

**April 23, 1940.**

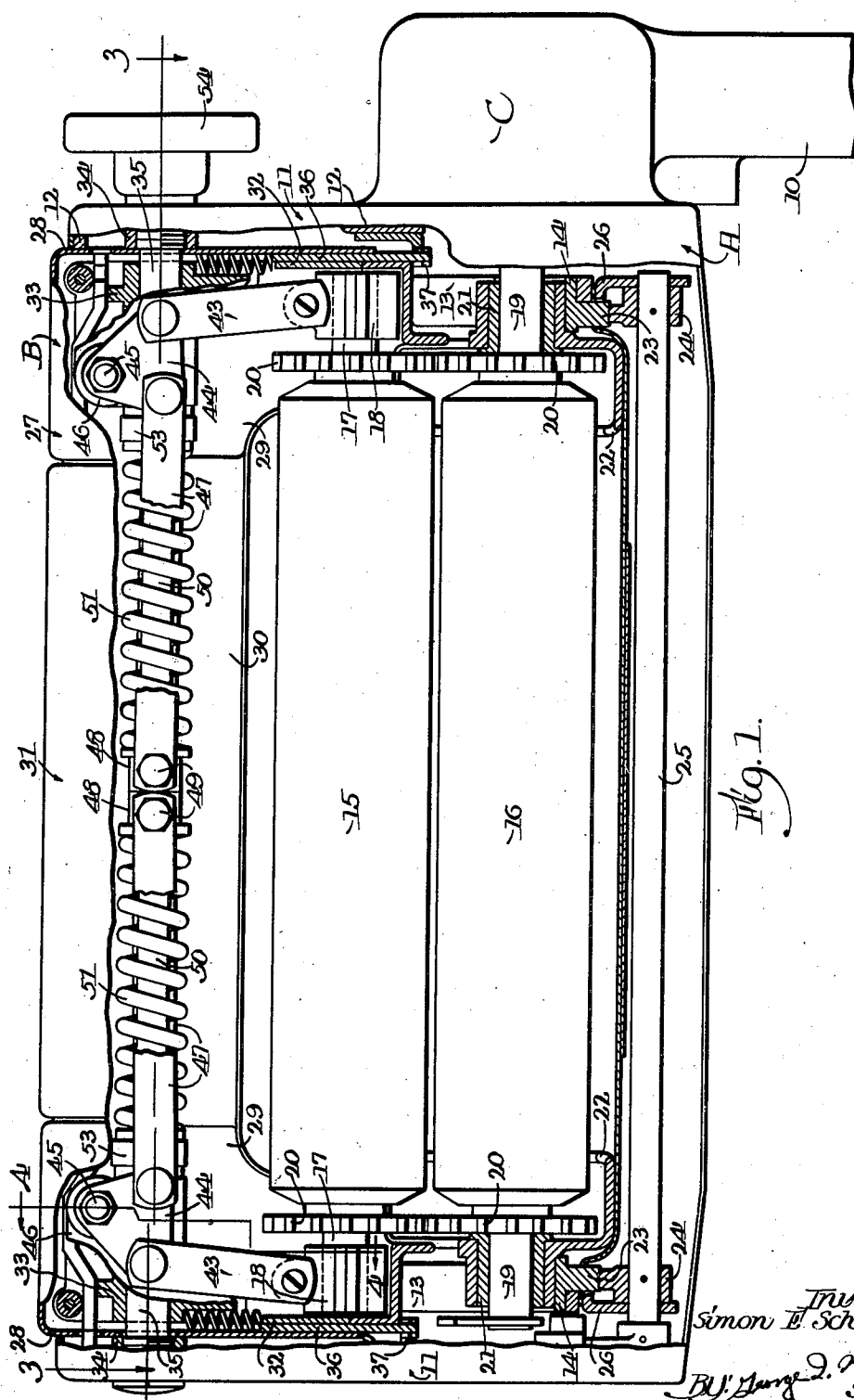
**S. E. SCHROEDER**

**2,198,462**

## CLOTHES WRINGER

Filed Dec. 13, 1935

3 Sheets-Sheet 1



April 23, 1940.

