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(71) Applicant: **ELECTROLUX APPLIANCES AKTIEBOLAG**
105 45 Stockholm (SE)

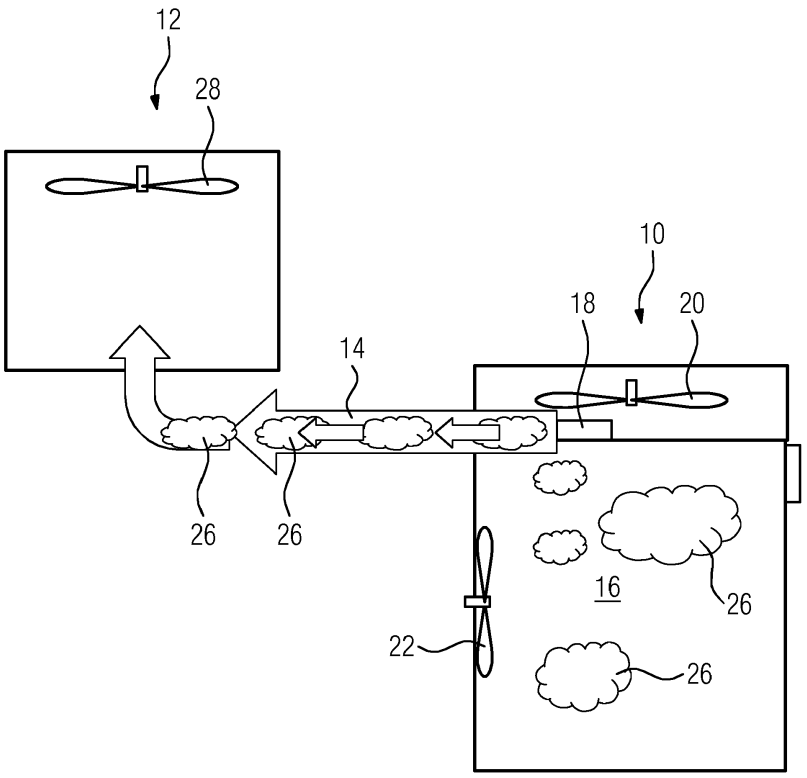
(72) Inventor: **BEKJAROVA, Milka**
47100 Forli (IT)

(74) Representative: **Electrolux Group Patents**
AB Electrolux
Group Patents
105 45 Stockholm (SE)

(54) COOKING APPLIANCE WITH ASPIRATION SYSTEM

(57) The present invention relates to a cooking appliance with an aspiration system (12) for a professional or domestic appliance. The cooking appliance comprises a cooking oven (10) with at least one oven cavity (16). The cooking appliance comprises an exhaust system (18) for removing humidity from the oven cavity (16). The exhaust system (18) is connected to the aspiration system (12) via an exhaust channel (14).

FIG 1



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Description

[0001] The present invention relates to a cooking appliance with an aspiration system.

[0002] During a cooking process a lot of humidity arises in a cavity of the cooking oven. Said humidity is released by food during the cooking process. Further, humidity is released by a heat sink, for example of a steam generator in a steam cooking oven. In general, the cooking process in a cooking oven comprises five steps. The first step is the preparation of the food by the user. The second step is a pre-heating phase until the temperature in the oven cavity reaches a value, at which humidity is generated in said oven cavity. The third step is a main cooking phase, in which humidity might be released in the oven cavity. The fourth step is a de-steaming, wherein the humidity is evacuated from the oven cavity. The last step is the opening of the door for removing the food from the oven cavity.

[0003] FIG 5 illustrates a schematic sectional side view of a cooking oven 10 with an aspiration system according to the prior art. The cooking oven 10 comprises an oven cavity 16. A cooking fan 22 is arranged in the rear portion of said oven cavity 16. An exhaust system 18 and a cooling fan 20 are arranged above the oven cavity 16. Usually, the cooling fan 20 includes a high-speed motor. The cooling fan 20 evacuates partially the humidity 26 by sucking from the oven cavity 16 and blowing to a front panel of the cooking oven 10.

[0004] FIG 6 illustrates a schematic sectional side view of the cooking oven 10 with the aspiration system according to the prior art with the open oven door 24. When the oven door 24 is opened after the cooking process, then the residual humidity 26 escapes abruptly from the oven cavity 16 through the door opening, so that the user is exposed to said humidity 26.

[0005] It is an object of the present invention to provide a cooking appliance with an aspiration system, which allows an improved evacuation of humidity from the oven cavity.

[0006] The object is achieved by the cooking appliance with the aspiration system according to claim 1.

