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(72) Inventor: **Ulusik, Cihan Emre**
35030 Izmir (TR)

(74) Representative: **Cayli, Hülya**
Paragon Consultancy Inc.
Koza Sokak No: 63/2
GOP
06540 Ankara (TR)

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(71) Applicant: **Vestel Beyaz Eşya Sanayi ve Ticaret
A.Ş.**
45030 Manisa (TR)

(54) **A filtering unit for drying machines**

(57) The machine (A) of the invention is a hot-air drying machine (A) comprising a vessel (1) in which the laundry to be dried are placed; at least one filtering unit (2) provided with at least one air inlet and air outlet (7, 8) and at least one collector (11) where foreign materials in the air discharged from the vessel (1) accumulate. The

collector (11) in the filtering unit (2) is rotatable around an axis (12) and comprises at least two meshes (13) disposed at certain angles with respect to one another. By the rotational movement of the collector (11), the meshes (13) periodically stand in the air flow direction and collect the foreign materials.

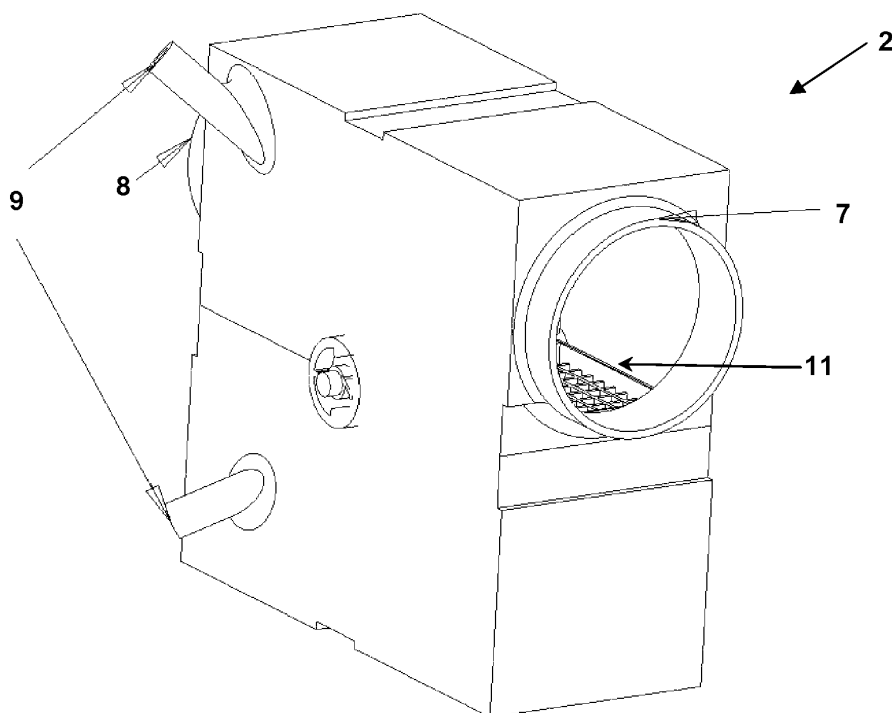


Figure – 3

Description

wherein

Technical Field

[0001] Present invention relates to filtering units at which the lint broken off from laundry is collected in drying machines.

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Figure 1 is an overall schematic view of the machine and the units therein.

Figure 2 is an overall perspective view of the filtering unit.

Prior Art

[0002] As is known, drying machines are electrical devices which blow hot air without moisture into the vessel where laundry is present, ensuring that the laundry is dried. For this purpose, the air in the machine is circulated, and the vapour produced by the laundry is condensed and discharged from the machine. Due to such reasons as wearing over time and the properties of the laundry, such small particles as lint and fluff break off from the laundry, spread to the circulating air and reach various parts of the machine. In this case, these parts may malfunction. Various studies have been conducted to prevent this situation. For instance, published patent applications WO2010071355 and US20080196268 disclose systems wherein the lint collecting filter in the machine is cleaned by moving brushes. The common disadvantage of these systems, however, is that they comprise a plurality of brushes and that efficiency is not attained adequately by brush cleaning.

