June 28, 1938. J. CARROLL 2,121,786

WASHING MACHINE

Filed Nov. 11, 1936 3 Sheets-Sheet 1

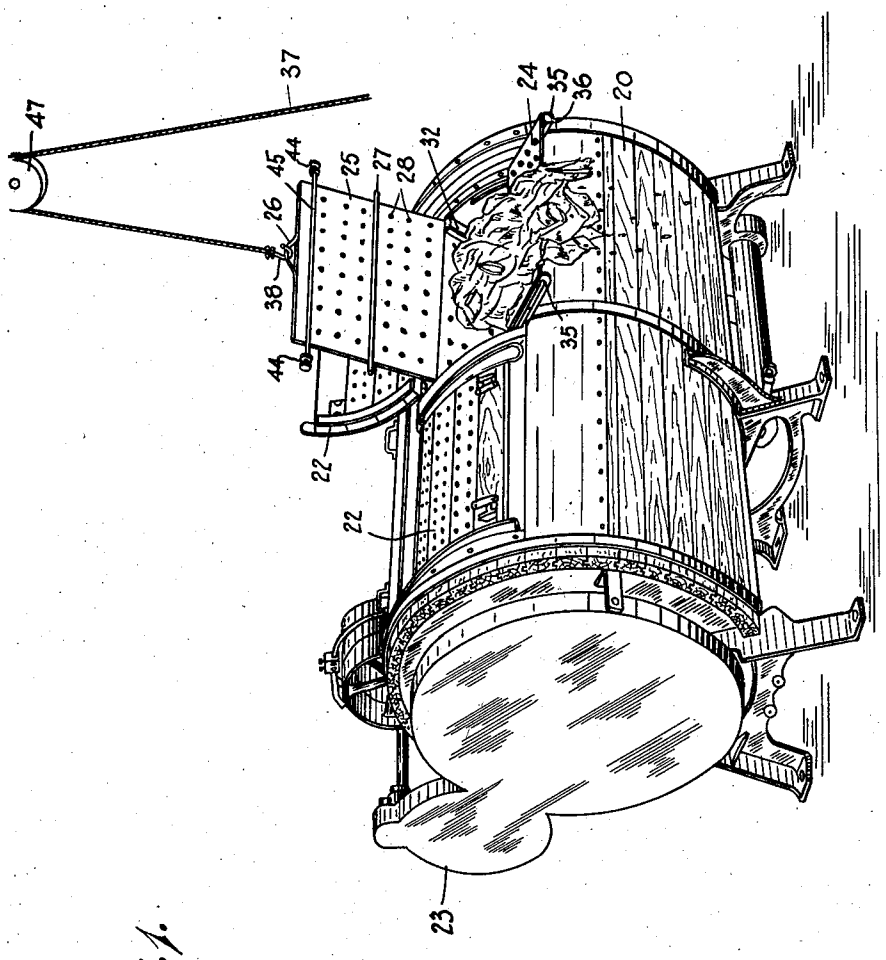


Fig. 1.

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Fig. 2.

