Sept. 12, 1944. A. SCHELLENBERG 2,358,256

RINSE WRINGER

Filed Dec. 2, 1940 5 Sheets-Sheet 1

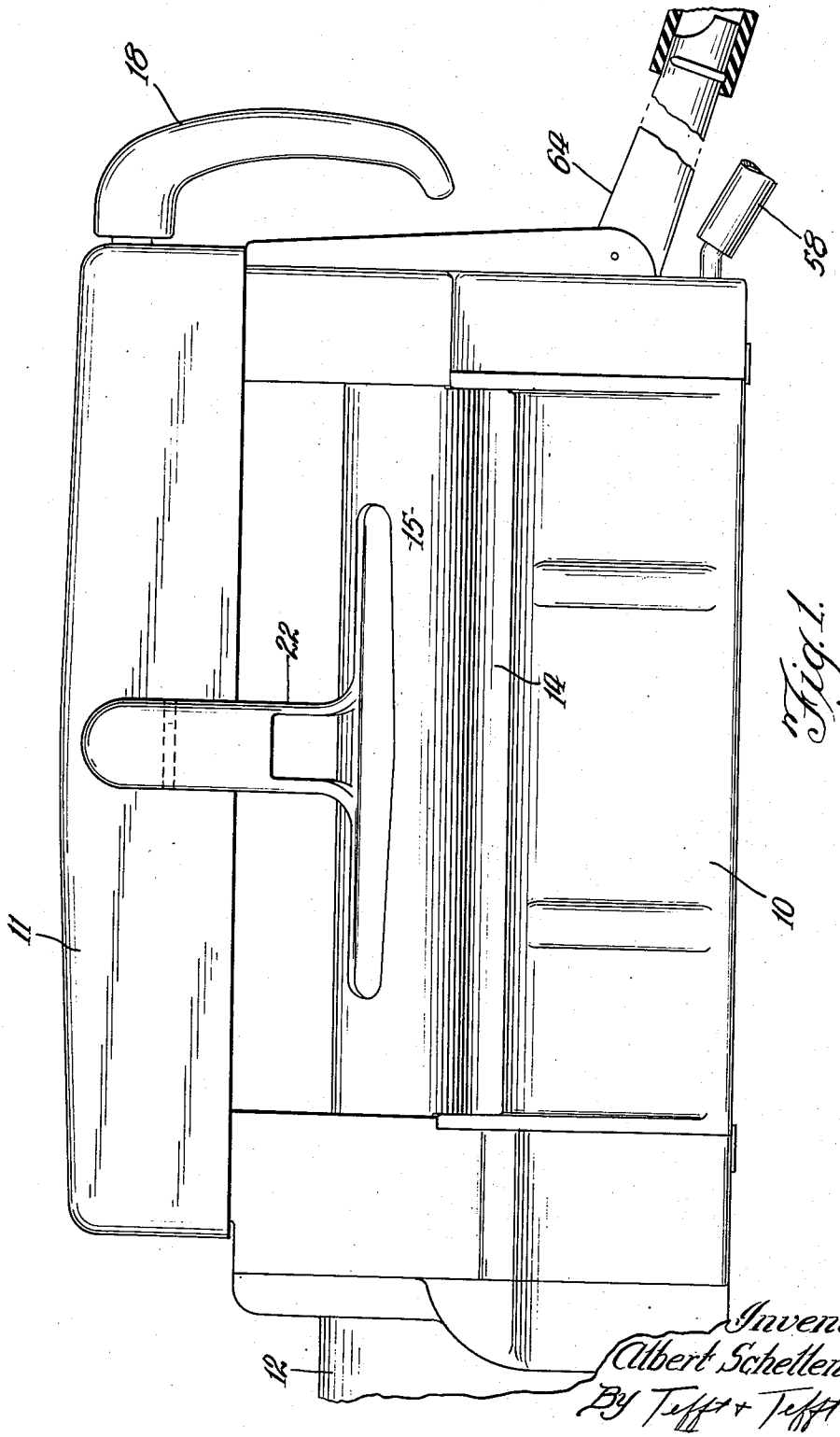


Fig. 1.