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Figure 3 is an overall perspective view of the filtering unit from a different viewpoint.

Figure 4 is an overall perspective view of the collector in the filtering unit.

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Figure 5 is an overall perspective view of the moving parts in the filtering unit.

Figure 6 is a perspective view of the detail "D" shown in Figure 5.

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[0008] The parts in the drawings are individually enumerated and corresponding terms of these reference numbers are as follows.

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Machine (A)

Vessel (1)

Filtering unit (2)

Condenser (3)

Air blowing unit (4)

Heating unit (5)

Water discharge (6)

Air inlet (7)

Air outlet (8)

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Water inlet (9)

Body (10)

Collector (11)

Rotation axis (12)

Mesh (13)

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Fixed adjustment part (14)

Moving adjustment part (15)

Shaft (16)

Brief Description of the Invention

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[0003] The machine of the invention is a hot-air drying machine comprising a vessel in which the laundry to be dried are placed; at least one filtering unit provided with at least one air inlet and air outlet and at least one collector where foreign materials in the air discharged from the vessel accumulate. The collector in the filtering unit is rotatable around an axis and comprises at least two meshes disposed at certain angles with respect to one another. By the rotational movement of the collector, the meshes periodically stand in the air flow direction and collect the foreign materials.

Objective of the Invention

[0004] The aim of the present invention is to form a filtering unit for collecting foreign materials such as lint etc. in laundry drying machines.

[0005] Another aim of the invention is to form a filtering unit wherein said foreign materials are easily removed.

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[0006] Another aim of the invention is to form a reliable filtering unit which is simple and cheap to manufacture and assemble.

Description of the Drawings

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[0007] An exemplary laundry drying machine and interior details thereof are illustrated in the annexed figures

Disclosure of the Invention

[0009] Figure 1 shows a schematic view of the interior of a laundry drying machine of the invention (A). The machine (A) comprises a vessel (1) in which the laundry to be dried are placed (laundry is usually placed in a drum in the vessel -not shown-); at least one heating unit (5) where the air to be sent into the vessel (1) is heated; at least one air blowing unit (4) which circulates the air in the machine (A); at least one condenser (3) where the humid air discharged from the vessel (1) is dehumidified; at least one filtering unit (2) where all the foreign materials such as lint, fluff etc. in the circulating air is collected. A

machine (A) is developed wherein said foreign materials are reliably collected by means of the filtering unit (2) details of which are disclosed below.

[0010] As mentioned above, the filtering unit (2) purges the air discharged from the vessel (1) of the foreign materials. Although the unit (2) is disposed at the exit of the vessel as illustrated in Figure 1, the unit (2) may be disposed elsewhere. However, the unit (2) is preferably disposed at the exit of the vessel (1) in order to protect other parts and units in the machine.

[0011] Figure 2-6 show details of the filtering unit (2). The filtering unit (2) is provided with at least one air inlet (7); at least one air outlet (8); and at least one collector (11) in the body (10). The foreign materials in the air, which come from the air inlet (7) and enter into the unit (2), are caught by said collector (11); and the cleaned air moves from the air outlet (8) towards the other parts in the machine (A).

[0012] A further feature of the unit (2) is that the collector (11) can be cleaned on demand by the water coming from at least one water inlet (9). With the pressure of the water coming from the part (9), water is sent into the unit (2), forcing the accumulated foreign materials to leave the collector. The water entering into the unit (2) (together with the foreign materials) is discharged through at least one discharge (6).

[0013] Figures 4 and 5 show details of an exemplary collector (11) utilized by the unit (2). The collector (11) comprises at least two meshes (13) (four meshes are shown in the figures) rotatable around an axis (12), which are disposed at certain angles with respect to one another. When one mesh (13) is filled with foreign materials, the other clean mesh (13) can be used thanks to the fact that the collector (11) is rotatable.

[0014] Rotation of the collector (11) is ensured by the air entering into the unit (2). As a result of the fact that a mesh (13) standing in the air flow direction is filled, the air moving towards this mesh (13) rotates the collector (11), which result in that the other mesh (13) (cleaned) becomes usable in the air flow direction. As mentioned above, the mesh (13) filled with foreign materials can be cleaned with water at this position it assumes.

