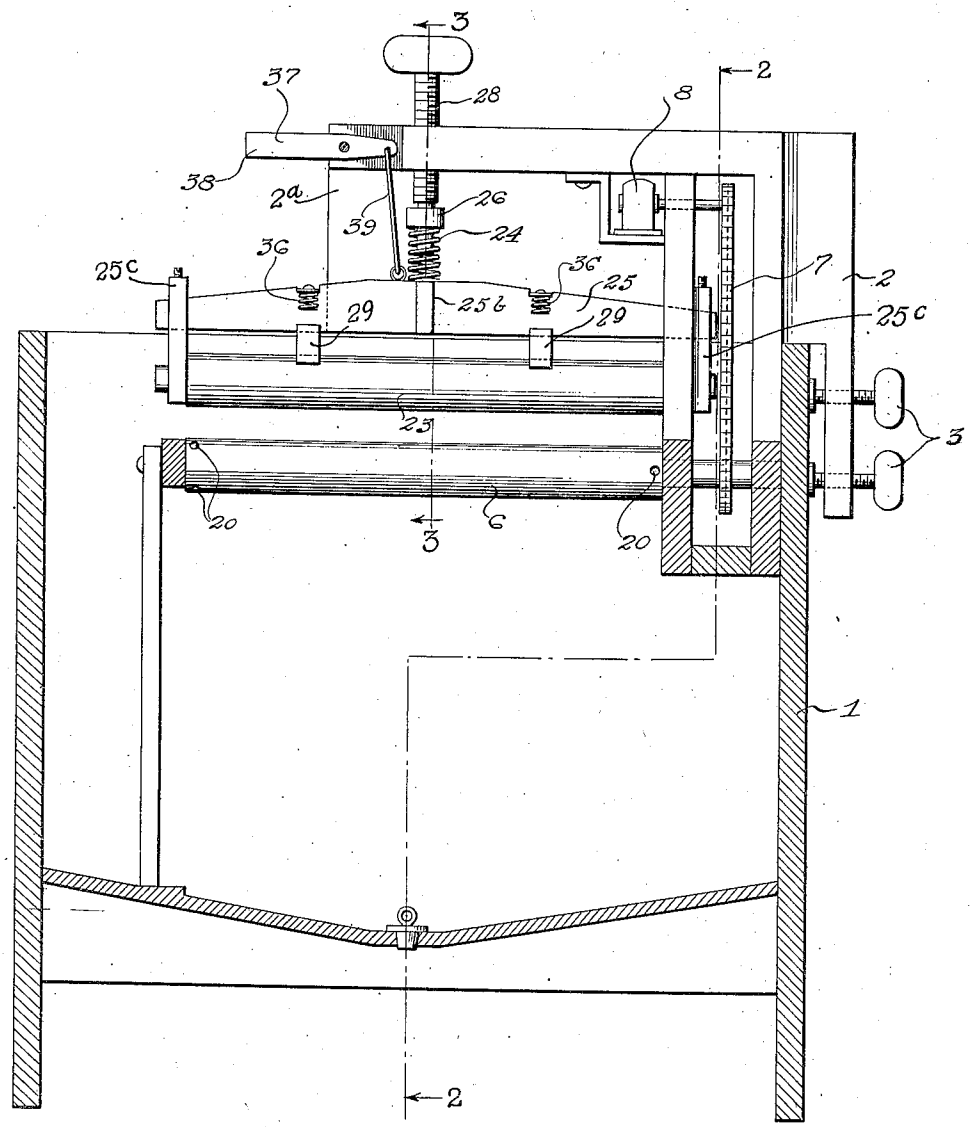
Nov. 23, 1926. 1,608,372

F. DE BORGGRAVE

WASHING MACHINE

Filed Oct. 3, 1921 3 Sheets-Sheet 1

Fig. 1



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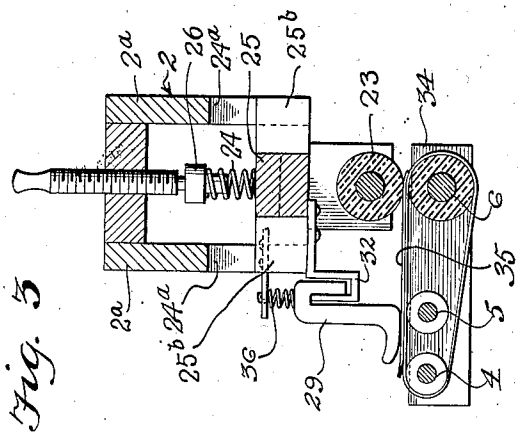