[0007] According to the present invention a cooking appliance with an aspiration system for a professional or domestic appliance is provided, wherein:

- the cooking appliance comprises at least one cooking oven with an oven cavity,
- the cooking appliance comprises an exhaust system for removing humidity from the oven cavity, and
- the exhaust system is connected to the aspiration system via an exhaust channel.

[0008] The core of the present invention is the connection of the exhaust system to the aspiration system via the exhaust channel. This constellation allows an improved evacuation of humidity from the oven cavity. Since the aspiration system is often already represent within or closed to the cooking oven, the present invention is realised by low complexity.

[0009] Preferably, the aspiration system is a kitchen hood. The kitchen hood is usually already present and allows the connection to the exhaust system by low complexity.

[0010] In particular, the cooking appliance comprises at least one cooling fan for driving the exhaust system.

[0011] Further, the exhaust system and/or the cooling fan may be arranged above the oven cavity.

[0012] According to one embodiment the aspiration system is an external device, wherein the exhaust system is connected to said aspiration system via an exhaust channel.

[0013] According to another embodiment the aspiration system is an internal device, wherein the exhaust system is directly connected to said aspiration system.

[0014] Moreover, the cooking appliance may comprise at least one cooking hob arranged above the cooking oven and/or the oven cavity.

[0015] Furthermore, the aspiration system may include at least one inlet arranged on a cooking surface of the cooking hob.

[0016] Additionally, the aspiration system may comprise or correspond with an outlet channel.

[0017] Preferably, the aspiration system is connected to the ambient via the outlet channel.

[0018] Moreover, the aspiration system may be controllable or controlled by the cooking appliance or by a control unit of said cooking appliance, wherein the aspiration system and the cooking appliance or control unit are wired or wirelessly connected.

[0019] Further, the cooking appliance may comprise at least one cooking fan arranged in the rear portion of the oven cavity.

[0020] For example, the aspiration system comprises at least one dedicated outlet. Said dedicated outlet guarantees an increased efficiency.

[0021] Preferably, the flow rate of the aspiration system is essentially higher than the flow rates of the exhaust system and/or the cooling fan.

[0022] Novel and inventive features of the present invention are set forth in the appended claims.

[0023] The present invention will be described in further detail with reference to the drawings, in which

FIG 1 illustrates a schematic sectional side view of a cooking oven with an aspiration system according to a first embodiment of the present invention,

FIG 2 illustrates a schematic sectional top view of the cooking oven with the aspiration system according to the first embodiment of the present invention with an open oven door,

FIG 3 illustrates a schematic perspective view of the cooking oven with the aspiration system ac-

cording to a second embodiment of the present invention,

FIG 4 illustrates a schematic perspective view of the cooking oven with the aspiration system according to a third embodiment of the present invention,

FIG 5 illustrates a schematic sectional side view of the cooking oven with the aspiration system according to the prior art, and

FIG 6 illustrates a schematic sectional side view of the cooking oven with the aspiration system according to the prior art with the open oven door.

[0024] FIG 1 illustrates a schematic sectional side view of a cooking oven 10 with an aspiration system 12 according to a preferred embodiment of the present invention.

[0025] The cooking oven 10 is connected to the aspiration system 12 via an exhaust channel 14. The cooking oven 10 comprises an oven cavity 16. Optionally, a cooking fan 22 is arranged in the rear portion of said oven cavity 16. An exhaust system 18 and a cooling fan 20 are arranged above the oven cavity 16. Preferably, the cooling fan 20 includes a high-speed motor. The exhaust system 18 and the cooling fan 20 evacuate the humidity 26 by sucking from the oven cavity 16. Then, the exhaust system 18 and the cooling fan 20 blow the humidity 26 through the exhaust channel 14 into the aspiration system 12. Preferably, the flow rate of the aspiration system 12 is essentially higher than the flow rates of the exhaust system 18 and/or the cooling fan 20.

[0026] In this example, the aspiration system 12 is an external device arranged close to the cooking oven 10. For example, the aspiration system 12 is a kitchen hood.

[0027] FIG 2 illustrates a schematic sectional top view of the cooking oven 10 with the aspiration system 12 according to the first embodiment of the present invention with an open oven door 24. The inventive cooking oven 10 with the aspiration system 12 avoids that the user is exposed to the humidity 26, when the oven door 24 is opened after the cooking process. The humidity 26 has been removed from the oven cavity 16 by the aspiration system 12 via the exhaust channel 14 during the cooking process and before the oven door 24 is opened.

