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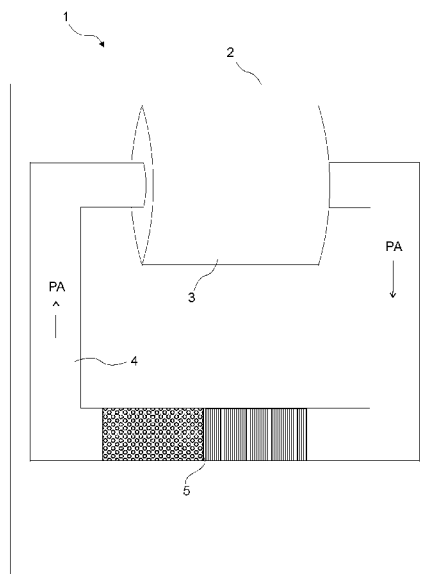
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(54) Title: A LAUNDRY DRYER COMPRISING A SPRAYING DEVICE

Figure 1



(57) Abstract: The present invention relates to a laundry dryer (1) compris-
ing a body (2), a drum (3) wherein laundry to be dried is placed, an air circula-
tion duct (4) enabling the processing air (PA) to be sent onto the laundry
in the drum (3), a heat exchanger (5) that is disposed in the air circulation
duct (4) and that enables the temperature of the processing air (PA) blown
onto the laundry to be changed, and a spraying device (6) that is disposed in
the air circulation duct (4) and that sprays water onto particles such as fiber,
lint etc. accumulating on the heat exchanger (5), thus providing the cleaning
of these particles.

Description**A LAUNDRY DRYER COMPRISING A SPRAYING DEVICE**

- [0001] The present invention relates to a laundry dryer comprising a spraying device.
- [0002] In dryers, the heated air is directed into the drum containing the laundry to be dried and is sucked to be redirected into the heating cycle. During this cycle in the air circulation duct, particles such as fiber, lint etc. accumulate in the air circulation duct and cause the air circulation duct to be clogged. For this reason, spraying devices are placed on the air circulation duct. The position and the placement of the spraying devices are important for the cleaning of the said particles such as lint, fiber, etc. However, in some cases the spraying devices are not effective to provide the desired water flow on the heat exchanger by themselves.
- [0003] In the state of the art European Patent Application No. EP2072660, a spraying device is described, providing the cleaning of the filter situated in the laundry dryer.
- [0004] The aim of the present invention is the realization of a laundry dryer, the drying effectiveness of which is increased.
- [0005] The laundry dryer realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof comprises a heat exchanger that is disposed in the air circulation duct and that provides the heating of the processing air (PA) blown onto the laundry, and a spraying device that is disposed in the air circulation duct and that sprays water onto particles such as lint, fiber, etc. accumulating on the heat exchanger, thus providing the cleaning of these particles.
- [0006] The laundry dryer of the present invention furthermore comprises a guiding member that is disposed at the upper portion of the heat exchanger, that extends outwards from the heat exchanger and enables the water sprayed from the spraying device and hitting thereon to be guided onto the heat exchanger. Thanks to its position, the spraying device sprays water upwards so as to hit the guiding member remaining above the spraying device.
- [0007] In an embodiment of the present invention, the spraying device is

disposed on the air circulation duct so as to be aligned with the base of the heat exchanger. The spraying device sprays water upwards so as to hit the guiding member.

