Aug. 4, 1942. H. L. BELDING 2,292,037

WASHER

Filed Dec. 6, 1939

Fig. 1

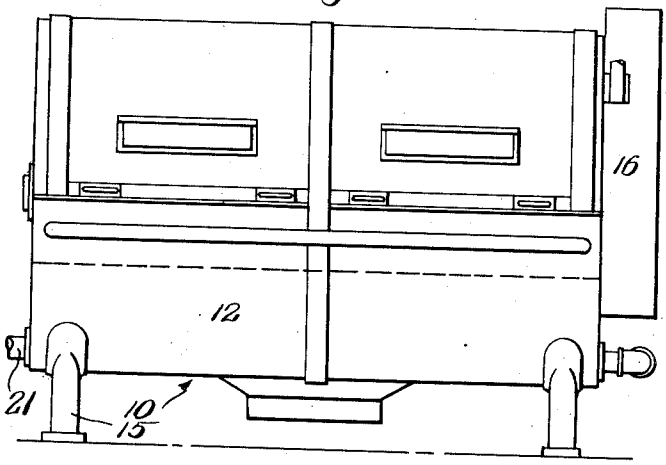


Fig. 5

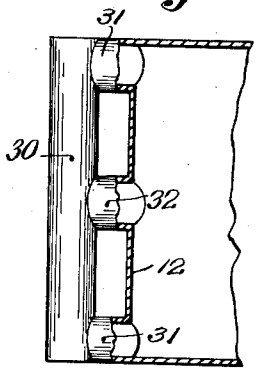


Fig. 3

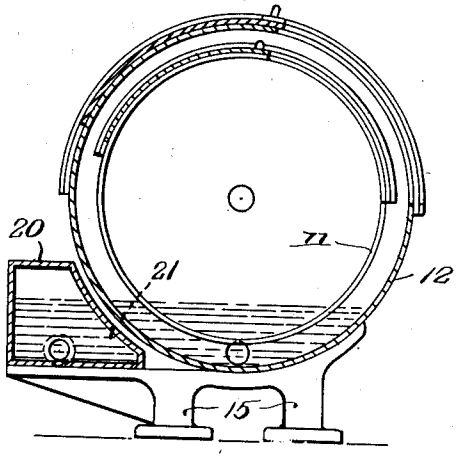


Fig. 2

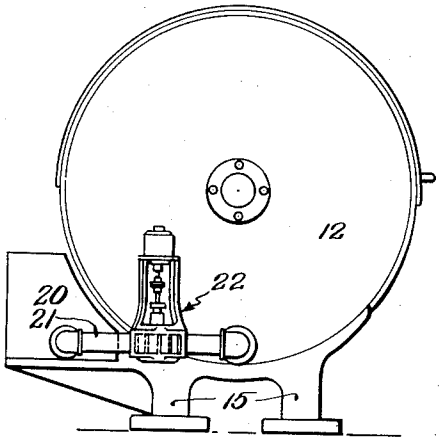


Fig. 4

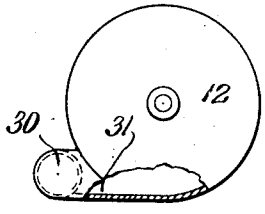


Fig. 6

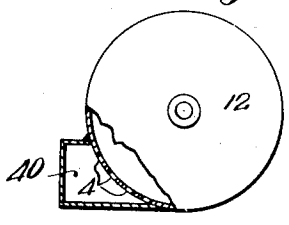
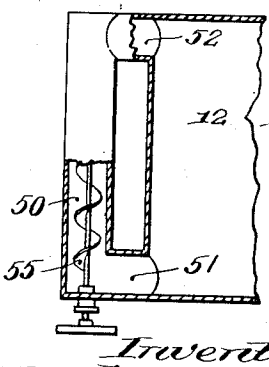


Fig. 7



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UNITED STATES PATENT OFFICE

2,292,037

WASHER

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3 Claims. (Cl. 68—58)

This invention relates to an improvement in a washer, such as for example a laundry washer, comprising a perforate, rotatable, clothes carrying drum, housing which contains the water or other liquid with which the clothes are treated, and means for rotating said drum.

The washing treatment comprises a plurality of baths which may for convenience be designated as suds and rinse baths. The commonly accepted practice consists in rotating the drum several times in one direction, then several times in the opposite direction and repeating such alternate rotations until the bath is completed. The water is thereby drawn up in the housing peripherally of the drum first at one side of the drum and then at the other side. The amount of water by which the best results can be obtained has been definitely determined to be such that its surface level, when the washer is at rest and measured from the bottom of the interior of the drum, is from three to eight inches for suds baths and from six to twelve inches for rinse baths.

