(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
2 July 2015 (02.07.2015)

WIPO | PCT

(10) International Publication Number
WO 2015/096851 A1

(51) International Patent Classification:
D06F 58/20 (2006.01)

(21) International Application Number:
PCT/EP2013/077907

(22) International Filing Date:
23 December 2013 (23.12.2013)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **ARCELIK ANONIM SIRKETI** [TR/TR]; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR).

(72) Inventors: **ERCAN, Onur**; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR). **OZDEMIR, Onur**; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR). **METIN, Ahmet**; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR). **GOKTAS, Murat**; E5 Ankara Asfalti Uzeri, Tuzla, 34950 Istanbul (TR).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

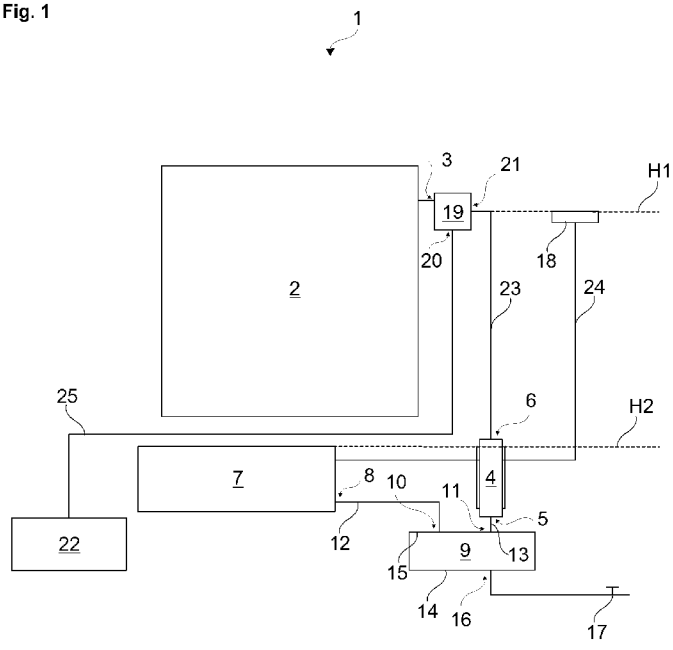
Published:

— *with international search report (Art. 21(3))*

WO 2015/096851 A1

(54) Title: STEAM LAUNDRY DRYER WITH IMPROVED WATER REPLENISHMENT FACILITY FOR A STEAM GENERATOR

Fig. 1



(57) Abstract: The present invention relates to a steam laundry dryer (1) which comprises a drum (2) for receiving clothes, a steam injection port (3) for injecting steam into the drum (2), a steam generator (4) which includes an intake port (5) for receiving water and a discharge port (6) for supplying pressurized steam to the steam injection port (3) and a water tank (7) for supplying water to the intake port (5). In the steam laundry dryer (1) according to the present invention, the water tank (7) includes a supply port (8) which is arranged to pumplessly supply under the action of gravity, water to the intake port (5) via an auxiliary fluid chamber (9). The auxiliary fluid chamber (9) includes an inlet port (10) which is fluidly connected to the supply port (8) and a first outlet port (11) which is fluidly connected to the intake port (5). A cross sectional area of a first fluid passage (12) which fluidly connects the inlet port (10) to the supply port (8) is smaller than a cross sectional area of a second fluid passage (13) which fluidly connects the first outlet port (11) to the intake port (5).

Description

STEAM LAUNDRY DRYER WITH IMPROVED WATER REPLENISHMENT FACILITY FOR A STEAM GENERATOR

[0001] The present invention relates to a steam laundry dryer. The present invention particularly relates to a replenishment facility for supplying water to a steam generator of the steam laundry dryer.

[0002] In a laundry dryer, the clothes generally develop wrinkles and creases as they eventually get dry. Thus, the customer will usually need to do some ironing work to smooth out the wrinkles and creases developed during the drying. To reduce the workload o the customers, laundry dryers have been provided with steam injection facilities to remove the wrinkles and the creases by applying steam to the clothes, for instance, shortly before termination of the drying process. Nevertheless, the steam application is not particularly limited to removal of wrinkles and creases. In general, steam has a sanitizing effect. Therefore, steam can be effectively used to remove odors. Hence, in a laundry dryer, steam can be reasonably applied at any stage of the drying process to achieve the aforementioned effects.

