

(19)



(11)

EP 2 387 641 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
26.09.2012 Bulletin 2012/39

(51) Int Cl.:
D06F 58/20 ^(2006.01) **D06F 58/04** ^(2006.01)

(21) Application number: **09801429.3**

(86) International application number:
PCT/EP2009/067042

(22) Date of filing: **14.12.2009**

(87) International publication number:
WO 2010/076166 (08.07.2010 Gazette 2010/27)

(54) **A DRYER COMPRISING A REAR WALL**

TROCKNER MIT RÜCKWAND

SÉCHOIR COMPRENANT UNE PAROI ARRIÈRE

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**

(30) Priority: **31.12.2008 TR 200810086**

(43) Date of publication of application:
23.11.2011 Bulletin 2011/47

(73) Proprietor: **Arçelik Anonim Sirketi**
34950 Istanbul (TR)

(72) Inventors:
• **ELGUN, Murat**
34950 Istanbul (TR)
• **HARTOKA, Onur**
34950 Istanbul (TR)
• **KAYA, Mehmet**
34950 Istanbul (TR)
• **TATAR, Hakan**
34950 Istanbul (TR)

(56) References cited:
GB-A- 990 079 JP-A- 2000 325 688
US-A- 5 809 828

EP 2 387 641 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention relates to a dryer comprising a rear wall.

[0002] The circulation air is required to be distributed equally in every direction in the drum in order to perform the drying process efficiently in dryers. In cases wherein the drying air is not distributed equally in the drum and thus, cannot contact evenly all the laundry, irregularities in the dryness levels of the laundry occur and it is seen that all the laundry does not reach the same dryness level at the end of the drying. If the circulation air cannot be distributed equally in the drum, particularly, in the last stage of the drying wherein the laundry surface dries and water remains only in the inner pores of the laundry, overheating can be observed in the laundry which is more subjected to the circulation air at high temperature, and this causes the laundry to be damaged. In the embodiment which is common in the technique, a circular perforated air inlet (G) is located on the rear wall of the drum (T). On the panel (P) onto which the drum (T) is borne from its rear wall, a semi-circular cut-out (B) is present. The cut-out (B) is aligned with almost the half of the air inlet (G), therefore air is not taken into the drum (T) from the entire air inlet (G). The cut-out (B) is on the portion of the panel (P) which remains on the drum (T) shaft, and air is taken into the drum (T) from only this part always in the same angle (Figure 1, Figure 2 and Figure 3). In this embodiment, high drying efficiency cannot be obtained since the air is not provided to be entirely distributed in the drum (T).

[0003] In the state of the art the Japanese Patent Application No JP2000325688, a dryer wherein the holes, which are located on the side walls of the drum and which provide the exit of the circulation air from the drum, has a geometry variable from the front to the rear of the drum, is described.

[0004] Another state of the art embodiment is explained in the British Patent Application No GB2265974. In this embodiment, the diameter of the holes which are formed for the exit of the circulation air on the rear wall of the dryer or the number of holes per unit of area increase in direction from the centre, thus pressure loss on the drum inlet decrease and a more homogenous drying air distribution in the drum is obtained

[0005] The aim of the present invention is the realization of a dryer, the drying efficiency of which is improved and wherein the laundry is prevented from being damaged.

[0006] The dryer realized in order to attain the aim of the present invention is explicated in the claims.

[0007] In the dryer of the present invention, the air inlet is perforated and almost semi-circular.

[0008] The panel onto which the drum is borne from its rear wall comprises an almost semi-circular cut-out and a beam which divides the cut-out into at least two pieces. The drum is borne onto the panel from a point on the beam. The cut-out is disposed such that it covers the

entire space of the air inlet that the drum sweeps during its rotation. Thus, as the drum rotates, a continuous air intake into the drum is provided and the air taken is provided to enter into the drum from different angles. Thus, the hot air is distributed homogenously in the drum and the drying efficiency is improved.

[0009] In an embodiment of the present invention, the panel comprises a beam which divides the cut-out into two semi-circular pieces which are disposed one over the other such that they almost form a circle. Thus, one of the cut-outs provides air intake into the upper half of the drum and the other into the lower half of the drum.

[0010] In another embodiment of the present invention, the panel comprises more than one beam which divides the cut-out into one semi-circle and more than one segment such that they almost form a circle. These cut-outs are disposed such that the semi-circular cut-out is above and the segment-shaped cut-outs are below.