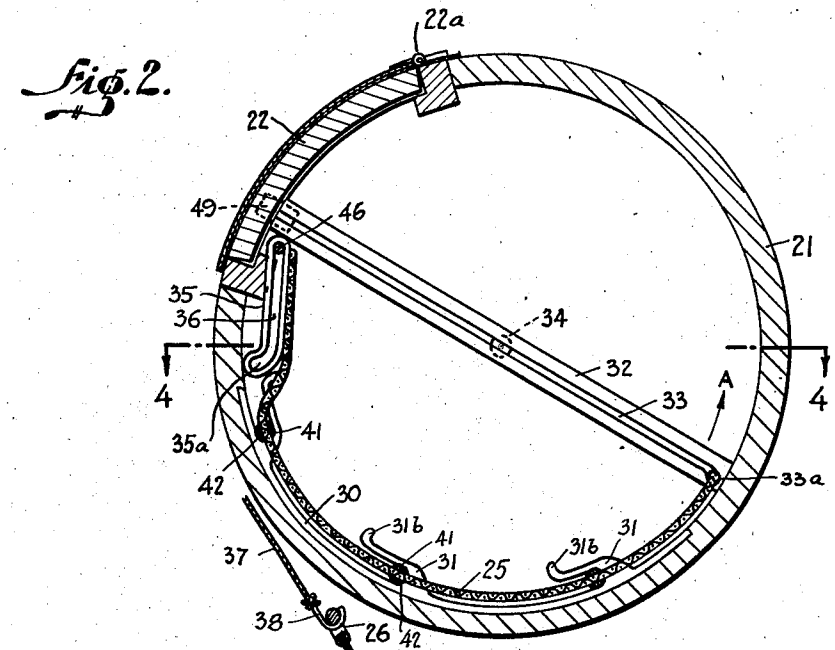
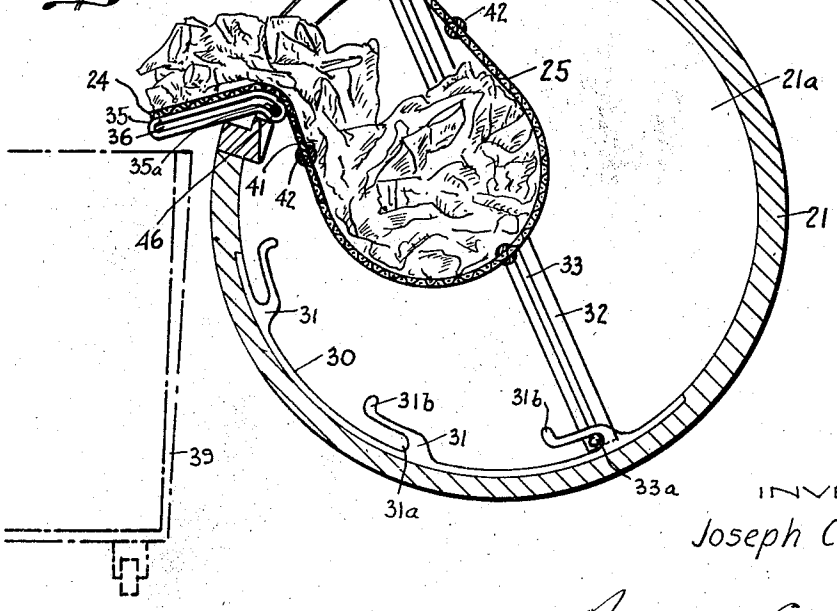


Fig. 3.



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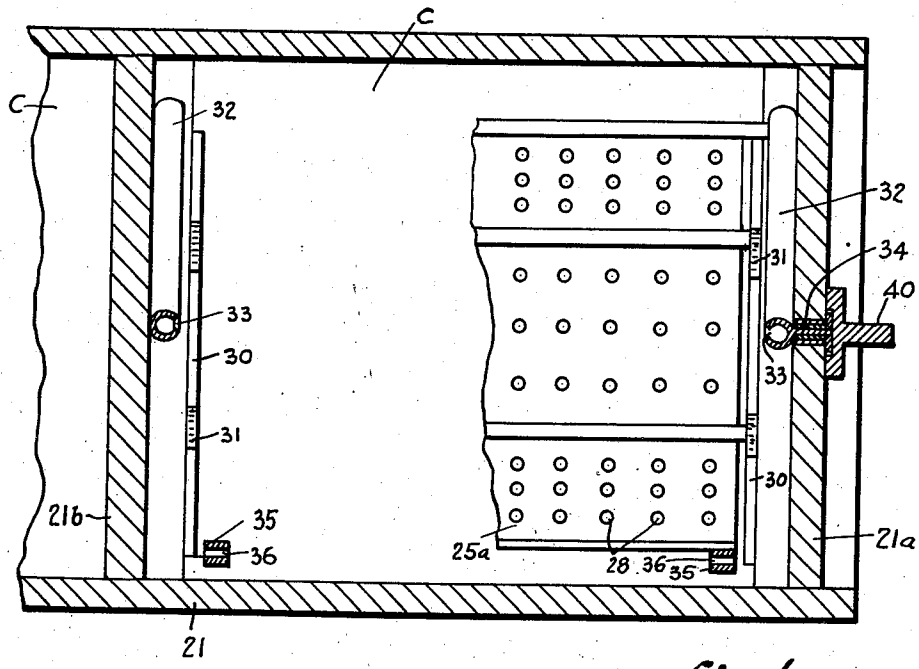


