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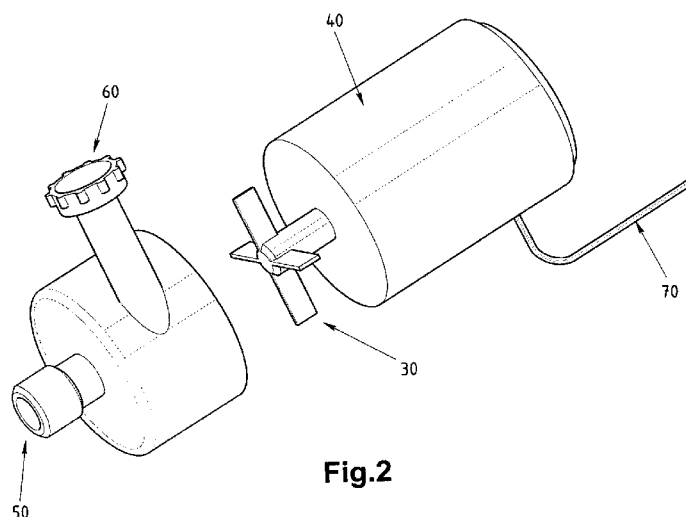


Fig.2

(57) Abstract: The present invention refers to a clothes washing machine of the type comprising a wash tank and a water inlet for feeding water to said wash tank, wherein said pressurizer device (10) is disposed between the machine water inlet and a water outlet of the machine installation local water supply network. Said pressurizer device (10) comprises a carcass (20) housing a rotor (30) and an electric motor (40), a water inlet connection (60) disposed in the carcass (20) and connected to said supply network water outlet, and a water outlet connection (50) disposed in said carcass (20) and attached to the water inlet of the clothes washing machine.

PRESSURIZER DEVICE FOR A CLOTHES WASHING MACHINE AND CLOTHES WASHING MACHINE

Field of the Invention

The present application refers to a pressurizer device for a clothes washing machine and, more specifically, a pressurizer device capable of increasing water input rate in a clothes washing machine.

Background of the Invention

The process of washing clothes with an automatic washing machine basically comprises the operations of filling up a tank with water and wash liquid (e.g. detergent), stirring clothes with a stirrer to effect washing, draining water with detergent, again filling up with wash liquid, stirring clothes to remove detergent (rinsing step), draining water, and centrifuging clothes to remove exceeding water.

Water supply rate at a machine installation local directly impacts on the time needed to fill up a tank with water. It is common that, mainly in Brazil and in other developing countries, consumers' residential building installations comprise low-height water reservoirs, and, consequently, with low pressure. Because of that, filling up a tank of a clothes washing machine occurs in a substantially slow mode.

This slowness in this filling step may cause problems related to the machine program and supplies delivery.

In the first kind of problem, long filling time may cause the machine to interrupt its operation prior to beginning a wash cycle as it interprets such delay as an occurrence of flaw. In the second kind, low water supply rate has a negative effect on supplies delivery (for example, detergent and conditioner), leaving residues of these supplies in supply compartments.

This issue related to filling rate is yet more relevant in high capacity machines, whose tank volume is larger and it requires a higher amount of filling water.

Some solutions known in the art to deal with this kind of problem involve

increasing water supply hose diameter of a washing machine or using more than one water supply hose for a washing machine.

Nevertheless, such known solutions do not solve this supply problem associated with building installation having low water pressure since water input means
5 having larger capacity (either by diameter or by the amount of pipes) are still a structural limitation on the supply.

Objects of the Invention

Thus, one of the objects of the present invention is to provide a pressurizer device for use in a clothes washing machine capable of increasing water
10 supply rate of a wash tank whereby the time required for filling is reduced.

A further object of the present invention is to provide a pressurizer device for use in a clothes washing machine of easy installation and which can be installed in the machine by the own user.

