

(19)



(11)

EP 3 265 604 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
08.05.2019 Bulletin 2019/19

(51) Int Cl.:
D06F 58/22 ^(2006.01) **D06F 58/28** ^(2006.01)
D06F 58/24 ^(2006.01)

(21) Application number: **16707748.6**

(86) International application number:
PCT/EP2016/054446

(22) Date of filing: **02.03.2016**

(87) International publication number:
WO 2016/139258 (09.09.2016 Gazette 2016/36)

(54) **A LAUNDRY DRYER AND A FIBER AND LINT CLEANING METHOD FOR SAID LAUNDRY DRYER**

WÄSCHETROCKNER UND EIN FASER- UND FLUSENREINIGUNGSVERFAHREN FÜR
BESAGTEN WÄSCHETROCKNER

SÈCHE-LINGE ET PROCÉDÉ DE NETTOYAGE DE FIBRE ET DE PELUCHE POUR LEDIT
SÈCHE-LINGE

(84) Designated Contracting States:
**AL 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 RS SE SI SK SM TR**

(30) Priority: **04.03.2015 TR 201502568**

(43) Date of publication of application:
10.01.2018 Bulletin 2018/02

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

(72) Inventors:
• **VATANSEVER, Celal**
34950 Istanbul (TR)

- **PEHLIVAN, Umit**
34950 Istanbul (TR)
- **TUTKAK, Erman**
34950 Istanbul (TR)
- **GOKTAS, Murat**
34950 Istanbul (TR)
- **SAHIN, Yavuz**
34950 Istanbul (TR)
- **KAYA, Mehmet**
34950 Istanbul (TR)

(56) References cited:
EP-A2- 2 441 877 DE-A1-102010 002 661
DE-A1-102010 039 552

EP 3 265 604 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 laundry dryer comprising a washing pump and a discharge pump that provide the removal of particles such as fiber and lint accumulating on the filter and the heat exchanger and to a fiber and lint cleaning method.

[0002] While the laundry is being dried in the laundry dryer, particles such as fiber, lint, dust, etc. break off from the laundry particularly due to mechanical effects. In conventional laundry dryers, most of the fiber and lint is collected by means of one or more than one filter disposed on the dryer, thus preventing these particles from returning onto the laundry. The water, that is evaporated from over the laundry and condensed in the heat exchanger during the drying cycle, is collected in a tank disposed on the dryer. In the state of the art, use of the water collected in the tank for the cleaning of the filter and the heat exchanger is disclosed. In these embodiments, with the water taken from the tank, the fiber and lints on the filter and the heat exchanger are washed and the water is discharged by being transferred to the tank. The water must be filtered again so that the pump used for the discharge of the water containing fiber and lints is not clogged and that the water to be discharged by the pump does not cause the accumulation of fiber and lints inside the tank. In order to provide that the flow rate and the drying performance of the drying air is not adversely affected, during the drying cycle, it is required to clean the filter and the heat exchanger at certain intervals and to remove the fiber and lints from the system.

[0003] After washing the filter and the heat exchanger, the fiber and lints accumulating thereon are required to be transferred with water to a tank that is emptied by the user or automatically. For this operation, the fiber and the lints present in the washing water delivered in a pressurized state by the discharge pump to the tank by means of the discharge line may accumulate at the suction port of the discharge pump. In this case, clogging may occur and the laundry dryer becomes inoperable.

[0004] In the state of the art, various methods are developed for facilitating the discharge of fiber and lint accumulated on the filter and the heat exchanger after the washing thereof. In the state of the art International Patent Application No. WO2009015919, explanation is given for washing the filter by multiple nozzles in an intermittent manner. In this document, water is delivered to the nozzles by means of pump simultaneously, forming a film on the surface of the filter and enables the particles accumulated on the filter to be removed from the filter.

[0005] DE 10 2010 039 552 A1 discloses a laundry treatment appliance comprising a tank wherein condensed water is stored, and a washing line that enables the water to be taken from the tank and to be delivered onto a heat exchanger. Furthermore, a discharge pump delivers the water accumulated in a sump back to the tank.

[0006] The aim of the present invention is the realization

of a laundry dryer comprising a washing and a discharge pump that efficiently operate by preventing the accumulation of particles such as fiber and lint, and of a fiber and lint cleaning method.