[0028] FIG 3 illustrates a schematic perspective view of the cooking oven 10 with the aspiration system 12 according to a second embodiment of the present invention.

[0029] In this embodiment a cooking hob 32 is arranged above the cooking oven 12. The aspiration system 12 is arranged between said cooking hob 32 and the cooking oven 12. The aspiration system 12 is connected to an outlet channel 30. In this example, the outlet channel 30 is arranged behind or in the rear portion of the cooking oven 10. The aspiration system 12 is a kitchen hood including an inlet 34 formed on the cooking surface of the cooking hob 32. On the one hand, the kitchen hood 12 sucks vapour escaping from cooking vessels on the cooking hob 32. On the other hand, the kitchen hood 12 sucks humidity 26 from the oven cavity 16. The vapour and the humidity are blown through the outlet channel 30 to the ambient.

[0030] FIG 4 illustrates a schematic perspective view of the cooking oven 10 with the aspiration system 12 according to a third embodiment of the present invention.

[0031] The cooking hob 32 is arranged above the cooking oven 12. The aspiration system 12 is arranged behind said cooking hob 32 and the cooking oven 12. The aspiration system 12 is connected to the outlet channel 30 behind the cooking oven 10. This aspiration system 12 is also a kitchen hood. Said kitchen hood 12 includes the inlet 34 formed on the cooking surface of the cooking hob 32. On the one hand, the kitchen hood 12 sucks vapour escaping from the cooking vessels on the cooking hob 32. On the other hand, the kitchen hood 12 sucks humidity 26 from the oven cavity 16. The vapour and the humidity are blown through the outlet channel 30 to the ambient.

[0032] FIG 5 illustrates a schematic sectional side view of the cooking oven 10 with the aspiration system according to the prior art. The cooking oven 10 comprises the oven cavity 16. The cooking fan 22 is arranged in the rear portion of said oven cavity 16. The exhaust system 18 and the cooling fan 20 are arranged above the oven cavity 16. The cooling fan 20 includes the high-speed motor. The cooling fan 20 evacuates only partially the humidity 26 by sucking from the oven cavity 16 and blowing to the front panel of the cooking oven 10.

[0033] In contrast, the cooking oven 10 with the aspiration system 12 according to the present invention allows an improved evacuation of humidity 26 from the oven cavity 16.

[0034] FIG 6 illustrates a schematic sectional side view of the cooking oven 10 with the aspiration system according to the prior art with the open oven door 24. When the oven door 24 is opened after the cooking process, then the residual humidity 26 escapes abruptly from the oven cavity 16 through the door opening, so that the user is exposed to said humidity 26.

[0035] In contrast, the cooking oven 10 with the aspiration system 12 according to the present invention avoids that the user is exposed to the humidity 26, when the oven door 24 is opened after the cooking process.

[0036] Although illustrative embodiments of the present invention have been described herein with reference to the accompanying drawings, it is to be understood that the present invention is not limited to those precise embodiments, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and modifications are intended to be included within the scope of the invention as defined by the appended claims.

List of reference numerals

[0037]

10	cooking oven
12	aspiration system
14	exhaust channel
16	oven cavity
18	exhaust system
20	cooling fan
22	cooking fan
24	oven door
26	humidity cloud
28	aspiration fan
30	outlet channel
32	cooking hob
34	inlet

Claims

1. A cooking appliance with an aspiration system (12) for a professional or domestic appliance, wherein:

- the cooking appliance comprises a cooking oven (10) with at least one oven cavity (16),
- the cooking appliance comprises an exhaust system (18) for removing humidity from the oven cavity (16), and
- the exhaust system (18) is connected to the aspiration system (12) via an exhaust channel (14).

2. The cooking appliance according to claim 1, **characterised in that** the aspiration system (12) is a kitchen hood.

3. The cooking appliance according to claim 1 or 2, **characterised in that** the cooking appliance comprises at least one cooling fan (20) for driving the exhaust system (18).

4. The cooking appliance according to any one of the preceding claims, **characterised in that** the exhaust system (18) and/or the cooling fan (20) are arranged above the oven cavity (16).

5. The cooking appliance according to any one of the preceding claims, **characterised in that** the aspiration system (12) is an external device, wherein the exhaust system (18) is connected to said aspiration system (12) via an exhaust channel (14).

6. The cooking appliance according to any one of the claims 1 to 4, **characterised in that** the aspiration system (12) is an internal device, wherein the exhaust system (18) is directly connected to said aspiration system (12).

7. The cooking appliance according to claim 6, **characterised in that** the cooking appliance comprises at least one cooking hob (32) arranged above the cooking oven (10) and/or the oven cavity (16).

