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T. F. RATAICZAK

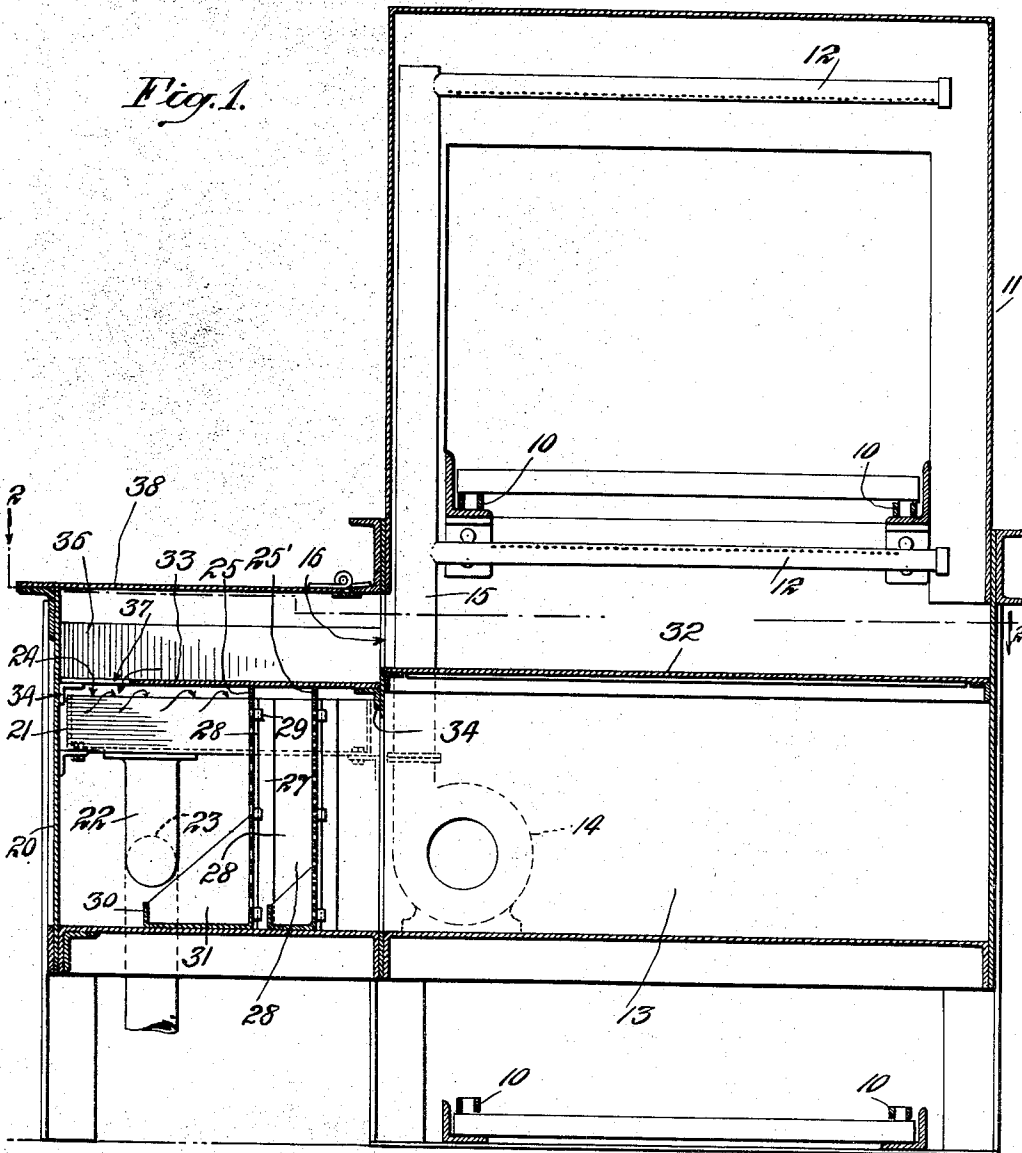
1,866,519

WASHING MACHINE

Filed June 20, 1929

2 Sheets-Sheet 1

Fig. 1.



