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(54) **COOKER HOOD**

(57) This application provides an improved cooker hood. The cooker hood provided in this application includes an electrostatic filter (5) and a rectifying plate (8). Along an oil fume flow direction, the rectifying plate (8) is disposed upstream of the electrostatic filter (5). In this way, airflow flowing into the electrostatic filter (5) is uniform, facilitating improving an oil fume filtering effect.

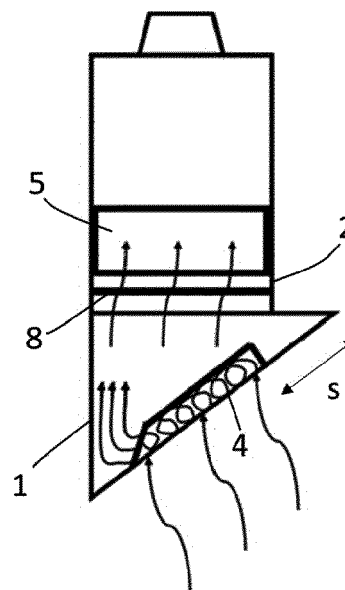


FIG. 1

Description

BACKGROUND

Technical Field

[0001] This application relates to the field of cooker hoods.

Related Art

[0002] Cooker hoods are common kitchen appliances in our daily lives. Kitchen oil fume problems are solved by people by mounting the cooker hoods. At present, cooker hoods provided with electrostatic filters have been proposed, but the performance thereof still needs to be further improved.

[0003] Unless there is sufficient evidence, the prior art described herein does not mean that it is recognized that the prior art is well known to those of ordinary skill in the art to which this application relates before the filing date of this application.

SUMMARY

[0004] One objective of embodiments of this application is to provide an improved cooker hood provided with an electrostatic filter.

[0005] One embodiment of this application relates to a cooker hood, including an electrostatic filter, and further including a rectifying plate, where along an oil fume flow direction, the rectifying plate is disposed upstream of the electrostatic filter. In this way, airflow flowing into the electrostatic filter is uniform, facilitating improving an oil fume filtering effect.

[0006] In one possible design, the rectifying plate is provided with a plurality of air vents; and the air vents face an airflow inlet of the electrostatic filter. In this way, airflow flowing into the electrostatic filter is uniform, facilitating improving an oil fume filtering effect.

[0007] In one possible design, the plurality of air vents are distributed in a mesh shape. In this way, airflow flowing into the electrostatic filter is uniform, facilitating improving an oil fume filtering effect.

[0008] In one possible design, a plurality of electrostatic filters are provided, and the plurality of electrostatic filters are arranged in a stack along the oil fume flow direction.

[0009] In one possible design, a fan is included; and along the oil fume flow direction, the fan is disposed downstream of the electrostatic filter.

[0010] In one possible design, a smoke collecting hood and a case that is located above the smoke collecting hood are included; and along the oil fume flow direction, the rectifying plate, the electrostatic filter, and the fan are disposed in the case sequentially from bottom to top.

[0011] In one possible design, a cyclone separator is further included; and along the oil fume flow direction,

the cyclone separator is disposed upstream of the rectifying plate. Highspeed airflow flowing from the cyclone separator is processed by the rectifying plate, such that the airflow flowing into the electrostatic filter is uniform, facilitating improving an oil fume filtering effect.

[0012] In one possible design, the cooker hood is an inclined cooker hood, including an inclined smoke collecting chamber; the cyclone separator is disposed in the smoke collecting chamber; the cyclone separator includes a plurality of cyclone tubes disposed in parallel; and side walls of the cyclone tubes are provided with air inlets, and the air inlets extend along an inclined direction of the smoke collecting chamber.

[0013] In one possible design, first outlets and second outlets are respectively formed on upper and lower ends of the cyclone tubes.

[0014] In one possible design, upper ends of the cyclone tubes are closed, and second outlets are formed on lower ends of the cyclone tubes. In one possible design, a driving device is further included, which is adapted to adjust a distance between the rectifying plate and the electrostatic filter.

[0015] It should be explained herein that orientation expressions such as "from bottom to top", "bottom", "top", "above", "upper end", and "lower end" appearing in this application, unless otherwise specified, are based on common use states of the cooker hood.