8. The cooking appliance according to claim 7, **characterised in that** the aspiration system (12) includes at least one inlet (34) arranged on a cooking surface of the cooking hob (32).

9. The cooking appliance according to any one of the preceding claims, **characterised in that** the aspiration system (12) comprises or corresponds with an outlet channel (30).

10. The cooking appliance according to claim 9, **characterised in that** the aspiration system (12) is connected to the ambient via the outlet channel (30).

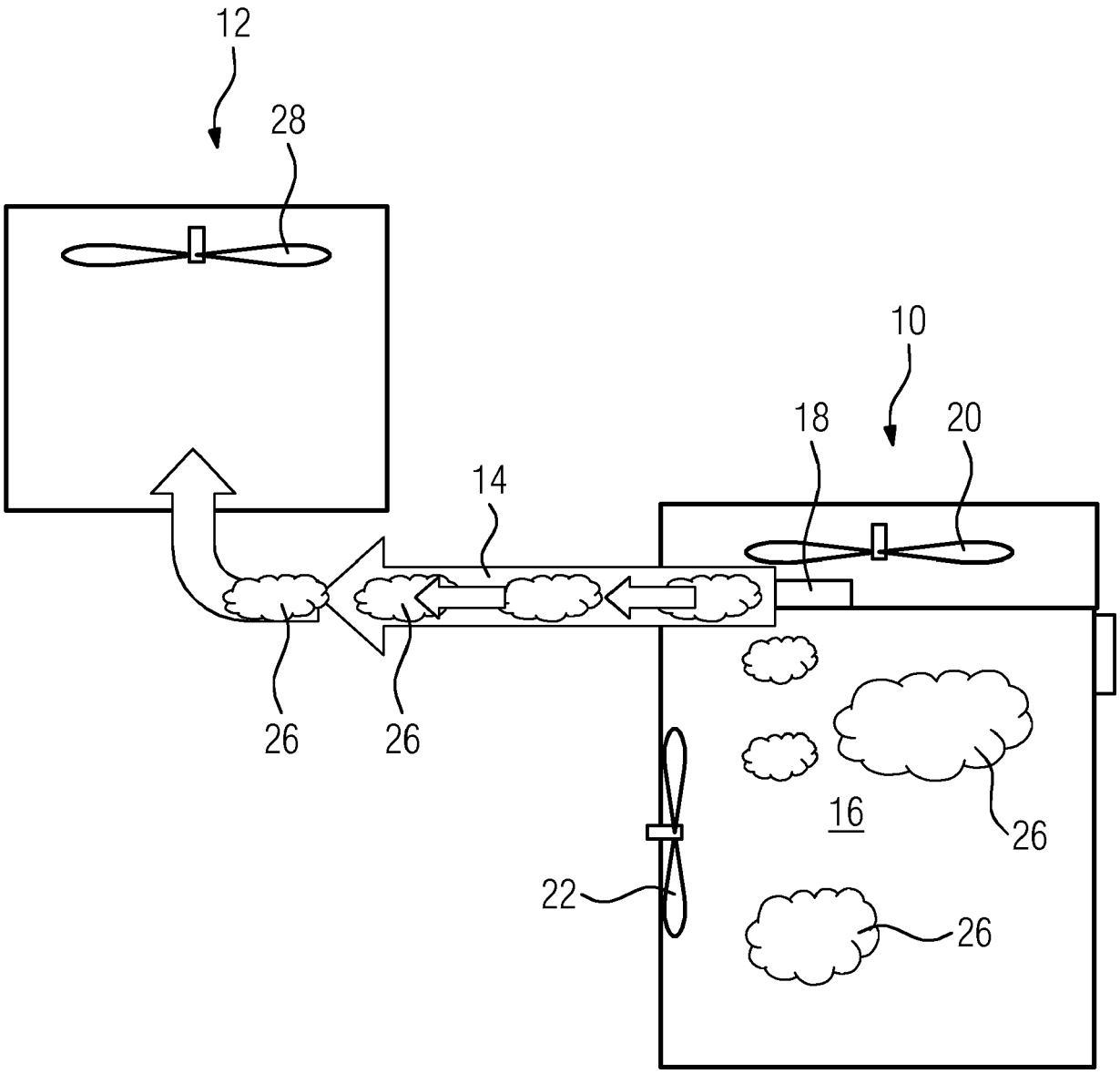
11. The cooking appliance according to any one of the preceding claims, **characterised in that** the aspiration system (12) is controllable or controlled by the cooking appliance or by a control unit of said cooking appliance, wherein the aspiration system (12) and the cooking appliance or control unit are wired or wirelessly connected.