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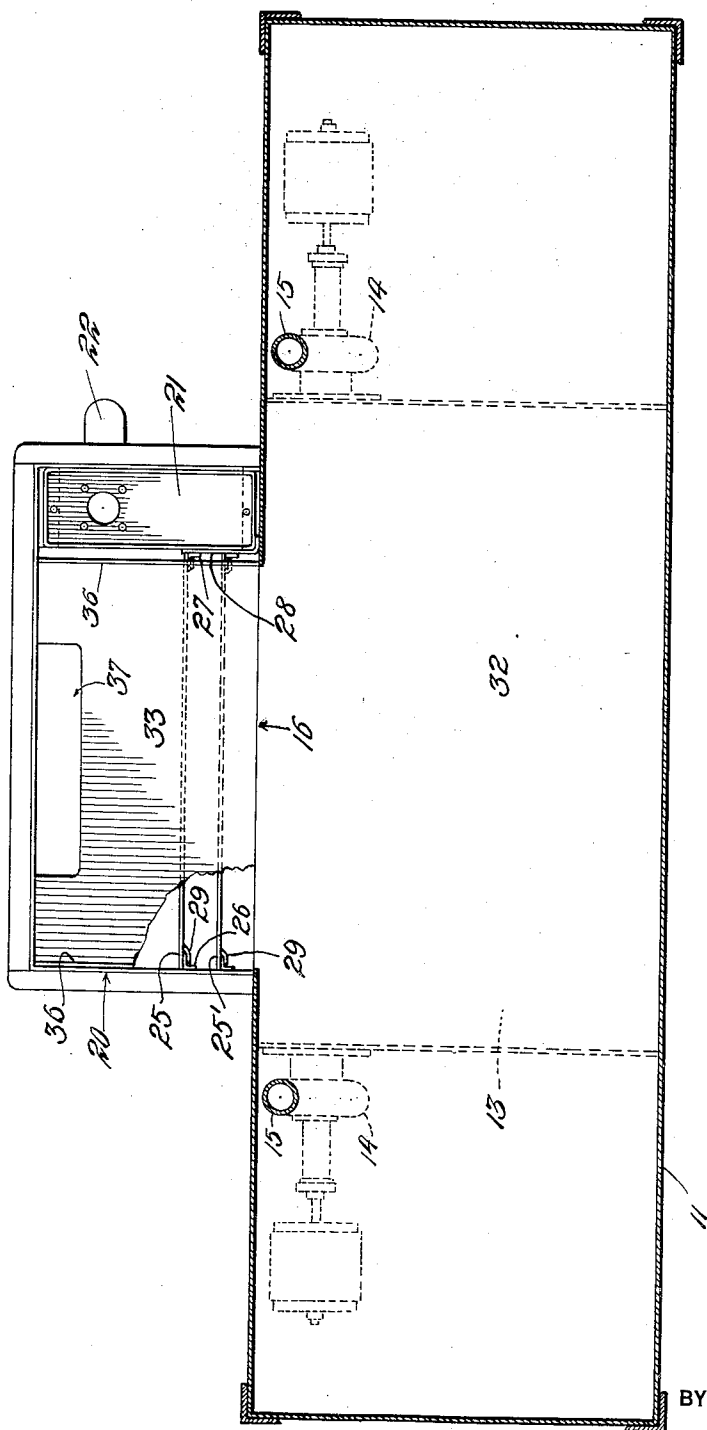


Fig. 2.

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WASHING MACHINE

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This invention relates to washing machines and more especially to the type of machine for washing metal parts or dishes in which a washing liquid is projected against the articles to be washed, and, after passing over the articles, it is collected in a reservoir for re-use. The object of the invention is to provide in such washing machines an improved, effective, and convenient means for clarifying the washing liquid between its contacts with the articles to be washed.

In accordance with the invention, a washing machine is provided with a conveniently accessible clarifying tank through which the washing liquid is passed between its contacts with the articles to be washed. This tank contains means for removing from the washing liquid both floating impurities, such as grease, and heavy particles, such as metal chips.

To further clarify the nature of the invention, I will describe in detail a specific washing machine embodying the invention which is shown in the accompanying drawings in which:

Fig. 1 is a transverse section of the machine taken on the line 1—1 of Fig. 2; and

Fig. 2 is a horizontal section of the machine taken on the line 2—2 of Fig. 1.

The washing machine illustrated is of the type in which the articles to be washed are carried by a traveling support or conveyor through a long hood 11 in which are contained sprayers 12 of any desired type for projecting washing liquid upon the articles. The reservoir or main tank 13 of the machine is located directly under the hood 11. Power-driven pumps 14 in conduits 15 leading from the main reservoir 13 to the sprayers 12 serve to draw the washing liquid from the reservoir and to project it against the articles on the conveyor.

A clarifying tank 20 is provided at one side of the main tank 13. The inner side of the clarifying tank communicates directly with one side of the main tank and with a lateral opening 16 in the hood 11 just above the main tank.

The clarifying tank is provided with overflow means for maintaining a constant liquid

level in it and in the main tank. In the form shown, such means consist of an overflow box 21 located in the upper part of one end of the tank 20 and communicating with a drain pipe 22, which extends out through an opening 23 in the end of the tank 20. The liquid level of the tank 20 is, therefore, maintained at the upper edge 24 of the overflow box 21.

The clarifying tank contains one or more removable vertical partitions 25, 25' which serve as combined skimmers and strainers.

The removable partition 25 is slidably mounted on a pair of vertical angle irons 26, 27 which are fixed respectively on the end of the tank 20 remote from the overflow box and on a short fixed partition 28 extending out from the inner side of the tank close to the overflow box with its upper edge on a level with the upper edge 24 of the overflow box. The removable partition 25 is provided at its edges with tabs 29 which slidably engage the projecting edges of the angle irons 26, 27, so that the partition may be easily lifted out of the tank 20.