The primary object of this invention is to provide means by which the liquid contents of the housing may be increased without affecting the surface levels above mentioned, such means preferably including a reserve tank or reservoir in open communication with the housing and in addition, if desired, a pump or other means by which a circulation of water is set up through the housing and reservoir independent of the movement imparted to the water in the housing by the rotation of the drum.

This and other objects of the invention flow from the construction hereinafter described and illustrated in the accompanying drawing, wherein:

Fig. 1 is a view in front elevation of a washer embodying this invention;

Fig. 2 is an end elevation thereof;

Fig. 3 is a cross-sectional view with the doors of the drum and housing open; and

Figs. 4, 5, 6 and 7 illustrate other forms of washers embodying this invention.

The washer 10 comprises a drum 11 and a housing 12, said housing being here shown as cylindrical and substantially concentric with the drum 11. The drum 11 which has, according to the usual practice, perforate side walls, is adapted to contain the clothes or garments to be washed and is suitably supported for rotation in bearings upon the housing 12. The housing 12 rests upon legs 15 and is provided at one end with encased drive means 16 by which the drum 11 is rotated.

At the rear of the washer is mounted a reserve tank or reservoir 20 connected by pipe 21 to each end of the housing. By this reservoir the amount of water which the housing can hold is materially increased without altering the surface level of the bath (see Fig. 3). The agitation of the water by the rotation of the drum 11 causes water to flow from the reserve tank 20 through the pipes 21 into the housing. This water from the tank mingles with the water in the housing so that if bluing, soap, starch, or the like has been added to the water in the housing all the water in the washer quickly attains a uniform condition.

A pump 22 is shown installed in one of the pipes 21 (see Fig. 2). This pump when set in operation not only introduces water from the tank under pressure into the housing, but also causes a circulation of the water through the housing and tank longitudinally of the drum. Thus the water in contact with the drum is agitated by two forces both peripherally and longitudinally of the drum.

In the embodiment shown in Figs. 4 and 5 the reserve tank 30 is connected to the housing 12 by pipes 31 at each end and a pipe 32 at the center. Fig. 6 illustrates a reserve tank 40 mounted upon the housing 12 and in communication therewith through a plurality of openings 41, such openings extending the length of the tank. In both these embodiments the peripheral agitation of the water in the housing set up by the rotation causes a flow of water to and from the reserve tank.

The washer shown in Fig. 7 is equipped with a storage tank 50 connected by pipes 51 and 52 to the housing 12. Mounted within the tank 50 is an endless screw 55 driven by any suitable means, preferably from the drum rotating means although a separate motor might be provided. The rotation of the screw 55 in either direction sets up a positive circulation of the bath water through the housing 12 and tank 50 longitudinally of the drum, as in the embodiment shown in Fig. 2.

It will be noted that the washer 10 operates in the usual manner with the water at the surface level found to be most efficient, but due to the provision of the reserve tank the amount of water available for the bath is materially increased and as a result the amount of dirt or chemicals is diluted so that the proportion thereof retained by the articles when the bath is dumped is re-

duced as compared with a washer of this type without a reserve tank. The employment of a pump, screw or other means, by which travel of the water longitudinally of the drum is set up, is of value in increasing the agitation of the water and creating a more thorough blending of the water of particular value when detergents or other elements are added to the water.

While certain embodiments of this invention as applied to a laundry washer have been shown and described, it will be understood that the invention is not limited thereto and that other embodiments may be made and that this invention may be employed in a washer for dry cleaning or for other uses without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A laundry washer comprising a perforate drum adapted to contain clothes to be washed, a housing enclosing said drum and within which said drum is rotated, a reserve tank extending longitudinally of the drum and adapted to contain water, pipes connecting the ends of said tank and the ends of said housing below the surface level of the water, and means by which the water is circulated through said tank and housing longitudinally of said drum whereby the water in the housing agitated by the rotation of the drum, is further agitated.

2. A laundry washer comprising a perforate drum adapted to contain clothes to be washed, a housing enclosing said drum and within which said drum is rotated, a reserve tank extending longitudinally of the drum and adapted to contain water, pipes connecting the ends of said tank and the ends of said housing below the surface level of the water, and means by which the water is circulated through said tank and housing longitudinally of said drum whereby the water in the housing agitated by the rotation of the drum, is further agitated, said means comprising a pump associated with one of said connecting pipes.

3. A laundry washer comprising a perforate drum adapted to contain clothes to be washed, a housing enclosing said drum and within which said drum is rotated, a reserve tank extending longitudinally of the drum and adapted to contain water, pipes connecting the ends of said tank and the ends of said housing below the surface level of the water, and means by which the water is circulated through said tank and housing longitudinally of said drum whereby the water in the housing agitated by the rotation of the drum, is further agitated, said means comprising a screw mounted for rotation in said tank.

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