[0007] In the laundry dryer realized in order to attain the aim of the present invention and explicated in the first claim, the control unit stops and operates again the washing pump and the discharge pump together or separately during the process of washing fiber and lint, thus preventing the fiber and lint removed from the filter and the heat exchanger from clogging the system. In the process of washing the fiber and lint started by operating the washing pump and the discharge pump together, the control unit stops the washing pump at least once, then stops the discharge pump after the same has been operated for a time, thus enables the water pumped into the discharge line to flow backwards with the effect of the gravity and to clean the fiber and lint accumulated at the suction port of the discharge pump. Thus, the fiber and lint accumulating at the suction port of the discharge pump are prevented from causing clogging and are enabled to be transferred to the tank.

[0008] In the fiber and lint cleaning method realized in order to attain the aim of the present invention, by operating the washing pump and the discharge pump simultaneously, the fiber and lint on the heat exchanger and/or the filter are cleaned and first the washing pump is stopped. The discharge pump is operated for 1 to 5 seconds until the water in the sump is transferred to the discharge line and then stopped, thus the water in the discharge line is enabled to flow in the reverse direction with the effect of the gravity and to sweep the fiber and lint accumulating at the suction port of the discharge pump towards the sump. After 1 to 30 seconds after the discharge pump stops, the washing pump and the discharge pump are operated together, after 1 to 5 seconds the washing pump is stopped and after 1 to 5 seconds after the washing pump stops, the discharge pump is also stopped and the fiber and lint cleaning process is terminated.

[0009] A laundry dryer and a fiber and lint cleaning method realized in order to attain the aim of the present invention are illustrated in the attached figures, where:

Figure 1 - is the schematic view of a laundry dryer.
Figure 2 - is the flow chart of the fiber and lint cleaning method embodiment.

[0010] The elements illustrated in the figures are numbered as follows:

1. Laundry dryer
2. Body
3. Drum
4. Heat exchanger
5. Air circulation duct
6. Filter
7. Tank

- 8. Washing pump
- 9. Washing line
- 10. Discharge pump
- 11. Discharge line
- 12. Control unit
- 13. Sump
- B: Discharge pump suction port
- T1, T2, T3, T4: Operation times of the washing pump (8) and the discharge pump (10)

[0011] The laundry dryer (1) comprises a body (2); a drum (3) wherein the laundry to be dried is placed; an air circulation duct (5) providing the delivery of the drying air onto the laundry in the drum (3); a heat exchanger (4), for example an evaporator, that is disposed on the air circulation duct (5) and that provides the dehumidification of the drying air by condensing the same; at least one filter (6) that holds fiber and lints in the drying air; a tank (7) wherein the condensed water is stored; a washing pump (8) that enables the water to be taken from the tank (7) and to be delivered onto the heat exchanger (4) and/or the filter (6); a washing line (9) that delivers the water taken from the tank (7) by the washing pump (8) onto the heat exchanger (4) and/or the filter (6); a sump (13) wherein the water taken from the tank (7) and then draining from the heat exchanger (4) and/or the filter (6) and mixed with fiber and lints accumulates; a discharge pump (10) that delivers the water accumulated in the sump (13) to the tank (7) to be emptied; a vertical discharge line (11) that is disposed between the discharge pump (10) and the tank (7), and a control unit (12) that controls the operation of the washing pump (8) and the discharge pump (10).

[0012] The laundry dryer (1) of the present invention comprises the control unit (12) that, during the fiber and lint accumulated on the heat exchanger (4) and/or the filter (6) washing process wherein the washing pump (8) and the discharge pump (10) are operated together, stops the washing pump (8) at least once, stops the discharge pump (10) after operating the same for a predetermined time (T1) until the water in the sump (13) is transferred to the water discharge line (11), thus enables the water in the discharge line (11) to flow (back) in the reverse direction with the effect of the gravity and to sweep the fiber and lints accumulating at the suction port (B) of the discharge pump (10) towards the sump (13).

[0013] In the laundry dryer (1) of the present invention, during the heat exchanger (4) and/or the filter (6) washing process realized with the aim of removing the fiber and lints accumulating thereon, the water taken from the tank (7) by means of the washing pump (8) is directed onto the heat exchanger (4) and/or the filter (6) by means of the washing line (9). The discharge pump (10), which is operated together with the washing pump (8) by the control unit (12), transfers the water, that is mixed with fiber and lints draining from the heat exchanger (4) and/or the filter (6) and pouring into the sump (13), to the tank (7) by means of the discharge line (11). After the heat ex-

changer (4) and/or the filter (6) is/are washed sufficiently, the washing pump (8) is stopped by the control unit (12). In this case, the control unit (12) enables the operation of the discharge pump (10) to be continued for a time (T1) and stops the same at the end of this time (T1). When the discharge pump (10) is stopped, the water remaining in the discharge line (11) between the tank (7) and the discharge pump (10) flows in the reverse direction with the effect of the gravity towards the sump (13) and enables the clogging caused by the fiber and lints accumulating at the suction port (B) of the discharge pump (10) to be cleared. After a predetermined time (T2) the control unit (12) operates the washing pump (8) and the discharge pump (10) simultaneously and enables the water mixed with fiber and lints in the sump (13) to be transferred to the tank (7).