Fig. 3

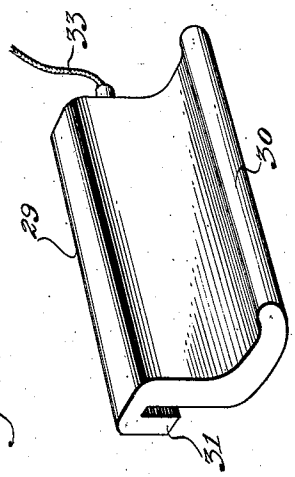


Fig. 4

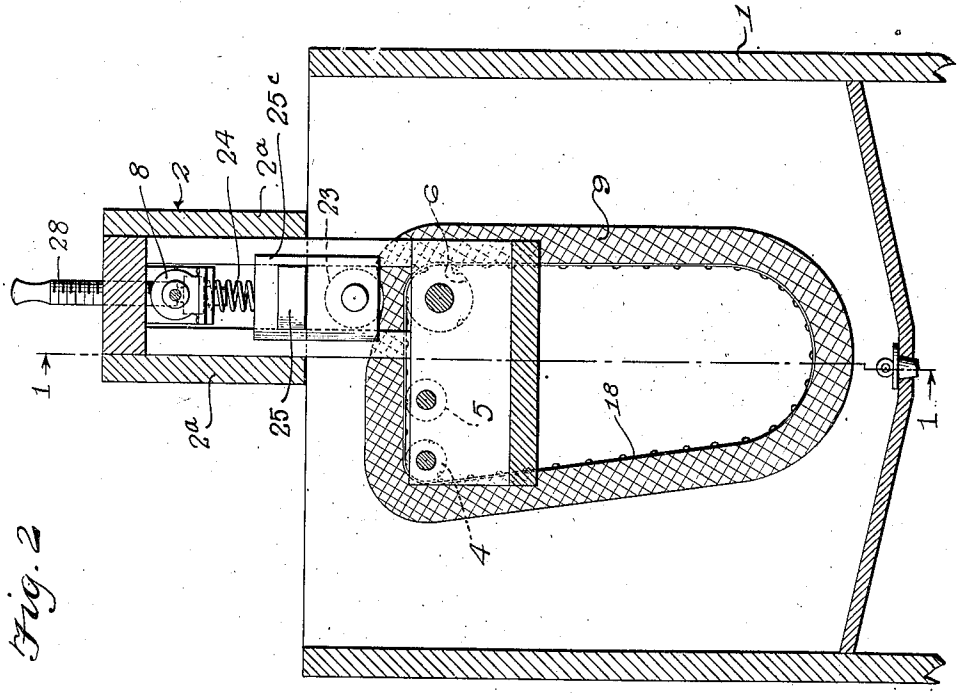


Fig. 2

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WASHING MACHINE

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Fig. 5

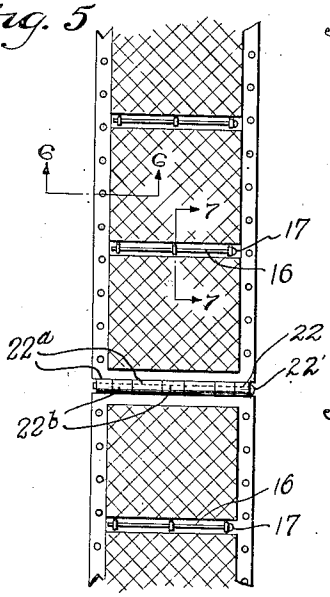


Fig. 6

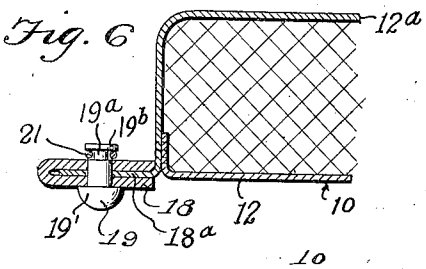


Fig. 8

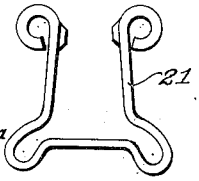


Fig. 7

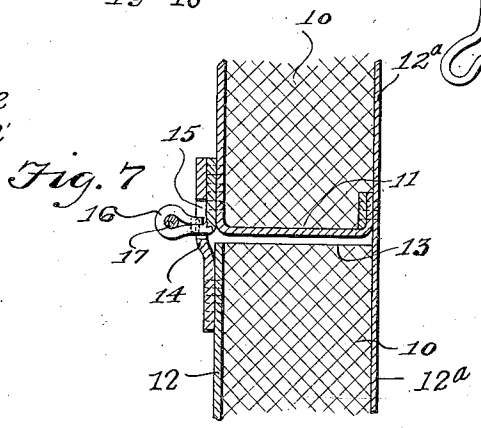


Fig. 9

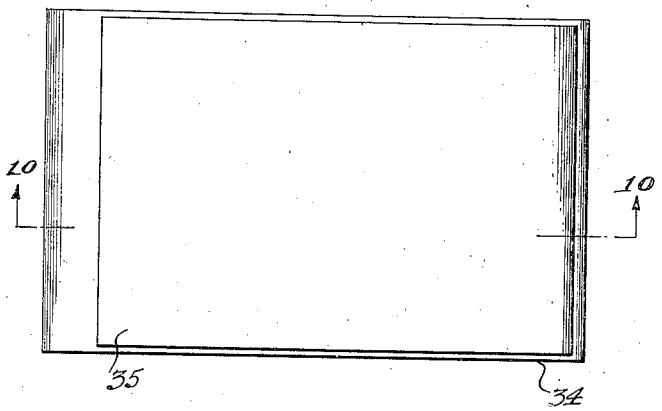


Fig. 11

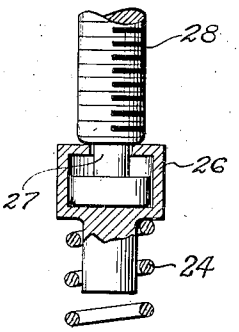
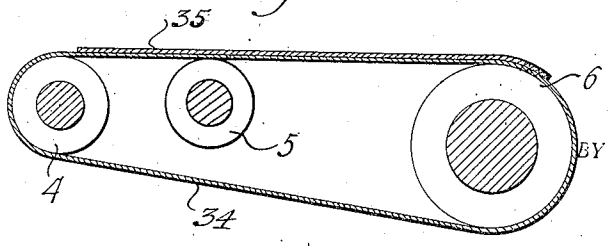


Fig. 10



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Patented Nov. 23, 1926. 1,608,372

UNITED STATES PATENT OFFICE.

FELIX DE BORGGRAVE, OF CHICAGO, ILLINOIS.

WASHING MACHINE.

Application filed October 3, 1921. Serial No. 505,091.

This invention relates to a combination washing, wringing and ironing machine and has for its primary object the combination of mechanism for allowing the washing, wringing and ironing of the clothes in a very efficient, economical manner.

An object of the invention is the novel manner of constructing and supporting the clothes receiver so that the same will be subject to the maximum cleaning action of the water and besides the clothes will further be subject to a squeezing action to assuring the forcing of the dirt from the clothes.

Another object of the invention is to provide ironing means that will very readily cooperate with the other mechanism so as to allow the clothes to be very quickly ironed after the washing and wringing operation.

Besides the above my invention is distinguished in the novel manner of constructing and associating the various parts so as to greatly increase the efficiency of the apparatus as a whole.