[0016] It should be explained herein that "first" and "second" appearing in the specification are used only for the purpose of description, and are not used for indicating relative importance; moreover, they are not used for defining the number of the features defined thereby; in addition, they are not used for defining logic relation or order relation of the features defined thereby.

[0017] The contents of the technical solutions above of this application are not used for describing all possible implementations of this application. Throughout the application, guidance is provided in multiple places by enumerating examples, and these examples may be used in various feasible combinations.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The following figures only give schematic illustrations and explanations of this application but are not intended to limit a scope of this application.

FIG. 1 is a schematic diagram of a cooker hood embodiment of this application;

FIG. 2 is a schematic structural diagram of a cyclone separator of the cooker hood embodiment shown in FIG. 1;

FIG. 3 is another schematic structural diagram of the cyclone separator of the cooker hood embodiment shown in FIG. 1;

FIG. 4 is a schematic structural diagram of a rectifying plate of the cooker hood embodiment shown in FIG. 1;

FIG. 5 is a schematic structural diagram of a rectifying plate of another cooker hood embodiment of this application;

FIG. 6 is a schematic structural diagram of still another cooker hood embodiment of this application;

FIG. 7 is a sectional view of the cooker hood embodiment shown in FIG. 6;

FIG. 8 is a schematic structural diagram of an electrostatic filter of the cooker hood embodiment shown in FIG. 6;

FIG. 9 is a schematic structural diagram of a cyclone separator of the cooker hood embodiment shown in FIG. 6; and

FIG. 10 is a sectional view along direction B-B in FIG. 9.

Reference numerals:

[0019]

1. Smoke collecting hood;
2. Case;
3. Fan;
4. Cyclone separator;
41. Cyclone tube;
411. Air inlet;
412. First outlet;
413. Second outlet;
5. Electrostatic filter;
6. Oil cup;
7. Control panel;
8. Rectifying plate;
81. Air vent.

DETAILED DESCRIPTION

[0020] To make the objectives, solutions, and advan-

tageous effects of this application clearer and more comprehensible, this application is further described below with reference to the accompanying drawings and preferred embodiments.

Embodiment 1

[0021] This application provides a cooker hood embodiment. As shown in FIG. 1 to FIG. 4, the cooker hood is an inclined cooker hood, including a smoke collecting hood 1, a fan, a cyclone separator 4, an electrostatic filter 5, a rectifying plate 8, an oil cup, and a case 2 located above the smoke collecting hood 1. Along an oil fume flow direction, the rectifying plate 8 is disposed upstream of the electrostatic filter 5, the fan is disposed downstream of the electrostatic filter 5, and the cyclone separator 4 is disposed upstream of the rectifying plate 8. During running of the fan, the oil fume flow direction is shown by a one-way arrow in FIG. 1; and along the oil fume flow direction, the rectifying plate 8, the electrostatic filter 5, and the fan are disposed in the case 2 sequentially from bottom to top. The rectifying plate 8 is configured to be adapted to convey uniform airflow to the electrostatic filter 5.

[0022] The smoke collecting hood 1 includes an inclined smoke collecting chamber, and an inclination direction of the smoke collecting chamber is shown by a double sided arrow s in FIG. 1. The cyclone separator 4 is disposed in the smoke collecting chamber, as shown in FIG. 1. The cyclone separator 4 includes five cyclone tubes 41 disposed in parallel, as shown in FIG. 2 and FIG. 3. Inner cavities of the cyclone tubes 41 are cylindrical, as shown in FIG. 3. Side walls of the cyclone tubes 41 are provided with air inlets 411, the air inlets 411 are parallel to each other, and the air inlets 411 all extend along the inclination direction of the smoke collecting chamber, as shown in FIG. 1 and FIG. 2. Upper ends of the cyclone tubes 41 are closed, and second outlets are formed on lower ends of the cyclone tubes 41. The second outlets are only openings of the cyclone tubes 41 for the airflow to flow out.

[0023] The electrostatic filter 5 is in a cuboid shape, as shown in FIG. 1, an airflow inlet of the electrostatic filter 5 is located at the bottom thereof, and an airflow outlet of the electrostatic filter 5 is located at the top thereof. During running of the fan, the airflow flows through the electrostatic filter 5 from bottom to top, as shown by the arrow in FIG. 1.