[0014] By means of the present invention, during the heat exchanger (4) and/or the filter (6) washing process, by means of the discharge pump (10) operated together with the washing pump (8), the water containing fiber and lints is guided towards the tank (7) by the discharge line (11), thus preventing the fiber and lints accumulating at the suction port (B) of the discharge pump (10) from causing clogging and enabling the heat exchanger (4) and/or the filter (6) to be effectively washed.

[0015] The fiber and lint cleaning process of the present invention executed by the control unit (12) comprises the following steps:

- Deciding the heat exchanger (4) and/or the filter (6) washing process by detecting the accumulation of fiber and lints (100);
- Washing the heat exchanger (4) and/or the filter (6) by operating the washing pump (8) and the discharge pump (10) simultaneously (101);
- Stopping the washing pump (8) (102);
- Operating the discharge pump (10) for a predetermined time (T1) until the water in the sump (13) is transferred to the discharge line (11) and stopping the same, then enabling the water in the discharge line (11) to flow in the reverse direction with the effect of gravity and pass into the sump (13) through the suction port (B) of the discharge pump (10) (103);
- Operating the washing pump (8) and the discharge pump (10) again at the end of a predetermined time (T2) after the stopping of the discharge pump (10) (104);
- Stopping the washing pump (8) at the end of a predetermined time (T3) (105);
- Stopping the discharge pump (10) at the end of a predetermined time (T4) after the stopping of the washing pump (8) (106);
- Terminating the fiber and lint cleaning process (107) (Figure 2).

[0016] In an embodiment of the fiber and lint cleaning method, in the step (103) of operating the discharge pump (10) for a predetermined time (T1) until the sump

(13) is emptied to the discharge line (11) and stopping the same and then enabling the water in the discharge line (11) to flow in the reverse direction with the effect of gravity and pass into the sump (13) through the suction port (B) of the discharge pump (10), the discharge pump (10) is stopped after 1 to 5 seconds after the washing pump (8) is stopped ($T1 = 1 - 5$ s).

[0017] In another embodiment of the fiber and lint cleaning method, in the step (104) of operating the washing pump (8) and the discharge pump (10) again at the end of a predetermined time ($T2$) after the stopping of the discharge pump (10); the washing pump (8) and the discharge pump (10) are operated after 1 to 30 seconds after the discharge pump (10) is stopped ($T2 = 1 - 30$ s).

[0018] In another embodiment of the fiber and lint cleaning method, in the step (105) of stopping the washing pump (8) at the end of a predetermined time ($T3$), the washing pump (8) is stopped after 1 to 5 seconds after the washing pump (8) and the discharge pump (10) are operated simultaneously ($T3 = 1 - 5$ s).

[0019] In another embodiment of the fiber and lint cleaning method, in the step (106) of stopping the discharge pump (10) at the end of a predetermined time ($T4$) after the washing pump (8) is stopped, the discharge pump (10) is stopped after 1 to 5 seconds after the washing pump (8) is stopped ($T4 = 1 - 5$ s).

[0020] In the fiber and lint cleaning method of the present invention, the water taken from the tank (7) by means of the washing pump (8) is directed onto the heat exchanger (4) and/or the filter (6) by means of the washing line (9). The discharge pump (10), which is operated together with the washing pump (8) by the control unit (12), transfers the water, that is mixed with fiber and lints draining from the heat exchanger (4) and/or the filter (6) and pouring into the sump (13), to the tank (7) by means of the discharge line (11). After the heat exchanger (4) and/or the filter (6) is/are washed sufficiently, the washing pump (8) is stopped by the control unit (12). In this case, the control unit (12) enables the operation of the discharge pump (10) to be continued for 1 to 5 seconds ($T1$) and stops the same at the end of this time ($T1$). When the discharge pump (10) is stopped, the water remaining in the discharge line (11) between the tank (7) and the discharge pump (10) flows in the reverse direction with the effect of the gravity into the sump (13) through the suction port (B) of the discharge pump (10) and enables the clogging caused by the fiber and lints accumulating at the suction port (B) to be cleared. After 1 to 30 seconds ($T2$) after the discharge pump (10) is stopped, the control unit (12) operates the washing pump (8) and the discharge pump (10) simultaneously for 1 to 5 seconds ($T3$) and the washing pump (8) is stopped. Meanwhile, the discharge pump (10) continues to operate and is stopped after 1 to 5 seconds ($T4$) after the washing pump (8) is stopped.

