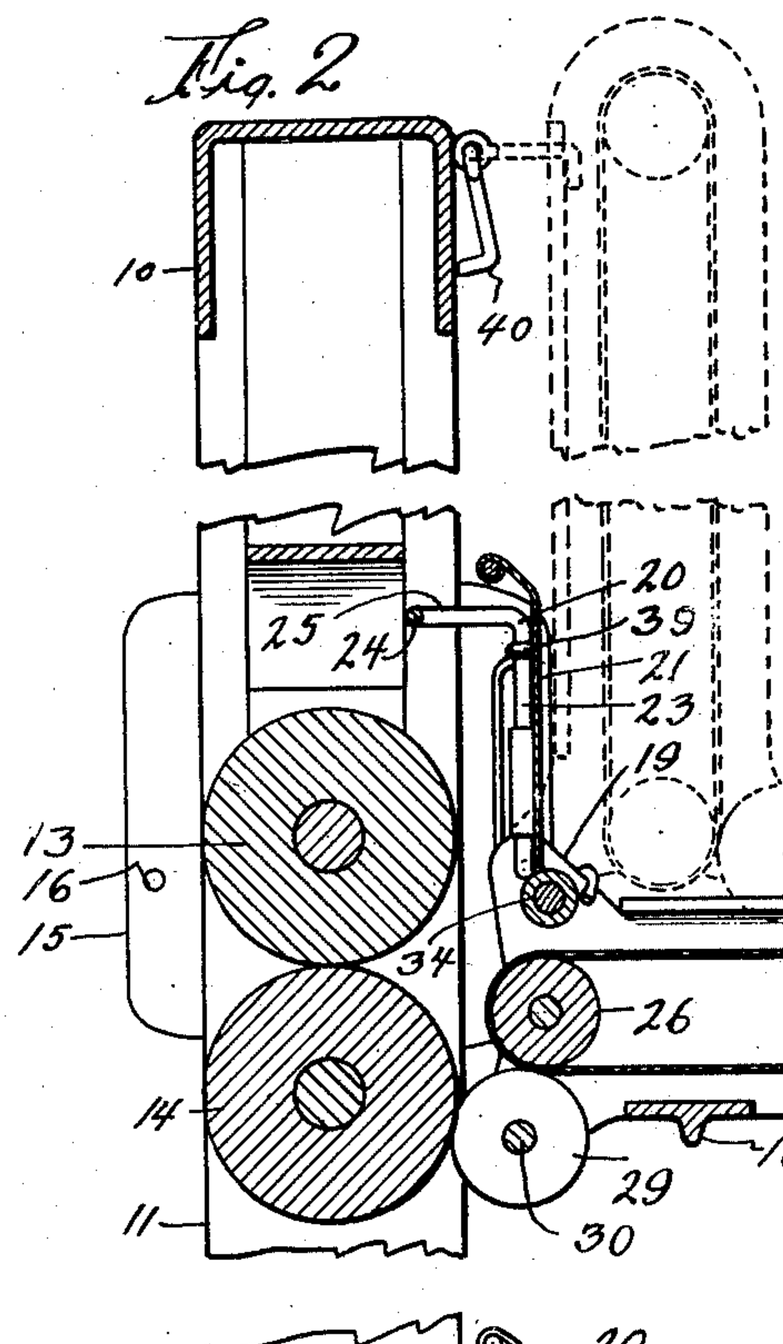
Oct. 7, 1930. F. V. LA SUER 1,777,568

WRINGER GUARD

Filed May 14, 1928

Fig. 2



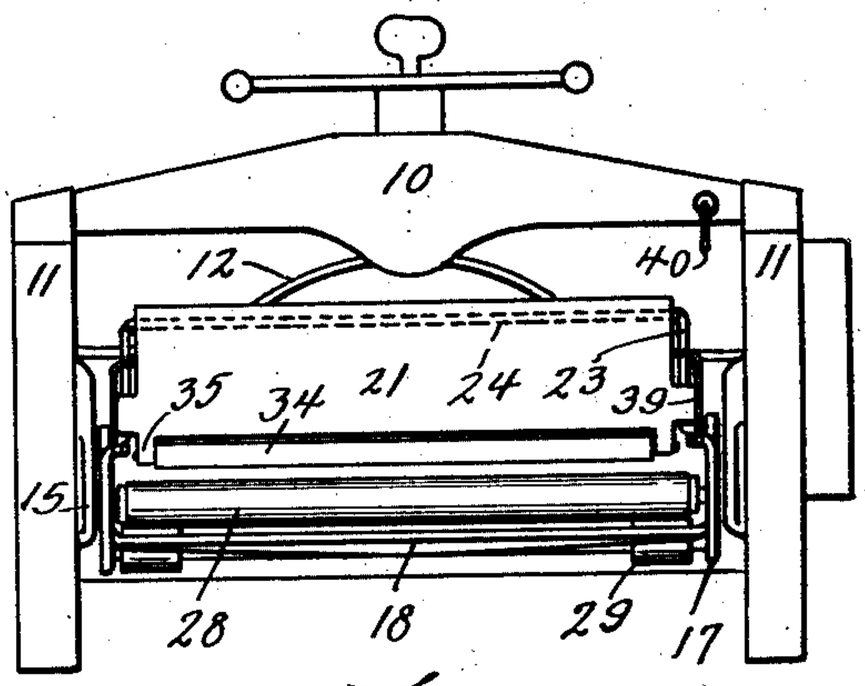


Fig. 1

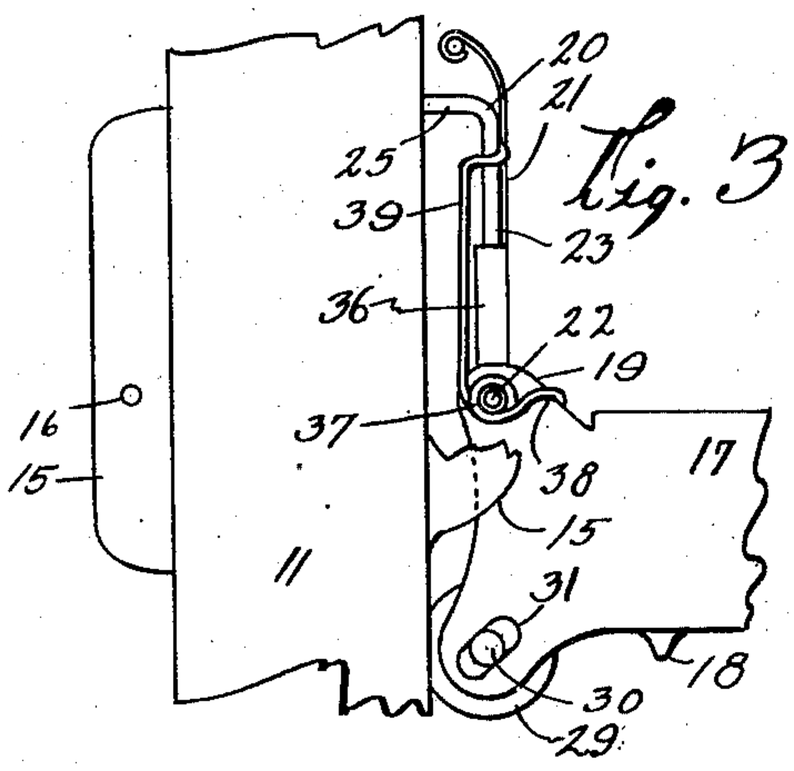


Fig. 3

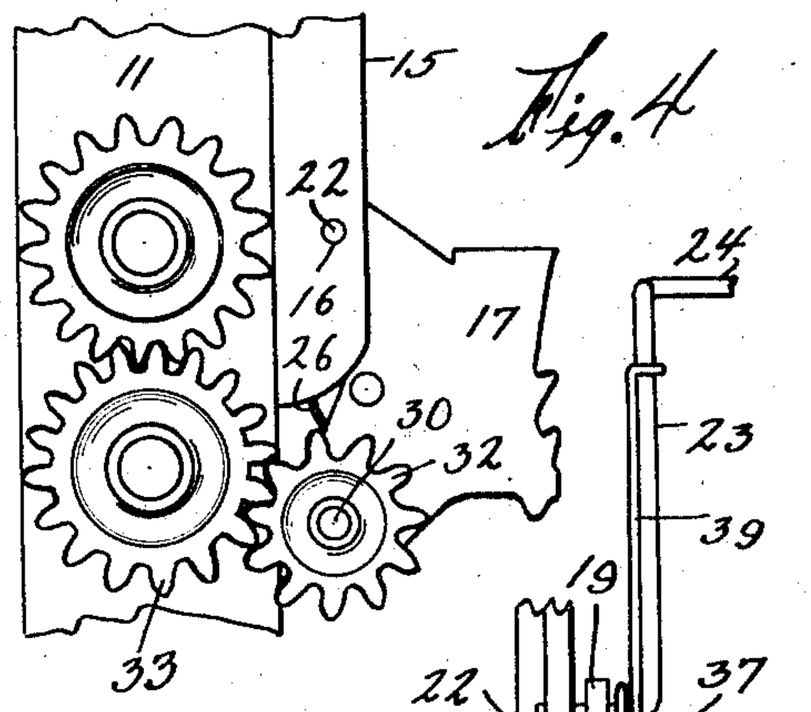


Fig. 4

Fig 5

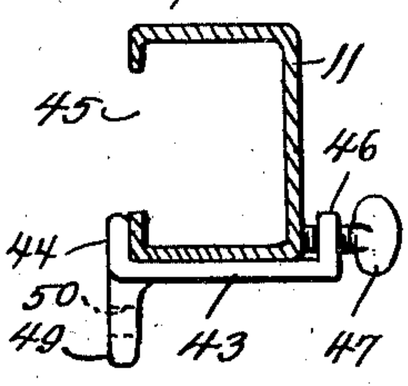


Fig. 7

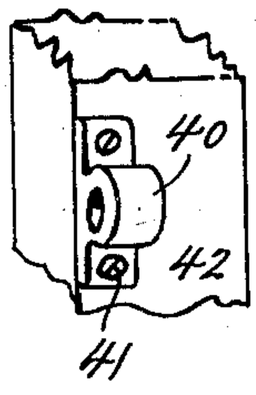


Fig. 6

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Patented Oct. 7, 1930 1,777,568

UNITED STATES PATENT OFFICE

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WRINGER GUARD

Application filed May 14, 1928. Serial No. 277,476.

My invention has to do with protective guards for wringers and has for its object to provide a guard of the type employing an endless belt conveyor to feed the clothes to the wringer rolls.