Summary of the Invention

15 These and other objects of the present invention are accomplished by means of a pressurizer device for a clothes washing machine of the type comprising a water inlet for feeding water to a wash tank, said device comprising:

a water inlet connection attached to a water outlet of the machine installation local water supply network and

20 a water outlet connection attached to the water inlet of the clothes washing machine.

In an embodiment of the present invention, the water inlet connection is directly attached to the water supply network. Nevertheless, in alternative embodiments, said water inlet connection can be attached to the water outlet of the water supply
25 network through a hose.

Similarly, in an embodiment of the device of the present invention the water outlet connection is directly connected to the water inlet of the clothes washing

machine while in alternative embodiments, the water outlet connection can be attached to the water inlet of the clothes washing machine through a hose.

In a preferred embodiment of the present invention, the pressurizer device comprises a carcass housing a rotor and an electric motor, wherein the water inlet connection and water outlet connection are disposed in said carcass.

The present invention also contemplates a clothes washing machine of the type comprising a wash tank and a water inlet for feeding water to said wash tank, said machine further comprising a pressurizer device disposed between the machine water inlet and a water outlet of water supply network in the machine installation local.

In a preferred embodiment of the clothes washing machine of the present invention, said pressurizer device comprises:

a carcass housing a rotor and an electric motor;

a water inlet connection disposed in the carcass and attached to the water outlet supply network; and

an outlet connection disposed in the carcass attached to the water outlet of the clothes washing machine.

Said water outlet connection can be directly attached to said water supply network water outlet or a hose can be used.

Similarly to this water inlet connection, the water outlet connection can be directly attached to the water inlet of the clothes washing machine or a hose can be used.

Brief Description of Drawings

Figures show:

Figure 1 shows a perspective view of a preferred embodiment of the pressurizer device of the present invention; and

Figure 2 shows an exploded perspective view of the preferred embodiment of the pressurizer device of the present invention.

Detailed Description of the Invention

Next, the present invention will be described in more details based on working examples represented by the drawings.

As known by those skilled in the art, a conventional clothes machine
5 comprises a water inlet connected to a water valve inside said machine.

In conventional clothes machines, the water inlet is connected to the water outlet of the consumer's water network by means of a water hose. Thus, the filling time and speed of the machine wash tank depend directly on the features of the consumer's house water supply system.

10 For example, in some houses, the building installation type places a water reservoir in an extremely low height, whereby water ends up reaching the tap with low pressure. In this case, although the machine water inlet is connected to a hose or even to a lower diameter hose, this low pressure does not allow for the tank to be suitably and appropriately filled up. In addition, such a low force with which water is fed to this
15 machine causes the washing supplies (e.g. detergent and conditioner) to be inadequately delivered, whereby residues of said washing supplies will be left in the machine containers.

Hence, the present invention provides for a pressurizer device 10 to be installed between the machine water inlet and water supply network water outlet,
20 wherein said device 10 pressurizes the water before it enters the inner water valve, thereby ensuring that the washing liquid is suitably filled and also washing supplies are suitably delivered.

In the preferred embodiment illustrated in Figures 1 and 2, said device 10 of the present application comprises a carcass 20 housing a rotor 30 and an electric
25 motor 40. Said carcass 20 comprises a water inlet connection 60 and a water outlet connection 50.

Said water inlet connection 60 is attached to said water supply network

water outlet and said water outlet connection 50 is attached to the water inlet of the clothes washing machine.

In a preferred embodiment of the present invention, the water inlet connection is directly attached to said supply network water outlet (for example, it is directly attached to a tap). Nevertheless, said water connection 60 can be connected to the water outlet by means of a hose.

In a similar way, the water outlet connection 50 can be directly attached to the machine water inlet. However, in alternative embodiments, said water connection 50 can be attached to the water outlet by means of a hose.

In a preferred embodiment illustrated in figures, said pressurizer device 10 is fed by electric voltage and comprises a power supply cable 70.

Therefore, to operate the present invention, water coming from an installation local supply network of the washing machine enters the pressurizer device through connection 60, is pressurized by means of a rotor 30, exits said device through the outlet connection 50 and goes into the washing machine water inlet.