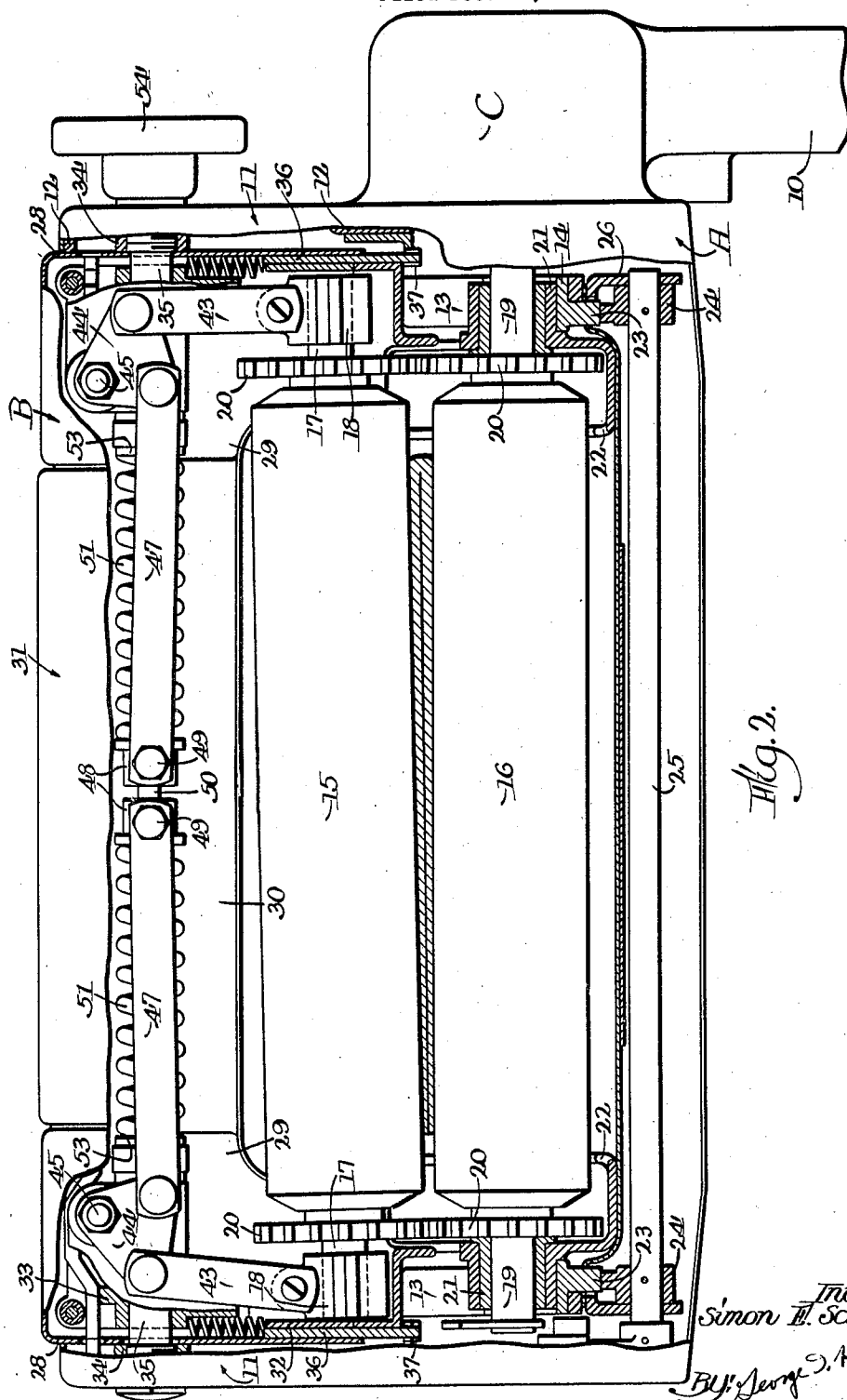
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CLOTHES WRINGER

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3 Sheets-Sheet 2



Inventor:  
Simon E. Schroeder  
By: George S. Haight  
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April 23, 1940.