An object of my invention is to provide a wringer guard of this general classification wherein the guard frame is so hinged to the wringer frame that it may be swung upwardly to a position fully disclosing the rolls in order that access to the rolls may be quickly had when necessary.

A further object of my invention is to provide a wringer guard of this nature employing a single conveyor belt and a vertically slidable guard plate, coacting with said conveyor belt in such a manner as to cover a majority of the space ahead of the wringer rolls.

Another object is to provide such a wringer guard having a belt and a guard plate, the latter being mounted on a member which is hinged to the guard frame on the same axis upon which the guard frame is hinged to the wringer, whereby not to interfere with the upward swinging of the guard frame.

Another object of my invention is to provide an arrangement such as is mentioned in the last paragraph, wherein the member which carries the guard plate and the guard frame may be urged to their normal positions, by a single spring connected between them.

Another object of my invention is to provide such a guard having a drive adapted to be engaged or disengaged from a moving part of the lower wringer roll upon lowering or raising the guard frame, respectively, whereby to automatically cut off the drive to the conveyor belt upon raising of the guard frame.

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

Fig. 1 is an elevation of a wringer with my invention attached thereto.

Fig. 2 is a vertical, sectional view through portions of the same.

Fig. 3 is an end elevation of a portion of the wringer with the guard attached.

Fig. 4 is a similar view of a somewhat modified form of my invention.

Fig. 5 is a fractional view illustrating adjacent portions of the wringer, the guard frame and the element which carries the guard plate.

Fig. 6 is a view of a modified form of wringer mounting.

Fig. 7 is a sectional view illustrating a further modified form of the same.

