Dec. 30, 1924. 1,520,855

F. M. CASE

CLOTHES WRINGER

Filed March 30, 1921

Fig. 1.

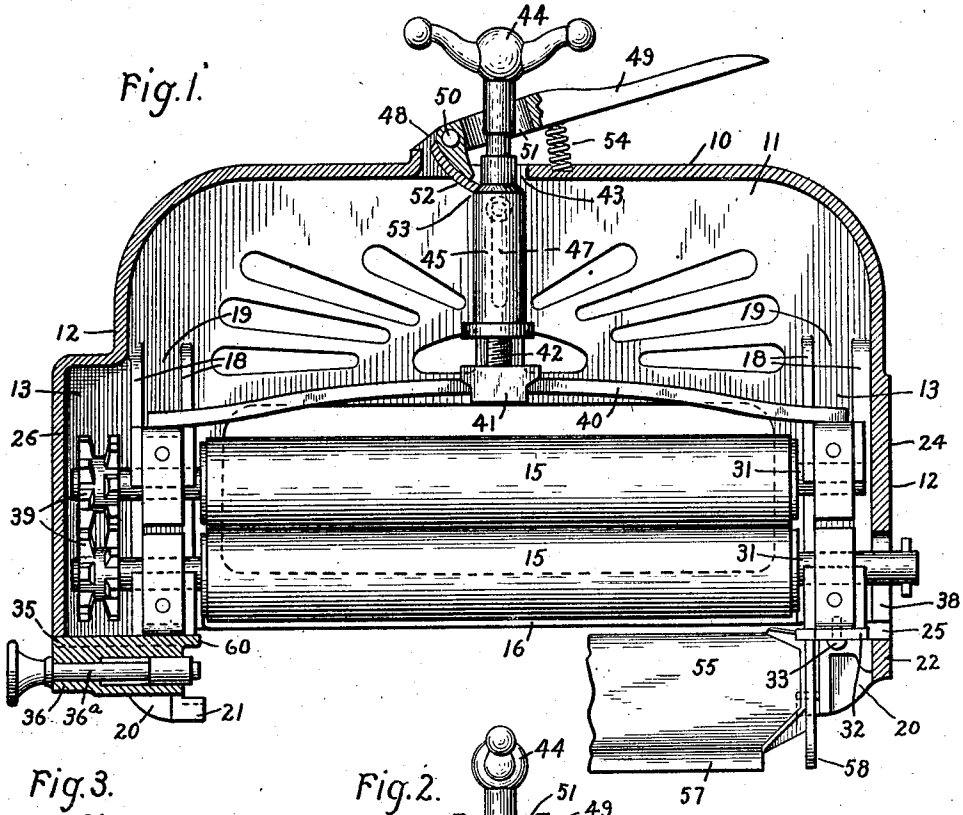


Fig. 3.

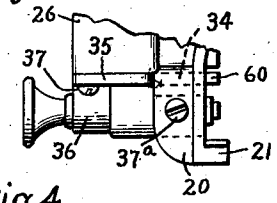


Fig. 4.

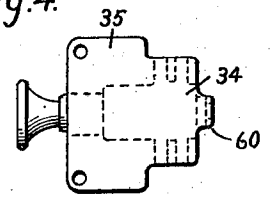


Fig. 2.

Fig. 5

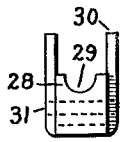


Fig. 6.

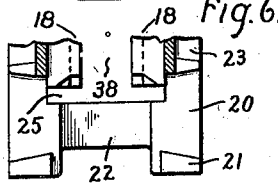
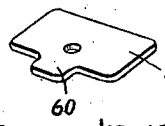


Fig. 7.



Inventor
Francis M. Case
by Alexander Shaudonald
Atty.

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UNITED STATES PATENT OFFICE.

FRANCIS M. CASE, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE FOOTE-BURT COMPANY, A CORPORATION OF OHIO.

CLOTHES WRINGER.

Application filed March 30, 1921. Serial No. 456,981.

To all whom it may concern:

Be it known that I, FRANCIS M. CASE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Clothes Wringers, of which the following is a specification.