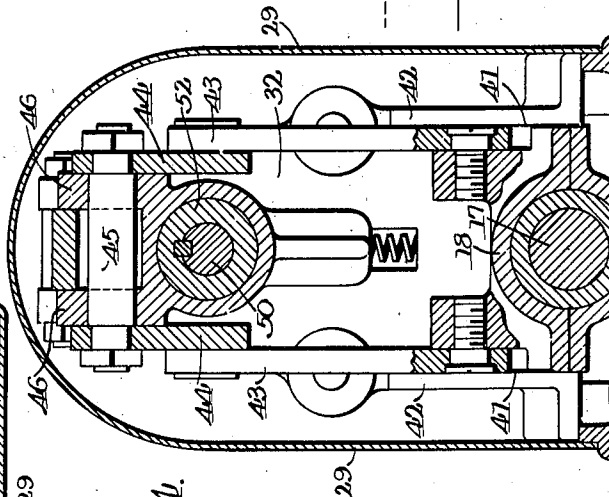
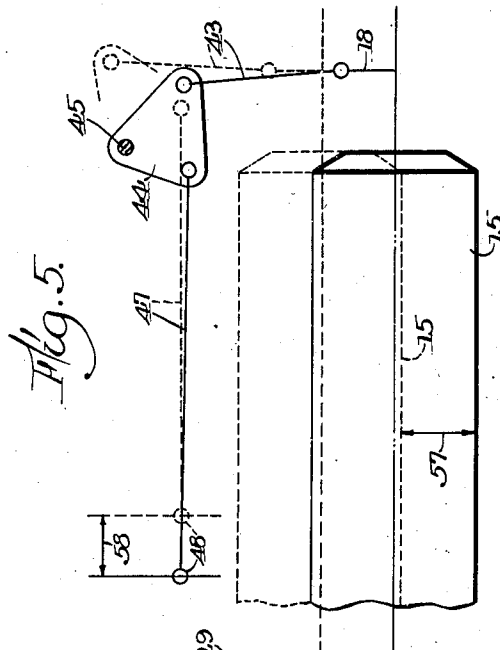
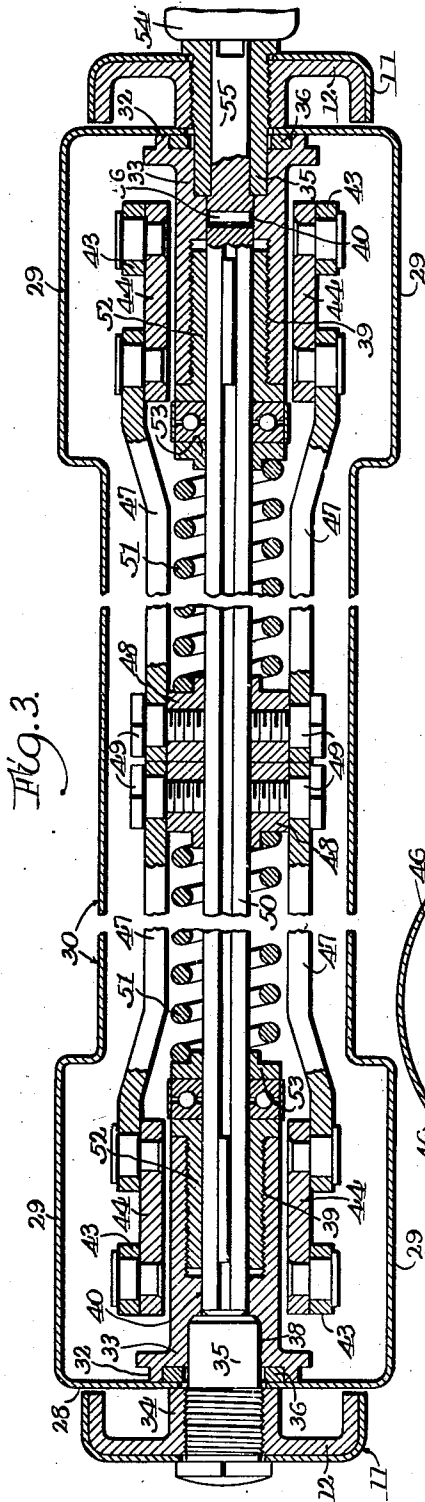
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CLOTHES WRINGER

