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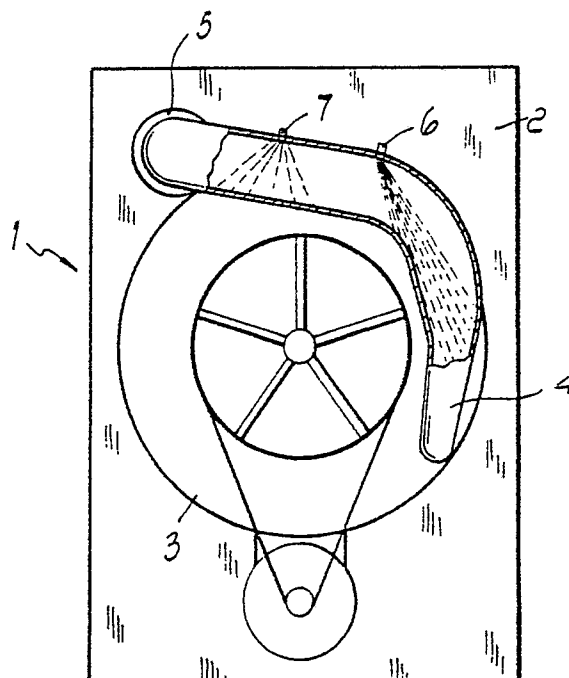
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(54) **Cleaning device for an air circulating conduit, particularly for drying assemblies of washing and drying machines.**

(57) The cleaning device for the air circulation conduit, includes a washing container (3) containing laundry to be dried and connected to a heated air supply conduit for drying the laundry. The container is also connected to an exhaust conduit (4) for the humid air. The device also includes a rather powerful cleaning water jet (7), for cleaning the exhaust conduit.



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CLEANING DEVICE FOR AN AIR CIRCULATING CONDUIT, PARTICULARLY FOR DRYING ASSEMBLIES OF WASHING AND DRYING MACHINES

The present invention relates to a cleaning device for an air circulating conduit, particularly for drying assemblies of washing and drying machines having a closed loop air circulation.

The washing and drying machines with closed loop air circulation are washing machines provided with an additional air circulation device that starts to operate at the end of the washing and centrifugation cycles, to dry the laundry completely.

A device is known in which: air enters the container drum, where the laundry is heated by a radiating element, eliminates humidity, goes through the drum's holes into the exhaust conduits and reaches a fan that forces back the air into the drum.

By going through the heated laundry, air removes the humidity and gets into the exhaust conduit where, contacting the cooling water, leaves the humidity.

By repeating this cycle for about 100 - 150 minutes the laundry is completely dried.

In another type of device, air is fanned into a resistance where it is heated and subsequently supplied to the drum containing the laundry to be dried. The humid air goes through the drum's holes and is retrieved through a suction conduit kept cold and humid by a water jet that cools the incoming air, which leaves the humidity.

By repeating this cycle for one or two hours after centrifugation, the laundry is completely dried.

Other drying systems are known, substantially similar to those described above, in which air and heat are supplied to the laundry which gives in humidity to the air; air is cooled, through various systems, to make it give in humidity; the air is again heated and supplied to the laundry; the cycle is repeated until the desired drying is obtained.

These drying systems have a drawback.

A small amount of fuzz coming off the laundry is conveyed through the air conduits and, by repeated washing cycles, leaves deposits at the suction conduit inlet and up along the conduit itself.

Eventually these deposits come off and end up in the fan or in the electric resistance causing a lowered efficiency or damages.

For example, by modifying the conduits cross section, the fan efficiency is lowered and so are the machine's characteristics; moreover, the fuzz deposits may even catch fire by being in contact with the electric resistance.

To overcome these problems, it is known to provide a filter, upstream the fan, or a deposit container.

These implements though, have the inconvenience

of necessitating to be periodically checked and cleaned to remove the deposits.

The aim of the present invention is to provide a cleaning device that keeps the air circulating conduit clean, during the whole life of the washing and drying machine, without the need of any periodical check by the user.

Within this aim, a scope of the invention is to provide a device that does not further complicate the machine and is therefore also economical.

A further scope of the invention is to provide a device which can be easily applied to known machines.