[0003] JP 2013-090815 (A) discloses a clothes dryer which has a steam generating means for supplying steam into a rotary drum. This steam generating means comprises a water tank for storing water, a moisture evaporator for evaporating water supplied from the water tank, a feed pump for supplying water from the water tank to the moisture evaporator and a heater for heating the moisture evaporator.

[0004] A drawback of this conventional steam generating means is that it is maintenance-intensive due to the feed pump. A feed pump is generally vulnerable to calcification. To prevent formation of limescale on the critical parts of the feed pump softened water must be used. However, this requires additional softening equipment which increases the overall cost of the laundry dryer. A commonly known alternative technique is to use condensate water which accumulates during a drying process. However, such condensate water generally includes lint which easily clogs the feed pumps.

[0005] In view of the above-mentioned drawbacks a steam generating means

without a feed pump might be desirable. However, in a pumpless steam generating means there is a risk that the water/steam mixture produced by a steam generator could flow back into the water tank. In the event of such backflow, the water in the tank heat ups and the steam injection efficiency degrades.

[0006] An objective of the present invention is to provide a steam laundry dryer which overcomes the aforementioned drawbacks of the prior art and which enables a cost-effective and maintenance-free water replenishment system for a steam generator without compromising the steam generation process.

[0007] This objective has been achieved by the steam laundry dryer according to the present invention as defined in claim 1. Further achievements have been attained by the subject-matters respectively defined in the dependent claims.

[0008] In the steam laundry dryer according to the present invention, the water tank includes a supply port which is arranged to pumplessly supply under the action of gravity, water to an intake port of the steam generator via an auxiliary fluid chamber. The auxiliary fluid chamber includes an inlet port and a first outlet port. The inlet port is fluidly connected to the supply port whereas the first outlet port is fluidly connected to the intake port. A cross sectional area of a first fluid passage which fluidly connects the inlet port to the supply port is configured to be smaller than a cross sectional area of a second fluid passage which fluidly connects the first outlet port to the intake port.

[0009] By virtue of the narrow fluid passage on the upstream side of the auxiliary fluid chamber, the water/steam mixture generated in the steam generator is prevented from flowing back into the water tank. Thus, the water in the water tank is prevented from heating up and steam injection efficiency is prevented from degrading. Moreover, since the narrow fluid passage is permanently open, a continual water supply from the water tank to the steam generator is enabled which would otherwise not be possible for example in a configuration where a mechanical or electrical one way valve had been arranged between the water supply and the intake port of the

steam generator.

[0010] In an embodiment, the cross sectional area of the first fluid passage is maximum 50 % or smaller than the cross sectional area of the second fluid passage. Thereby, a backflow is almost completely prevented. In a version of this embodiment, the first fluid passage and the second fluid passage are configured respectively by conduits with circular cross sections. Thus, in this version of the embodiment, the conduit on the upstream side of the auxiliary fluid chamber has a diameter which is two times smaller than the conduit on the downstream side of the auxiliary fluid chamber.

[0011] In another embodiment, the auxiliary fluid chamber is arranged lower than the steam generator so as to collect lime precipitations/deposits descending from the steam generator. In a version of this embodiment, the inlet port and the first outlet port are arranged on an upper surface of the auxiliary fluid chamber. Thereby, the lime deposit which are loosened from the steam generator are easily trapped inside the auxiliary fluid chamber and prevented from clogging the fluid passages and migrating into the water tank or the like. In another version of this embodiment, the auxiliary fluid chamber has a second outlet ort for servicing the auxiliary fluid chamber. In another version of this embodiment, the auxiliary fluid chamber has been rendered sufficiently large to collect large amount of limescale so as to reduce the frequency of limescale disposal, for example, during service.

[0012] By the present invention, the use of the feed pump has been obviated without compromising proper operation of the steam generator. In addition, any other circuitry including sensors and the like which have been otherwise necessary for the operation of the feed pump have become superfluous. Hence, a control of the steam generator has been simplified. Thereby, the overall energy efficiency of the laundry dryer has been improved. Also, the manufacturing costs have been reduced. By the present invention, a maintenance-free replenishment system for the steam generator has been attained.

[0013] Additional advantages of the steam laundry dryer according to the present invention will become apparent with the detailed description of the

embodiments with reference to the accompanying drawings in which:

[0014] Figure 1 - is a schematic view of a steam laundry dryer according to an embodiment of the present invention.