[0021] During the heat exchanger (4) and/or the filter washing process, the control unit (12) operates the washing and discharge pumps (8 and 10) simultaneously at

intervals (intermittently) and enables the discharge pump (10) to be operated for a time after the washing pump (8) is stopped and to be stopped thereafter. Thus, clogging that may occur at the sump (13) and at the suction port (B) of the discharge pump (10) is prevented.

[0022] By means of the present invention, the fibers and lint accumulating at the sump (13) and the suction port (B) of the discharge pump (10) are prevented from causing clogging and the heat exchanger (4) and the filter (6) are effectively cleansed of fibers and lint, thus transferring the wash water to the tank (7).

Claims

1. A laundry dryer (1) comprising a body (2); a drum (3) wherein the laundry to be dried is placed; an air circulation duct (5) providing the delivery of the drying air onto the laundry in the drum (3); a heat exchanger (4) that is disposed on the air circulation duct (5); at least one filter (6) that holds fiber and lints in the drying air; a tank (7) wherein the condensed water is stored; a washing pump (8) and a washing line (9) that enable the water to be taken from the tank (7) and to be delivered onto the heat exchanger (4) and/or the filter (6); a sump (13) wherein the water taken from the tank (7) and then draining from the heat exchanger (4) and/or the filter (6) and mixed with fiber and lints accumulates; a discharge pump (10) that delivers the water accumulated in the sump (13) to the tank (7); a vertical discharge line (11) that is disposed between the discharge pump (10) and the tank (7), and a control unit (12) that controls the operation of the washing pump (8) and the discharge pump (10), **characterized in that** during the washing process wherein fibers and lint accumulated on the heat exchanger (4) and/or the filter (6) are cleaned, and wherein the washing pump (8) and the discharge pump (10) are operated together, the control unit is configured to stop washing pump (8) at least once, and stops the discharge pump (10) after operating the same for a predetermined time ($T1$) until the water in the sump (13) is transferred to the water discharge line (11), thus enabling the water in the discharge line (11) to flow in the reverse direction with the effect of the gravity and to sweep the fiber and lint accumulated at the suction port (B) of the discharge pump (10) towards the sump (13).
2. A fiber and lint cleaning method that is executed in a laundry dryer (1) according to claim 1, comprising the steps of:
 - (a) Deciding the heat exchanger (4) and/or the filter (6) washing process by detecting the accumulation of fibers and lint (100);
 - (b) Washing the heat exchanger (4) and/or the

- filter (6) by operating the washing pump (8) and the discharge pump (10) simultaneously (101);
 (c) Stopping the washing pump (8) (102);
 (d) Operating the discharge pump (10) for a pre-
 determined time (T1) until the water in the sump
 (13) is transferred to the discharge line (11) and
 stopping the same, then enabling the water in
 the discharge line (11) to flow in the reverse di-
 rection with the effect of gravity and pass into
 the sump (13) through the suction port (B) of the
 discharge pump (10) (103);
 (e) Operating the washing pump (8) and the dis-
 charge pump (10) simultaneously again at the
 end of a predetermined time (T2) after the stop-
 ping of the discharge pump (10) (104);
 (f) Stopping the washing pump (8) at the end of
 a predetermined time (T3) (105);
 (g) Stopping the discharge pump (10) at the end
 of a predetermined time (T4) after the stopping
 of the washing pump (8) (106).
3. A fiber and lint cleaning method as in Claim 2, **characterized in that** in the step (d) of operating the discharge pump (10) for a predetermined time (T1), the discharge pump (10) is stopped after 1 to 5 seconds after the washing pump (8) is stopped.
4. A fiber and lint cleaning method as in Claim 2, **characterized in that** in the step (e) of operating the washing pump (8) and the discharge pump (10) again, the washing pump (8) and the discharge pump (10) are operated together after 1 to 30 seconds after the discharge pump (10) is stopped.
5. A fiber and lint cleaning method as in Claim 2, **characterized in that** in the step (f) of stopping the washing pump (8), the washing pump (8) is stopped after 1 to 5 seconds after the washing pump (8) and the discharge pump (10) are operated simultaneously.
6. A fiber and lint cleaning method as in Claim 2, **characterized in that** in the step (g) of stopping the discharge pump (10), the discharge pump (10) is stopped after 1 to 5 seconds after the washing pump (8) is stopped.

