embodiment.

FIG. 12 is an exploded perspective view of the detergent tank of the washing machine according to the exemplary embodiment.

FIG. 13 is a perspective view of a lower surface of a detergent tank lid equipped with a float of the washing machine according to the exemplary embodiment.

FIG. 14A is a schematic sectional side view of a remaining amount detector of the washing machine according to the exemplary embodiment.

FIG. 14B is a schematic view of the lower surface of the detergent tank lid equipped with the float of the washing machine according to the exemplary embodiment.

FIG. 15 is a schematic sectional side view of the remaining amount detector of the washing machine according to the exemplary embodiment in a state in which the detergent tank is filled with detergent liquid.

FIG. 16 is a view showing a relationship between a magnetic force sensed by a linear Hall element and an output voltage of the linear Hall element.

FIG. 17 is a view showing a relationship between frequency of feeding detergent and an output voltage of the linear Hall element of the washing machine according to the exemplary embodiment.

FIG. 18 is a flowchart of a method of determining insufficiency of the remaining amount of detergent in the washing machine according to the exemplary embodiment.

DESCRIPTION OF EMBODIMENTS

Hereinafter, exemplary embodiments are described in detail with

liquid remaining in softener tank 126, and thus the description thereof will be omitted.

FIG. 17 is a view showing a relationship between feeding frequency of detergent and an output voltage of the linear Hall element of the washing machine according to the exemplary embodiment. In FIG. 17, the horizontal axis represents feeding frequency of detergent liquid into water tub 105, and the vertical axis represents output voltage of linear Hall element 136. In FIG. 17, solid line a represents changes in output voltage when a magnetic body with the north magnetic polarity approaches linear Hall element 136, and broken line b represents changes in output voltage when a magnetic body with the south magnetic polarity approaches linear Hall element 136.

In the following description, the upper limit of the output voltage of linear Hall element 136 is 5 V, the lower limit of the output voltage thereof is 0 V, and the output voltage of linear Hall element 136 is 2.5 V when the magnetic flux density is substantially 0 Wb/m^2, for example. The upper limit of linear Hall element 136 may be, for example, 10 V, or may be set arbitrarily without hindrance to detection accuracy.

Firstly, linear Hall element 136 and magnet 134 are distant from each other as shown in FIG. 15 when detergent tank 117 is filled with sufficient detergent liquid. Thus, magnetic field lines from magnet 134 do not reach linear Hall element 136. Thus, linear Hall element 136 outputs a voltage of 2.5 V, which corresponds to a case where the magnetic flux density is substantially 0 Wb/m^2 as shown by section K in FIG. 17.

After that, detergent liquid is repeatedly fed to water tub 105 from detergent tank 117 according to the washing operation. This reduces the amount of detergent liquid inside detergent tank 117, and lowers a level of

configured to engage with the second claw. With this configuration, engagement of the second claw of the tank and the second engagement of the mesh member can be easily released by bending the mesh member. This configuration facilitates detaching of the mesh member.

In the washing machine of the present invention, the second claw may protrude inwardly of the tank, and the second engagement may include an engagement rib extending from a back surface of the mesh member, and a protrusion provided at a tip end of the engagement rib. With this configuration, if the user pushes the mesh member with the hand toward the rear wall of the tank, the rear wall of the tank is bent, and the second engagement goes under the second claw. In this state, if the user moves the hand off the mesh member, a bend in the rear wall of the tank is lost, which causes the protrusion of the second engagement and the second claw to be engaged with each other. On the other hand, in a state where the mesh member is bent, engagement of the protrusion of the second engagement and the second claw is released. In this state, the user can detach the mesh member by lifting the upper end of the mesh member upward. This enables the mesh member to be easily detached from the tank.

INDUSTRIAL APPLICABILITY

The present invention is useful for application of a washing machine that requires easy detaching of a mesh member from a tank.

REFERENCE MARKS IN THE DRAWINGS

100: washing machine

101: housing

102, 114a: lid