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WASHING MACHINE

Filed April 4, 1931

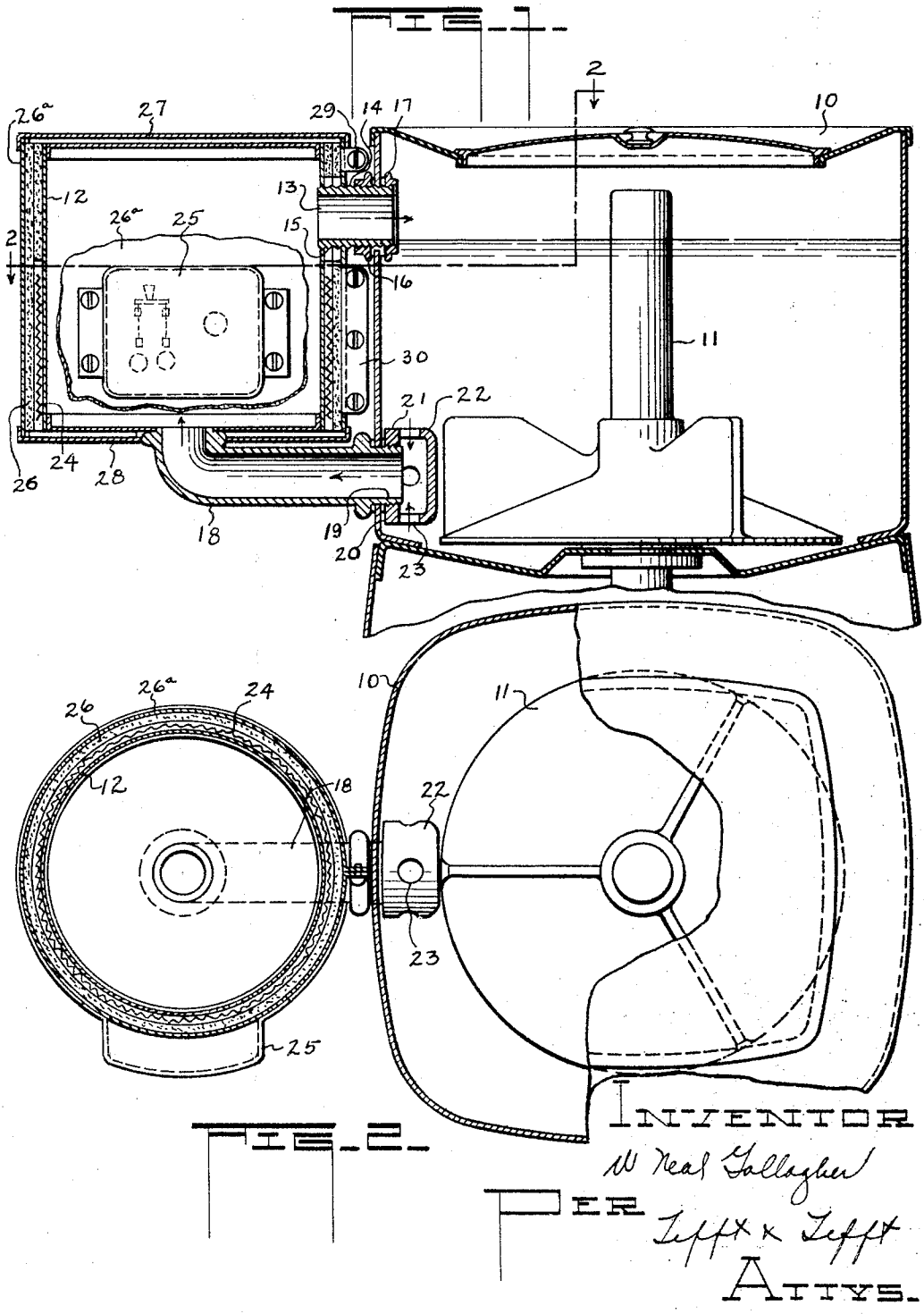


FIG. 2.

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WASHING MACHINE

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This invention relates to washing machines, and more particularly to an electrical heating device co-operatively connected thereto for the purpose of maintaining the washing water at a comparatively high temperature.

One of the objects of the invention lies in the provision of an electrical water heater operatively connected with the washing machine tub in such manner as to circulate the water in the tub and heater means in a manner to maintain same at a comparatively high temperature.

Another object lies in the provision of an electrical water heater comprising a chamber having connections with a washing machine tub, which permit circulation of the water within the tub, as well as the heater, in a manner to maintain same at a relatively high temperature.

Other objects will appear in the following specification, taken in connection with the annexed drawing, in which—

Fig. 1 is an elevational view, partially in section, showing the manner of mounting my electrical water heater in connection with a conventional washing machine tub; and

Fig. 2 is a plan view, partially in section, taken on the lines 2—2 of Fig. 1.

Before referring specifically to the drawing, it might be well to sum up the conventional constructions which have appeared in the trade relative not only to the actual heating of water within a washing machine tub, but also those calculated to maintain the temperature of the water at a comparatively high point.

In considering such structures, it is found that gas burners have been disposed with relation to a washing machine tub in such manner that the flame thereof plays directly upon the tub. Such devices have certain disadvantages, first, great loss of efficiency due to the impossibility of applying the gas flame to more than a small portion of the tub. This results in the inefficient heating of the water and in many instances, the tub structure soon deteriorates because of the proximity of the burner.