Patentansprüche

1. Ein Wäschetrockner (1) besitzt einen Körper (2), eine Trommel (3), in der sich die zu trocknende Wäsche befindet, einen Luftzirkulationskanal (5), der die Abgabe der Trocknungsluft auf die Wäsche, die sich in der Trommel (3) befinden, ermöglicht; einen Wärmetauscher (4), der an dem Luftzirkulationskanal (5) angebracht ist; mindestens einen Filter (6), der die Faser und Fussel aus der Trocknungsluft hält; einen Tank (7), in dem das kondensierte Was-

ser gespeichert wird; eine Waschpumpe (8) und Waschleitung (9), damit das Wasser aus dem Tank (7) entnommen und auf den Wärmetauscher (4) und / oder den Filter (6) zugeleitet wird; eine Wanne (13), in dem das Wasser aus dem Tank (7) entnommen, aus dem Wärmetauscher (4) und / oder dem Filter (6) abgelassen und mit Faser und Fussel vermischt wird; eine Abgabepumpe (10), die das in der Wanne (13) angesammelte Wasser dem Tank (7) zuführt; eine Auslassleitung (11), die vertikal zwischen der Auslasspumpe (10) und dem Tank (7) angeordnet ist und eine Steuereinheit (12), die den Betrieb der Waschpumpe (8) und der Auslasspumpe (10) steuert. Diese sind **dadurch gekennzeichnet, dass** während des Waschvorgangs alle Fasern und Fussel, die sich auf dem Wärmetauscher (4) und / oder auf dem Filter (6) angesammelt haben, gereinigt werden und das die Waschpumpe (8) und die Ablasspumpe (10) zusammen in Betrieb genommen werden; dass die Steuereinheit so konfiguriert ist, dass sie die Waschpumpe (8) mindestens einmal stoppt, dann die Abgabepumpe (10) stoppt, nach dem Inbetriebnahme der gleichen vorbestimmten Zeit (T1), bis das Wasser in der Wanne (13) in die Abflussleitung (11) überführt wird, wodurch das Wasser in der Abflussleitung (11) unter der Einwirkung der Schwerkraft in umgekehrter Richtung fließt und die an der Ansaugöffnung (B) der Ablasspumpe (10) angesammelte Fasern und Fusseln in die Wanne (13) mitreist.

2. Ein Faser- und Fusselreinigungsverfahren in einem Wäschetrockner (1), wie in Anspruch 1 aufgeführt, umfasst folgende Schritte:

- (a) das Festlegen des Waschvorgangs des Wärmetauschers (4) und / oder des Filters (6) für das Erfassen der Ansammlung von Fasern und Fussel (100) ;
 (b) das Waschen des Wärmetauschers (4) und / oder des Filters (6) durch das gleichzeitige (101) Betreiben der Waschpumpe (8) und der Ablasspumpe (10) (101);
 (c) das Anhalten der Waschpumpe (8) (102);
 (d) das Betreiben der Abgabepumpe (10) für eine voreingestellte Zeit (T1), bis das Wasser aus der Wanne (13) zu der Abflussleitung (11) geleitet wird und das Anhalten der Abgabepumpe (10), wenn das Wasser in der Abflussleitung (11) in umgekehrter Richtung mit der Wirkung der Schwerkraft fließt und durch den Ansauganschluss (B) der Ablasspumpe (10) (103) in die Wanne (13) gelangt;
 (e) das gleichzeitige Betreiben der Waschpumpe (8) und der Abgabepumpe (10) nach Ablauf der vorbestimmten Zeit (T2), nach dem Anhalten der Abgabepumpe (10) (104);
 (f) das Anhalten der Waschpumpe (8) am Ende

einer vorbestimmten Zeit (T3) (105);
(g) das Anhalten der Abgabepumpe (10) am Ende einer vorbestimmten Zeit (T4), nach dem Anhalten der Waschpumpe (8) (106).

