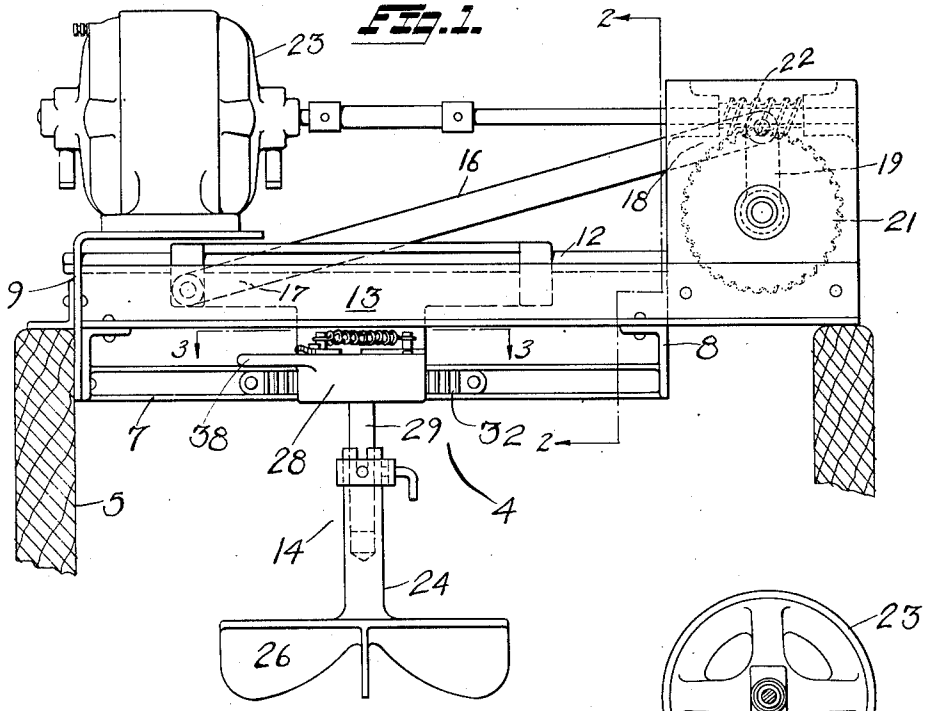
Nov. 17, 1931. C. E. HOVEY 1,831,914

WASHING MACHINE

Original Filed April 2, 1929

Fig. 1.



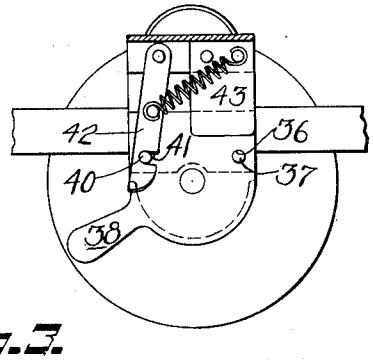


Fig. 3.

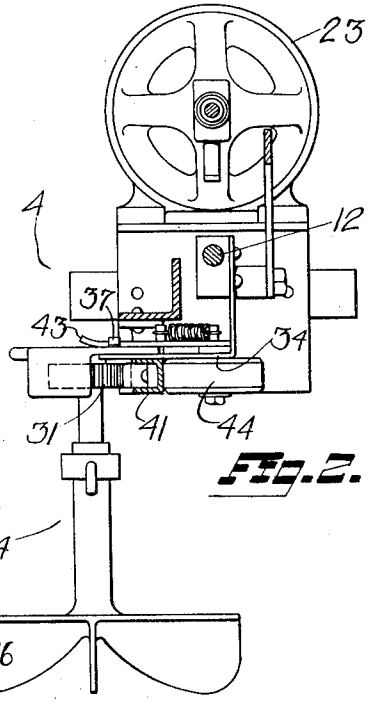


Fig. 2.

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UNITED STATES PATENT OFFICE

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WASHING MACHINE

Application filed April 2, 1929, Serial No. 352,041. Renewed March 30, 1931.

The invention relates to washing machines of the dolly type and particularly to machines adapted for household use.

An object of the invention is to provide a machine of the character described in which the dolly will not only be caused to rotate but will also be caused to move rectilinearly through the tank so that all the clothes in the tank may be subjected to the direct action of the dolly.