[0011] In the dryer of the present invention, the drying of all the laundry in the same efficiency is provided by providing the air taken into the drum to enter into the drum in variable angles.

[0012] The model embodiments that relate to the dryer realized in order to attain the aim of the present invention are illustrated in the attached figures, where:

[0013] Figure 1 - is the schematic view of a dryer in the prior art.

[0014] Figure 2 - is the perspective view of the drum in the prior art.

[0015] Figure 3 - is the rear view of the panel in the prior art.

[0016] Figure 4 - is the schematic view of the dryer of the present invention.

[0017] Figure 5 - is the perspective view of the drum utilized in the dryer of the present invention.

[0018] Figure 6 - is the rear view of the panel utilized in the dryer of the present invention.

[0019] Figure 7 - is the rear schematic view of the dryer in an embodiment of the present invention, when the lid is not closed.

[0020] Figure 8 - is the rear schematic view of the dryer in another embodiment of the present invention, when the lid is not closed.

[0021] The elements illustrated in the figures are numbered as follows:

1. Dryer
2. Drum
3. Rear wall
4. Air Outlet
5. Air Inlet
6. Panel
7. Lid
8. Cut-out
9. Beam
10. Cabinet

[0022] A dryer (1) comprises

- a drum (2) into which the laundry to be dried is disposed and which has a cylindrical body and a circular rear wall (3) covering the rear surface of the body,
- an air outlet (4) which is located at the front side of the drum (2) and from which the drying cycle air exits,
- a perforated air inlet (5) which is located on the rear wall (3) and which provides the air entrance into the drum (2), and
- a cabinet (10) having a panel (6) onto which the drum (2) is borne from its rear wall (3) and a lid (7) which is disposed on the panel (6) to form a close cycle and into which the drum (2) is situated

[0023] (Figure 4).

[0024] The air inlet (5) is almost semi-circular (Figure 5).

[0025] The panel (6) comprises an almost circular cut-out (8) and at least one beam (9) which divides the cut-out (8) into at least two pieces and onto which the drum (2) is borne (Figure 6).

[0026] By means of the present invention, the entrance of the circulation air into the drum (2) from different angles according to the rotation of the drum (2) is provided. Thus, the circulation air is provided to be equally distributed into all the parts of the drum (2), the drying time of the laundry is shortened and the energy consumption level is pulled down.

[0027] In an embodiment of the present invention, the beam (9) divides the cut-out (8) into two almost semi-circular pieces (Figure 7). Thus, the panel (6) which is easily produced is formed.

[0028] In another embodiment of the present invention, the panel (6) comprises more than one beam (9) which divides the cut-out (8) into at least three pieces, one of which is semi-circular and the others of which are segments (Figure 8). Thus, the loads which occur on the panel (6) as a result of the bearing of the drum (2) are provided to be carried more efficiently.

[0029] In the dryer (1) of the present invention, the dryness levels of all the laundry can be pulled to the same level at the end of the drying and the textile damages which can be originated from contacting the hot air too much can be prevented, since the subjection rates of the laundry to the process air are equalized.

[0030] It is to be understood that the present invention is not limited to the embodiments disclosed above and an expert in the technique can easily introduce different embodiments. These should be considered within the scope of the protection postulated by the claims of the present invention.

Claims

1. A dryer (1) comprising - a drum (2) into which the laundry to be dried is disposed and which has a cylindrical body and a circular rear wall (3) covering the rear surface of the body, - an air outlet (4) which

is located at the front side of the drum (2) and from which the drying cycle air exits, - a perforated air inlet (5) which is located on the rear wall (3) of the drum (2) and which provides the air entrance into the drum (2), and - a cabinet (10) into which the drum (2) is situated and which has a panel (6) onto which the drum (2) is borne from the drum's (2) rear wall (3) and a lid (7) which is disposed on the panel (6), **characterized by** an almost semi-circular air inlet (5) on the rear wall (3) of the drum (2), and by the panel (6) having an almost circular cut-out (8), the cut-out (8) having at least one beam (9) which divides the cut-out (8) into at least two pieces and onto which the drum (2) is borne.

2. A dryer (1) as in Claim 1, **characterized by** the beam (9) which divides the cut-out (8) into two almost semi-circular pieces.

3. A dryer (1) as in Claim 1, **characterized by** the panel (6) comprising more than one beam (9) which divides the cut-out (8) into at least three pieces, one of which is semi-circular and the others of which are segments.