The above aim, as well as these and other objects which will be more apparent later, are achieved by a cleaning device for an air circulating conduit, particularly for drying assemblies of washing and drying machines, comprising a washing container containing laundry to be dried and connected to a supply conduit supplying heated dry air to dry said laundry and to an exhaust conduit for humid air, characterized in that a cleaning water jet is supplied in said exhaust conduit for cleaning said conduit.

Further characteristics and advantages of the invention will be more apparent by the following description of a preferred embodiment of the device, illustrated, by way of example, in the enclosed figure showing a washing and drying machine, according to the invention, in a schematic front elevation view.

With reference to the cited figure, a laundry washing and drying machine, generally designated by the reference numeral 1, comprises a supporting frame 2 for a container 3 containing laundry to be washed and dried.

The drying and air circulation assembly of the machine 1 comprises an heated air supply conduit, which can be provided with an electric resistance to heat the air supplied to the container, in a per se known manner, not illustrated in the figure.

The machine further comprises a suction, or exhaust, conduit 4 connected to the container 3 and to an exhaust fan 5 adapted to suck the warm and humid air contained in the container 3.

Conveniently, suction conduit 4 is provided with a jet 6 cooling the exhausted air which thus leaves its humidity, in a per se known manner.

The suction conduit 4 further comprises a cleaning water jet 7, conveniently located between the cooling jet 6 and the exhaust fan 5, and adapted to clean the conduit 4 with a relatively large water flow.

The cleaning jet 7 should be relatively powerful

erful, so its flow rate should be between 3 and 5 liter/minute.

The flow rate of the cooling jet 6 is instead preferably comprised between 0.5 and 0.7 liter/minute, enough to provide a thin water layer for cooling air and humidifying the conduit walls.

The cooling jet 6 operates for the entire drying time (for example 100/150 minutes), while the cleaning jet 7 intermittently operates with a larger flow rate and periodically cleans the entire suction conduit.

Conveniently, to prevent any waste of water, it is advisable to supply the cooling jet 7 with water derived by the water supply circuit of the container during the washing and rinsing filling of the container.

When the selected water level is reached, filling is interrupted, while the supplied water has cleaned the cooling air conduit.

In practice, the cleaning device according to the invention achieves the intended aims and scopes, by providing a continuous cleaning of the suction conduit in the drying system of a washing machine, without the need of periodical checks by the user.

An important advantage of the invention is that of deriving the cleaning jet from the water supply circuit for the container, thus saving energy and water.

A further advantage of the invention is that the device is easily adaptable to the known drying assemblies of washing and drying machines.

The device according to the invention may have numerous modifications and variations, all within the inventive concept; furthermore, all the details may be substituted with technically equivalent elements.

The materials employed, as well as the dimensions, may be any according to the specific needs and the state of the art.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1.Cleaning device for an air circulating conduit, particularly for drying assemblies of washing and drying machines, comprising a washing container (3) containing laundry to be dried and connected to a supply conduit supplying heated dry air to dry said laundry and to an exhaust conduit (4) for

humid air, characterized in that a cleaning water jet (7) is supplied in said exhaust conduit for cleaning said conduit.

2.Device, according to claim 1, characterized in that exhaust conduit (4) further comprises a cooling water jet (6) having a lower flow rate for cooling air in said exhaust conduit.

3.Device, according to claim 1 or 2, characterized in that said cleaning jet (7) is derived from a water supply circuit for said container, said cleaning jet being injected in said exhaust conduit during the filling of said container by said water supply circuit.

4.Device, according to one or more of the preceeding claims, characterized in that the flow rate of said cleaning jet (6) is substantially greater than the flow rate of said cooling jet (7).

5.Device, according to one or more of the preceeding claims, characterized in that the flow rate of said cleaning jet (7) is comprised between 2 and 5 liter/minute.

6.Device, according to one or more of the preceeding claims, characterized in that the flow rate of said cooling jet (6) is comprised between 0.5 and 0.7 liter/minute.

7.Device, according to one or more of the preceeding claims, characterized in that air is sucked by an exhaust fan (5) connected to said exhaust conduit (4), said cleaning jet (7) and said cooling jet (6) being connected to said exhausting conduit between said container (3) and said fan (5).

8.Device, according to one or more of the preceeding claims, characterized in that said cleaning jet (7) is located between said fan (5) and said cooling jet (6) in said exhausting conduit (4).