12. The cooking appliance according to any one of the preceding claims, **characterised in that** the cooking appliance comprises at least one cooking fan (22) arranged in the rear portion of the oven cavity (18).

13. The cooking appliance according to any one of the preceding claims, **characterised in that** the aspiration system (12) includes at least one dedicated outlet.

14. The cooking appliance according to any one of the preceding claims, **characterised in that** the flow rate of the aspiration system (12) is essentially higher than the flow rates of the exhaust system (18) and/or the cooling fan (20).

FIG 1



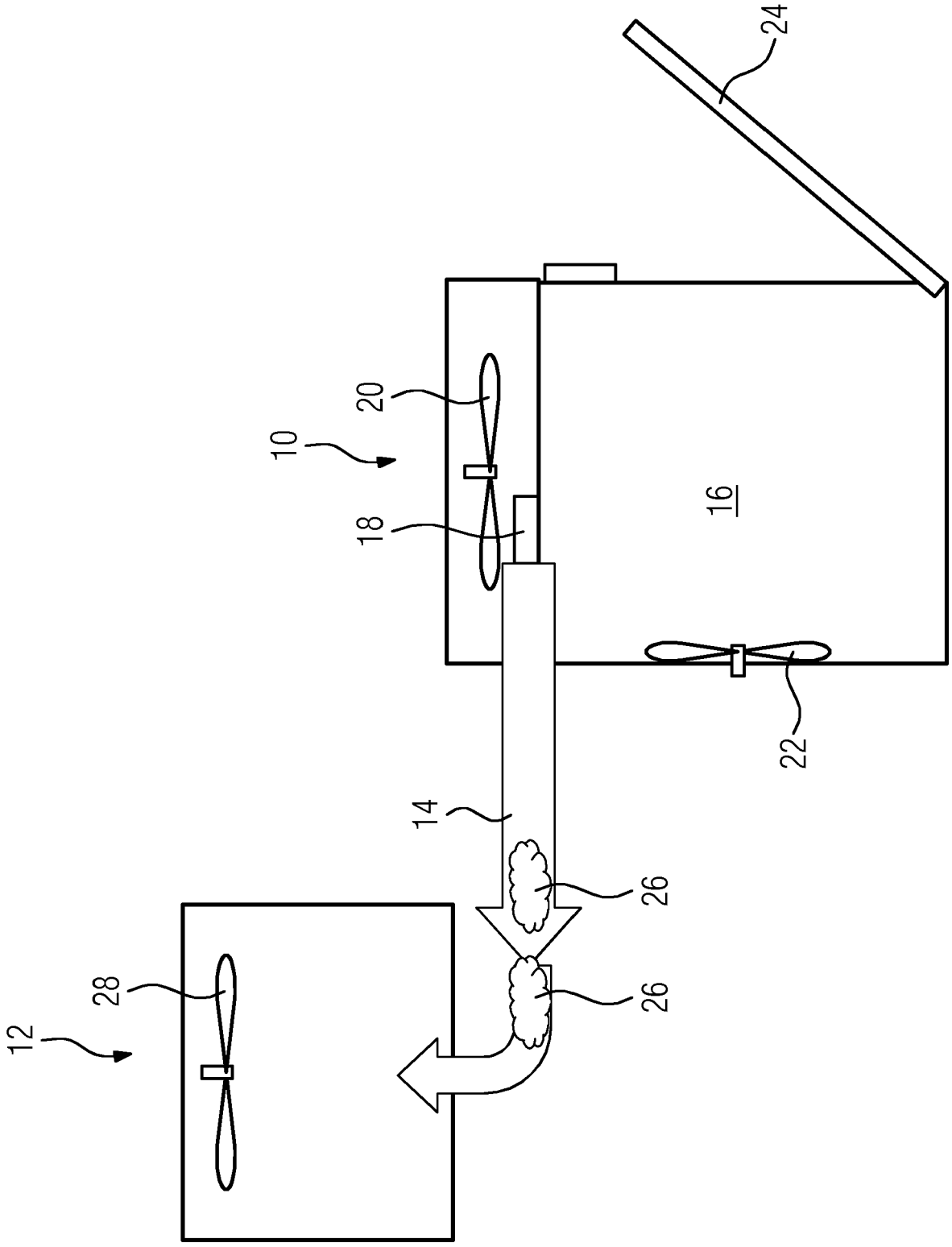


FIG 2

FIG 3

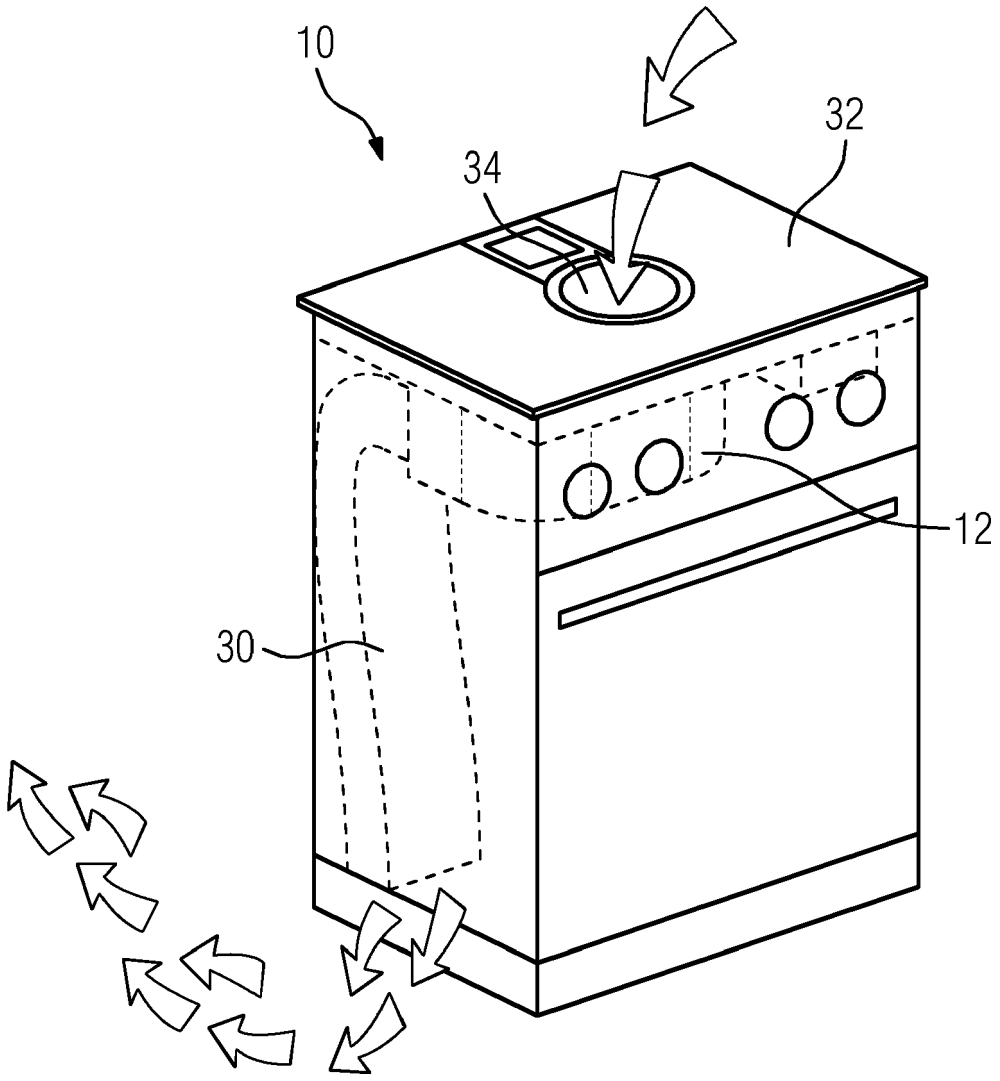


FIG 4

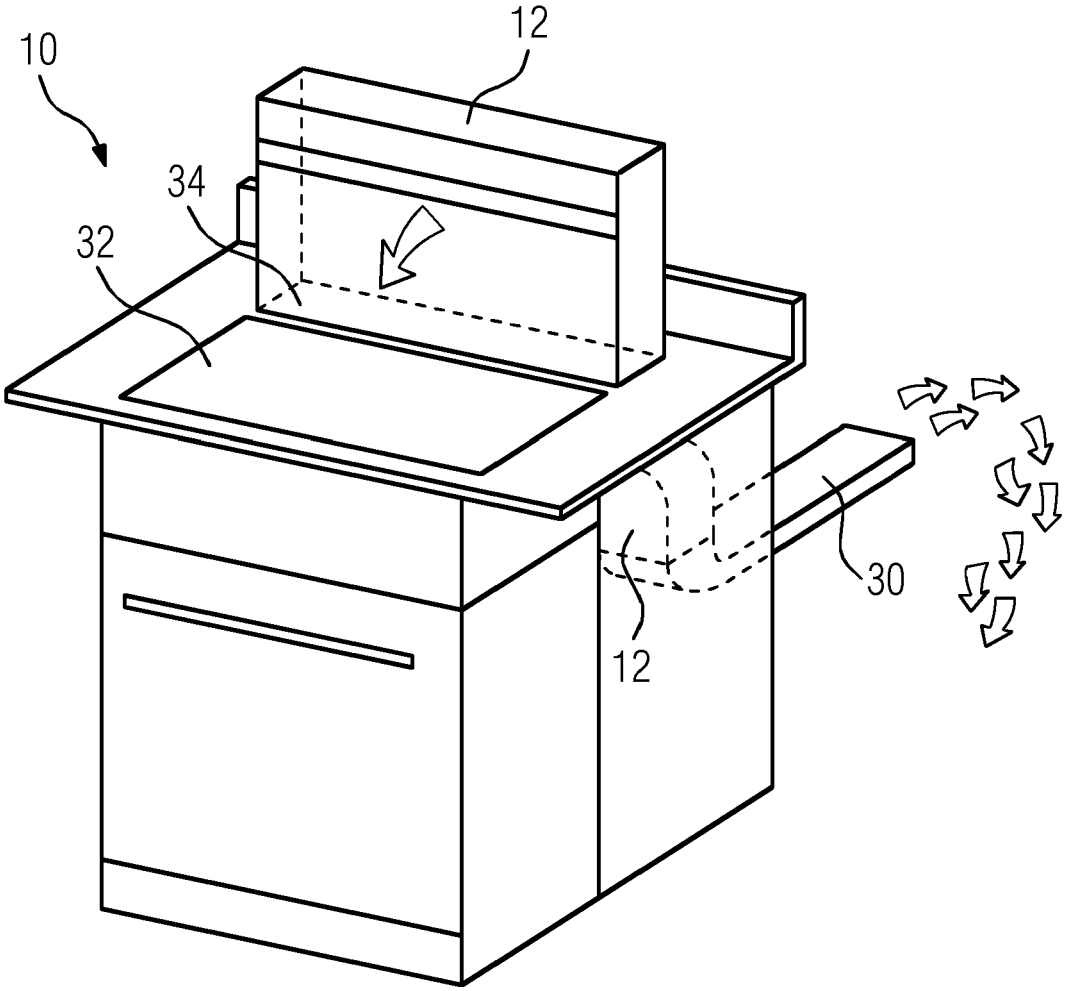


FIG 5

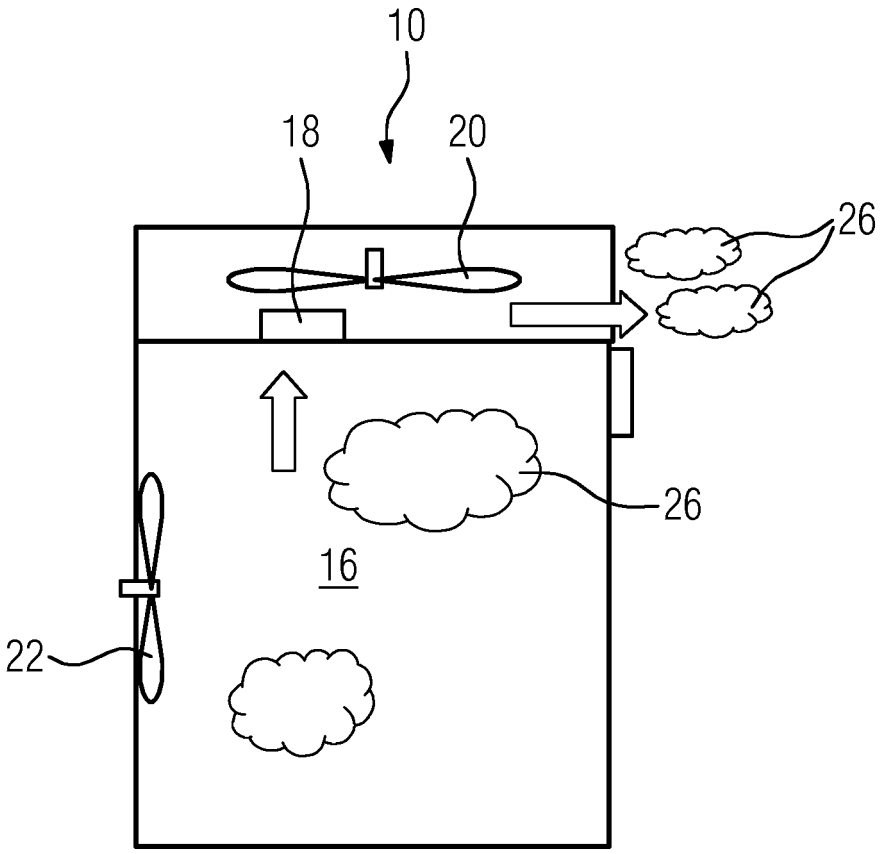