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3 Sheets-Sheet 3



Inventor:  
Simon E. Schroeder  
By: George D. Haight

## UNITED STATES PATENT OFFICE

2,198,462

## CLOTHES WRINGER

Simon E. Schroeder, Chicago, Ill.

Application December 13, 1935, Serial No. 54,284

10 Claims. (Cl. 68—262)

This invention relates to improvements in power-driven wringers of the roll type.

One object of the invention is to provide in a wringer having cooperating rolls, which are pressed into engagement with the work by spring-pressure means, compensating mechanism whereby the pressure on the work is automatically regulated in accordance with the thickness of the work.

A further object of the invention is to provide in a wringer of the character set forth spring compensating mechanism, wherein said compensating mechanism forms a part of means for transmitting the pressure from the rolls to the spring means.

Still another object of the invention is to provide in a wringer having cooperating rolls and spring-actuated pressure means comprising two independent spring units receiving the pressure from opposite ends of one of said rolls, means for simultaneously adjusting the tension of said independent spring units.

Another object of the invention is to provide in a wringer having cooperating rolls, combined means for yieldingly pressing one of said rolls toward the other and limiting movement of said yieldingly pressed roll outwardly of its supporting means.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawings, forming a part of this specification,

Fig. 1 is a transverse, vertical, sectional view of my improved wringer, certain parts being shown in elevation.

Fig. 2 is a view similar to Fig. 1, showing the parts in a different position.

Fig. 3 is a horizontal, sectional view corresponding substantially to the line 3—3 of Fig. 1, said view being broken to accommodate the same to the sheet of the drawing and certain parts being omitted.

Fig. 4 is a vertical, sectional view corresponding substantially to the line 4—4 of Fig. 1.

Fig. 5 is a diagrammatic view illustrating the operation of certain compensating mechanism for the top roll of the wringer.

In said drawings, A indicates the main frame of the wringer, and B a swinging frame supported on the main frame. The main frame A has a housing C forming a part thereof. The housing C has a depending sleeve portion 10 adapted to telescope over the usual upstanding drive shaft housing or standard of a washing

machine. The housing C contains the gear mechanism for driving the wringer from the associated washing machine. In this connection, it is pointed out that the drive shaft, which is contained in the hollow standard of the washing machine, is operatively connected to the driving elements of the washing machine in a well known manner. This shaft is coupled to the gearing of the wringer, as is common in connection with devices of this kind. The usual manually-operated means is provided for controlling rotation of the drive means for the wringer rolls in reverse directions and for disconnecting the drive means to stop rotation of the rolls of the wringer.

The frame A has upstanding side arms 11—11 at opposite sides thereof, which serve to support the swinging frame B. The side arms 11—11 are lined with filler castings 12—12, which are fixed to said arms. The lower end portion of each filler casting 12 is inwardly offset, as indicated at 13. The offset sections 13—13 of the castings 12—12 have guideways in which supporting slides 14—14 are mounted for vertical movement.