Patentansprüche

1. Trockner (1), umfassend - eine Trommel (2), die zu trocknende Wäsche gelegt wird, und die einen zylindrischen Körper und eine kreisförmige Rückwand (3) aufweist, die die Hinterseite des Körpers bedeckt, - einen Luftauslass (4), der auf der Vorderseite der Trommel (2) angeordnet ist und aus dem die Trocknungszyklusluft austritt, - einen perforierten Lufteinlass (5), der an der Rückwand (3) der Trommel (2) angeordnet ist und dafür sorgt, dass Luft in die Trommel (2) gelangt, und - ein Gehäuse (10), in dem die Trommel (2) angeordnet ist und das eine Platte (6) aufweist, gegen die die Trommel (2) an der Rückwand (3) der Trommel (2) ruht, und einen Deckel (7), der an der Platte (6) angeordnet ist, gekennzeichnet durch einen nahezu kreisförmigen Lufteinlass (5) an der Rückwand (3) der Trommel (2) und dadurch, dass die Platte (6) eine nahezu kreisförmige Aussparung (8) mit wenigstens einer Strebe (9) aufweist, die die Aussparung (8) in wenigstens zwei Teile teilt und an der die Trommel (2) ruht.
2. Trockner (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Strebe (9) die die Aussparung (8) in zwei nahezu halbkreisförmige Teile teilt.
3. Trockner (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Platte (6) mehr als eine Strebe (9) umfasst, die die Aussparung (8) in wenigstens drei Teile teilt, von denen einer halbkreisförmig und die anderen Kreissegmente sind.

Revendications

1. Un sèche-linge (1) comprenant : - un tambour (2) dans lequel le linge à sécher est placé et qui a un corps cylindrique et une paroi arrière circulaire (3) couvrant la surface arrière du corps, - une sortie d'air (4) qui est située au côté de devant du tambour (2) et de laquelle le air de cycle de séchage sort, - une entrée d'air perforée (5) qui est située sur la paroi arrière (3) du tambour (2) et qui permet l'entrée de l'air dans le tambour (2), et - un corps (10) dans lequel le tambour (2) est situé et qui a un panneau (6) sur lequel le tambour (2) s'appuie par la paroi arrière (3) du tambour (2) et un couvercle (7) qui est disposé sur le panneau (6), **caractérisé par** une entrée d'air presque semi-circulaire (5) sur la paroi arrière (3) du tambour (2), et par le panneau (6) ayant une découpe (8) presque circulaire, la découpe (8) ayant au moins une poutre (9) qui divise la découpe (8) au moins en deux et sur lequel le tambour (2) s'appuie.
2. Un sèche-linge (1) selon la Revendication 1, **caractérisé par** la poutre (9) qui divise la découpe (8) dans deux pièces presque semi-circulaires.
3. Un sèche-linge (1) selon la Revendication 1, **caractérisé par** le panneau (6) comprenant plus d'une poutre (9) qui divise la découpe (8) au moins en trois pièces, dont l'une est semi-circulaire et les autres sont des segments.