The partition 25 has an upper imperforate portion which extends both above and below the upper edge 24 of the overflow box, and a lower perforate portion. The upper imperforate portion is thus at the level of the surface of liquid in the tank 20 and serves as a skimmer, while the lower portion acts as a strainer.

To facilitate the collection and removal of metal chips or other heavy particles strained out of the liquid, the partition 25 may be provided with a pan 30 extending outwardly from its lower edge and removable from the tank with it. Triangular side pieces 31 connect the pan with the partition and serve to confine the chips deposited in the pan when the partition and pan are lifted out.

A second partition 25', precisely similar to the partition 25, except that its screening portion may contain smaller holes, may be inserted in the tank 20 behind the partition 25 when further skimming and screening is necessary or desirable. It is apparent that still more similar skimming and screening partitions may be used, if desired, without any change in the tank 20—except a slight in-

crease in its width, if a large number of partitions is desired.

All the washing liquid which has been drawn from the reservoir 13 and projected against the articles is passed through the skimming and straining partitions of the clarifying tank before it returns to the reservoir. A horizontal cover 32 over the reservoir 13, which also forms the bottom of the hood 11, directs all the liquid falling from the articles through the lateral opening 16 of the hood into the tank 20. The liquid is received on a horizontal shield 33 removably supported on angle irons 34 on the side walls of the tank 20, so that it is slightly above the water level maintained in the tank 20. The shield 33 may have the form of a shallow trough with side edges 36, as shown. The shield has at its outer edge an opening 37 which allows all the water received on the shield to fall upon a limited area of the surface of the liquid in the tank 20. As seen in Fig. 2, this limited area is in front of the partition 25 and is at a distance from the overflow box 21.

In the operation of the washing machine, the washing liquid circulates from the reservoir 13 through the pipes 15 and sprayers 12 which direct it against the articles on the conveyor. It then falls upon the cover 32, whence it is directed upon the shield 33, and thence into the outer part of the tank 20 through the opening 37 in the shield. After passing through the perforate portions of the partitions 25, 25', it re-enters the reservoir 13. As is usual, a constant addition is made to the circulating washing liquid by fresh liquid constantly supplied through a rinse spray or in any other usual way, so that there is a constant overflow from the tank 20 into the overflow box 21.

Both floating and heavy impurities are removed from the liquid in the passage through the clarifying tank 20.

The grease and floating impurities are prevented from passing into the reservoir by the imperforate upper portions of the partitions 25, 25', so that they flow off into the box 21 with the overflow. This skimming off of the floating impurities is facilitated by the fact that the position of the opening 37 in the shield 34 introduces the liquid in the clarifying tank in such a way that the surface of the liquid is not agitated in the vicinity of the overflow box nor in the vicinity of the partitions 25 and 25'.

The metal chips or other heavy impurities which the liquid contains on entering the clarifying tank are strained out of the liquid by the lower portions of the partitions 25, 25' and deposited in the trays at their lower edges. It is apparent that a considerable quantity of such impurities may collect in these trays before any substantial part of the perforated portions of the partitions are obstructed by them. To remove such chips

or other particles, it is necessary only to open the hinged cover 38 of the tank 20, to remove the shield 33, and then to lift out the partitions 25, 25' with their trays.

What I claim is:

1. In a washing machine, a clarifying tank through which the washing liquid is passed between its contacts with the articles to be washed, overflow means for maintaining a constant liquid level in said tank, a removable vertical partition in said tank beyond the overflow means having an upper imperforate portion extending from above the liquid level to below the liquid level to skim grease and floating impurities from the liquid, a lower foraminous portion wholly below the liquid level to strain particles from the liquid, and a horizontal pan for collecting the particles strained out of the liquid secured to said partition near its lower edge and removable from the tank with the partition.

2. In a washing machine, a clarifying tank containing an overflow partition which divides it into an overflow chamber and an open flow passage through which the washing liquid is passed between its contacts with the articles to be washed, a drain for the overflow chamber, and a removable vertical partition extending from an intermediate point of said overflow partition transversely across the flow passage and having an imperforate portion at the level of and above the upper edge of the overflow partition to direct floating impurities over the overflow partition and a lower foraminous portion located wholly below the upper edge of the overflow partition.

3. In a washing machine, a clarifying tank containing an overflow partition having a straight upper edge below the top of the tank, said partition serving to divide the tank into an overflow chamber and an open flow passage through which the washing liquid is passed between its contacts with the articles to be washed, a drain for the overflow chamber, and a plurality of skimmers extending from said overflow partition transversely across the flow passage at the level of and above the upper edge of the overflow partition to prevent passage of floating impurities and to direct them over the overflow partition.

In testimony whereof I have hereunto set my hand.

THOMAS F. RATAICZAK.