A stop roll 15 is carried by the swinging frame B, and a cooperating bottom roll 16 is carried by the main frame A. These rolls are of the usual type employed in wringers. The roll 15 is provided with a shaft 17, which is fixed thereto and projects from opposite sides of said roll and is rotatably journaled in bearing blocks 18—18, hereinafter more fully described. The bottom roll 16 is provided with a shaft 19, which is fixed thereto and projects from opposite ends of said roll. The rolls 15 and 16 are intergeared to rotate in unison by means of gear members 20—20 and 20—20 fixed to the shafts of said rolls.

The projecting ends of the shaft 19 of the roll 16 are rotatably journaled in sleeves 21—21 of swinging guard members 22—22, which shield the gears 20—20 and 20—20 and serve to properly guide the articles operated upon between the rolls 15 and 16. The sleeves 21—21 of the guard members 22—22 are supported in seats provided in the slides 14—14. The slides 14—14 have depending stems 23—23, which are supported on cam members 24—24 on a rotary cam shaft 25. The shaft 25 is supported in fixed bearing brackets 26—26. The cam members 24—24 serve to raise and lower the slides 14—14 to bring the bottom roll 16 into operative relation with the top roll 15, hold the roll 16 in said position, and to lower said slides to effect separation of said rolls, as shown in Fig. 1.

The means hereinbefore referred to for raising and lowering the bottom roll 16, together with the mounting for said roll, forms subject matter of my copending application, Serial No. 54,283, filed December 13, 1935, now Patent No. 2,114,404, issued April 19, 1938, and is fully and completely disclosed therein, and therefore needs no further detailed description in connection with the present application. The shaft 19 for the bottom roll 16 is operatively connected in any well known manner to the driving gearing in the housing C of the frame A of the wringer, the right-hand end of said shaft (Fig. 1) being coupled to the driving means.

In swinging frame B includes a stamped heavy sheet metal housing 27 having spaced, vertical side walls 28—28 and front and rear walls 29—29 connected by a curved top wall. The central portion of the housing 27 is contracted, as indicated at 30, said contracted portion forming a seat in which a rocking saddle member 31 is supported. To the inner faces of the side walls 28—28 are secured castings 32—32, which have sleeve sections 33—33 formed at the upper ends thereof, the openings of which are in alignment with the openings of sleeve sections 34—34 on the castings 12—12 of the arms 11—11 of the main frame A.

The swinging frame B is pivotally supported on the upstanding arms 11—11 of the main frame A by trunnion members 35—35 fixed to said upstanding arms. The trunnion member 35 at the left of Figs. 1, 2, and 3, is in the form of a headed screw secured within the threaded sleeve portion 34 of the casting 12 of the corresponding arm 11, the bearing portion of said trunnion member being of smaller diameter than the screw-threaded portion thereof and extending into the sleeve section 33 of the casting 32 at the corresponding side of the swinging frame B. The trunnion member 35 at the right of Figs. 1, 2, and 3, is in the form of a cylindrical sleeve having a head at the outer end and a threaded section secured within the sleeve portion 34 of the casting 12 of the corresponding arm 11 of the main frame A. The journal portion proper of this trunnion 35 extends into the sleeve 33 of the casting 32 at the corresponding side of the swinging frame B. The heads of the trunnion members 35—35 are preferably of such a shape as to fit a wrench for manipulating the same.

The swinging frame B is locked in centered position with respect to the frame A to hold the roll 15 in operative relation with the roll 16 during the operation of the wringer, releasable locking means controlled in part by the rocking saddle member 31 being employed for that purpose. The particular type of releasable locking means which I prefer to employ is that disclosed and claimed in my copending application, Serial No. 54,282, filed December 13, 1935, and includes a spring-pressed latch plate 36 on the frame B engageable with a fixed keeper 37 on the frame A, corresponding to the latch plate and keeper disclosed in said copending application and operated in the same manner. In this connection, it is pointed out that although I have herein shown my improvements as embodied in a wringer having a swinging frame which carries one of the rolls, the same are not limited to wringers of this particular type but are equally well adapted for use with wringers of any type having cooperative rolls.

