper frame, the same being capable of moving the upper frame relative to the lower frame to relax pressure between the rolls, a toggle link mechanism connecting the upper and lower frames the same being operable by the upper frame when the latter is moved by said tensioning means, latch mechanism cooperative with said link mechanism adapted to prevent operation of the latter by the described movement of the upper frame whereby said movement is prevented and pressure between the rolls is maintained and manual means for moving said latch to permit operation of the toggle link mechanism to allow movement of the upper frame whereby pressure between the rolls is relaxed.

NICHOLAS L. ETTEN.