I have used the reference character 10 to indicate generally the upper cross frame of a wringer having the side arms 11, an intermediate portion (spring) 12, the upper roll 13 and the lower roll 14.

The wringer illustrated, which is a modern type wringer, has on either side a pair of opposed flanges 15, provided with openings 16, in which the hinge studs of a common type of wringer attachment may be received. This attachment ordinarily is a table or trough adapted to carry the clothes away from the wringer rolls.

My invention purposes to employ these openings to receive the guard frame which it embodies.

This guard frame is shown in the drawings as an integral casting having the side arms 17, connected by lower cross bars 18. At one end of each arm 17 is an upwardly projecting ear 19.

A member 20 is provided, which is adapted to support a vertically slidable guard plate 21. The member 20 may be of any convenient shape extending between the ears 19 and provided with outturned studs 22, received through openings in the ears 19 and extended into the openings 16 of the flanges 15 of the wringer. In its simplest form, the member 20 is a U shaped yoke having the side arms 23, on the lower ends of which are formed the studs 22 and having the connecting web 24 adapted to engage some portion of the wringer such as the spring 12.

Where the attachment is constructed for a wringer having the integral flanges 15, the side arms 21 must be possessed of a certain amount of resiliency in order to enable the springing of the studs 22 into the openings 16. To attain this result, the member 20 is preferably formed of a length of heavy spring steel wire or rod, bent to form the central web 24 from the extremities of which it is bent laterally, as at 25, to position the vertical arms 21 in the plane of the openings 16, which is spaced laterally from the body of the wringer frame, the rod being thence bent downwardly to form the arms 21 and thence outwardly in the vertical plane of the arms 21 to form the studs 22.

Journalled in the side arms 17 are a pair of rollers 26 and 27, over which travels the endless belt conveyor 28. The forward roller 26 is positioned adjacent the lower roll 14 and above its axis so that the upper extremity of the two rolls will be substantially on a level. The roller 26 is considerably smaller than the roll 14, thus leaving space for the reception of a rotatable drive element including the two spaced drive rollers 29, mounted upon a shaft 30, which is journalled in the side arms 17.

The rollers 29 engage the roller 26 and the roll 14 when the guard frame is in its normal horizontal position shown in full lines in Fig. 2. In order to assume sufficient pressure between the rollers 29 and the roller 26, the shaft 30 is journalled in slots 31 in the arms 17 positioned at such an angle as to transfer lateral pressure from the roller 14 against the rollers 29 to upward pressure of the rollers 29 against the roller 26 (through the medium of the belt 28). The slot allows the rollers 29 to adjust themselves between the other two rollers.

Instead of the friction drive just described, a gear drive could be employed, such as is illustrated in Fig. 4. The rollers 29 would be employed engaging the roller 26 but not engaging the roll 14. On the shaft 30, a pinion 32 is mounted to engage the lower pinion 33 of the wringer. The pinion 32 will swing into and away from mesh with the pinion 33, as the guard frame is lowered or lifted.

A roller 34 is journalled in a pair of arms 35, projecting from the guard plate 21. The guard plate 21 is slidably mounted on the arms 23 by means of sleeves 36, formed at the ends of the plate 21 and encircling the arms 23. The sleeves 36 contact with the ears 19 so as to support the plate and roller with the latter positioned normally a slight distance above the belt 28, substantially as shown in Fig. 2. As the clothes are fed upon the belt 28 into the rolls of the wringer, the roller 34 will ride upon the clothes, pushing the guard plate upwardly when necessary to allow a thicker mass to pass therebeneath.

In order to add to the pressure of the rollers 29 against the roll 14 and to support the member 20 in its upright position, I provide a spring having a looped portion 37, receiving the stud 22, a hooked end 28 engaging the ear 19 of one of the arms 17, and a hooked end 39 engaging the arm 23. Two springs are preferably employed, one at either side of the device.

The spring 39 might be eliminated and the web 24 secured in any manner to the wringer frame so as to support the member 20 in upright position. A separable fastening should then be employed to allow the member 20 to be swung downwardly so that access might be had to the upper roll from above. The spring, however, allows the member 20 to be swung downwardly without unlatching a fastening device and automatically returns it to its normal position when it is released.