[0024] The rectifying plate 8 is provided with a plurality of air vents 81; each air vent 81 faces the airflow inlet of the electrostatic filter 5, as shown in FIG. 1, and the airflow flowing out of each air vent 81 directly flows to the airflow inlet of the electrostatic filter 5. The plurality of air vents 81 are distributed in a mesh shape, as shown in FIG. 4. The rectifying plate 8 is a metal plate, and each air vent 81 is made by stamping the metal plate.

[0025] During running of the fan, the airflow flows through the cyclone separator 4, the air vents 81 of the

rectifying plate 8, the electrostatic filter 5, and the fan sequentially, as shown by the arrow in FIG. 1. When the airflow flows into the cyclone separator 4, the airflow spirals in cylindrical inner cavities of the cyclone tubes 41; grease is separated under the action of centrifugal force, flows out from the second outlet, and finally flows into the oil cup.

[0026] The airflow discharged by the cyclone separator 4 is relatively concentrated and has a relatively high flow rate, while the electrostatic filter 5 requires the airflow flowing therein to have a low flow rate and to be uniform to achieve a relatively good oil fume filtering effect; and disposing the rectifying plate 8 between the cyclone separator 4 and the electrostatic filter 5 can improve a matching effect between the cyclone separator 4 and the electrostatic filter 5 to some extent.

[0027] The above is only one embodiment of this application, and other embodiments may be obtained by adding, deleting, modifying, or replacing some technical features. For example, the inner cavity of the cyclone tube may not be limited to be cylindrical, and may also be a tubular structure with a cross section in the shape of a square, a polygon, etc. For another example, the specific structure of the rectifying plate is not limited to that shown in this embodiment; and other possible structures may also be adopted, for example, the structure provided with a flow guide flange as shown in FIG. 5. For another example, the number of the cyclone tubes of the cyclone separator may not be limited to five. For another example, the cooker hood may be an external exhaust type cooker hood, and may also be an internal circulation type cooker hood. For another example, the rectifying plate may also be disposed on the smoke collecting hood. For another example, a driving device may also be further disposed to adjust a distance between the rectifying plate and the electrostatic filter. Preferably, the driving device is configured to be adapted to drive the rectifying plate to move up and down. In this way, the position of the rectifying plate between the cyclone separator and the electrostatic filter can be adjusted according to actual needs, facilitating improving the matching effect between the cyclone separator and the electrostatic filter.

Embodiment 2

[0028] This application further provides another cooker hood embodiment 2. As shown in FIG. 6 to FIG. 10, the cooker hood embodiment 2 is obtained by further improvement on the basis of the cooker hood embodiment 1 above. The cooker hood embodiment 2 mainly differs from the cooker hood embodiment 1 as follows.

[0029] In the cooker hood embodiment 2, four electrostatic filters 5 are provided and divided into an upper layer and a lower layer. Each layer is obtained by connecting two electrostatic filters 5 together, as shown in FIG. 8. The electrostatic filters 5 of the upper and lower layers are arranged in a stack along the oil fume flow direction as shown in FIG. 7. Each electrostatic filter 5 adopts a

drawer-type mounting structure, and a front side wall thereof is provided with a handle for holding to pull out or push in the electrostatic filters 5, as shown in FIG. 8.

[0030] The cyclone separator 4 of the cooker hood embodiment 2 is as shown in FIG. 9 and FIG. 10. The number of the cyclone separators 4 of the cooker hood embodiment 2 is two, and two cyclone separators 4 are connected together, as shown in FIG. 6. First outlets 412 and second outlets 413 are respectively formed on upper and lower ends of cyclone tubes 41 of the cyclone separator 4.

[0031] An oil cup 6 of the cooker hood embodiment 2 is disposed at a bottom end of the smoke collecting chamber, and the top of the smoke collecting chamber is provided with a control panel 7, as shown in FIG. 6.

[0032] For other structures and cooperation relations of the cooker hood embodiment 2, please refer to corresponding descriptions of the cooker hood embodiment 1. Different embodiment components may be combined with each other in any feasible manner, to achieve the objectives of this application.

[0033] It should be additionally explained that this application should not be understood as being only limited to the implementations described above, but should be understood as covering all possible implementation situations determined by the claims of this application in conjunction with the disclosure of the specification. Therefore, any simple changes, equivalent variations, and modifications made to the above embodiments according to the technical essence of this application without departing from the contents of this application shall fall within the scope of this application.