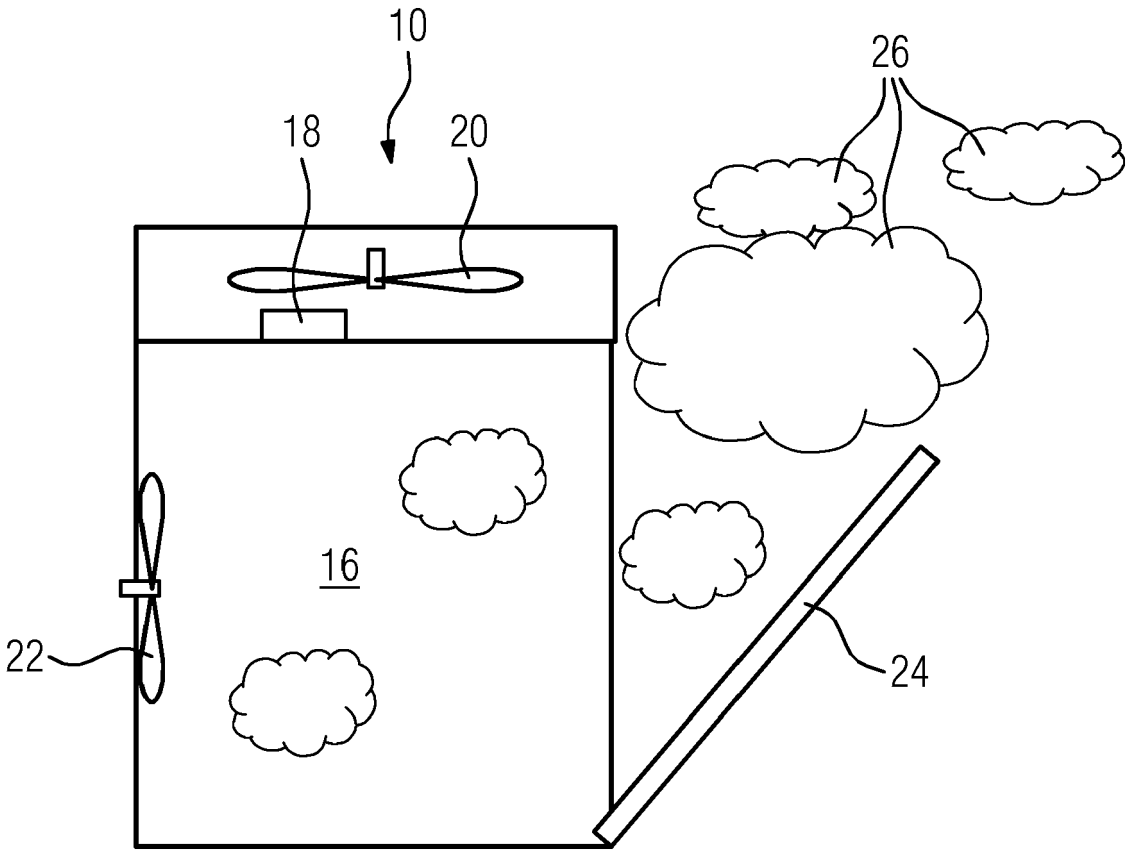


FIG 6



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EUROPEAN SEARCH REPORT

Application Number
EP 19 18 7490

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 671 591 A1 (BOSCH SIEMENS HAUSGERAETE [DE]) 13 September 1995 (1995-09-13) * claims 1,5,7; figures 1-3 * -----	1,3-5, 9-14	INV. F24C15/20
X	DE 27 05 395 A1 (BOSCH SIEMENS HAUSGERAETE) 10 August 1978 (1978-08-10) * figures 1,2 * -----	1,2,5,9, 10,12,13	
X	US 3 926 171 A (KUREK EDWIN J ET AL) 16 December 1975 (1975-12-16) * figure 7 * -----	6-8	

TECHNICAL FIELDS SEARCHED (IPC)

F24C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	3 January 2020	Meyers, Jerry

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 18 7490

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03-01-2020

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