It will be understood that it is quite often necessary to have access to the rolls in order to remove pieces of clothing which have become wound upon the rolls. The hinged mounting of the guard frame on an axis which is above the plane where the rolls meet allows the guard frame to be swung upwardly so that the rollers 29, the conveyor 28 and the guard frame will all be entirely removed from the space ahead of the lower roll and the lower portion of the upper roll.

It is, of course, desirable that the driving of the conveyor belt be stopped when the guard frame is lifted, so that the conveyor belt may not interfere with the hands of the operator while removing portions of clothing wound about the wringer rolls. Either of the drives shown, wherein the conveyor belt is driven by a rotating element adapted to engage a rotating portion of the lower roll only when the guard frame is down, will accomplish this result.

In order to retain the guard frame in its lifted position shown in dotted lines, a latch or hook 40 is provided, adapted to engage one of the flanges 41 formed on the arms 17. A slot 42 may be provided in the flange 41 to receive the hook 40.

It is thought to be apparent that the fingers of the operator will be securely guarded from contact with the rolls by my device. The conveyor 28 carries the clothes to the rolls; the guard plate 21 guards the space above the conveyor and the conveyor guards the space ahead of the lower roll.

In many types of wringers, it will be necessary to employ as attachments a pair of bearings such as those shown in Figs. 6 and 7. For a wooden wringer, a bearing 40 may be employed, secured by screws 41 to the arm 42 of the wringer. For the metal type wringer which does not have the integral flanges 15, an L-shaped bracket 43 may be employed having a hooked end 44, adapted to engage the slot 45 of the side arm of the

wringer frame and having an opposed finger 46, through which a thumb screw 47 is threaded to engage the arm 11 of the wringer. Lugs 49 are integrally formed on the brackets 43 and provided with openings 50 to receive the studs 22 of the attachment.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. In a wringer guard, a guard frame having a pair of spaced openings, a member having a pair of resilient arms provided with out-turned studs, extended through said openings, and adapted to be received in bearings on the wringer frame, thereby to hinge the guard frame and said member on a common horizontal axis, a guard plate having a vertically slidable connection with said resilient arms, means to retain the said member in a substantially vertical position, and a driven endless belt conveyor supported in the guard frame and adapted to feed to the wringer rolls, the guard plate coacting with said conveyor to close a majority of the space ahead of the rolls.

2. In a wringer guard, a guard frame having a pair of spaced openings, a member having a pair of arms provided with out-turned studs, extended through said openings, and adapted to be received in bearings on the wringer frame, thereby to hinge the guard frame and said member on a common horizontal axis, a guard plate having a vertically slidable connection with said arms, means to retain the said member in a substantially vertical position, and a driven endless belt conveyor supported in the guard frame and adapted to feed to the wringer rolls, the guard plate coacting with said conveyor to close a majority of the space ahead of the rolls.

3. In a wringer guard, a guard frame having a pair of spaced openings, a member having a pair of out-turned studs extended through said openings and adapted to be received in bearings on the wringer frame, thereby to hinge the guard frame and said member on a common horizontal axis, a guard plate having a vertically slidable connection with said member, means to retain the said member in a substantially vertical position, and a driven endless belt conveyor supported in the guard frame and adapted to feed to the wringer rolls, the guard plate coacting with said conveyor to close a majority of the space ahead of the rolls.

4. In a wringer guard, a guard frame having a pair of spaced openings, a member having a pair of out-turned studs extended through said openings and adapted to be received in bearings on the wringer frame, thereby to hinge the guard frame and said member on a common horizontal axis, a guard plate having a vertically slidable connection with said member, a driven endless belt conveyor supported in the guard frame and adapted to feed to the wringer rolls, the guard plate coacting with said conveyor to close a majority of the space ahead of the rolls, said member being adapted to engage a portion of the wringer when in its normal, substantially upright position, and a spring having a connection with a portion of both said member and the guard frame near one of the hinge joints, said spring serving to urge the guard frame downwardly and the said member toward the wringer.