Figure 1

PRIOR ART

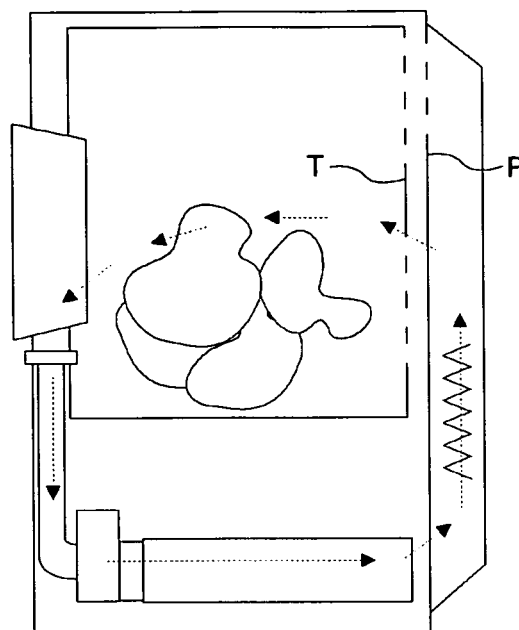


Figure 2

PRIOR ART

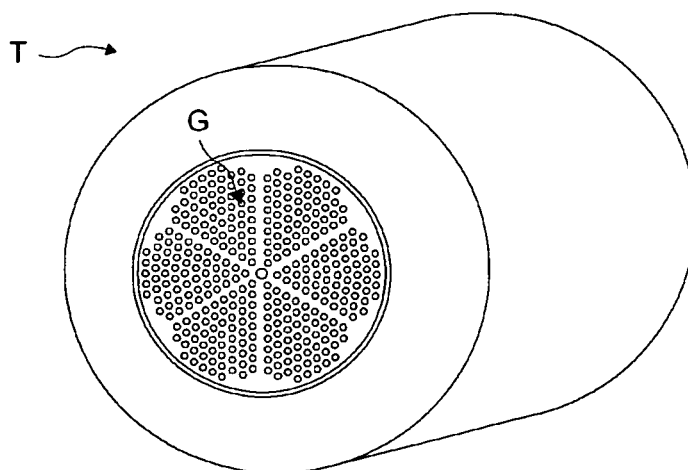


Figure 3

PRIOR ART

P →

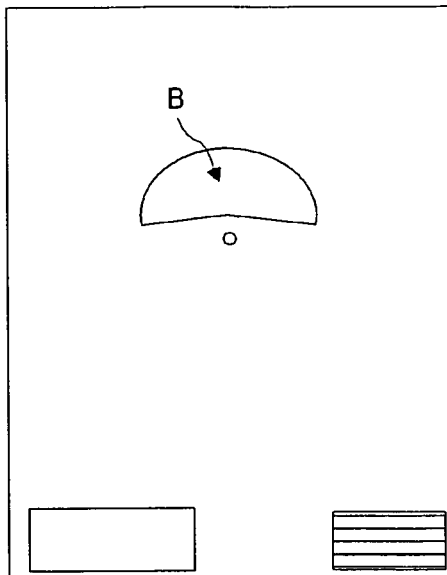


Figure 4

1 →

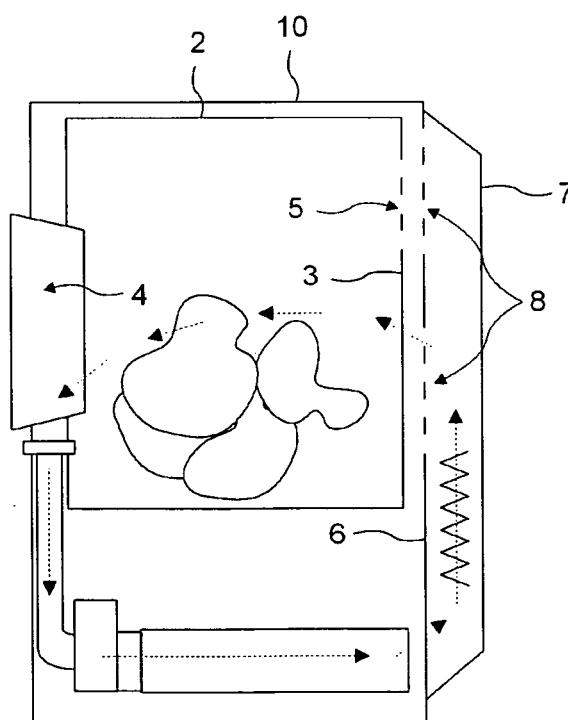


Figure 5