- [0008] In an embodiment of the present invention, in the laundry dryer the guiding member is disposed at the upper portion of the surface of the heat exchanger contacting the processing air (PA) first and extends outwards from the heat exchanger in a direction opposite to the flow direction of the processing air (PA).
- [0009] In an embodiment of the present invention, in the laundry dryer the spraying device sprays water onto the guiding member in an angular manner and the guiding member changes direction with the impact of the water sprayed thereon in an angular manner and enables the said water to be guided onto the heat exchanger surface.
- [0010] In an embodiment of the present invention, the spraying device is disposed on the air circulation duct, in front of the heat exchanger so that a distance remains between the heat exchanger and the spraying device.
- [0011] In an embodiment of the present invention, the guiding member has an inclined surface whereon the water sprayed from the spraying device contacts.
- [0012] In an embodiment of the present invention, the guiding member has a hollow semi-circular cross-section.
- [0013] In the laundry dryer of the present invention, hygienic utilization conditions and energy efficiency are improved by using the spraying device efficiently.
- [0014] The laundry dryer realized in order to attain the aim of the present invention is illustrated in the attached figures, where:
- [0015] Figure 1 – is the schematic view of a laundry dryer.
- [0016] Figure 2 – is the schematic view of the heat exchanger, the spraying device and the guiding member in an embodiment of the present invention.
- [0017] Figure 3 – is the schematic view of the evaporator, the spraying device and the guiding member in an embodiment of the present invention.
- [0018] The elements illustrated in the figures are numbered as follows:

1. Laundry dryer
2. Body
3. Drum
4. Air circulation duct
5. Heat exchanger
6. Spraying device
7. Guiding member

- [0019] The laundry dryer (1) comprises a body (2), a drum (3) wherein laundry to be dried is placed, an air circulation duct (4) enabling the processing air (PA) to be sent onto the laundry in the drum (3), a heat exchanger (5) that is disposed in the air circulation duct (4) and that enables the temperature of the processing air (PA) blown onto the laundry to be changed, and a spraying device (6) that is disposed in the air circulation duct (4) and that sprays water onto particles such as fiber, lint etc. accumulating on the heat exchanger (5), thus providing the cleaning of these particles (Figure 1).
- [0020] The laundry dryer (1) of the present invention furthermore comprises a guiding member (7) that is disposed on the heat exchanger (5), that remains at the upper side of the heat exchanger (5) and that extends outwards from the heat exchanger (5). The spraying device (6) sprays water upwards so as to hit the guiding member (7) (Figure 2, Figure 3).
- [0021] During the operation of the laundry dryer (1), fiber, lint and hair coming off from the laundry accumulate in the processing air (PA) that circulates in the air circulation duct (4) disposed in the body (2) in the course of time. The spraying device (6) sprays water onto these particles accumulating in the air circulation duct (4) and provides the removal of these particles from the air circulation duct (4). The water condensing in the processing air (PA) condensed by the heat exchanger (5) is delivered to a chamber located in the vicinity of the heat exchanger (5). The water accumulating in the chamber is transferred to the spraying device (6) by means of a transfer means. The spraying device (6) sprays water onto the guiding member (7) situated thereabove and the water hitting the guiding member (7) makes a downward movement to sweep the surface of the heat exchanger (5) from end to end and enables the particles such as lint, fiber,

etc. sticking onto the heat exchanger (5) to be removed from the heat exchanger (5). The guiding member (7) is disposed at the upper side of the heat exchanger (5). Thus, a wide surface of the heat exchanger (5) situated under the guiding member (7) is swept with water. The spraying device (6) is disposed on the air circulation duct (4) at a lower position with respect to the guiding member (7) and sprays water onto the guiding member (7) situated thereabove in a pressurized manner.

[0022] In an embodiment of the present invention, the spraying device (6) is disposed on the air circulation duct (4) so as to be aligned with the base of the heat exchanger (5). The spraying device (6) sprays water upwards so as to hit the guiding member (7).

[0023] In an embodiment of the present invention, in the laundry dryer (1) the guiding member (7) is disposed on the surface of the heat exchanger (5) contacting the processing air (PA) first and extends outwards from the heat exchanger (5) in a direction opposite to the flow direction of the processing air (PA). The guiding member (7) extends longitudinally on the said surface. Thus, the said surface is entirely swept with water and cleaned.

[0024] In an embodiment of the present invention, in the laundry dryer (1) the spraying device (6) sprays water onto the guiding member (7) in an angular manner and the guiding member (7) changes direction with the impact of the water sprayed thereon in an angular manner and enables the said water to be guided onto the heat exchanger (5) surface. The spraying device (6) sprays water in an inclined direction that is not perpendicular or parallel to the base.

[0025] In an embodiment of the present invention, the spraying device (6) is disposed on the air circulation duct (4), in front of the heat exchanger (5) so that a distance remains between the heat exchanger (5) and the spraying device (6).