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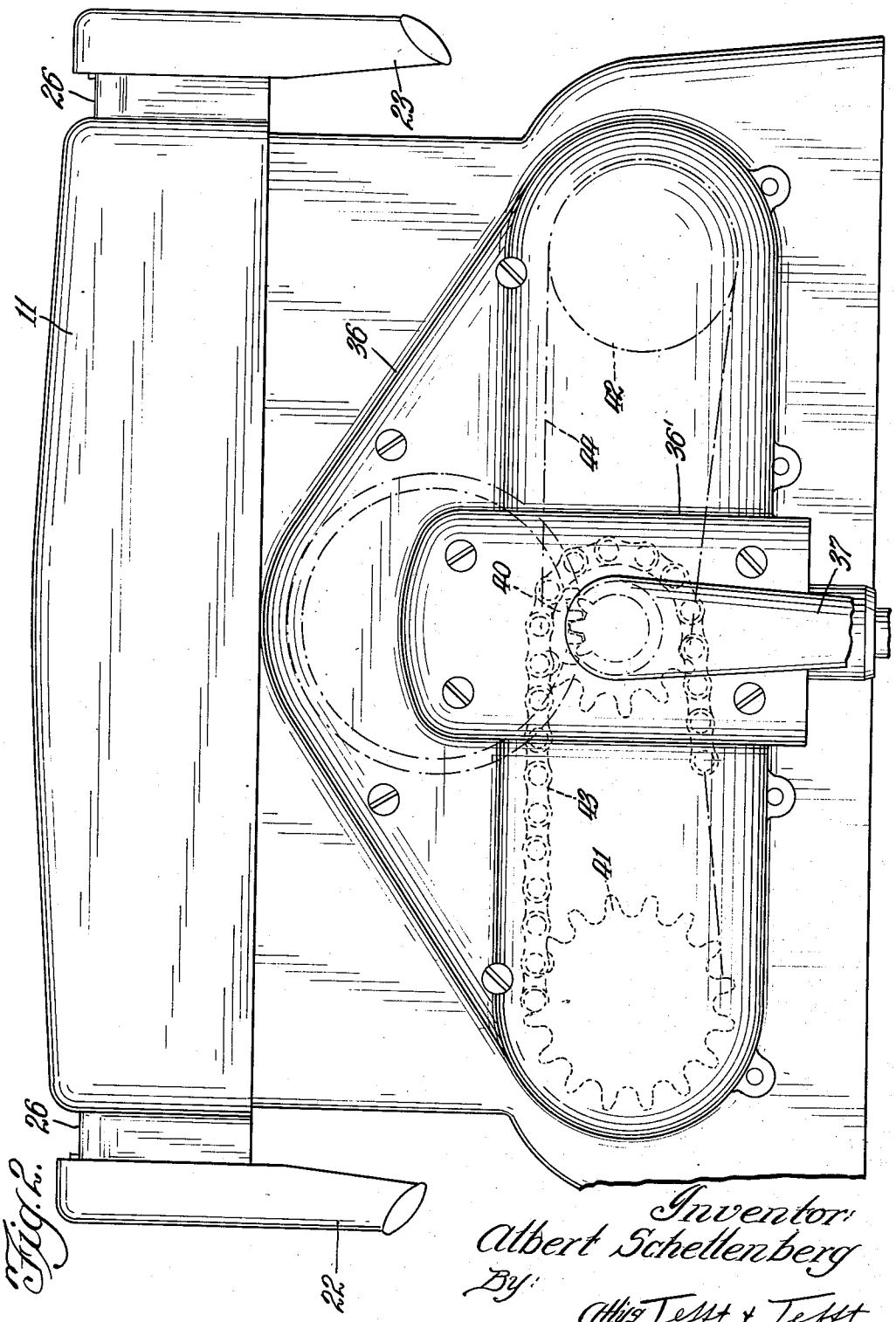


Fig. 2.