3. Ein Faser- und Fusselreinigungsverfahren in einem Wäschetrockner (1), wie in Anspruch 1 aufgeführt, **ist dadurch gekennzeichnet, dass** in dem Schritt (d) des Verfahrens der Abgabepumpe (10) für eine vorbestimmte Zeit (T1), die Abgabepumpe (10) nach 1 bis 5 Sekunden angehalten wird, nachdem die Waschpumpe (8) angehalten wird.
4. Ein Faser- und Fusselreinigungsverfahren in einem Wäschetrockner (1), wie in Anspruch 2 aufgeführt, **ist dadurch gekennzeichnet, dass** in Schritt (e) des Verfahrens die Waschpumpe (8) und die Ablasspumpe (10), nach 1 bis 30 Sekunden Anhalten der Abgabepumpe (10) gemeinsam betrieben werden.
5. Ein Faser- und Fusselreinigungsverfahren in einem Wäschetrockner (1), wie in Anspruch 2 aufgeführt, **ist dadurch gekennzeichnet, dass** im Schritt (f) des Verfahrens, das Anhalten der Waschpumpe (8), die Waschpumpe (8) nach 1 bis 5 Sekunden anhalten mit der Druckpumpe (10) gleichzeitig betrieben wird.
6. Ein Faser- und Fusselreinigungsverfahren in einem Wäschetrockner (1), wie in Anspruch 2 aufgeführt, **ist dadurch gekennzeichnet, dass** in dem Schritt (g) des Verfahrens, das Anhalten der Abgabepumpe (10), die Waschpumpe (8) angehalten wird, wenn 1 bis 5 Sekunden nach dem Anhalten der Abgabepumpe (10) verstrichen sind.

Revendications

1. Un sèche-linge (1) comprenant un corps (2) ; un tambour (3) dans lequel le linge à sécher est placé ; un conduit de circulation d'air (5) assurant la distribution de l'air de séchage sur le linge dans le tambour (3) ; un échangeur thermique (4) qui est disposé sur le conduit de circulation d'air (5) ; au moins un filtre (6) qui retient les fibres et peluches dans l'air de séchage ; un réservoir (7) où est stocké l'eau condensée ; une pompe de lavage (8) et une conduite de lavage (9) qui permettent à l'eau d'être prélevée du réservoir (7) et d'être amenée vers l'échangeur de chaleur (4) et/ou le filtre (6) ; un siphon (13) dans lequel l'eau prélevée du réservoir (7) est ensuite évacuée de l'échangeur de chaleur (4) et/ou le filtre (6) et mélangée à des fibres et des peluches accumulées ; une pompe de décharge (10) qui amène l'eau accumulée dans le siphon (13) au réservoir (7) ; une conduite d'évacuation verticale (11) qui est disposée entre la pompe d'évacuation (10) et le ré-

servoir (7), et une unité de commande (12) qui commande le fonctionnement de la pompe de lavage (8) et de la pompe d'évacuation (10), **est caractérisée en ce que** pendant le processus de lavage, les fibres et peluches accumulées sur l'échangeur thermique (4) et/ou le filtre (6) sont nettoyées, et la pompe de lavage (8) et la pompe d'évacuation (10) fonctionnent ensemble, l'unité de commande est configurée pour arrêter au moins une fois la pompe de lavage (8), et arrêter la pompe de décharge (10) après l'avoir actionnée pendant un temps prédéterminé (T1) jusqu'à ce que l'eau dans le siphon (13) soit transférée vers la conduite de décharge d'eau (11), permettant ainsi à l'eau dans la conduite de décharge (11) de circuler dans le sens inverse sous l'effet de la gravité et pour balayer les fibres et les peluches accumulées sur le passage d'aspiration (B) de la pompe de décharge (10) vers le siphon (13).

2. Procédé de nettoyage de fibres et de peluches qui est exécuté dans un séchoir à linge (1) selon la déclaration 1, comprenant les étapes consistant à :

- (a) Décider du processus de lavage de l'échangeur de chaleur (4) et/ou du filtre (6) en détectant l'accumulation de fibres et de peluches (100) ;
- (b) Laver l'échangeur de chaleur (4) et/ou le filtre (6) en actionnant simultanément la pompe de lavage (8) et la pompe d'évacuation (10) (101) ;
- (c) Arrêter la pompe de lavage (8) (102) ;
- (d) Faire fonctionner la pompe de refoulement (10) pendant un temps prédéterminé (T1) jusqu'à ce que l'eau dans le siphon (13) soit transférée dans la conduite de refoulement (11) et l'arrêter, puis faire circuler dans le sens inverse l'eau dans la conduite de refoulement (11) par gravité et la faire passer dans le siphon (13), en la faisant circuler à travers la tubulure d'aspiration (B) de la pompe de refoulement (10), (103) ;
- (e) Actionner à nouveau simultanément la pompe de lavage (8) et la pompe de refoulement (10) à la fin d'un temps prédéterminé (T2) après l'arrêt de la pompe de refoulement (10) (104) ;
- (f) Arrêter la pompe de lavage (8) à la fin d'un temps prédéterminé (T3) (105) ;
- (g) Arrêter la pompe de refoulement (10) à la fin d'un temps prédéterminé (T4) après l'arrêt de la pompe de lavage (8) (106).