Fig. 4.

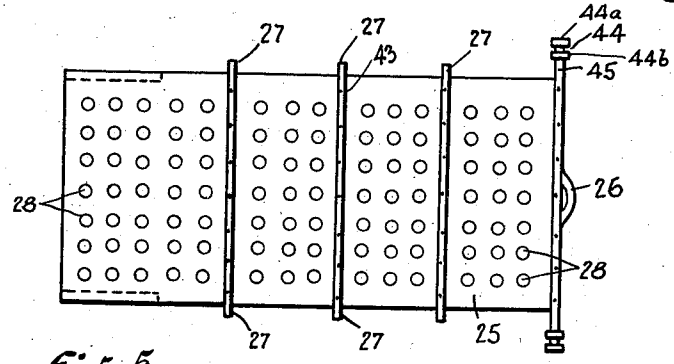


Fig. 5.

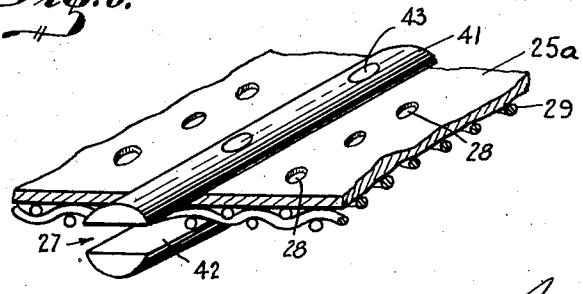


Fig. 6.

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Patented June 28, 1938 2,121,786

UNITED STATES PATENT OFFICE

2,121,786

WASHING MACHINE

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Application November 11, 1936, Serial No. 110,263

10 Claims. (Cl. 68—18)

This invention relates to improvements in washing machines and particularly to apparatus which is adapted to receive clothes for a laundering operation and for dispensing the same.

It is an object of this invention to provide economical, efficient, simple and practical means for receiving clothes for washing and for rapidly dispensing or removing the clothes after being washed.

It is a further object of this invention to provide flexible means adapted to be received within a clothes-washing rotatable compartment or tumbler for holding clothes to be washed, and means to withdraw the flexible means from the compartment whereby the clothes after being washed may be dispensed from the compartment.

This invention accordingly consists in the features of construction, combination of parts and in the unique relations of the members and in the relative proportioning and disposition thereof; all as more completely outlined herein.

To enable others skilled in the art so fully to comprehend the underlying features thereof that they may embody the same by the numerous modifications in structure and relation contemplated by this invention, drawings depicting a preferred form have been annexed as a part of this disclosure, and in such drawings, like characters of reference denote corresponding parts throughout all the views, of which:

Fig. 1 is a perspective view of a washing machine incorporating the invention.

Fig. 2 is a sectional view through a washing drum made in accordance with the invention ready to receive the load.

Fig. 3 is a sectional view similar to Figure 2 but showing the load being removed from the drum compartment.

Fig. 4 is a horizontal fractional sectional view through a part of the drum taken along line 4—4 of Figure 2.

Fig. 5 is a diagrammatic drawing of an apron or clothes holder employed in the invention.

Fig. 6 is an enlarged section of the apron shown in Figure 5.