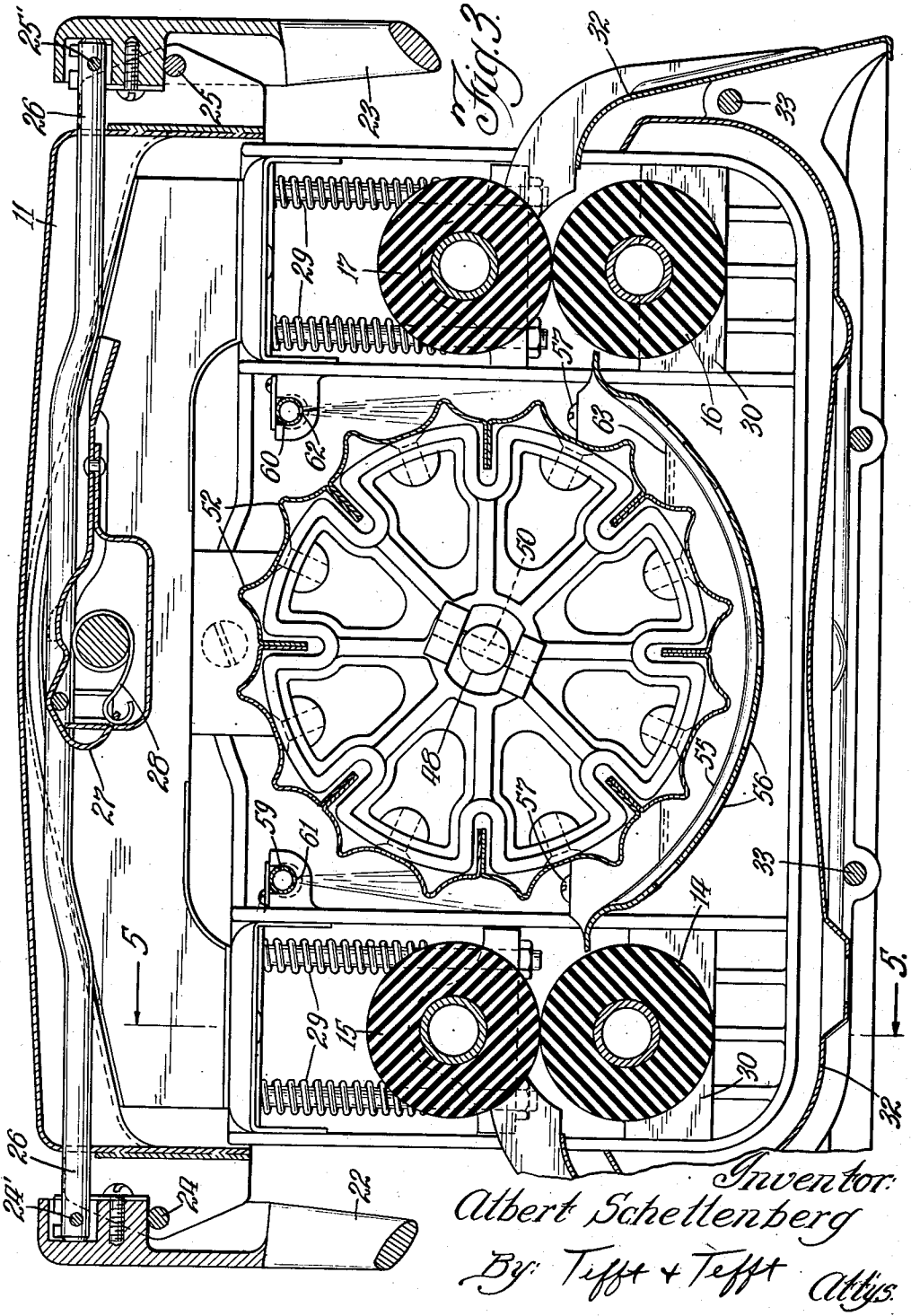
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Fig. 3.