3. Un procédé de nettoyage des fibres et des peluches selon la déclaration 2, **est caractérisé en ce que** dans l'étape (d) de fonctionnement de la pompe de décharge (10) pendant une durée prédéterminée (T1), la pompe de décharge (10) est arrêtée après 1 à 5 secondes après que la pompe de lavage (8) soit arrêtée.

4. Un procédé de nettoyage des fibres et des peluches

selon la déclaration 2, **est caractérisé en ce que**
dans l'étape (e) de fonctionnement de la pompe de
lavage (8) et de la pompe de refoulement (10), la
pompe de lavage (8) et la pompe de refoulement
(10) fonctionnent ensemble après 1 à 30 secondes
après que la pompe de refoulement (10) soit arrêtée. 5

5. Un procédé de nettoyage des fibres et des peluches
selon la déclaration 2, **est caractérisé en ce que**
dans l'étape (f) d'arrêt de la pompe de lavage (8), la
pompe de lavage (8) est arrêtée après 1 à 5 secon- 10
des après que la pompe de lavage (8) et la pompe
de décharge (10) soient actionnées simultanément.

6. Un procédé de nettoyage des fibres et des peluches 15
selon la déclaration 2, **est caractérisé en ce que**
dans l'étape (g) d'arrêt de la pompe de décharge
(10), la pompe de décharge (10) est arrêtée après
1 à 5 secondes après que la pompe de lavage (8)
soit arrêtée. 20