[0015] The reference signs appearing on the drawings relate to the following technical features.

1. A steam laundry dryer
2. Drum
3. Steam injection port
4. Steam generator
5. Intake port
6. Discharge port
7. Water tank
8. Supply port
9. Auxiliary fluid chamber
10. Inlet port
11. First outlet port
12. First fluid passage
13. Second fluid passage
14. Bottom
15. Ceiling
16. Second outlet port
17. Cap
18. Replenishment port
19. Water/steam separator
20. Water drain port
21. Water/steam inlet port
22. Water reservoir
23. First conduit
24. Second conduit
25. Third conduit

[0016] The steam laundry dryer (1) comprises a drum (2) for receiving clothes, a steam injection port (3) for injecting steam into the drum (2), a steam generator (4) which includes an intake port (5) for receiving water and a

discharge port (6) for supplying pressurized steam to the steam injection port (3) and a water tank (7) for supplying water to the intake port (5) (Fig. 1).

[0017] In the steam laundry dryer (1) according to the present invention, the water tank (7) includes a supply port (8) which is arranged to pumplessly supply under the action of gravity, water to the intake port (5) through an auxiliary fluid chamber (9). The auxiliary fluid chamber (9) includes an inlet port (10) and a first outlet port (11). The inlet port (10) is fluidly connected to the supply port (8) via a first fluid passage (12). The first outlet port (11) is fluidly connected to the intake port (5) via a second fluid passage (13). A cross sectional area of the first fluid passage (12) is smaller than a cross sectional area of the second fluid passage (13) (Fig. 1). Thereby a backflow has been satisfactorily prevented and the use of a pump has been obviated.

[0018] In an embodiment, the cross sectional area of the first fluid passage (12) is up to half of the cross sectional area of the second fluid passage (13). In other words, the cross sectional area of the first fluid passage (12) is maximum 50 % of the cross sectional area of the second fluid passage (13). Thereby, a backflow of the water/steam mixture from the steam generator (4) into water tank (7) is almost completely avoided. However, the present invention is not limited to the aforementioned value and range given in this embodiment.

[0019] In alternative embodiments, a ratio of the cross sectional area of the first fluid passage (12) to the cross sectional area of the second fluid passage (13) respectively takes a value less than 0.50 and a value less than 0.25 for the purpose of satisfactorily preventing backflow.

[0020] In another embodiment, the auxiliary fluid chamber (9) is a valveless hollow structure in which the inlet port (10) and the first outlet port (11) are arranged in two-way fluid communication which are open to the atmosphere via the water tank (7) and the steam generator (4). The auxiliary fluid chamber (9) is void of any valves (Fig. 1).

[0021] In another embodiment, the first fluid passage (12) and the second fluid passage (13) are respectively configured by fluid conduits which have

circular cross-sections.

[0022] In another embodiment, the auxiliary fluid chamber (9) is arranged lower than both the steam generator (4) and the water tank (7) so as to collect lime precipitations/deposits descending from the steam generator (4). As the limescale loosens from an interior of the steam generator, it starts descending directly through the second fluid passage (13) and accumulates in the auxiliary fluid chamber (9). Thereby, the auxiliary fluid chamber (9) also prevents back flow of limescale into the water tank (7) (Fig. 1).

[0023] In another embodiment, the auxiliary fluid chamber (12) is arranged immediately below the steam generator (4) (Fig. 1). Thereby, the loosened limescale immediately settles in the auxiliary fluid chamber (9).

[0024] In another embodiment, the auxiliary fluid chamber (9) has a tray-like bottom (14) for collecting the lime precipitations/deposits. Thereby, the auxiliary fluid chamber (9) can effectively collect lime scale even for longer terms (Fig. 1). Thus, in this embodiment, drainage of the lime deposits can be less frequently performed.

[0025] In another embodiment, the inlet port (10) and the first outlet port (11) are formed on a ceiling (15) of the auxiliary fluid chamber (9) (Fig. 1). Thereby, the limescale are prevented from migrating into the water tank (7) and clogging any one of the inlet port (10) and the first outlet port (11).

[0026] In another embodiment, the inlet port (10) and the first outlet port (11) are both arranged at a same level on the auxiliary fluid chamber (9) (Fig. 1).

[0027] In another embodiment, the auxiliary fluid chamber (9) further includes a second outlet port (16) which is openable/closable to drain the water tank (7) and the auxiliary fluid chamber (9) (Fig. 1). Thereby, also the limescale deposits can be completely removed from time to time.