By this way, water is fed to the machine with a suitable pressure, thus optimizing the wash tank filling time.

It is to be understood that the description provided based on the figures outlined above only refers to possible embodiments of the device and machine of the present invention, wherein the real scope of the invention is defined in the appended claims.

CLAIMS

1. Pressurizer device (10) for a clothes washing machine, said clothes washing machine comprising a water inlet for feeding water to a wash tank, wherein said device (10) is **CHARACTERIZED** in that it comprises:

5 a water inlet connection (60) attached to a water inlet of the machine installation local water supply network; and

 water outlet connection (50) attached to the water inlet of the clothes washing machine.

2. Device, in accordance with claim 1, **CHARACTERIZED** in that the
10 water inlet connection (60) is directly attached to the water supply network water outlet.

3. Device, in accordance with claim 1, **CHARACTERIZED** in that said water inlet connection (60) is attached to the water supply network water outlet by means of a hose.

4. Device, in accordance with any of claims 1 to 3, **CHARACTERIZED** in
15 that said water outlet connection (50) is directly attached to the water outlet of said clothes washing machine.

5. Device, in accordance with any of claims 1 to 3, **CHARACTERIZED** in that said water outlet connection (50) is attached to the water inlet of the clothes washing machine by means of a hose.

20 6. Device, in accordance with any of claims 1 to 5, **CHARACTERIZED** in that it comprises a carcass (20) housing a rotor (30) and an electric motor (40), said water inlet connection (60) and said water outlet connection (50) being disposed in the carcass (20).

7. Clothes washing machine of the type comprising a water inlet for feed
25 water to the wash tank, **CHARACTERIZED** in that it comprises a pressurizer device (10) disposed between said machine water inlet and a water outlet of the machine installation local water supply network.

8. Clothes washing machine, in accordance with claim 7,
CHARACTERIZED in that said pressurizer device (10) comprises:

a carcass (20) housing a rotor (30) and an electric motor (40);

5 a water inlet connection (60) disposed in said carcass (20) and attached
to the supply network water outlet; and

a water outlet connection (5) disposed in the carcass (20) and attached to
the water inlet of the clothes washing machine.

9. Clothes washing machine, in accordance with claim 8,
CHARACTERIZED in that said water inlet connection (60) is directly connected to the
10 water supply network water outlet.

10. Clothes washing machines, in accordance with claim 8,
CHARACTERIZED in that the water inlet connection (60) is attached to the water supply
network water outlet by means of a hose.

11. Clothes washing machine, in accordance with any of claims 8 to 10,
15 **CHARACTERIZED** in that said water outlet connection (50) is directly connected to the
water inlet of the clothes washing machine.

12. Clothes washing machine, in accordance with any of claims 8 to 10,
CHARACTERIZED in that said water outlet connection (50) is attached to the water inlet
of the clothes washing machine by means of a hose.

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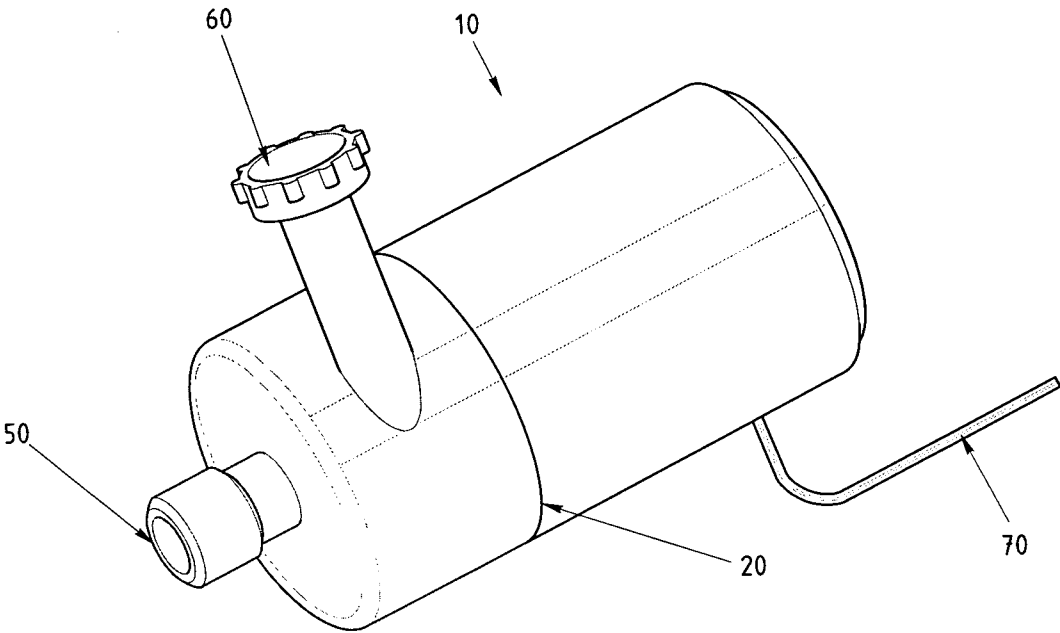