As shown most clearly in Fig. 3, the sleeve-

like section 33 of each casting 32 is of relatively large internal diameter at one end, as indicated at 38, and of relatively smaller internal diameter at the other end, as indicated at 39. The sections 38 and 39 are separated by a wall 40 having a central opening therethrough. The sleeve sections 33—33 at opposite sides of the frame B are reversely arranged with the openings 38—38 at the outer ends thereof, said openings forming bearing seats for the trunnions 35—35, which abut the walls 40—40. The openings 39—39 at the inner ends of the sleeve sections 33—33 are internally threaded.

The top roll 15 is carried within the swinging frame B by means which yieldingly forces this roll against the bottom roll 16, thereby permitting the roll 15 to lift upwardly to accommodate the article being passed between the rolls and yet maintain the proper pressure. The means for carrying the top roll 15 includes the bearing blocks 18—18, hereinbefore referred to, which are slidably guided for vertical movement in guideways 41—41 provided in the castings 32—32 of the swinging frame B. As shown in Fig. 4, each guideway 41 is formed by a pair of spaced, vertical flanges 42—42 on the corresponding casting 32. Each bearing block 18 is of two-piece construction, as shown in Figs. 1, 2, and 4, the sections thereof being secured together in any suitable well known manner. The bearing blocks 18—18 are suspended by pairs of links 43—43 and 43—43, as shown most clearly in Figs. 1, 2, and 4. The links 43—43 of each pair are pivotally connected at their lower ends to the corresponding bearing block 18. At the upper end, the links of each pair are pivotally connected to a pair of triangular lever plates 44—44 at the outer lower corners of said plates. The lever plates 44—44 and 44—44 are arranged in pairs at opposite sides of the mechanism and the plates of each pair are pivotally supported on the frame B. The plates 44—44 of each pair are disposed at opposite sides of the sleeve-like section 33 of the casting 32 at the corresponding side of the frame B and are pivotally supported at their upper ends by a pivot pin 45 mounted in upstanding side wall sections 46—46 on the sleeve section 33. To the inner lower corners of each pair of lever plate members 44—44 are pivoted a pair of links 47—47, which serve to connect the lever plate members 44—44 with a follower 48, to which the opposite ends of these links are pivoted, as indicated at 49. The followers 48—48 are slidably carried on a shaft 50, which extends into the bearing sleeve sections 33—33 of the castings 32—32 at opposite sides of the frame B and, as hereinafter pointed out, is employed to adjust the tension of the springs which yieldingly resist upward movement of the top roll 15. These springs are two in number and are indicated by 51—51. Each spring 51 cooperates with one of the spring followers 48, said spring surrounding the shaft 50 and being interposed between the cooperating follower 48 and adjustable abutment means associated with the bearing sleeve section 33 of the casting 32 at the corresponding side of the swinging frame B. Each adjustable abutment means comprises a sleeve 52 splined to the shaft 50 and in threaded engagement with interior threads of the opening 39 of the sleeve section 33, a follower disc 53 which abuts the spring 51, and a ball bearing element interposed between the follower disc 53 and the outer end of the adjusting sleeve 52. The cooperating threads of the sleeve 52 and the