[0028] In another embodiment, the second outlet port (16) is openable/closable by means of a cap (17) (Fig. 1).

[0029] In another embodiment, the water tank (7) has a replenishment port (18) for manually filling the water tank (7) with fresh water. The replenishment port (18) is arranged at a level H1 which does not exceed a level H1 of the steam injection port (3). The replenishment port (18) is fluidly connected to

an upper opening of the water tank (7) by a second fluid conduit (24). The discharge port (6) is arranged at a level H2 which is lower than the level H1 (Fig. 1).

[0030] In another embodiment, the steam laundry dryer (1) comprises a water/steam separator (19) which includes a steam injection port (3), a water drain port (20) and a water/steam inlet port (21). The discharge port (6) is fluidly connected to the water/steam inlet port (21) by a first fluid conduit (23) (Fig. 1).

[0031] In another embodiment, the steam laundry dryer (1) comprises a water reservoir (22) for storing the water which is drained under the action of gravity from the water drain port (20). The water drain port (20) is fluidly connected to the water reservoir (22) by a third fluid conduit (25) (Fig. 1). In this embodiment, the steam laundry dryer (1) further comprises a pump (not shown) for draining off the water reservoir (22).

[0032] In the subsequent description, the operation of the laundry dryer (1) according to an embodiment is explained by way of giving an example. When the water tank (7) is replenished e.g., manually by a user, the water column within the first conduit (23) and the water column within the second conduit (24) each rises up to a level H1 as both the discharge port (6) and the intake port (5) are in fluid communication with the atmosphere via the water tank (7) and the steam injection port (3) (Fig. 1). The steam laundry dryer (1) is controlled through a controller (not shown) e.g., such that with the commencement of the first minute, the drum motor (not shown) is activated so as to aerate and shuffle the clothes inside the drum (2). During the first minute the steam generator (4) is, however, not activated. With the commencement of the second minute the steam generator (4) is also activated. When the steam generator (4) is activated, the water column above the discharge port (6) is pushed due to the pressure built up in the steam generator (4) into the water/steam separator (19). The water/steam separator (19) prevents the inflowing water from being conveyed into the drum (2) and drains it into a water reservoir (22) via the water drain port (20) and the third conduit (25). Hence, the initially generated steam is injected into the drum (2) not until before all of the

water standing above the steam generator (4), i.e., the water above level H2 has been drained off by means of the water/steam separator (19). Thereby, the clothes in the drum (2) are prevented from becoming excessively wet. The above time intervals are exemplary values. Thus, the laundry dryer of the present invention can be operated in various different schemes.

[0033] By the present invention, a pumpless water replenishment of the steam generator (4) has been achieved without compromising the steam generation and injection efficiency. By virtue of the configuration consisting of the first/second fluid passages (12; 13) and the auxiliary fluid chamber (9) a continual and uninterrupted supply of steam to the drum (2) has been made possible without backflow from the stem generator (4) into the water tank (7). In addition, the auxiliary fluid chamber (9) prevents clogging of the replenishment system due to calcifications. By the present invention, the configuration and the control of the steam laundry dryer (1) has been simplified and the overall energy efficiency has been improved.