5. In a wringer guard, a guard frame having a pair of spaced openings, a member having a pair of out-turned studs extended through said openings and adapted to be received in bearings on the wringer frame, thereby to hinge the guard frame and said member on a common horizontal axis, a guard plate having a vertically slidable connection with said member, means to retain the said member in a substantially vertical position, a driven endless belt conveyor supported in the guard frame and adapted to feed to the wringer rolls, the guard plate coacting with said conveyor to close a majority of the space ahead of the rolls, and a roller carried by the guard plate at the lower edge thereof adjacent the wringer rolls.

6. In a wringer guard, a guard frame adapted to be hinged to a wringer on a horizontal axis above the lower wringer roll, an endless belt conveyor including a pair of rollers and an endless belt mounted on said rollers, the forward roller being positioned near the lower wringer roll above the axis of the latter and below the axis upon which the guard frame is hinged and a rotatable friction drive element supported by the guard frame below said forward roller engaging a portion of the belt which is in engagement with the forward roller and normally held in frictional engagement with the lower wringer roll by the weight of the guard frame pulling downwardly about the hinge axis of the latter.

7. In a wringer guard, a guard frame adapted to be hinged to a wringer on a horizontal axis above the lower wringer roll, an endless belt conveyor including a pair of rollers and an endless belt mounted on said rollers, the forward roller being normally positioned near the lower wringer roll and above the axis of the latter, a rotatable friction drive element supported by the guard frame below said forward roller in a position to normally engage the conveyor below the forward roller and to engage the lower

wringer roll, said friction drive element being so mounted in the guard frame as to be capable of movement in a direction transverse to its axis toward and from the forward roller and lower wringer roll and the weight of the guard frame serving to urge the friction drive element and the forward roller into their respective engagements with each other and with the lower wringer roll.

8. In a wringer guard, a guard frame adapted to be hinged to a wringer on a horizontal axis above the lower wringer roll, an endless belt conveyor including a pair of rollers and an endless belt substantially the full width of the guard frame mounted on said rollers, the forward roller being normally positioned near the lower wringer roll and above the axis of the latter and pair of rotatable friction drive elements spaced apart and supported by the guard frame below said forward roller in position to normally engage the conveyor below the said forward roller and to engage the lower wringer roll, the weight of the guard frame serving to urge the friction drive elements into engagement with the lower wringer roll, the forward roller being driven from the drive elements and the space between said drive elements serving to allow water to pass between the drive elements and the lower wringer roll.

9. In a wringer guard, a guard frame having a pair of spaced openings, a guard plate frame adapted to normally extend upwardly from the guard frame in front of the wringer rolls, means adapted to hinge said guard plate frame to the guard frame and to hinge the guard frame to the wringer, said means extending through the guard frame openings and into bearings on the wringer frame, and a guard plate having a vertically slidable connection with said guard plate frame.

10. In a wringer guard, a guard frame, a guard plate frame hinged to said guard frame on a horizontal axis, the guard frame being adapted to be hinged to the wringer frame on a horizontal axis adjacent the wringer rolls and normally projecting outwardly in a substantially horizontal position, the guard plate frame normally projecting upwardly in a substantially vertical position, an endless belt conveyor mounted in the guard frame in a position to carry clothes to the wringer rolls and a guard plate having a vertically slidable connection with the guard plate frame and adapted to cover a majority of the space ahead of the wringer rolls and above the endless belt conveyor.

11. In a wringer guard, a guard frame, a guard plate frame hinged to said guard frame on a horizontal axis, the guard frame being adapted to be hinged to the wringer frame on a horizontal axis adjacent the wringer rolls and normally projecting outwardly in a substantially horizontal position, the guard plate frame normally projecting upwardly in a substantially vertical position, an endless belt conveyor mounted in the guard frame in a position to carry clothes to the wringer rolls, a guard plate having a vertically slidable connection with the guard plate frame and adapted to cover a majority of the space ahead of the wringer rolls and above the endless belt conveyor, and a roller carried by said guard plate at the lower edge of the latter adjacent the wringer rolls.

Signed this 11th day of May, 1928, in the county of Woodbury and State of Iowa.

FRED V. LA SUER.