[0026] In an embodiment of the present invention, the guiding member (7) has a curved surface whereon the water sprayed from the spraying device (6) contacts. By means of the said curved surface, the water sprayed from the spraying device (6) is enabled to change direction and to be guided onto

the heat exchanger (5).

- [0027] In an embodiment of the present invention, the guiding member (7) has an almost C-shaped cross-section. The almost semi-cylindrical guiding member (7) is positioned on the heat exchanger (5) so that the concave part of the cylindrical structure faces the base. The water hitting the concave guiding member (7) by means of the spraying device (6) is guided onto the heat exchanger (5) by means of the inclination of the concave surface.
- [0028] By means of the present invention, a more hygienic laundry dryer (1) with improved energy efficiency is realized by means of the spraying device (6) that sprays water so as to remove the particles such as hair, lint, fiber, etc. accumulating on the heat exchanger (5) and by means of the guiding member (7) that enable the water sprayed by the spraying device (6) to be transferred onto the heat exchanger (5) surface.

Claims

1. A laundry dryer (1) **comprising** a body (2), a drum (3) wherein laundry to be dried is placed, an air circulation duct (4) enabling the processing air (PA) to be sent onto the laundry in the drum (3), a heat exchanger (5) that is disposed in the air circulation duct (4) and that enables the temperature of the processing air (PA) blown onto the laundry to be changed, and a spraying device (6) that is disposed in the air circulation duct (4) and that sprays water onto particles such as fiber, lint etc. accumulating on the heat exchanger (5), thus providing the cleaning of these particles, **characterized by** a guiding member (7) that is disposed on the heat exchanger (5), that remains at the upper side of the heat exchanger (5) and that extends outwards from the heat exchanger (5) and the spraying device (6) that sprays water upwards so as to hit the guiding member (7).
2. A laundry dryer (1) as in Claim 1, **characterized by** the spraying device (6) that is disposed on the air circulation duct (4) so as to be aligned with the base of the heat exchanger (5).
3. A laundry dryer (1) as in Claim 1 or 2, **characterized by** the guiding member (7) that is disposed on the surface of the heat exchanger (5) contacting the processing air (PA) first and that extends outwards from the heat exchanger (5) in a direction opposite to the flow direction of the processing air (PA).
4. A laundry dryer (1) as in any one of the above claims, **characterized by** the spraying device (6) that sprays water onto the guiding member (7) in an angular manner and **by** the guiding member (7) that changes direction with the impact of the water sprayed thereon in an angular manner and enables the said water to be guided onto the heat exchanger (5) surface.
5. A laundry dryer (1) as in any one of the above claims, **characterized by** the spraying device (6) that is disposed on the air circulation duct (4), in front of the heat exchanger (5) so that a distance remains between the heat exchanger (5) and the spraying device (6).
6. A laundry dryer (1) as in any one of the above claims, **characterized by** the guiding member (7) that has a curved surface whereon the water sprayed from the spraying device (6) contacts.
7. A laundry dryer (1) as in any one of the above claims, **characterized by** the

guiding member (7) that has an almost C-shaped cross-section.