Another object of the invention is to provide a machine of the character described in which the dolly together with the means for supporting same and the means for operatively connecting the dolly to the driving mechanism are formed into a single unit which may be readily attached or detached whereby the tank is available for use independent of the machine without the necessity of dismounting or removing the machine from the tank.

A further object of the invention is to provide a machine with the foregoing advantages which is extremely simple in construction and may be manufactured at relatively low cost.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings:

Figure 1 is a front elevation of the machine of my invention with a portion of the supporting tank in section.

Figure 2 is a cross sectional view of the washer mechanism taken on the line 2—2 of Figure 1.

Figure 3 is a horizontal section of the washer mechanism taken on the line 3—3 of Figure 1.

In the preferred embodiment of my invention the machine is in the form of a unit 4 arranged to be removably positioned over a tank such as the usual wash tray 5. The machine unit includes a frame 7 on which and from which the various elements of the machine are supported. Extending horizontally along the frame and secured at its opposite ends, in the frame plates 8 and 9, is a spindle 12 having mounted for reciprocation thereon a cross head or carriage 13 from which is arranged to be suspended a dolly unit 14 as will be more specifically described hereinafter. Reciprocative movement of the carriage is arranged to be effected through means of a pitman 16 pivotally connected at its opposite ends 17 and 18 to the cross head, and a crank 19 which is driven through suitable gears 21 and 22 by the motor 23, the gears being mounted on the end plate 8 while the motor is supported on the plate 9.

Washing of the clothes in the tank is arranged to be effected through the medium of a dolly 24 having suitable blades 26 and forming part of what is herein termed the dolly unit 14, hereinbefore referred to. The dolly unit, as will be clear by referring to Figure 1 of the drawings, is practically the only portion of the machine of my invention whose parts extend into or to any appreciable degree over, the tank between the front thereof and the frame. It will thus be understood that with the dolly unit removed, complete access to the tank will be offered when the machine is not in operation without the necessity of dismounting the same. Included in said dolly unit is a mounting member or support 28 which rotatably carries a vertically disposed shaft 29, to the lower end of which the dolly is adjustably vertically held. Fixedly mounted on the shaft 29, and also forming a part of the dolly unit, is a gear 31 which is arranged to mesh with a rack 32 fixed to the frame. With the dolly secured to the carriage, and the gear 31 operatively engaging the rack 32, reciprocation of the carriage will cause the dolly to not only rotate about its axis but will cause the dolly to move rectilinearly across the tank during such rotation so that practically all the clothes in the tank, regardless of their position therein, will be subjected to the direct action of the dolly blades.

It will be noted by referring to the drawings that the gear 31 is relatively large and by reason thereof the dolly will rotate at a relatively low speed during its movement across the tank. Preferably, and as here shown, the gear is of such size that the dolly, during one complete movement across the tank in one direction, will make about one revolution. In this manner the clothes, on which the dolly is acting, will be forced through the water rather than with it as is the tendency when the dolly rotates about a fixed axis.

Releasable operative connection of the dolly unit with the carriage may be effected in a number of ways. As here shown means are provided for making the connection in a very simple but effective manner. Formed on the carriage and positioned over the portion of the frame carrying the rack is a plate 34 with which the support 28 of the dolly unit is arranged to be detachably hingedly connected. The latter is arranged to be positioned on the plate 34 and is provided with an aperture 36 in which is adapted to fit a pivot pin 37 extending upward from the plate 34. The support 28 is provided with a handle 38, and when the dolly unit 14 is to be attached to the carriage the former is held by means of the handle and the support placed on the plate 34 so that the pin 37 will engage in the opening 36, after which the dolly unit is swung inwardly so that the gear 31 is placed in proper engagement with the rack. During such inward movement a projection 40 is caught in a recess 41 formed in a spring-held latch arm 42 whereby the dolly unit will be locked to the carriage in operative position. If desired a plate 43 may be provided on the carriage in superimposed relation to the plate 34 whereby the support 28 may be snugly fitted in the space defined between the plates. To detach the dolly unit from the carriage the arm 42 is retracted and the support swung about the pivot pin 37 until the former is withdrawn from under the top plate 43 and at the same time freeing the gear from the rack. The dolly unit may then be lifted by means of the handle to release the support from engagement with the pivot pin.