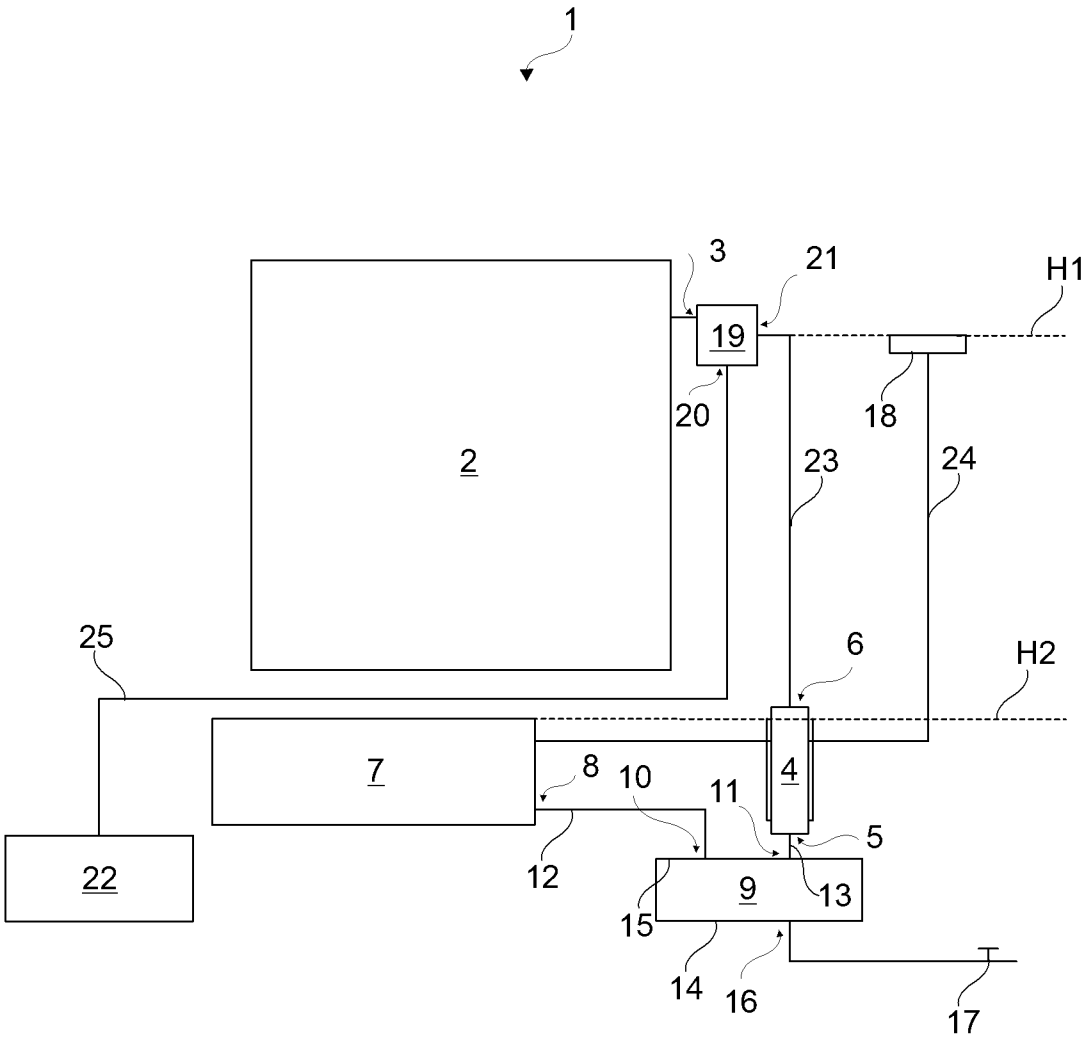
Claims

1. A steam laundry dryer (1) comprising
   a drum (2) for receiving clothes,
   a steam injection port (3) for injecting steam into the drum (2),
   a steam generator (4) which includes an intake port (5) for receiving water and a discharge port (6) for supplying pressurized steam to the steam injection port (3) and
   a water tank (7) for supplying water to the intake port (5),
   characterized in that
   the water tank (7) includes a supply port (8) which is arranged to pumplessly supply under the action of gravity, water to the intake port (5) via an auxiliary fluid chamber (9),
   wherein the auxiliary fluid chamber (9) includes an inlet port (10) which is fluidly connected to the supply port (8) and a first outlet port (11) which is fluidly connected to the intake port (5) and
   wherein a cross sectional area of a first fluid passage (12) which fluidly connects the inlet port (10) to the supply port (8) is smaller than a cross sectional area of a second fluid passage (13) which fluidly connects the first outlet port (11) to the intake port (5).
2. The steam laundry dryer (1) according to claim 1, **characterized in that** the cross sectional area of the first fluid passage (12) is up to half of the cross sectional area of the second fluid passage (13).
3. The steam laundry dryer (1) according to claim 1 or 2, **characterized in that** the auxiliary fluid chamber (9) is arranged lower than both the steam generator (4) so as to collect lime precipitations/deposits descending from the steam generator (4).
4. The steam laundry dryer (1) according to claim 3, **characterized in that** the auxiliary fluid chamber (9) is arranged immediately below the steam generator (4).
5. The steam laundry dryer (1) according to any one of claims 1 to 4, **characterized in that** the auxiliary fluid chamber (9) has a tray-like bottom (14) for collecting lime precipitations/deposits.
6. The steam laundry dryer (1) according to any one of claims 1 to 5,

characterized in that the inlet port (10) and the first outlet port (11) are formed on a ceiling (15) of the auxiliary fluid chamber (9).