In the drawings (Figs. 1–3) there is disclosed a washing machine of a conventional design having a housing **20** enclosing a rotatable washing drum or tumbler **21** having a plurality of compartments C, the machine being provided with a motor drive **23**. Rotatable drum **21** is supported by means of trunnions **40**. Drum **21** is provided with the conventional covers **22** (one for each compartment C) hinged at **22***a* to cover the usual openings or mouths O.

According to an embodiment of the invention, within each drum compartment C and at the ends thereof are secured in any suitable manner the arcuate locking bars **30** having a series of locks **31** arranged in tandem. Each lock is substantially U-shaped having a mouth **31***a* and the free end of one of its legs outwardly curved as seen at **31***b*. Pivotally attached to each of the end walls **21***a*, **21***b* of each compartment at the center thereof as indicated at **34** is a longitudinal guide rail **32** having the slot or channel **33** preferably turned downwardly at its inner end as indicated at **33***a*. This rail may be in the form of a split tube or may assume any other suitable form. Cover **22** has an inwardly projecting pin **49** which enters the hollow of rails **32** to fix the position of the latter during rotation of the drum.

The clothes during the washing operation are supported on a flexible clothes holder or apron **25** which may be constructed in any suitable manner. The drawings show one construction thereof in Figs. 2–6, inclusive. Referring particularly to Figure 6, apron **25** may consist of a sheet of perforated rubberized material **25***a* and a wire mesh reinforcing member **29** disposed thereunder.

The two members **25***a* and **29** are held together by means of and between the half bars or rods **41**, **42**, secured together as by rivets **43**. These half bars **41**, **42** also constitute guide bars indicated generally by the numeral **27** in Figures 1 and 5. The ends of rods or bars **41**—**42** project for guidance within locks **31** as hereinafter more particularly described. The perforations **28** permit the water to drain from the apron as it is withdrawn from the drum. Apron **25** is further provided with a front bar or rod **45**, the ends of which project beyond the sides of the apron **25** and ride in the slots **33** of the guide rails **32**. Spaced flanges **44***a*, **44***b* may be provided at the ends of rod **45** between which and in space **44** the rod slidably engages the wall of rail **32**.

Suitably secured to the drum **21** at the bottom of each compartment mouth or opening O is a bar or rod **46**. Slidably engaging rod **46** are a pair of slotted supports **35**, the slots **36** accommodating the ends of rod **46**. The lower or front end portion **24** of apron **25** is secured to supports **25**.

The clothes holder or apron **25** is positioned within the compartment C by sliding guide rod **45** along the guide rails **32** until the rod **45** reaches the offset end **33***a* of the slots **33**. By turning the guide rails **32** in the direction indicated by the arrow A (Fig. 2), the guide bars **27** (comprising

the members 41, 42) will slide in the slots or mouths 31a of locks 31 into locking position. It is to be noted that the support elements 35 are within the compartment. The clothes are then thrown into the drum and of course land on the apron or holder 25. The cover 22 is then closed and the drum rotated in the conventional manner.

Since the channels 32 are locked in position by the pins 49 the apron will be maintained in locked position. Bars 41 facilitate agitation of the clothes within the drum and act as friction means to prevent the clothes remaining in one position.

After the washing of the clothes has been completed, the drum is opened and hook 38 carried by the hoist cable 37 is attached to loop or handle 26 of apron 25. Cable 37 is trained over pulley 47 (Fig. 1), and by pulling on this cable either manually or by mechanical means, apron or holder 25 may be pulled out in a lineal direction from one end thereof, as indicated in Figure 3, the rods 45 sliding out of channel members 32. During this pulling or withdrawal step, the front portion 24 of apron 25 which is attached to the sliding supports 35 slides outwardly and when the apron is completely withdrawn, this front portion of the apron constitutes a chute for the clothes to slide into container 39. The supports 35 have the rear portions of their slots curved downwardly as indicated at 35a to facilitate downward movement of the supports and consequently the front portion of the apron.

It is believed from the above description that those skilled in the art will have no difficulty in understanding the construction, the method of use and operation of the device herein disclosed and a further detailed discussion thereof is unnecessary. The invention is of simple and practical construction and is adapted to accomplish among others all of the objects and advantages herein set forth.