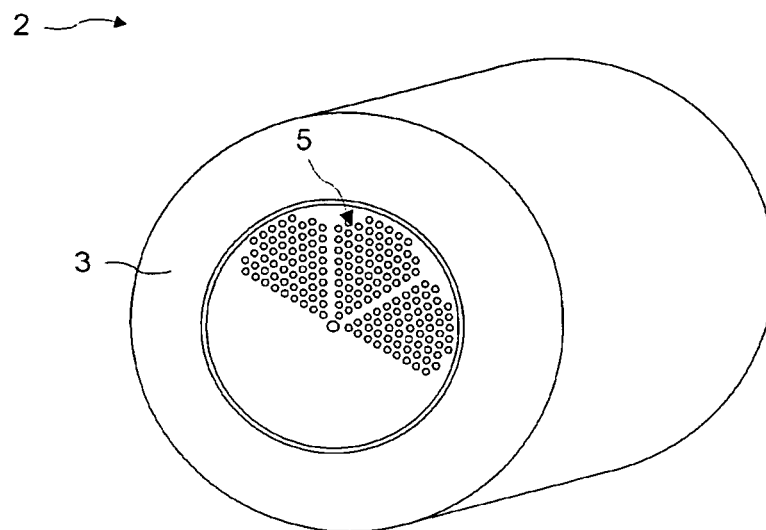


Figure 6

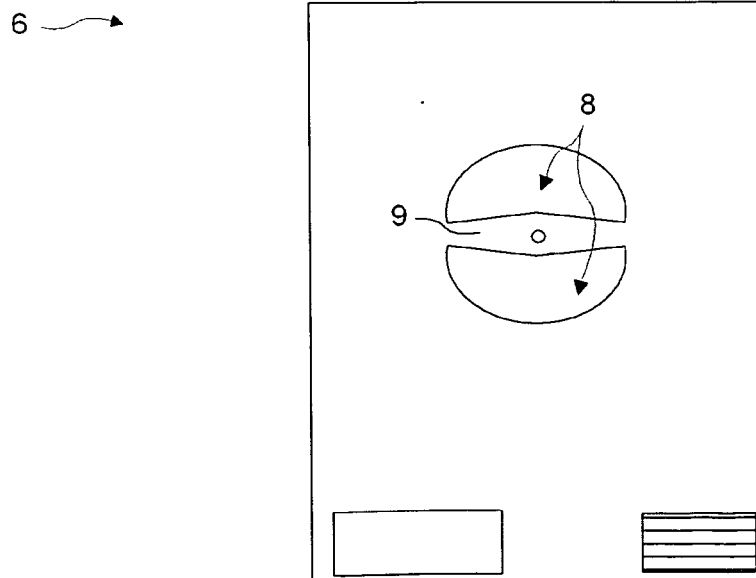


Figure 7

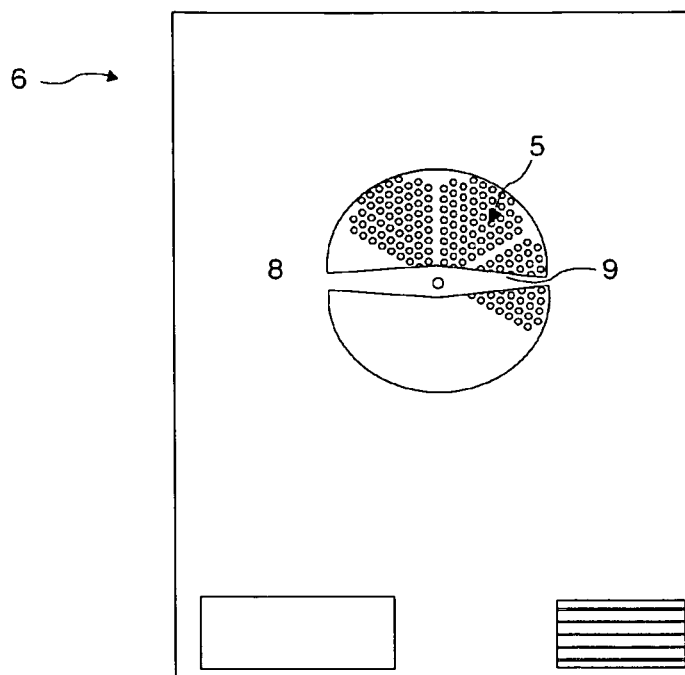
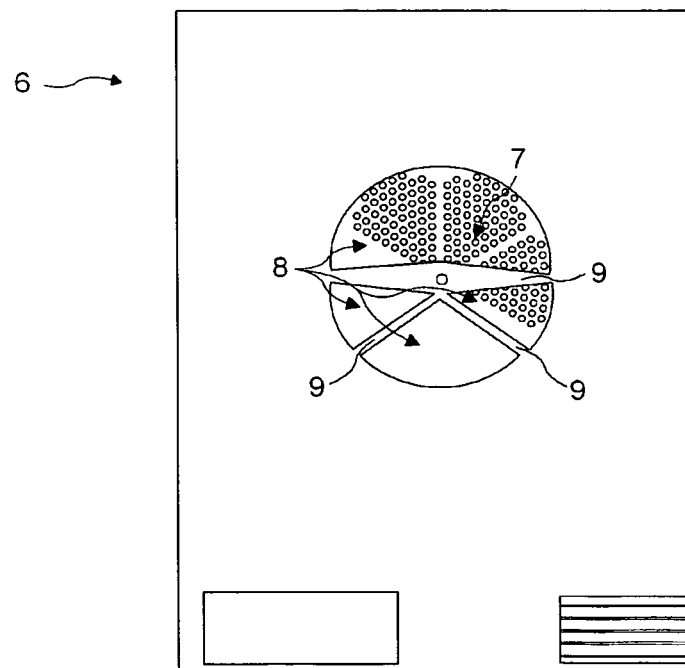


Figure 8



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2000325688 B [0003]
- GB 2265974 A [0004]