With these and other objects in view the invention will be better understood from the following detailed description taken in connection with the accompanying drawings wherein:

Figure 1 is a section taken substantially on line 1—1 of Fig. 2, parts being shown in elevation,

Figure 2 is a section taken substantially on line 2—2 of Fig. 1, parts being shown in elevation,

Figure 3 is a section taken substantially on line 3—3 of Fig. 1, with the iron applied, parts being shown in elevation.

Fig. 4 is a perspective view of the ironer.

Fig. 5 is a detail side elevation of a portion of the clothes receiver.

Figs. 6 and 7 are sectional views on the lines 6—6 and 7—7 of Fig. 5.

Fig. 8 is a plan of the clip.

Fig. 9 is a plan view of the apron.

Fig. 10 is a sectional view through the apron.

Fig. 11 is a detail sectional view of a portion of the feed screw.

Again referring to the drawing illustrating one of the many constructions of my invention the numeral 1 designates any suitable construction of tub. To this tub 1 is detachably connected the frame 2 of my improved apparatus. This frame is clamped in place by the thumb screws 3 and supports a series of feed rollers 4, 5 and 6 the latter performing the driving operation. This roller 6 has a gear connection 7 with the motor 8 supported by the frame. The clothes receiver 9 consists of a series of individual containers 10 formed from netting of a very durable material, and each container consists of a bottom 11, sides 12 and 12^a, and open top 13 which is arranged directly under the bottom of the adjacent container.