Without further analysis, the foregoing will so fully reveal the gist of this invention that others can by applying current knowledge readily adapt it for various applications without omitting certain features, that, from the standpoint of the prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalency of the following claims:

1. An article of the character described comprising a rotary clothes washing compartment, a flexible holder for clothes adapted to be received within said compartment and having one end substantially fixed thereto and the other end linearly withdrawable therefrom, means in the compartment to retain the said holder in substantially fixed position during the washing operation, and means connected with the movable end of said holder to withdraw the said holder substantially from the compartment after the washing operation whereby the clothes are discharged therefrom.

2. In combination with a movable clothes-washing compartment a pair of guides within the said compartment, a flexible clothes holder adapted to be received by the guides, means in the compartment to retain the said holder in operative position during movement of the compartment, and means to withdraw the said holder substantially from the compartment whereby the clothes supported thereby may be discharged.

3. In combination with a movable clothes-washing compartment a pair of guides within the said compartment, a flexible clothes holder adapted to be received by the guides, means in the compartment to retain the said holder in operative position during the movement of the compartment, means to withdraw the said holder substantially from the compartment whereby the clothes supported thereby may be discharged, and means to extend part of the holder from the compartment to provide a chute to facilitate the discharging of the clothes.

4. In combination with a movable clothes-washing compartment a pair of spaced guides within said compartment, a flexible clothes holder having a transverse member in slidable engagement with the said guides whereby the said holder may be received within the said compartment, and means to substantially withdraw the said holder from the compartment whereby the clothes supported thereby may be discharged therefrom.

5. In combination with a movable clothes-washing compartment a pair of spaced guides within said compartment, a flexible clothes holder having a transverse member in slidable engagement with the said guides whereby the said holder may be received within the said compartment, and cooperative means on the holder and in the compartment to retain the said holder in operative position during movement of the compartment.

6. In combination with a movable clothes-washing compartment a pair of spaced guides within said compartment, a flexible clothes holder having a transverse member in slidable engagement with the said guides whereby the said holder may be received within the said compartment, and cooperative means on the holder and in the compartment to retain the said holder in operative position during movement of the compartment, and means for withdrawing the said holder from the said compartment whereby the clothes supported thereby may be discharged.

7. In combination with a movable clothes-washing compartment a pair of spaced guides within said compartment, a flexible clothes holder having a transverse member in slidable engagement with the said guides whereby the said holder may be received within the said compartment, cooperative means on the holder and in the compartment to retain the said holder in operative position during movement of the compartment, means for withdrawing the said holder from the said compartment whereby the clothes supported thereby may be discharged, and means to extend a portion of the said holder outwardly of the said compartment during the holder withdrawal operation to facilitate in the discharging of the said clothes.

8. In combination with a movable clothes-washing compartment a pair of rotative guides spaced within said compartment, a flexible clothes holder, a transverse member on said holder adapted for slidable engagement with said guides whereby the holder may be placed within said compartment, cooperative means on said holder and in said compartment for retaining said holder against relative movement during movement of said compartment, said means being arranged for engagement between the holder and compartment upon rotation of said guides in one direction.

9. In combination with a movable clothes-washing compartment a pair of rotative guides

spaced within said compartment, a flexible clothes holder, a transverse member on said holder adapted for slidable engagement with said guides whereby the holder may be placed within said compartment, cooperative means on said holder and in said compartment for retaining said holder against relative movement during movement of said compartment, said means being arranged for engagement between the holder and compartment upon rotation of said guides in one direction, means for slidably extending a portion of said holder upon withdrawal thereof from said compartment for facilitating dispensing of the clothes from said holder.

10. In a clothes-washing machine, a rotary tumbler having a washing compartment therein, a flexible clothes holder in said compartment constructed to substantially conform with a portion of the inner wall of the compartment, and means in the compartment to retain the holder in position with respect thereto.

JOSEPH CARROLL.