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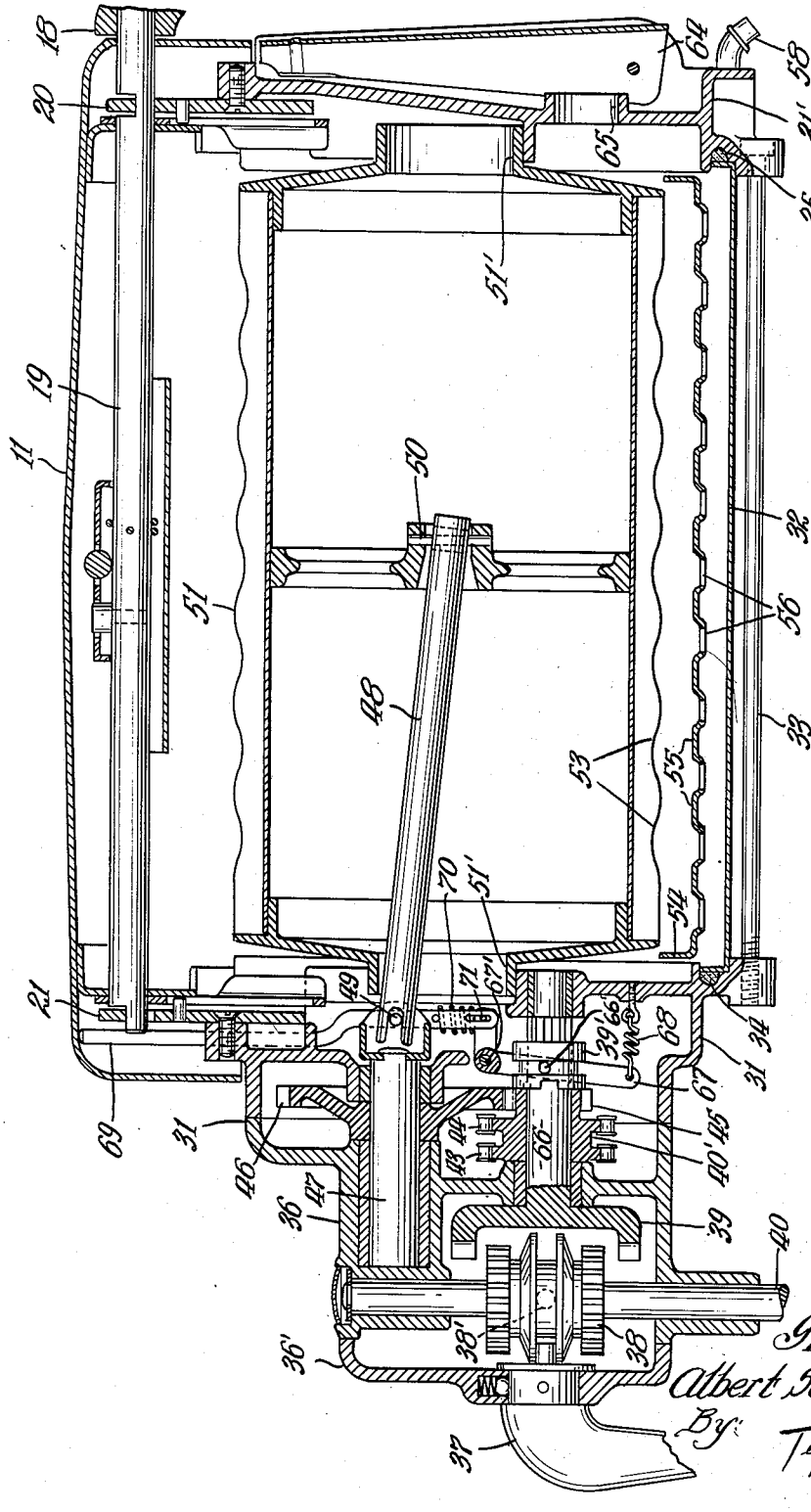


Fig. 4.