7. The steam laundry dryer (1) according to any one of claims 1 to 6, **characterized in that** the inlet port (10) and the first outlet port (11) are both arranged at a same level.
8. The steam laundry dryer (1) according to any one of claim 1 to 7, **characterized in that** the auxiliary fluid chamber (9) further includes a second outlet port (16) which is openable/closable to drain the water tank (7) and the auxiliary fluid chamber (9).
9. The steam laundry dryer (1) according to claim 8, **characterized in that** the second outlet port (16) is openable/closable by means of a cap (17).
10. The steam laundry dryer (1) according to any one of claims 1 to 9, **characterized in that** the water tank (7) has a replenishment port (18) for manually filling the water tank (7) with fresh water.
11. The steam laundry dryer (1) according to any one of claims 1 to 10, **characterized in that** a water/steam separator (19) which includes said steam injection port (3), a water drain port (20) and a water/steam inlet port (21), wherein the discharge port (6) is fluidly connected to the water/steam inlet port (21).
12. The steam laundry dryer (1) according to any one of claims 1 to 11, **characterized in that** a water reservoir (22) for storing the water drained under the action of gravity from the water drain port (20), wherein the water drain port (20) is fluidly connected to the water reservoir (22) and a pump for draining off the water reservoir (22).

Fig. 1



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/077907

A. CLASSIFICATION OF SUBJECT MATTER
INV. D06F58/20
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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 970 482 A1 (ELECTROLUX HOME PROD CORP [BE]) 17 September 2008 (2008-09-17)	1,2,5-10
Y	paragraphs [0019] - [0030]; figure 1	11,12
Y	EP 2 295 855 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 16 March 2011 (2011-03-16) paragraphs [0024] - [0030] abstract; figures 1-9	11,12
A	EP 2 014 820 A1 (ELECTROLUX HOME PROD CORP [BE]) 14 January 2009 (2009-01-14) paragraphs [0027] - [0029] paragraphs [0031] - [0033] paragraphs [0036], [0050] abstract; figure 1	1-12

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 August 2014	09/09/2014

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Weinberg, Ekkehard

3

Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 862 584 A1 (ELECTROLUX HOME PROD CORP [BE]) 5 December 2007 (2007-12-05) paragraphs [0005] - [0015] paragraphs [0027] - [0035] figures 1-7 -----	1-12
A	US 2008/271500 A1 (LG ELECTRONICS INC [KR]; AHN IN GEUN [KR]) 6 November 2008 (2008-11-06) paragraphs [0049], [0060] - [0062] paragraphs [0081] - [0105] figures 1-12 -----	1

3

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2013/077907

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1970482 A1	17-09-2008	AT 478187 T	15-09-2010
		EP 1970482 A1	17-09-2008
		ES 2349021 T3	21-12-2010
		RU 2009137797 A	20-04-2011
		WO 2008110271 A1	18-09-2008
EP 2295855 A1	16-03-2011	CN 102483229 A	30-05-2012
		EP 2295855 A1	16-03-2011
		EP 2467639 A2	27-06-2012
		WO 2011020827 A2	24-02-2011
EP 2014820 A1	14-01-2009	AT 456697 T	15-02-2010
		AU 2008277950 A1	22-01-2009
		EP 2014820 A1	14-01-2009
		ES 2338174 T3	04-05-2010
		US 2010180465 A1	22-07-2010
		WO 2009010242 A1	22-01-2009
EP 1862584 A1	05-12-2007	AT 525512 T	15-10-2011
		EP 1862584 A1	05-12-2007
		EP 2312048 A1	20-04-2011
		EP 2314756 A1	27-04-2011
		EP 2317003 A1	04-05-2011
		EP 2317004 A1	04-05-2011
		EP 2317005 A1	04-05-2011
		EP 2781645 A1	24-09-2014
		ES 2375457 T3	01-03-2012
		RU 2008152070 A	20-07-2010
		RU 2011129768 A	27-01-2013
		RU 2011129770 A	27-01-2013
		RU 2011129772 A	27-01-2013
		RU 2012142342 A	10-04-2014
		WO 2007137860 A1	06-12-2007
US 2008271500 A1	06-11-2008	EP 1861540 A1	05-12-2007
		US 2008271500 A1	06-11-2008
		WO 2006101360 A1	28-09-2006