25

30

35

40

45

50

55

Figure 1

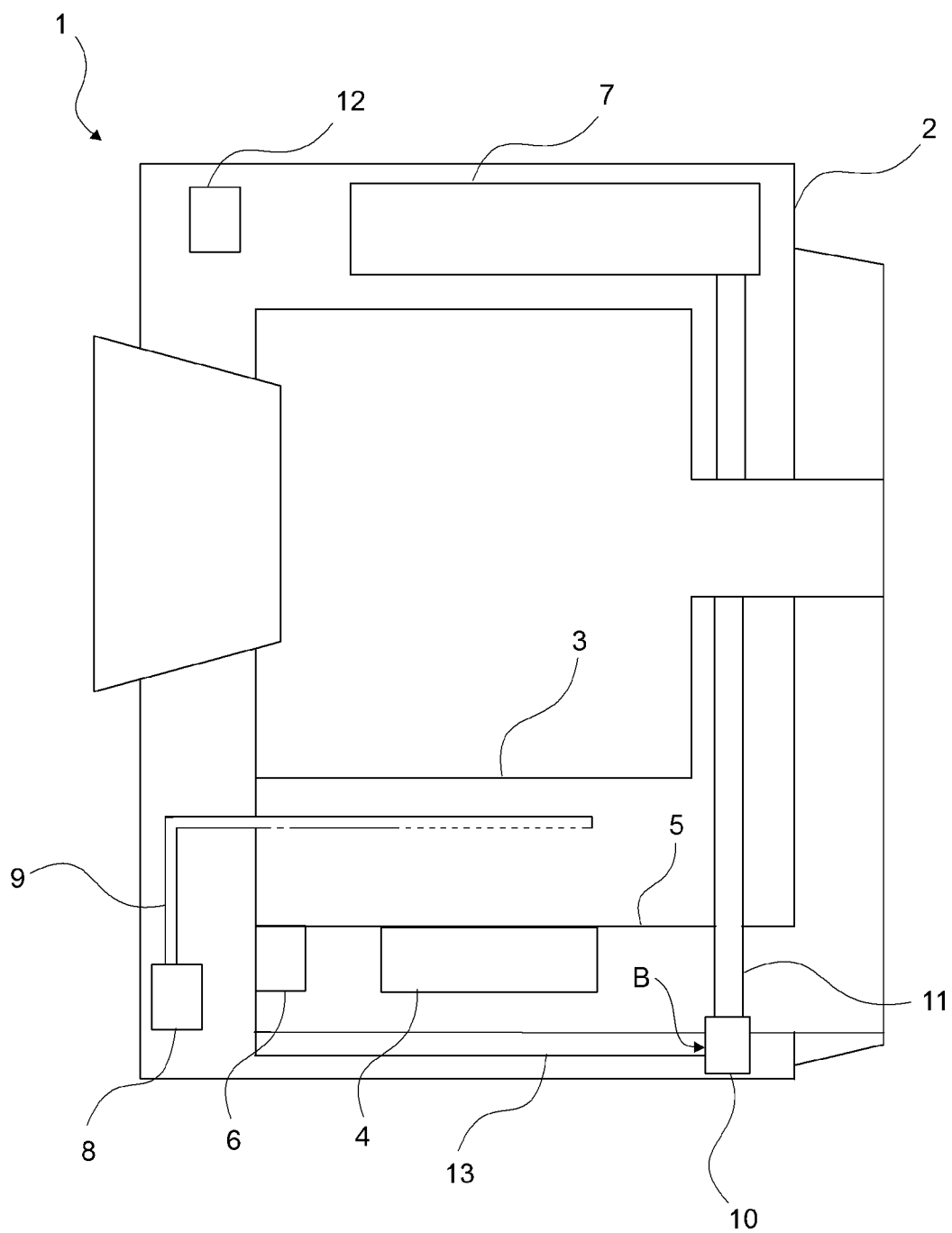
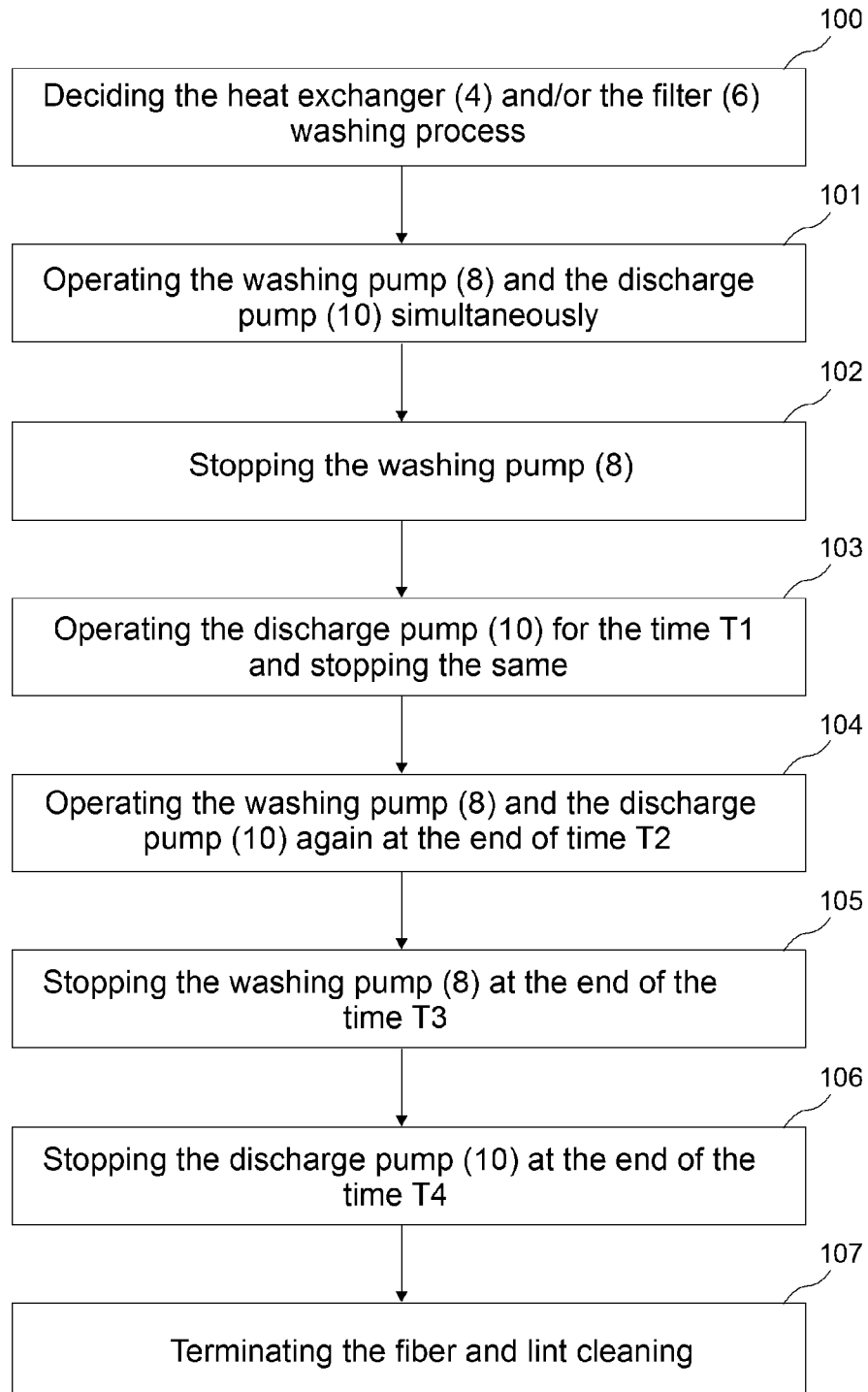


Figure 2



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

- WO 2009015919 A [0004]
- DE 102010039552 A1 [0005]