sleeve section 33 at one side of the mechanism are left-hand, while the cooperating threads of the sleeve 52 and the sleeve section 33 at the opposite side are right-hand. As will be understood, rotation of the shaft 50 will thus effect movement of the adjustable spring abutment means at opposite sides of the mechanism in reverse directions. Rotation of the shaft 50 is effected by means of a hand wheel 54 connected to said shaft by a short shaft 55 fixed to the hand wheel and having the inner end thereof slotted, as indicated at 56, to receive a driving lug on the corresponding end of the shaft 50. As shown in Fig. 3, the shaft 55 is journaled in the opening of the trunnion member 35 at the corresponding side of the frame A. The parts are proportioned so that the spring followers 48—48 normally abut each other, thereby limiting the expansion of the springs 51—51 and also limiting downward displacement of the top roll 15 through the connecting links 47—47 and 43—43 and the lever plate members 44—44. The limit of downward displacement of the roll 15 is such that it will have proper pressure contact with any article interposed between said roll 15 and the roll 16 during the operation of the wringer. When an article is passed between the rolls 15 and 16, the roll 15 is forced upwardly against the resistance of the springs 51—51, the links 43—43 and 47—47, which are pivotally connected to the bearing blocks 18—18, being raised, thereby rocking the lever plate members 44—44 and 44—44 on their pivots 45—45 and effecting outward movement of the links 47—47 and 47—47 and pulling the followers 48—48 outwardly against the springs 51—51, compressing the latter against the adjustable spring abutments of the sleeve sections 33—33 of the castings 32—32 at opposite sides of the frame B.

As shown most clearly in Figs. 1, 2, and 5, each lever plate member 44 has, in effect, a short arm and a longer arm extending from the pivot 45 thereof, the short arm extending from the pivot 45 to the pivot of the link 47, and the long arm extending from said pivot 45 to the pivot of the link 43. The effect of the arrangement of the long and short arms of the lever plate is such as to reduce the motion transmitted from the roll 15 to the spring follower 48 and the spring 51 of the corresponding means for yieldingly opposing upward movement of said roll. The spring 51 is thus compressed through a distance which is less than the distance of upward displacement of the roll 15, as clearly indicated in Fig. 5, in which 57 indicates the amount of upward displacement of the roll 15 and 58 indicates the distance through which spring 51 is compressed. It is further pointed out that there is an additional differential movement of the bearing block 18 and the follower 48 due to the arrangement of the pivotal connections of the lever plate 44 with the links 43 and 47 and the positions of the links 43 and 47 with respect to the pivot 45. As will be evident, the connections between the roll 15 and the springs 51—51 thus form compensating mechanism to permit different thicknesses of material to be passed between the rolls without too great a variation in the amount of pressure exerted thereon. The compensating mechanism further provides for proper distribution of the pressure on an article of varying thickness. For example, as shown in Fig. 2, the top roll 15 is thus readily tiltable to properly accommodate an article which is of greater thickness at one end

than at the other and properly distribute the pressure over said article.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a wringer, the combination with a frame, a pair of cooperating rolls mounted in said frame for relative separating movement; of a carrier at each end of one of said rolls rotatably supporting said roll; independent means yieldingly opposing movement of each carrier, each independent means including a spring resistance element, a cooperating spring abutment, and motion-reduction transmitting mechanism for transmitting pressure from the carrier to the spring resistance element to compress the same against said abutment; and means for simultaneously adjusting said abutments to adjust the tension of said spring elements.

2. In a wringer, the combination with a frame, a pair of rolls mounted in said frame for relative separating movement; of a carrier member at each end of one of said rolls for rotatably supporting said roll; a pair of springs; followers interposed between said springs and normally in abutment with each other to limit expansion of said springs; and means for transmitting pressure from said carrier members to said followers respectively.

3. In a wringer, the combination with a frame, a pair of rolls mounted in said frame for relative separating movement; of means yieldingly opposing displacement of one of said rolls including carrier means at opposite ends of said roll for rotatably supporting the same, a pair of independently acting springs, followers at opposite ends of each spring, one follower of each spring being adjustable, means for transmitting pressure from one of said carrier means to the remaining follower of one of said springs, and means for transmitting pressure from the other of said carrier means to the remaining follower of the other spring; and means for simultaneously adjusting said adjustable followers to change the tension of said springs.