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RINSE WRINGER

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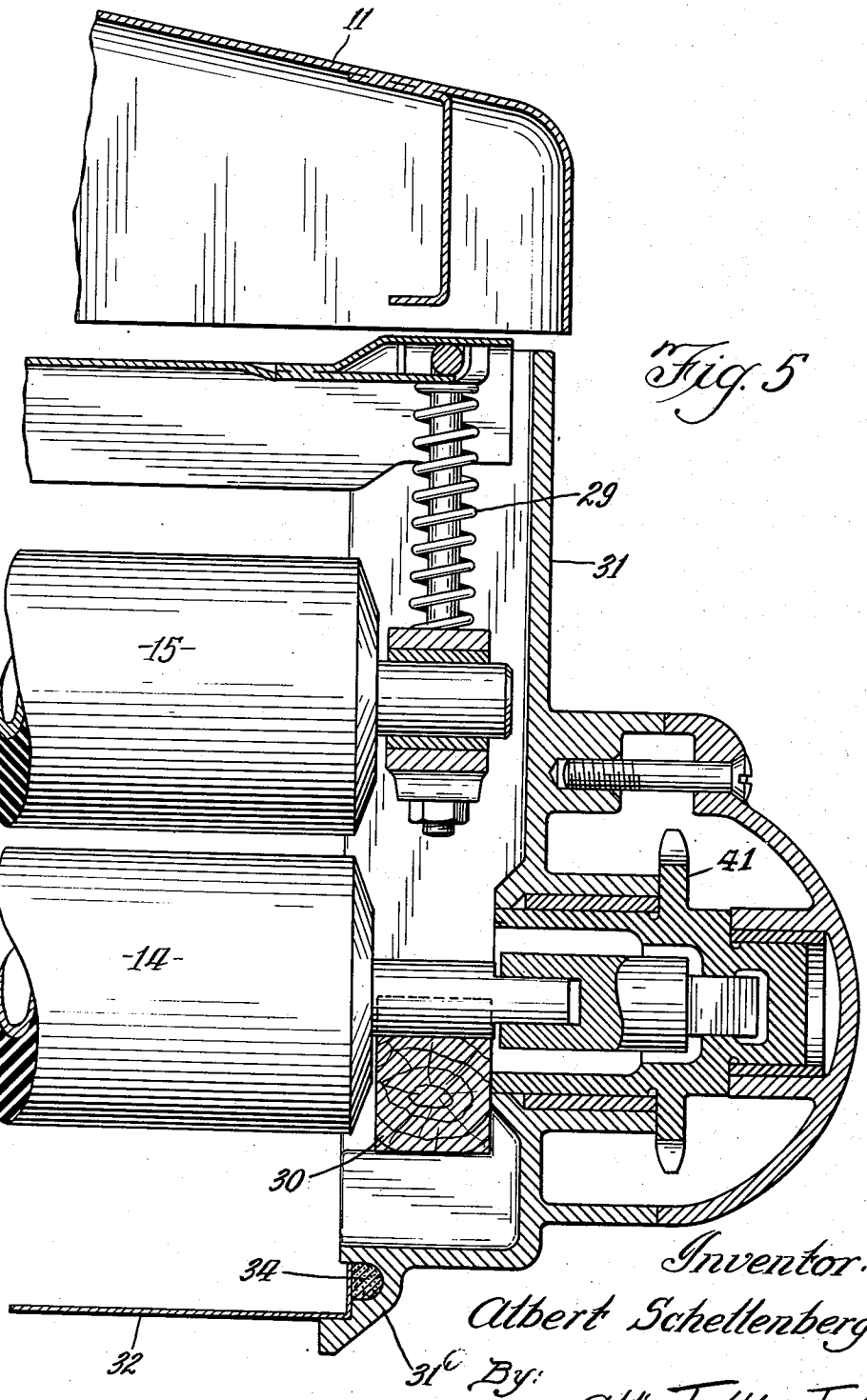


Fig. 5

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UNITED STATES PATENT OFFICE

2,358,256

RINSE WRINGER

Albert Schellenberg, Joliet, Ill.

Application December 2, 1940, Serial No. 368,159

12 Claims. (Cl. 68—22)

This invention relates to domestic clothes wringers and is an improvement on my copending applications Serial No. 297,520, now Patent No. 2,223,858, and Serial No. 308,781, now Patent No. 2,223,860, both granted December 3, 1940.

The present invention involves novel structural improvements giving new and improved results and represents a preferred embodiment of my invention.

The particular object of the invention is to provide a low cost, flexible rinse wringer mechanism which will be effective to thoroughly manipulate the clothes to remove soap and soil regardless of the size or character of the fabric of the garments.

Other objects and benefits will be disclosed in the following descriptions and drawings, in which

Fig. 1 is a broken front elevation view.

Fig. 2 is a broken side elevation view.

Fig. 3 is a broken sectional longitudinal view on the center line of the wringer.

Fig. 4 is a transverse sectional view on the center line of the wringer.

Fig. 5 is an enlarged broken sectional view on the sectional lines 5—5 of Fig. 3.