Fig.1

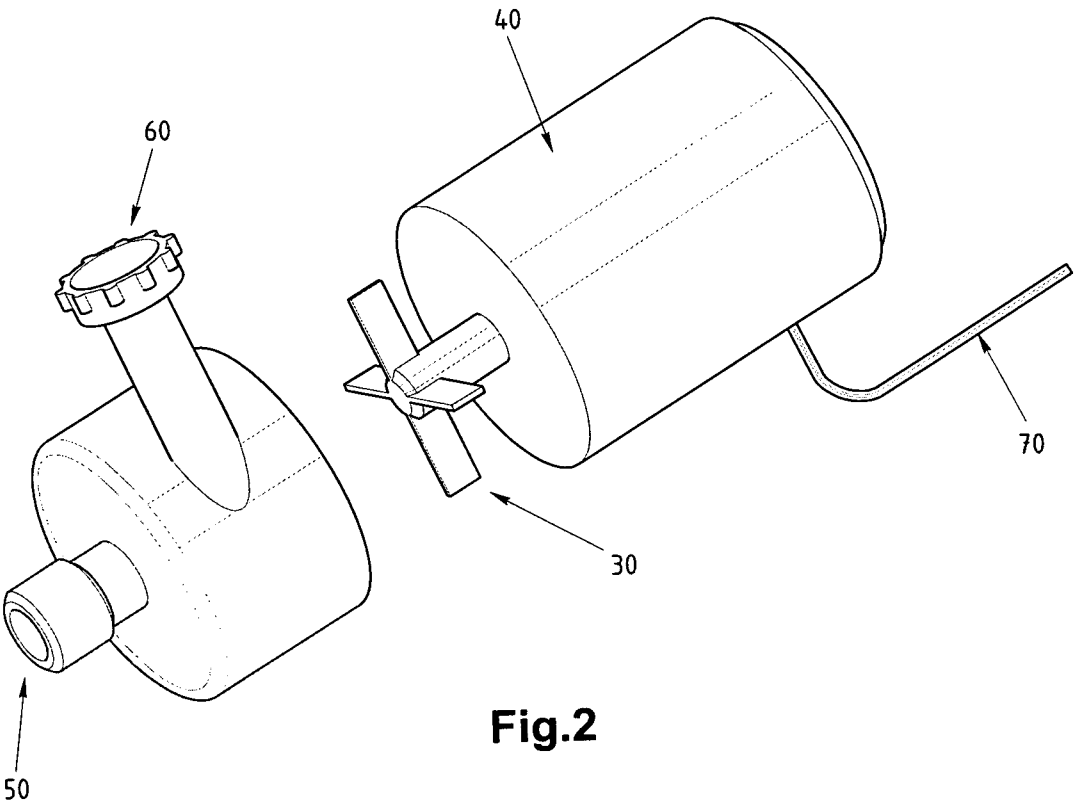


Fig.2