The present invention relates to clothes wringers for squeezing liquid from cloth, and has for its object to provide an improved wringer which is simple in structure and arrangement, comprises few parts, can be easily assembled and dismantled, and can be manufactured at a low cost; a further object is to provide a very simple quick release for the wringer rolls whereby the tension on the rolls can be relieved instantly.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the drawing, Fig. 1 is a longitudinal sectional view of a wringer embodying my invention; Fig. 2 is a transverse sectional view thereof; and Figs. 3 to 7, inclusive, are views showing details of structure.

Referring to the drawing, the frame of the wringer comprises a single casting which may be of aluminum, for example, so as to be of light weight. The frame comprises a channel shaped top member made up of a top wall 10 and two side walls 11, and channel shaped end members made up of end walls 12 and side walls 13. The walls of the top and side members merge into each other so that the frame may be considered as comprising in substance a continuous channel shaped member bent into U-form, the legs of the U being open at the bottom. Side walls 11 may be of any suitable depth, preferably extending well down toward the wringer rolls and along their lower edges are provided with an outwardly projecting lip 14 which gives the edge a finished appearance, strengthens it, and makes it blend in with side walls 13, which are spaced slightly farther apart than walls 11 to accommodate the ends of the wringer rolls 15, which ends lie between them. Extending across the wringer frame on opposite sides and at the lower ends of the end members are strips 16 from the upper edges of which project flanges or ledges 17 which serve as supports for the clothes being fed through the wringer and also as reinforcing and strengthening means for the frame.

The inner surfaces of the side walls 13 of the end members are provided with pairs of spaced vertically extending ribs or projections 18 forming opposed vertical grooves 19 which extend from the bottom of end walls 12 to points well toward their tops and are adapted to receive the bearings for the wringer rolls. The grooves 19 thus form runways for the bearings. Side walls 13 are provided with downward extensions 20 having inwardly projecting lugs 21 at their lower ends which serve to support a drain board, as referred to hereinafter. At the right hand side of the wringer (Fig. 1) extensions 20 are connected by a crosspiece 22 and end wall 12 is provided with side flanges 23, shown in Fig. 6, which are of the same width as downward extensions 20. The outer surfaces of end wall 12 and flanges 23 are finished to provide a smooth flat surface 24 at the right hand end of the frame to which may be bolted a wringer supporting means, which in the case of a power driven wringer such as is used in connection with electric washing machines, may comprise a gear box containing suitable gearing for reversing the wringer as is well understood. At the bottoms of side walls 12 at both ends of the frame, extensions 20 are provided with opposed slots 25, such slots being directly at the lower ends of grooves 19 with their bottom edges flush with the upper edges of cross-piece 22.

At the left-hand side of the wringer (Fig. 1) the walls are shaped to form a gear housing 26, the lower end of which is open and terminates flush with the lower ends of side walls 13 and the upper edges of slots 25.

Viewed from the side the wringer frame presents the appearance of a single integrally formed side wall having a substantially rectangular opening, as seen in outline in Fig. 1, through which the clothes pass to and from the rolls.

The bearings for the wringer rolls, one of which is shown in Fig. 5, each comprise a block 28 of wood or other suitable substance having a semi-cylindrical recess 29. It is held in a U-shaped strip of metal 30, being fastened in the metal strip by a pin 31. Metal strip 30 is of a width and thickness equal to the width and depth of grooves

19, and the two legs of the strip are a distance apart equal to the distance between walls 13. The U-shaped metal strip will therefore just slide in the runway formed by grooves 19. Block 28 is wider than strip 30 by an amount about equal to the width of projections 18, and it is provided with a groove in its end in which the transverse part of strip 30 lies so the end of the bearing presents a smooth surface. There is an upper and lower bearing at each end of the wringer frame, the upper one facing downward and the lower one upward, and lying in them are the shafts 31 which carry wringer rolls 15. The bearings fit between side walls 13, the legs of strips 30 fitting in grooves 19 and the edges of blocks 28 engaging projections 18. The bearings are thus held from transverse or twisting movements, and at least the upper bearing is free to slide in a vertical direction. The bearings are slipped into place from the bottom and are held from coming out by suitable plates which stand across the bottoms of the runways with their edges in slots 25. For the right hand side of the wringer a flat plate 32, as shown in Fig. 7, is used to close the open end of the channel, the plate fitting under the lower bearing with its edges in slots 25, and being fastened in place by a screw 33 which threads into the lower bearing. For the left-hand side of the wringer a plate 34 (Fig. 4) similar to plate 32 is provided and formed integral with it is a cover 35 for the bottom of gear casing 26. On the lower surface of plate 34 and cover 35 is a tubular casing 36 in which slides a locking bolt 36a for the drain board. Plate 34 and cover 35 are fixed in position with the edges of plate 34 in slots 25 by means of screws 37 and 37a, (Fig. 3) there being two or more of each located on opposite sides of the wringer frame. The right hand end of lower wringer roll shaft 31 projects through an opening 38 in end wall 12 and is adapted to be connected to a suitable means for turning the rolls. The left hand ends of shafts 31 terminate in gear housing 26 and carry meshing gear wheels 39 whereby when the lower roll is turned the upper one will be turned also.