Now referring to the drawings, and at the outset particularly to Figs. 1, 2, and 3, I designate the general lower frame by the numeral 10, the upper frame 11 being mounted on the lower frame in a conventional manner, and the entire wringer actuated by conventional gearing in a case 12. Mounted in the ends of the wringer are two pairs of pressure rolls 14—15 and 16—17. The upper rolls 15 and 17 are carried by the upper frame in a conventional manner and the entire upper frame with the upper rolls is set in pressure relationship with the lower rolls by means of the reset handle 18, and a notched cam shaft 19 coacting with the cam lock members 20 and 21 as best shown in Fig. 4. This pressure reset mechanism is completely described in application, Serial No. 2,993, filed January 23, 1935, now Patent No. 2,229,269, January 21, 1941, and details of its operation may be had by referring to this application and patent.

The top frame is released from pressure relationship with the lower frame permitting the rolls to separate by means of a release mechanism shown and described in application, Serial No. 2,993, now Patent No. 2,229,269. The release handles 22 and 23, as best shown in Fig. 3, are connected with a cross release bar 26 by means of pins 24 and 24' and 25 and 25', respectively. By either pushing or pulling on the handles 22 and 23, the release bar 26 is actuated lengthwise and through a release mechanism 27 coacting with torsion spring 28, the cam bar 19 is rotated out of pressure sustaining relationship with the members 20 and 21, and thereby the upper frame and upper rolls are released for upward movement, and, in fact, the entire upper frame with the upper rolls may be removed from the lower frame. This release mechanism is fully described in patent application, Serial No. 2,993, filed January 23, 1935, and the details of its operation may be had by reference to this Patent No. 2,229,269. Inasmuch as the details of the release mechanism have no pertinency to the present case, it will not be further described.

The upper rolls 15 and 17 are mounted on the upper frame 11 by conventional U-bolt spring mechanism generally designated by the numeral 29. The lower rolls 14 and 16 are supported in the lower frame 10 in conventional bearings 30, the mounting of which will be well understood by reference to the drawings, and as well shown in Fig. 3.

Now referring to Fig. 4, the lower frame is composed of two end plates 31 and 31' gripping the drain board member 32 in sealed engagement with the lower frame by means of cross bolts 33 and gasket members 34 and 35 interposed respectively between the end plates 31 and 31' and the drain board member 32. Thus, when the whole is drawn tightly together by means of the bolts 33, a tight basin-like lower member is constructed. Mounted on the inner plate 31 are housing members 36 and 36', enclosing a conventional reversible gear head mechanism, as well illustrated in Fig. 4, and the chain drive mechanism to the separated pairs of rolls. The gear head mechanism is controlled by the eccentric handle 37 connected to the slidable pinion clutch 38 which drives a conventional face gear 39 and through a slidable clutch member 39' splined to the stub shaft of the face gear 39. The gear 39 drives the dual sprocket member 40, which in turn drives the lower rolls 14 and 16 by sprockets 41 and 42 through the drive chains 43 and 44 as well illustrated in Fig. 2.

From the above explanation it will be well understood that I am able to drive the pairs of rolls 14—15 and 16—17 in either direction by means of the conventional reversible gear mechanism in the head 12, and the chain and sprocket members as described. The clutch 39', of course, will disengage the drive and its function will later be described in detail.

Now referring to Fig. 4, integral with the drive member 40 is a spur pinion 45, operatively asso-

ciated with the gear 46, fixably attached to the shaft 47. Flexibly connected to the shaft 47 is a fluted impeller wheel 51 being driven by the drive shaft 48 flexibly connected with said shaft 47 and wheel 51 through the pins 49 and 50, as well illustrated in Fig. 4. The fluted impeller wheel is supported on trunnions 51' in its lowermost position but it will be appreciated that by the flexible connection it is permitted to raise either horizontally or angularly upward by means of the flexible connections as described.

By referring to Figs. 3 and 4 it will be noted that the impeller wheel is formed of fluted sections 52 which are also scalloped longitudinally as shown by numeral 53 in Fig. 4. Mounted under the impeller wheel 51 is a rub plate 54 supported on the drain board member 32 by cap screws 57, as well illustrated in Fig. 3. The rub board 54 has longitudinal ribs 55 and in the depressions between the ribs 55, has perforations 56 to permit free passage of water as will later be explained. It will be appreciated that by this structure, clothes moving across the rub board 54 will be generally supported by the ribs 55 and will not come into contact with the holes 56.