[0015] Adjustability of the angles of rotation of the collector (11) is crucial for more reliable operation of the invention. In an exemplary collector (11) shown in the figures, where four meshes (13) with right angles with one another are used; it is preferred that the mesh (13) standing in the air flow direction preferably rotates with a 90° degree angle after being filled so that another mesh (13) stands in the air flow direction.

[0016] In other words, more reliable operation of the invention is ensured by the fact that the collector (11) remains steady until the mesh (13) that stands in the air flow direction is filled and that the collector then makes a 90° degree rotation. At least one fixed adjustment part (14) and at least one moving adjustment part (15) associated with the collector (11) are developed for this purpose.

[0017] The moving adjustment part (15) is fixed on the collector (11) (may be connected to the shaft (16) of the collector (11), for instance) and rotates together with the collector (11). The fixed adjustment part (14) on the other hand is used for ensuring that the moving adjustment part (15) (therefore the collector (11)) is stopped and positioned at certain angles.

[0018] Recessions and protrusions, which contact with one another, are provided on the moving adjustment part (15) and the fixed adjustment part (14). Owing to the flexibility of the moving adjustment part (14) and / or the fixed adjustment part (14) (these parts (14, 15) may be partially or wholly flexible), said recessions and protrusions can remain engaged to one another (with the rotation of the collector (11)) at certain angles until the mesh (13) is filled.

[0019] As the mesh (13) is filled, recessions and / or protrusions disengage from one another and allow rotation of the collector (11). During this rotation, recessions and protrusions are engaged again and remain engaged until the mesh (13) is filled again.

Claims

1. A machine (A) comprising:

- a vessel (1) in which the laundry to be dried are placed;
- at least one filtering unit (2) provided with at least one air inlet and air outlet (7, 8) and at least one collector (11) where foreign materials in the air discharged from the vessel (1) accumulate the machine drying the laundry with the hot air blown into the vessel (1) **characterized in that** the collector (11) is rotatable around an axis (12) and comprises at least two meshes (13) disposed at certain angles with respect to one another.

2. A machine (A) according to Claim 1 **characterized in that** the unit (2) comprises at least one water inlet (9) through which water is sent to the collector (11).

3. A machine (A) according to Claim 1 **characterized in that** the unit (2) comprises at least one water discharge (6).

4. A machine (A) according to Claim 1 **characterized in that**, with the rotational movement of the collector (11), the meshes (13) periodically stands in the air flow direction.

5. A machine (A) according to Claim 1 **characterized in that** the unit (2) comprises at least one fixed adjustment part (14) and at least one moving adjustment part (15) which rotates together with the collector (11) and engages to the fixed adjustment part

at certain angles.

6. A machine (A) according to Claim 5 **characterized in that** said parts (14, 15) are provided with recessions and protrusions which contact one another. 5
7. A machine (A) according to Claim 6 **characterized in that** the fixed adjustment part (14) and the moving adjustment part (15) are flexible. 10

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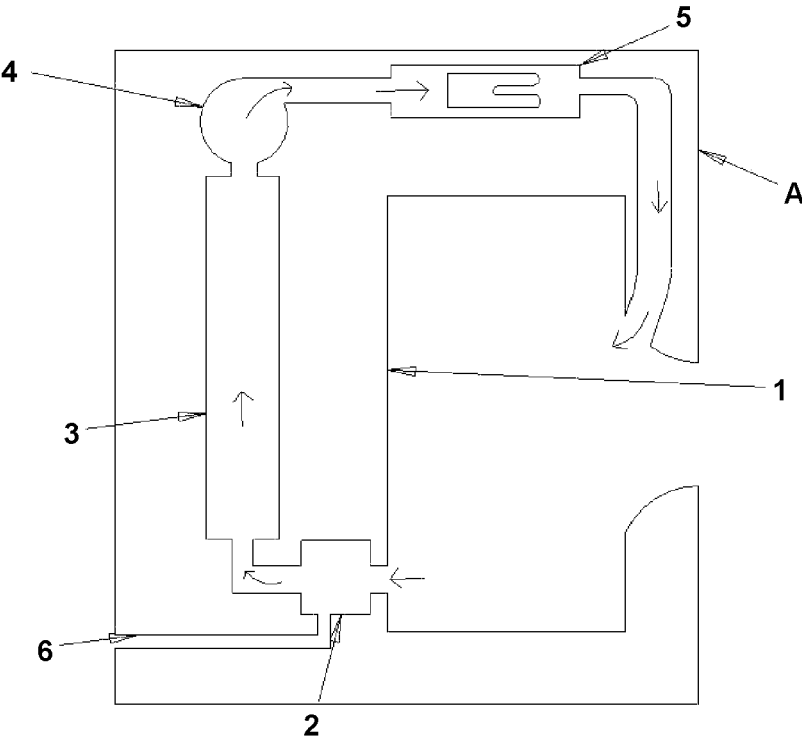