The wringer rolls are held in yielding engagement with each other by a spring bar 40 which extends lengthwise of the frame with its two ends resting on the tops of the upper bearings. At the center of bar 40 is a clasp 41 in which is swiveled the lower end of a threaded post 42 which projects up through an opening 43 in top wall 10 of the wringer frame and has an operating handle 44 on its end. Post 42 passes through and has threaded engagement with a sleeve 45 located between side walls 11. Sleeve 45 can move vertically but is held from turning or sidewise movement by a pin 46 the end of which is located in a longitudinal groove 47 in the side of sleeve 45. The head of pin 46 threads into a hole in one of the side walls 11 where it is readily accessible.

At one side of opening 43 is a pair of ears 48 between which is pivoted one end of a quick release lever 49 by means of a pin 50. Lever 49 has an opening 51 through which post 42 projects and carries a catch 52 adapted to engage with a beveled shoulder 53 at the upper end of sleeve 45. Lever 49 is normally biased to a position in which catch 52 is in engagement with shoulder 53 by a spring 54 located between the lever and frame wall 10. As already stated, the end of pin 46 holds sleeve 45 from turning or sidewise movement and when catch 52 is in engagement with shoulder 53 the sleeve is held from vertical movement also. When catch 52 is in engagement with shoulder 53, sleeve 45 is held stationary and the tension on rolls 15 can be regulated by turning handle 44 to increase or decrease the pressure on spring 40. In case it is desired to quickly release the tension on the rolls it is only necessary to strike down on the end of lever 49 to knock catch 52 from engagement with shoulder 53, thus releasing sleeve 45 and permitting the rolls to spring apart. When this occurs sleeve 45 and post 42 move upward together, the vertical movement being guided by pin 46, and the upper end of sleeve 45 will project through opening 43. Shoulder 53 will be carried above the end of catch 52. To reset the quick release handle 44 is turned in a direction to drive sleeve 45 downward on post 42 until catch 52 can drop into engagement with shoulder 53. The rolls can then be put under tension again by turning the handle in the opposite direction.

It will be clear that the quick release arrangement is of simple structure and requires but few parts. Furthermore there are no parts requiring accurate dimensions and nice fits. Shoulder 53 is given a suitable bevel which while being sufficiently steep to prevent catch 52 from slipping off, still has enough slope so the catch can be readily knocked off by downward pressure on the end of lever 49.

The drain board comprises a flat metal plate 55 having side flanges 56 to prevent water spilling off its side edges, and turned down ends 57 which serve to give a smooth rounded finish. The drain board is carried by two runners 58, one fastened on each side of the drain board by being riveted to flanges 56. Runners 58 slide on lugs 21 and at their ends are provided with upwardly projecting ears 59 which engage stops 60 to limit the movements of the drain board. Stops 60 are in the form of projections carried by plates 32 and 34. The wringer is of the type intended to be op-

erated in either direction and it is for this reason that the drain board is made to slide back and forth. As best shown in Figs. 2 and 6, lugs 21 have tops sloping in opposite directions and runners 58 are curved from end to end so that when the drain board is at either side of the wringer it will slope downward to cause the water to run off it. Adjacent the two ends of the drain board, the one runner is provided with holes 61 to receive locking bolt 36ª to fasten the drain board in its two adjusted positions. In its sliding movements the drain board is held between lugs 21 and stops 60, the runners being of a width to slide nicely between them.