In the lower righthand corner of my wringer, as shown in Figs. 1 and 4, is a water inlet connection 58. Connected with this inlet is a pipe system to an "on and off" valve, (not shown but well illustrated and described in my application No. 297,520, filed October 2, 1939, now Patent No. 2,223,858). This valve is actuated by a slidable pin 38' in the clutch member 38, and by this means the water is shut "off" when in neutral position and "on" when in driving position. Transverse spray pipes 59 and 60, as shown in Fig. 3, are connected to the "on and off" valve, and when the valve is in "on" position water is sprayed through multiple jets 61 and 62 crosswise of the wringer and adjacent the pairs of rolls 14—15 and 16—17. The water thus introduced into the tight chamber of the lower frame 10 fills up to the water level line 63 and is permitted at that point to overflow through the tilting outlet connection 64 by means of the overflow opening 65, as well illustrated in Figs. 4 and 1.

By this arrangement it will be understood that rinse water is sprayed crosswise of the wringer over clothes as they pass through the rinse basin and water is maintained in a rinse chamber at the water level 63, which water is continuously replaced by fresh water by means of the overflow arrangement 64 and 65, as described.

Now again referring to Fig. 4, and the slidable clutch member 39', splined to the shaft of the face gear 39, I show a yoked bell crank 67 operatively associated with the clutch member 39' by the yoke pins 66'. The bell crank is pinned to the cross end frame 31 by the pivot pin 67' and the short end of the bell crank is forced into driving position by means of the spring 70 urged downward by the extension 69 from the top frame 11 when in coacting pressure relationship with the lower frame. The member 69 is connected with the yoked bell crank 67 by the pin and slot arrangement 71, as shown. At the lower end of the bell crank 67 is attached a strong tension spring 68, effectively urging the clutch member 39' inwardly on the splines of the shaft 66, and disengaging the clutch from the sprocket member 40. It will be appreciated that by this construction, when the top frame is released and moves upward, the tension spring 68, through the bell crank 67 disengages the clutch 39' and stops rotation of the rolls 14 and 16, as well as the impeller wheel 51.

In explaining my invention, I desire to point out that by varying the diameters of the sprocket wheels and the gear drive to the impeller wheel 51, I have arranged that the impeller wheel have approximately the same peripheral speed as the speed of the rolls. This means that when clothes are fed into the rinse basin they are carried along by the fluted surface of the impeller wheel at the same speed that they are fed into the rinse basin. The corrugated and fluted surface of the impeller wheel forces the clothes under the rinse water and subjects them to stepped pressure of the wheel on the rub board 55. At the same time, rinse water is being continuously discharged over the surface and this combination action results in very effective rinsing. As a matter of fact, I am able to attain better results in one pass through my rinse wringer than is normally attained by two conventional hand rinses.

I also desire to point out that the flexible impeller wheel permits all sizes and kinds of garments to pass through without difficulty, even when the clothes are fed unevenly across the wringer. Experience has proven that the surface of the rub board 54, particularly the upper contact surfaces of the ribs 55, must be very smooth or there is a tendency to roll and ball the clothing. For this reason, I prefer to make the rub board of steel covered with vitreous enamel which stays permanently smooth. However, the same results might be accomplished with electro-plated metal rub boards, or with synthetic compositions, such as Bakelite. The important feature that I teach is that the rub board must be permanently smooth. If maintained in perfectly smooth condition, no difficulty results in feeding the clothes through the rinse basin and out the discharge end of the wringer.

Having thus explained my invention, I claim as new:

1. In a rinse wringer, an elongated lower frame, a co-extensive upper frame relatively movable with respect to the lower frame, a pair of spring urged coacting resilient pressure rolls mounted transversely in each end of said frames, drive means to rotate the rolls continuously in one direction to move garments through the wringer, a rinse basin between the pairs of rolls, rinsing means including a corrugated impeller roller flexibly mounted in the rinse basin for tiltable, upward movement, a smooth rub board co-acting with the impeller roller and bridging the rinse basin between the pairs of rolls, and a unitary manual roll pressure setting and release means to draw the frames together with the rolls in co-acting pressure relationship or to release the frames and roll pressure.

2. In a rinse wringer, a rinsing chamber, a pair of power driven intake wringer rolls to feed garments into the rinsing chamber, a pair of power driven discharge wringer rolls to convey garments out of said chamber, spray rinse means adjacent to the inner sides of said pairs of rolls, and a co-acting impeller roller and rub board in said rinse chamber to power rinse garments and convey them through the rinse chamber between said pairs of wringer rolls.