A roller 44, as clearly shown in Figure 2, is mounted on the carriage and is arranged to bear against a guide 46, on the frame, so that the thrust to which the dolly is subjected during the operation thereof is transmitted to the frame.

It will now be clear that the machine of my invention is fully capable of attaining the objects hereinbefore referred to.

I claim:

1. In a machine for washing clothes and the like comprising a frame arranged for positioning over a tank, a carriage mounted for reciprocation across said tank, a dolly unit arranged for detachable connection to said carriage and comprising a support, a shaft for the dolly mounted for rotation on said support, means on said support for releasably securing same to said carriage, and cooperating driving mechanism carried by said support and frame whereby upon the reciprocation of said carriage the dolly will be simultaneously rotated and moved rectilinearly across said tank.

2. In a machine for washing clothes and the like comprising a frame arranged for positioning over a tank, a carriage mounted for reciprocation across said tank, a gear rack fixed to said frame, a vertically disposed dolly unit arranged for detachable connection to said carriage and comprising a support, a shaft for the dolly mounted for rotation in said support, a gear on said shaft arranged to engage said rack, releasable means to pivotally connect said unit to said carriage whereby said unit may be swung to place said gear and rack into and out of engagement, a spring latch arranged to releasably hold said unit and carriage together when the gear and rack are operatively connected.

3. In a machine for washing clothes and the like comprising a frame arranged for removable positioning over a tank, a carriage mounted on said frame for reciprocation across the top of said tank, a gear rack fixed to said frame, a dolly unit arranged to be secured to said carriage and comprising a support arranged for pivotal connection with said carriage, a vertically disposed shaft mounted for rotation in said support, dolly-blades adjustably carried adjacent the lower extremity of said shaft, a handle on said support, a gear on said shaft adapted to be placed in or removed from engagement with said rack upon swinging said support about its pivot and arranged when engaged with said rack to cause the dolly shaft to simultaneously rotate and move rectilinearly across the tank, a latch for locking said support to the carriage when the gear is operatively engaged with the rack, and a roller mounted on said carriage arranged to cooperate with said gear to prevent the transverse displacement of said shaft during the reciprocation of the dolly unit.

4. In a washing machine, a frame adapted to be mounted on a tank and including a plurality of spaced substantially horizontal and parallel frame members, arranged one above the other, a carriage reciprocally mounted on the upper of said members and including a lateral extension slidable above the upper side of and projecting outwardly beyond the lower of said members, means on the frame for reciprocating the carriage, a roller on said extension arranged to engage the inner side of the lower frame member, a rack on the outer side of said lower frame member, a dolly, a shaft therefor, a bear-

ing for the shaft, means for detachably connecting the bearing with said extension of the carriage and a pinion on said shaft arranged to mesh with said rack.

5. In a machine for washing clothes and the like comprising a frame arranged for positioning over a tank, including a substantially horizontally disposed portion, a carriage mounted for reciprocation across the top of said tank, and connected with the frame on one side of said portion, a lateral extension on said carriage projecting over and outwardly beyond said portion, a gear rack fixed to said frame, a vertically disposed dolly positioned on the other side of said portion and connected with the outwardly projected end of said lateral extension of said carriage for movement therewith, a gear operatively associated with said dolly and rack whereby upon the reciprocation of said carriage said dolly will be simultaneously rotated and moved rectilinearly across the said tank, and means to detachably connect said dolly and gear to said carriage.

6. In a machine for washing clothes and the like comprising a frame arranged for positioning over the contents of a tank, and including a substantially horizontal portion, a carriage mounted on said frame on one side of said portion, an extension on said carriage projecting transversely across and outwardly beyond said portion, a gear rack fixed to said frame, a dolly having its shaft vertically disposed on the other side of said portion and connected with the outwardly projecting part of said extension, a gear on said shaft and engaging said rack whereby upon the reciprocation of said carriage the dolly will be simultaneously rotated and moved rectilinearly across the tank, and a roller carried by said extension and arranged to bear against the inner side of said portion of the frame, to retain the dolly in proper position during said movement.

In testimony whereof I have hereunto set my hand at Oakland, California, this 14th day of March, 1929.

CHARLES E. HOVEY.