Claims

1. A cooker hood, comprising an electrostatic filter (5), **characterized by** further comprising:
 - a rectifying plate (8);
 - wherein along an oil fume flow direction, the rectifying plate (8) is disposed upstream of the electrostatic filter (5).
2. The cooker hood according to claim 1, **characterized in that:**
 - the rectifying plate (8) is provided with a plurality of air vents (81); and
 - the air vents (81) face an airflow inlet of the electrostatic filter (5).
3. The cooker hood according to claim 1, **characterized in that:**
 - the plurality of air vents (81) are distributed in a mesh shape.
4. The cooker hood according to claim 1, **characterized in that:**

a plurality of electrostatic filters (5) are provided, and the plurality of electrostatic filters (5) are arranged in a stack along the oil fume flow direction.

5. The cooker hood according to claim 1, **characterized by** comprising: 5

a fan (3);
wherein along the oil fume flow direction, the fan (3) is disposed downstream of the electrostatic filter (5). 10

6. The cooker hood according to claim 5, **characterized by** comprising: 15

a smoke collecting hood (1) and a case (2) that is located above the smoke collecting hood (1); wherein along the oil fume flow direction, the rectifying plate (8), the electrostatic filter (5), and the fan (3) are disposed in the case (2) sequentially from bottom to top. 20

7. The cooker hood according to claim 1, **characterized by** further comprising: 25

a cyclone separator (4);
wherein along the oil fume flow direction, the cyclone separator (4) is disposed upstream of the rectifying plate (8). 30

8. The cooker hood according to claim 7, **characterized in that:**

the cooker hood is an inclined cooker hood, comprising an inclined smoke collecting chamber; 35
the cyclone separator (4) is disposed in the smoke collecting chamber;
the cyclone separator (4) comprises a plurality of cyclone tubes (41) disposed in parallel; and 40
side walls of the cyclone tubes (41) are provided with air inlets (411), and the air inlets (411) extend along an inclined direction of the smoke collecting chamber. 45

9. The cooker hood according to claim 8, **characterized in that:**

first outlets (412) and second outlets (413) are respectively formed on upper and lower ends of the cyclone tubes (41). 50

10. The cooker hood according to claim 8, **characterized in that:**

upper ends of the cyclone tubes (41) are closed, and second outlets (413) are formed on lower ends of the cyclone tubes (41). 55

11. The cooker hood according to any one of claims 1

to 10, **characterized by** further comprising:

a driving device, adapted to adjust a distance between the rectifying plate (8) and the electrostatic filter(5).