Figure – 1

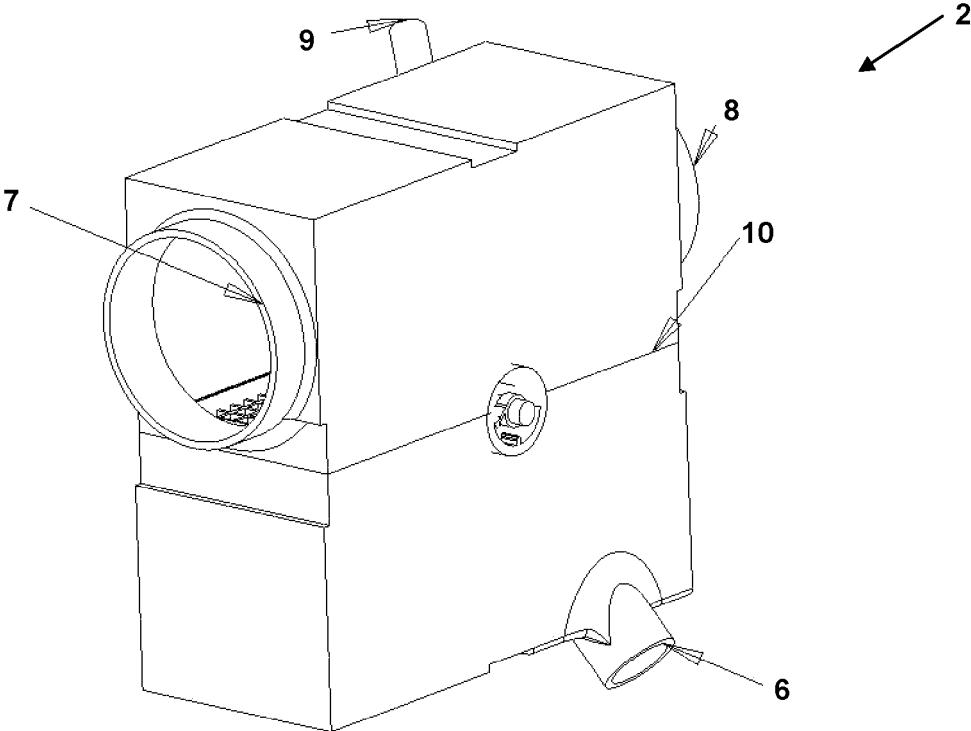


Figure – 2

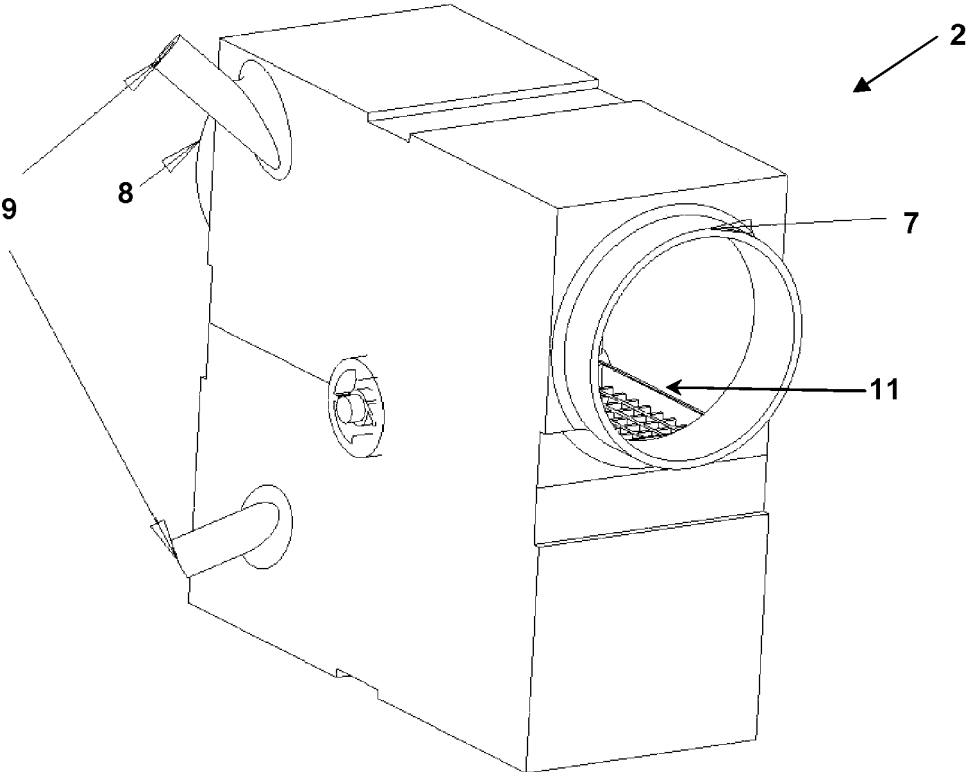


Figure – 3

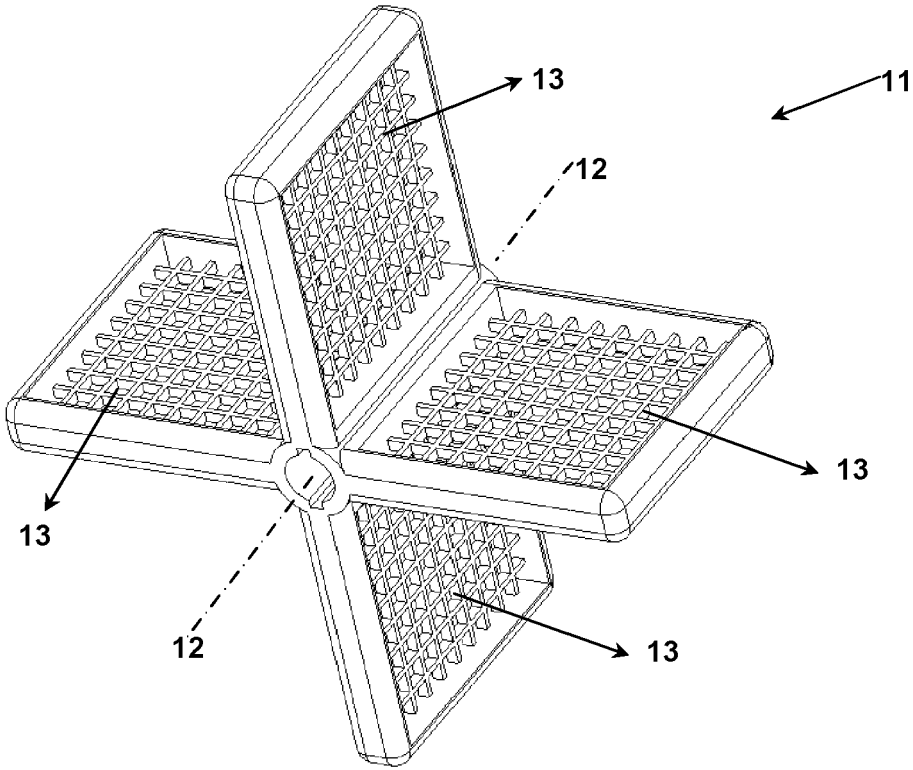


Figure – 4

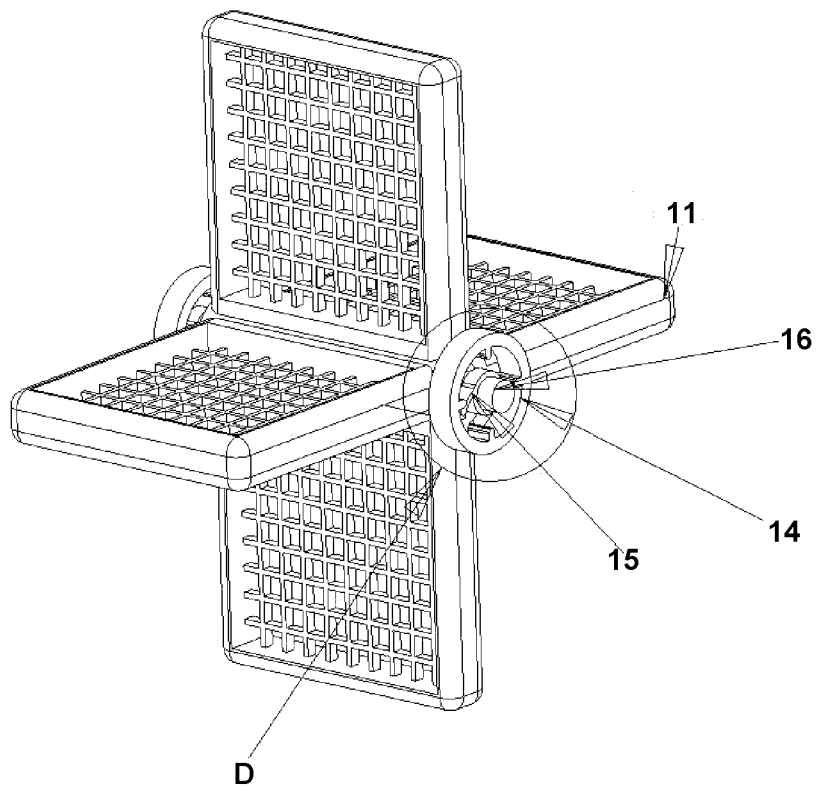


Figure – 5

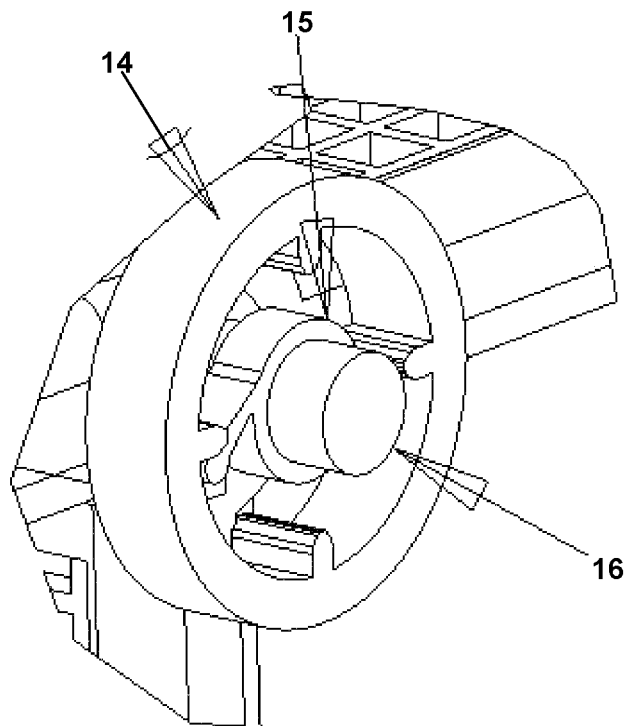


Figure – 6



EUROPEAN SEARCH REPORT

Application Number
EP 11 18 2499

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2008 057460 A1 (MIELE & CIE [DE]) 20 May 2010 (2010-05-20) * paragraphs [0017] - [0020]; figures 1-2 *	1,4	INV. D06F58/22
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			D06F
Place of search		Date of completion of the search	Examiner
Munich		1 March 2012	Stroppa, Giovanni
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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