Figure 1

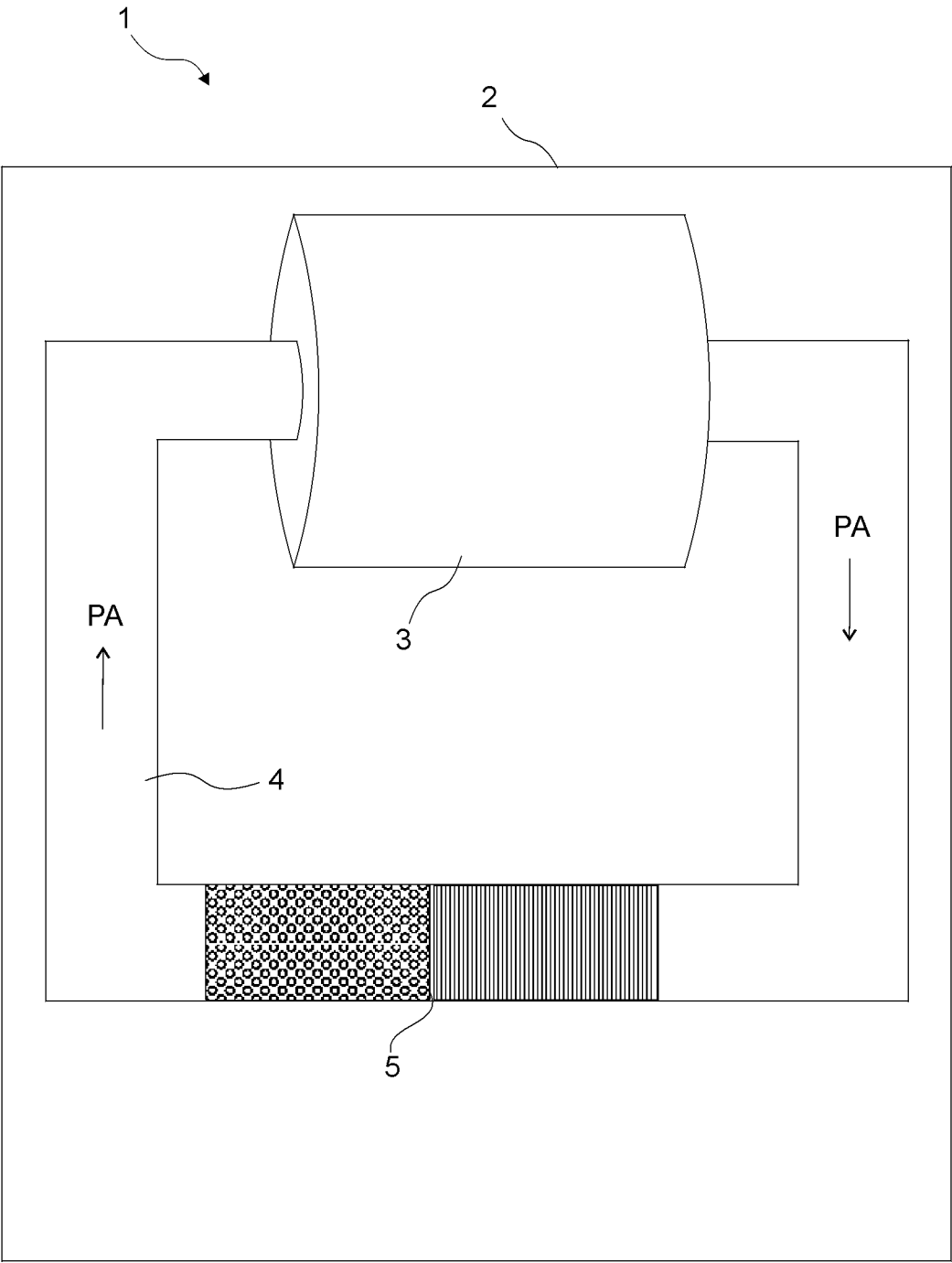


Figure 2

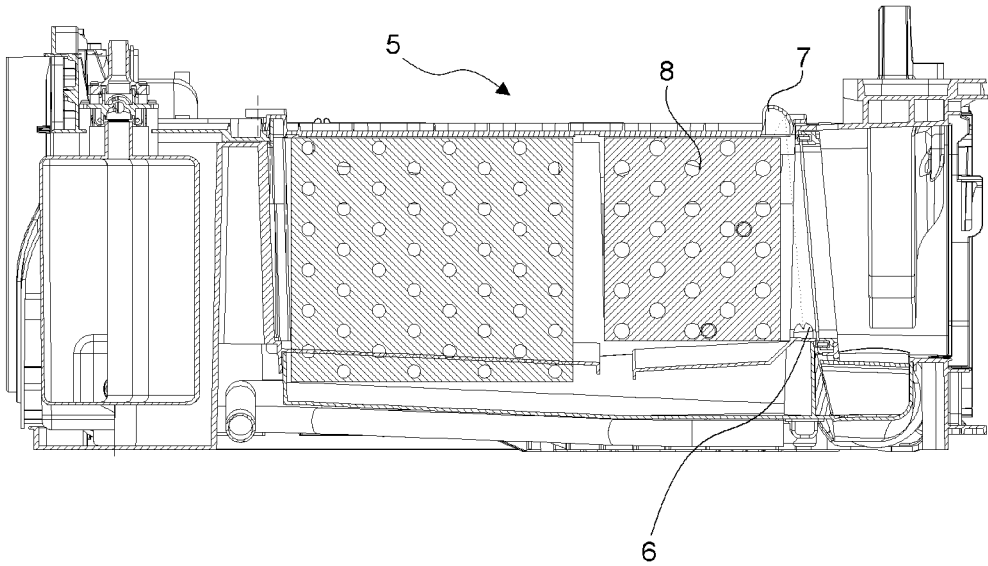
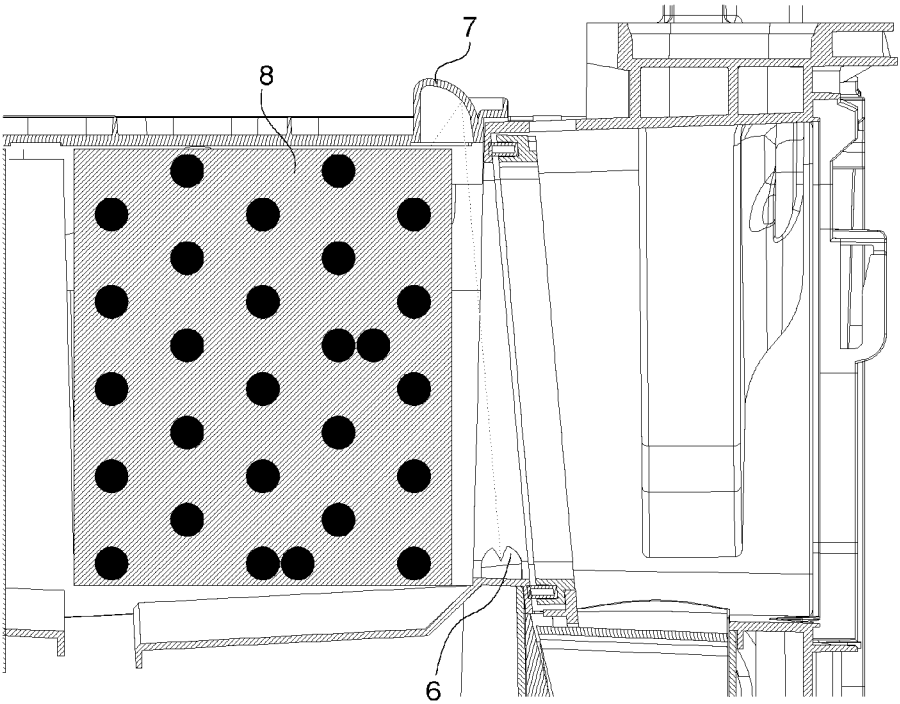


Figure 3



INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. D06F58/24
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
D06F A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2012/246960 A1 (LEE JUNSEOK [KR] ET AL) 4 October 2012 (2012-10-04) paragraphs [0056] - [0060]; figures 4,11,13	1-7
A	----- US 3 785 626 A (BRADLEY W ET AL) 15 January 1974 (1974-01-15) figure 7	1
A	----- DE 10 2006 018469 A1 (LARE LUFT UND KAELTETECHNIK AP [DE]) 25 October 2007 (2007-10-25) figure 1	1
A	----- DE 37 38 031 A1 (BOSCH SIEMENS HAUSGERAETE [DE]) 18 May 1989 (1989-05-18) figures 1-3	1
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Further documents are listed in the continuation of Box C.



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Date of the actual completion of the international search

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Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2014/072993

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2013/050263 A1 (ARCELIK AS [TR]; VATANSEVER CELAL [TR]; CAGLAR TALIP [TR]; DEMIRHAN DO) 11 April 2013 (2013-04-11) figure 1 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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