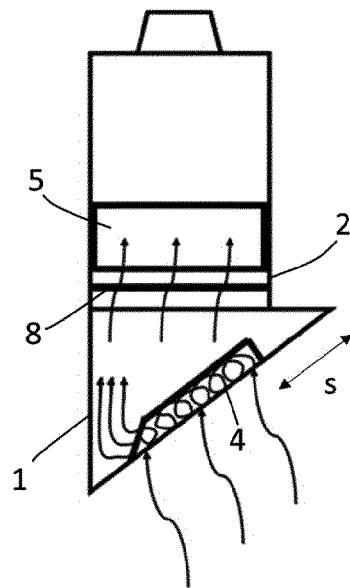


FIG. 1

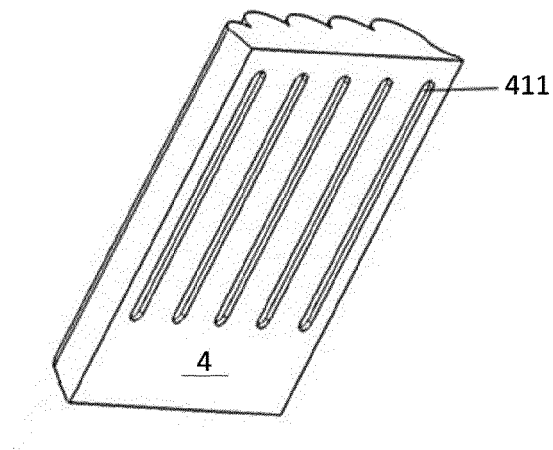


FIG. 2

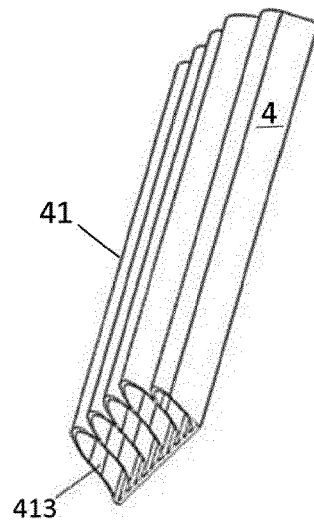


FIG. 3

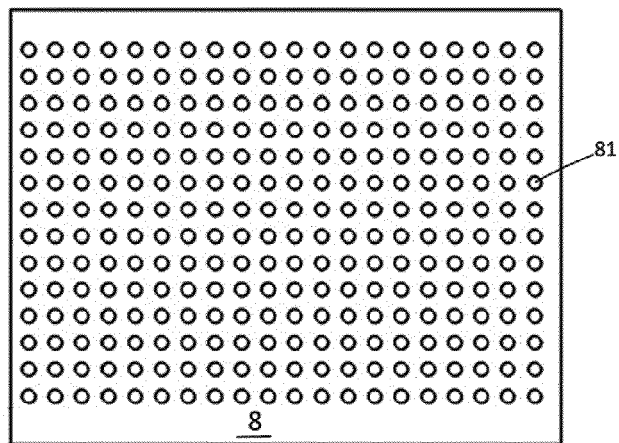


FIG. 4

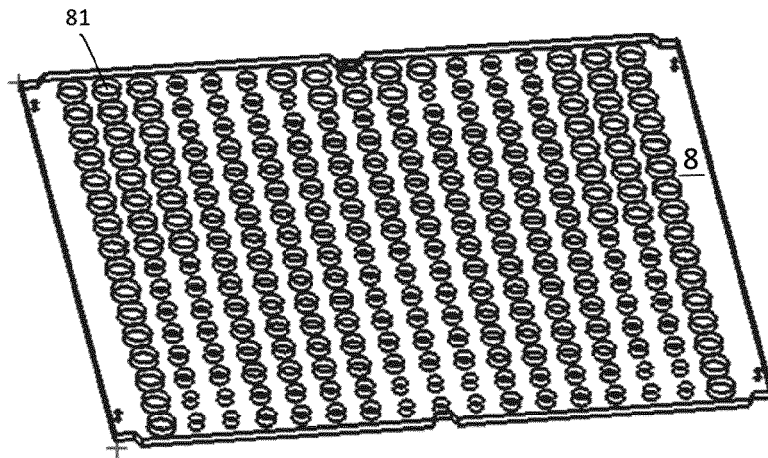


FIG. 5

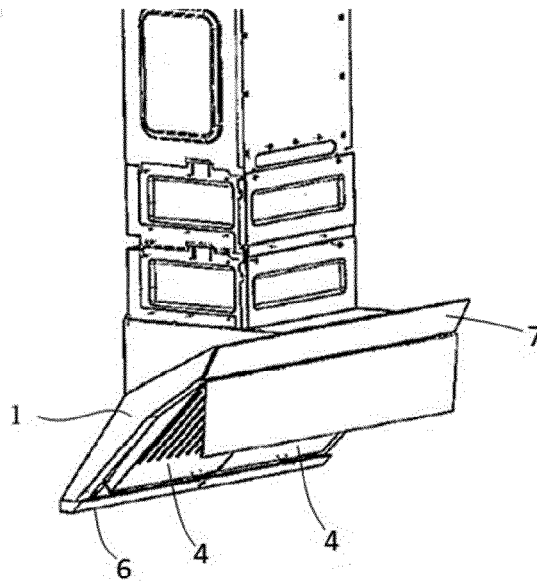


FIG. 6

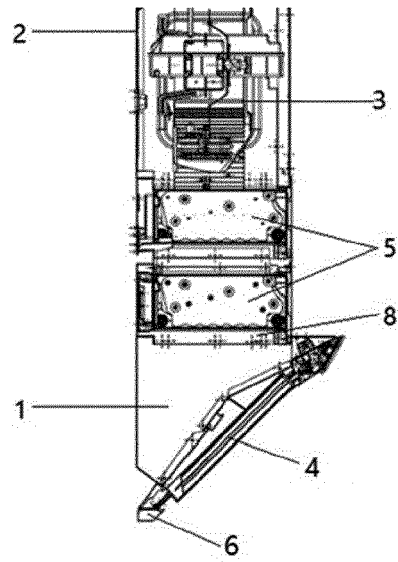


FIG. 7

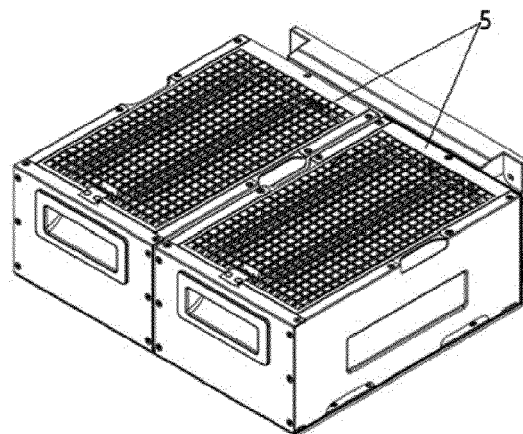


FIG. 8

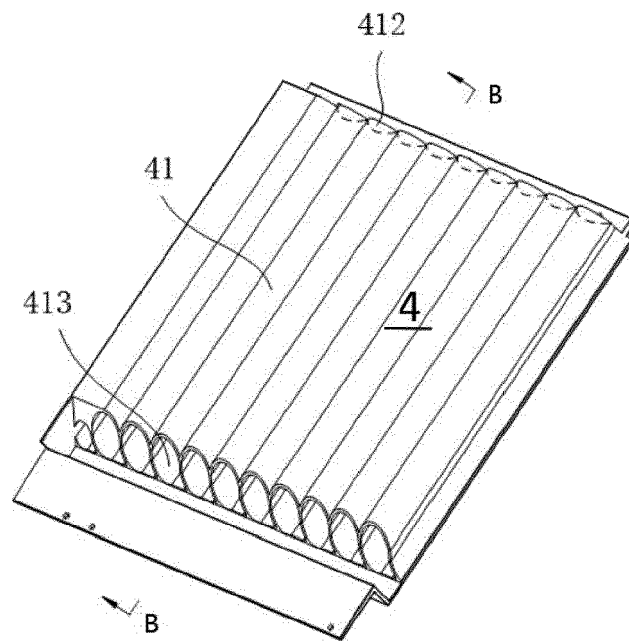


FIG. 9

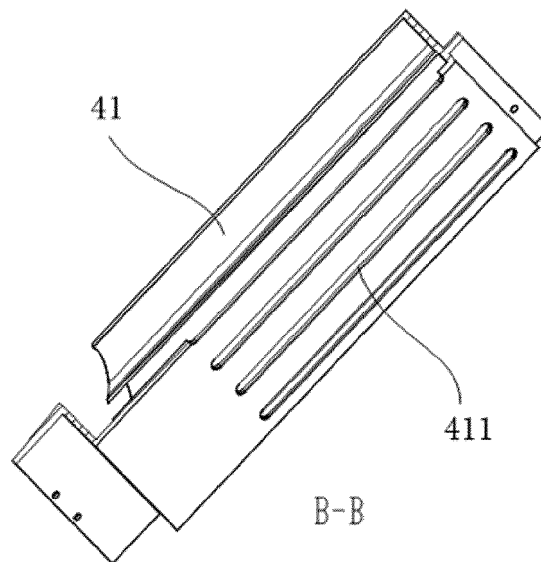


FIG. 10



EUROPEAN SEARCH REPORT

Application Number
EP 21 16 1211

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EPO FORM 1503 03.82 (P04C01)

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	TW 201 111 713 A (CHEN CHIH-HSING [TW]) 1 April 2011 (2011-04-01)	1-6	INV. F24C15/20
Y	* paragraphs [0009] - [0011]; figures *	7-10	
A		11	

X	DE 24 12 588 A1 (MULFINGEN ELEKTROBAU EBM) 18 September 1975 (1975-09-18) * page 7, paragraph 3 - paragraph 4; figure 1 *	1-3,5,6	

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			TECHNICAL FIELDS SEARCHED (IPC)
			F24C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 13 July 2021	Examiner Verdoodt, Luk
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			

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 21 16 1211

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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13-07-2021

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