One of the great advantages of my improved wringer structure aside from its simplicity and the few separate parts of which it is constructed, is the ease and facility with which it can be assembled and dismantled. In assembling the wringer, bar 40 with post 42 and sleeve 45 attached are inserted from the bottom of the frame so the end of post 42 projects through opening 43. The handle 44 is then put in place. Following this the upper bearings, the upper and lower wringer rolls and the lower bearings are inserted into the frame from the bottom, the bearings sliding in grooves 19. Gear wheels 39 enter through the open bottom of gear casing 26. The drain board is then put into place after which plate 32 is slipped into place in slots 25 under the right-hand bearings and fastened by screw 33, and plate 34 and cover 35 are slipped into place on the left-hand side of the frame and fastened by screws 37 and 37ª. The plates 32 and 34 with their projecting stops 60 serve to fix the bearings in place and support them, and also fix the drain board in place so it cannot be pulled out. In other words, these two plates serve to hold the entire wringer assembled. To dismantle the wringer it is only necessary to remove plates 32 and 34 when the drain board can be pulled out and the bearings and rolls removed at the bottom of the frame. Figs. 5, 6 and 7 illustrate a bearing, the parts forming the grooves in which it slides and the plate for closing the bottoms of the grooves, and from these figures the manner of assembling is quite obvious.

The wringer frame being made as a single casting can be produced at a low cost. At the same time being channel shaped in section it is strong and rugged and easily capable of being pivotally supported at one end so as to be adapted to be used as a swinging wringer.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a wringer, an integral metal frame comprising a top member and two channel shaped end members, the end members being open at their lower ends, integral ribs forming longitudinal grooves on the opposed faces of the side walls of the end members which grooves extend upwardly from the open lower ends of said end members, bearing blocks slidably mounted in said grooves, wringer rolls having shafts carried by said bearing blocks, said wringer rolls and bearing blocks being adapted to be fed into place from the bottom of the wringer frame, plates fastened over the open ends of said channels for supporting the bearing blocks, spring means engaging the bearing blocks for holding the rolls in yielding engagement with each other, and a member operable from outside the frame for regulating the tension of said spring means, a drain board, and supporting means for the drain board carried by the lower ends of said end members.

2. In a wringer, an integral metal frame comprising channel shaped top and end members one of said end members being enlarged to form an integral gear casing, said end members and gear casing being open at the bottom, integral ribs forming vertically extending runways in the end member channels, bearings held in said runways, rolls having shafts carried in said bearings, meshing gear wheels on the shafts, said gear wheels being located in the gear casing, said bearings and rolls with the gear wheels thereon being adapted to be fed into place from the bottom of the frame, and plates fastened over the open ends of the end channels upon which the bearings are supported, one of said plates having projections which serve to close the open end of the gear casing.

3. In a wringer, an integral metal frame comprising a top member and two channel shaped end members, the end members being open at their lower ends, means forming longitudinal grooves on the opposed faces of the end members, which grooves extend upwardly from the open lower ends of said end members, bearing blocks slidably mounted in said grooves, wringer rolls having shafts carried by said bearing blocks, said wringer rolls and bearing blocks being adapted to be fed into place from the bottom of the wringer frame, extensions at the lower ends of said end members having inturned lugs, a drain board slidably mounted on said lugs, plates fastened over the open ends of said channels for support-

ing the bearings, and projections carried by said plates for fixing the drain board against removal.

4. In a wringer, a frame having channel shaped end members open at their bottoms, means forming opposed grooves extending longitudinally of the inner faces of the side walls of the end members, bearings adapted to slide in said grooves, means forming slots at the bottoms of said end members and inwardly projecting supporting lugs, a drain board which is supported on said lugs, and is adapted to slide thereon from one side of the wringer to the other, and plates in said slots which serve to support the bearings and lock the drain board against removal.

5. In a wringer, a frame having channel-shaped end members open at their bottoms, there being ribs integral with the opposed faces of the channels to form longitudinally extending grooves and inturned lugs integral therewith to form supports, bearings in said grooves, a drain board supported on said lugs, and a single plate fixed over the bottom of each channel which serves to support the bearings and lock the drain board in position whereby said two plates serve to hold the wringer assembled.

In witness whereof, I have hereunto set my hand this 22nd day of March, 1921.

FRANCIS M. CASE.