3. In a rinse wringer, a frame, multiple pairs of co-acting resilient pressure rolls spaced apart from each other mounted transversely in the frame, drive means to rotate the rolls to move garments through the wringer, rinsing means

between the spaced pairs of rolls, said rinsing means including a tiltable impeller roller and co-acting rub board to squeeze and flex the garments while urging the garments through the next succeeding pair of rolls, and a coacting manual roll pressure and safety release means to force the rolls into pressure relationship or to release all roll pressure.

4. In a rinse wringer, a rinse water basin, a frame, multiple pairs of co-acting resilient pressure rolls spaced apart from each other and mounted transversely in the frame, drive means to rotate the rolls to move garments through the wringer, rinsing means mounted in said water basin in which the clothes are buoyantly supported, said rinsing means including an impeller roller and co-acting rub board to submerge, squeeze and flex the clothes while urging the clothes through the reservoir and into the next succeeding pair of rolls, and a unitary manual roll pressure and safety release means to force all the rolls into pressure relationship or to release all roll pressure.

5. In a rinse wringer, a rinsing chamber, a pair of intake rolls to convey garments into the rinsing chamber, a pair of discharge rolls which convey garments out of the rinsing chamber, an impeller roll to convey garments through the rinsing chamber, power means including a clutch to drive the intake and discharge rolls and the impeller roll, manual pressure and release means to force the rolls into pressure relationship or to release roll pressure, and means responsive to the actuation of the pressure and release means to disengage or engage the power clutch to control the rotation of the pressure and impeller rolls.

6. In a rinse wringer, a rinsing chamber, a pair of intake rolls to convey garments into the rinsing chamber, a pair of discharge rolls to convey garments out of the rinsing chamber, conveyor means to move garments through the rinsing chamber and into the discharge rolls, power means to drive the intake and discharge rolls and the conveyor, manual pressure and release means to force the rolls into pressure relationship or to release roll pressure and means to control the power means to stop rotation of the rolls and conveyor responsive to release of roll pressure.

7. In a rinse wringer, a rinsing chamber, squeeze means to convey garments into the rinsing chamber, squeeze means to convey garments out of the rinsing chamber, an impeller roll to convey garments through the rinsing chamber, power means including a clutch to drive the squeeze conveyor means and the impeller roll, pressure and release means to force the squeeze means into pressure relationship or to release said means, and means responsive to the actuation of the pressure and release means to disengage or engage the power clutch to control the squeeze conveyor means and impeller roll.

8. In a rinse wringer, a rinse chamber, a pair of power driven intake wringer rolls to feed garments into the rinsing chamber, a pair of power driven rolls to convey garments out of said chamber, spray means adjacent to the inner sides of the pairs of rolls, a smooth concave rinse board bridging the rinse chamber between the rolls, and an impeller roller to submerge and convey the garments over the smooth rinse board and through the rinse chamber into the succeeding pair of rolls.

9. In a rinse wringer, a rinse chamber, a pair of power driven intake wringer rolls to feed garments into the rinsing chamber, a pair of power driven rolls to convey garments out of said chamber, spray means adjacent to the inner sides of the pairs of rolls, an impeller roller to submerge and convey the garments through the rinse chamber, said spray means being arranged intermediate the impeller roller, and the respective pairs of rolls in position to spray directly on the garments moving therebetween, and an overflow to maintain the surface level of the rinse chamber and to drain off surplus rinse water.

10. In a rinse wringer having a rinsing chamber, an impeller roll for moving articles through the rinsing chamber, said roll having peripheral ribs thereon and extending longitudinally thereof, each of said ribs having longitudinally spaced notches therein.

11. In a rinse wringer having a rinsing chamber, an impeller roll for moving articles through the rinsing chamber, said roll having peripheral ribs thereon and extending longitudinally thereof, each of said ribs having longitudinally spaced notches therein, and a rub board extending transversely of the rinse chamber beneath the impeller roll and having longitudinal grooves therein coacting with the notched ribs to flex garments moved therebetween.

12. In a rinse wringer having a rinsing chamber, an impeller roll for moving articles through the rinsing chamber, said roll having the periphery thereof circumferentially corrugated, and with said corrugations fluted longitudinally.

ALBERT SCHELLENBERG.