For the purpose of connecting the containers together I provide, on each container and adjacent the upper edge of side 12 thereof, a flap 14 that is provided with openings 15 receiving the loops 16 of the adjacent container, and a rod 17 passes through the loops allowing quick connection. As clearly illustrated in Fig. 7, the side walls 12^a of the containers are formed from a continuous strip to which the bottoms 11 are secured by sewing or in any other suitable or preferred manner. The containers are thus secured together permanently at one side and access to the containers for placing articles therein or removing articles from the containers is afforded, by the flaps 14, loops 16, and rods 17 which also provide means for securing the containers together at the other side thereof. Belts 18 are secured to the containers and have arranged therein, at spaced intervals, headed pins 19 which are adapted to have driving engagement with the recesses 20 of the drive roller. Each of the belts 18 is formed of a strip of canvas which is folded about an extension 18^a of wall 11 of the container, as illustrated in Fig. 6, the belt and extension 18^a being secured together by sewing. Each of the pins 19 is provided at the end thereof remote from head 19′ with a reduced neck 19^a which receives a spring clip 21 such as that illustrated in Fig. 8. This clip is confined between the body of the pin and flange 19^b at the outer end of the neck 19^a and effectually prevents displacement of the pin. These pins may be secured to the belt in any suitable manner but for the purpose of illustration I have shown the clips 21 for holding the pins in place. A hinged connection 22 allows the receiver to be readily connected to or disconnected from the rollers. This connection is in the form of interengaging sleeves 22^a and 22^b carried by the end ones of the series of containers, these sleeves when aligned receiving a re-

movable pin 22′ inserted through the sleeves.

As far as I have proceeded it will be seen that the containers can be readily opened to permit articles to be placed in or removed from the containers and in the operation of the rollers the containers will be fed around the rollers so as to be forced through the water in the tub and thereby be subjected to the agitating effect of the water to loosen the dirt and this latter action is greatly facilitated by the arrangement of my improved wringing device now to be described.

The wringer consists of a roller 23 forced into engagement with the clothes receiver by the action of the spring 24 that acts upon the head 25 that supports the roller 23. This head 25 is provided with ribs 25^b slidably engaging slots 24^a in the side walls 2^a of frame 2 thereby substantially holding the head in its movement. The ends of head 25 extend through roller frames 25^c which carry roller 23 so that by adjusting screw 28 the pressure exerted on roller 23 may be varied as desired and as conditions may require. In other words the spring 24 acts in a manner to force the roller 23 towards the roller 6 thereby subjecting the clothes passing between the rollers to a squeezing action. It will also be noted that the spring 24 is arranged between the head and the cup member 26. This cup member has a swivel connection 27 with a feed screw 28 mounted in the frame, thereby enabling the operator to vary the tension of the spring and thereby the pressure of the roller upon the clothes.

The ironing device consists of a specially constructed iron 29 that has a foot portion 30 and provided with a flange 31 engaged by the bracket 32 projecting from the head. It is, of course to be understood that this iron may be heated in various manners but for the purpose of illustration I have illustrated, in a diagrammatic manner, electric wires 33 passing to the iron so as to be utilized; the clothes receiver is removed and the apron 34 is substituted upon the rollers and this apron is provided with a strip 35 so that the edge of the piece to be ironed may be arranged thereunder to facilitate the passage thereof under the foot 30. The iron is yieldably forced towards the apron by the spring 36 thereby accomplishing the best results possible.

To complete the invention I provide a safety device 37 consisting of a pivoted lever 38 and a link 39 connecting the lever to the head 25 so that by depressing the lever the head and its associated parts may be quickly raised.

From the foregoing description taken in connection with the accompanying drawings it will be apparent that I provide a combined machine that will efficiently wash, wring and iron clothes and which will accomplish these results in a most efficient manner.

It is, of course, to be understood that the invention may be constructed in various other manners and the parts associated in different relations and, therefore, I do not desire to be limited in any manner except as set forth in the claims hereunto appended.

Having thus described my invention what I claim is:

1. A washing machine comprising a plurality of sack-like containers formed of netting, means for connecting the top or open end of one container to the bottom of the container next thereto to form a continuous belt-like construction, and means for moving said containers through a detergent solution.

2. A washing machine comprising a plurality of rollers, means for driving one of said rollers, a closed receiver comprising a series of individual sack-like containers formed from netting and having an open end and a closed end, means for connecting the open end of one container to the closed end of the other container to form a continuous structure movable over said rollers, and means for establishing driving connection between the closed receiver and the driving roller.

In testimony whereof I affix my signature.

FELIX DE BORGGRAVE.