The company by which applicant is employed, as well as other manufacturers, have all used some sort of gas jet mechanism for heating the water in the tub in an attempt to maintain the temperature of the water in the tub sufficiently high to assist at least in the washing operation. As a matter of fact, it must be admitted that such gas flames are not able actually to heat the large quantity of water in the tub, and the most they can do is to maintain the temperature for but a temporary period.

In order to provide a means for actually maintaining the water within the washing machine tub at a temperature satisfactory for the washing operation, and for a considerable period, applicant has provided the following electrically operated water circulating and heating device.

In the drawing, a conventional washing machine tub is disclosed at 10 having a well known character of agitator mechanism 11 disposed adjacent the bottom thereof and adapted to be reciprocated in a manner to accomplish washing of the material within the tub. No necessity is seen for describing th actual drive mechanism for the agitator, in view of its extreme conventionality.

Specifically, with respect to the electrical water heating mechanism, a metal container is shown at 12, preferably made of cast aluminum, although obviously it might also be made by a stamping operation.

Means for connecting this container to the tub is by the following mechanism: An upper pipe connection between the tub and the water chamber 12 is found at 13, which pipe is threaded at the ends 14 and 15, as shown in Fig. 1 of the drawing, said ends engaging the container 12 and the tub 10 respectively.

Additional means for securing the pipe 13 to the tub is provided in threaded exterior and interior clamping mechanism 16 and 17 respectively. A lower pipe 18 engages the electrically operated water heater at its under side, the outer end 19 of said pipe passing through the side of the tub 10 at a point substantially adjacent the bottom thereof. The pipe 18 has the circumferentially projecting portion 20, which abuts the exterior side of the tub 10, while an inner clamping portion

21 is threaded upon the inner end of said pipe in a manner to further assist in supporting the electrical heater in a position adjacent to the washer. This clamping portion 21 is peculiarly fashioned in that same forms a protective covering 22 for the tub member and the heating chamber. It is apparent that this protective member is provided with a plurality of apertures 23, which permit circulation of the water from the tub to the heater while actually preventing any possible exit of the clothes from the tub.

Surrounding the container 12 in a circular manner is an electrical heating or resistance element 24, positioned with respect to the member 12 in a manner to surround completely said element and at the same time lying immediately adjacently thereto, this obviously for the purpose of furnishing the greatest possible amount of heating surface. This resistance element 24 is connected by means of conventional electrical connections by means of a switch box 25 of conventional construction, containing a manually operated switch member for controlling the flow of current to the heating element 24. Immediately surrounding the heating element 24 is an insulated area 25 which is adapted to receive any desired insulation material. Finally surrounding the insulation area there is a metal housing 26 entirely surrounding the container 12. The member 26 also includes upper and lower portions 27 and 28 respectively which operate to entirely house the container, the electrical heating element and the surrounding insulating portion.

Means for securing the outer housing to the container 12 is provided by the dual clamp portions 29 and 30. Obviously, this outer housing may be supported about the container in any manner desired, inasmuch as same merely acts as a supporting medium for the electrical element and insulation portion.

With respect to the operation of my water temperature maintaining unit, operatively connected to a washing machine, it is found that under normal conditions the operator places a considerable quantity of hot water in the tub of the washer, thereafter placing the garments to be washed within the tub and finally starting the washer, with the result that the water and clothes are intermingled for the washing operation.

The operator, upon placement of the hot water in the tub, and upon commencement of the washing operation, may then operate the switch controlling the flow of current to the electrical heating member 24, with the result that same will substantially immediately become heated and operate to heat the water which has naturally passed through the pipes 13 and 18 to the heater.

Obviously, due to the placement of the electrical heater in a position adjacent to the tub, said container is substantially filled with water from the tub. Due to the fact that the water within the electrical heater will have is temperature raised substantially, owing to the operation of the electrical heating element, a circulation will be created between the washing machine tub and the heater, and the heated water will flow from the heater into the washing machine through the pipe 13, in the direction indicated by the arrows, while the incoming and cooler water will flow from the bottom of the washer through the pipe 18 to the heater in the direction shown by the arrows. This circulation of the water is continuous and therefore operates to assist in maintaining the water in the washing machine tub at a sufficiently high temperature to insure satisfactory washing of the clothes. Obviously, to accomplish such purpose, it is necessary to have the water at a comparatively high temperature, and inasmuch as reciprocation of the agitator and the continuous movement of the water normally operates to lower this temperature at a rapid rate, the disposition of applicant's electrical water heater in an operative position adjacent the tub and in a manner to continuously heat the water and circulate same, is adapted to insure the maintenance of the water at a relatively high temperature.

What I claim is:

1. In combination, a washing machine tub, a water container disposed adjacent said tub, upper and lower pipe connections between the tub and container, said pipe members operating as a supporting means for the container, an electrical heating element surrounding said container, insulation means for said electrical heating element and means for housing and supporting the insulating and heating element in such manner that the water in said container will be heated to such a degree as to create a continuous circulation of water from the tub to the container, thereby operating to maintain said water at a temperature suitable for the washing operation.

2. In combination, a washing machine tub, a water heating container disposed adjacent thereto, pipe connections between the water heater and tub, an electrical heating element surrounding said container, means for housing and insulating said electrical heating element in a position immediately adjacent the container, with the result that the water will circulate continuously between the tub and heater, at the same time being maintained at a temperature satisfactory for the washing operation, and means for permitting a flow of water from the tub to the container but preventing passage of the clothes from the tub.

In testimony whereof I have hereunto affixed my signature.

W. NEAL GALLAGHER.