4. In a wringer, the combination with a frame, a pair of rolls mounted in said frame for relative separating movement; of a support; right and left threaded adjustable abutment sleeves having threaded engagement with said support at opposite sides thereof; a rotatable adjusting shaft extending through said sleeves, said sleeves being slidably connected to said shaft and rotatable therewith; tandem-arranged spring elements surrounding said shaft and having their outer ends bearing on said sleeves; an inner spring follower at the inner end of each spring element, said inner spring followers abutting each other to limit expansion of said tandem spring elements; a carrier at each end of one of said rolls for rotatably supporting the same; means operatively connecting one of said carriers to the inner spring follower of the spring element at the corresponding side of the support; and means operatively connecting the other of said carriers to the inner spring follower of the other spring element.

5. In a wringer, the combination with a frame, a pair of cooperating rolls mounted in said frame for relative separating movement; of means for yieldingly forcing one of said rolls toward the

other including a support at each end of said roll, in which said roll is rotatably mounted, a pair of springs, and mechanism for transmitting pressure from said supports respectively to said springs, said pressure-transmitting mechanism having interengaging parts for restricting movement thereof to limit movement of said yieldingly forced roll toward said other roll.

6. In a wringer, the combination with a frame, a pair of cooperating rolls mounted in said frame for relative separating movement; of a carrier member at each end of one of said rolls for rotatably supporting said roll; a pair of springs; followers interposed between said springs and normally in abutment with each other to limit expansion of said springs; and separate means connected to the respective followers for transmitting motion from the carrier members for compressing the respective springs.

7. In a wringer, the combination with a frame having a pair of cooperating rolls supported therein for relative separating movement; of a carrier member at each end of one of said rolls rotatably supporting said roll; and means yieldably opposing displacement of said carrier members, each of said means including a spring resistance element, a fixed and a relatively movable abutment between which said spring resistance element is interposed, pivoted lever means having a pair of arms, means for suspending the associated carrier member from one of said arms, and means connecting the other arm and the movable abutment for pulling the movable abutment toward the fixed abutment to compress said spring resistance element.

8. In a wringer, the combination with a frame having a pair of cooperating rolls mounted therein, shiftable bearing means supporting one of said rolls for movement into and out of cooperative relation with the other of said rolls, and an assembly for yieldably resisting the movement of

each shiftable bearing means in a separating direction including fixed and movable abutments having spring means compressed therebetween under a predetermined minimum tension, and means for pulling the yieldable abutment toward the fixed abutment as the associated bearing means moves in a roll separating direction.

9. In a wringer, the combination with a frame, a pair of cooperating top and bottom rolls movably mounted in said frame; of a vertically guided carrier member at each end of said top roll rotatably supporting said roll; and independent means yieldingly opposing displacement of each carrier member including a spring resistance element, pivoted lever means having a short arm and a long arm, a link on which said carrier member is suspended, said link being pivotally hung on said long arm, and a second link pivotally connected to the short arm and to the remote end of said spring resistance element for transmitting pressure to said spring resistance element.

10. In a wringer, the combination with a frame, top and bottom rolls supported by said frame for relative separating movement from a contiguous position; a vertically slidable carrier member at each end of said top roll in which the same is rotatably journaled; independent means for yielding opposing displacement of each carrier member including a spring resistance element, lever means pivoted on said frame and having a pair of arms, link means suspending said carrier member from one arm of said lever means, and means connected to the other arm of the lever means for transmitting pressure to said spring resistance element to compress the same; and fixed abutment means against which said spring is compressible, said fixed abutment means being adjustable to vary the spring tension.

SIMON E. SCHROEDER.

CERTIFICATE OF CORRECTION.

Patent No. 2,198,462.

April 23, 1940.

SIMON E. SCHROEDER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 26, for the word "stop" read --top--; page 2, first column, line 15, for "In" read --The--; page 4, second column, line 29, claim 10, for "yielding" read --yieldingly--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 6th day of August, A. D. 1940.

(Seal)

Henry Van Arsdale,  
Acting Commissioner of Patents.