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(54) **AIR EXTRACTOR WITH A REMOVABLE FRONT LID**

(57) An air extractor with an extractible front cover, comprising a casing (1), finished off on the suction side with a perimetral rim (2) on which a front cover (10) is arranged, which casing houses an electromotor (3), a fan (4) and regulation means. The electromotor is located in a housing defined by a cup (8). The front cover (10) is provided with anchoring elements (11) for anchoring it to the perimetral rim (2).

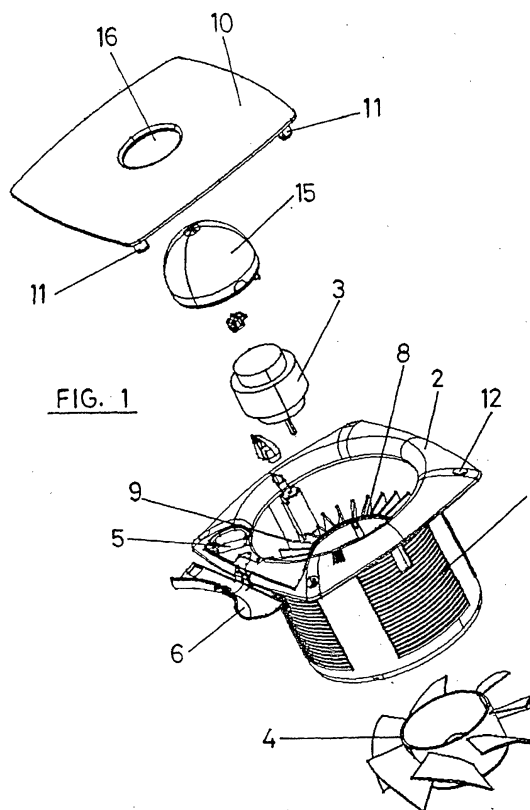


FIG. 1

EP 1 508 702 A1

Description

OBJECT OF THE INVENTION

[0001] The present invention refers to an air extractor of the type comprising a cylindrical configuration support casing finished off on the suction side with a perimetral rim on which a front cover is arranged, and housing an electromotor, a coaxial housing for said electromotor, a fan and regulation and control means.

[0002] The object of the invention is based on the design of the support casing and the housings in which its different components are installed, allowing the installation of an extractible front cover, all this complying with the corresponding safety standards.

BACKGROUND OF THE INVENTION

[0003] Several types of air extractors are already known on the market, mainly applicable to rooms with scarce ventilation, such as bathrooms, pantries, wine-cellars, etc.

[0004] Since these extractors are provided with moving elements, they require safety means imposed by the applicable standards, preventing possible physical harm to users.

[0005] These safety means are generally materialized in a protective cover including a grid, preventing contact with the rotating blades.

[0006] After analyzing the air extractors currently existing on the market, it can be seen that, due to the simplicity of the product, the safety means consist of the incorporation of a front cover with a grid for the passage of air, closed enough so as to prevent passage of the user's fingers.

[0007] Arrangement of said cover causes a great obstacle and great contribution of dirt in the form of dust which, added to the large amount of humidity existing in the areas to ventilate, causes the extractor to have a somewhat unpleasant appearance a short time after being installed.

[0008] Due precisely to the safety requirements that this type of extractors must comply with, said front cover, besides being rather unaesthetic, is complicated for the user to remove in the case of wishing to clean the accumulated dirt.

[0009] Therefore, air extractors currently available on the market have a series of drawbacks related to conservation and maintenance due to the technical safety requirements they must comply with.

DESCRIPTION OF THE INVENTION

[0010] The air extractor proposed by the invention solves the drawbacks set forth above since it is provided with a design facilitating its maintenance and conservation, since it permits removing the front cover in a practical and simple manner, with no risk for the user, all this

complying with the corresponding safety standards.

[0011] Therefore, and more specifically, the air extractor, of the type comprising a cylindrical configuration support casing, finished off on the suction side with a perimetral rim on which a front cover is arranged, and housing an electromotor, a coaxial housing for said electromotor, a fan and regulation and control means, comprises a housing for the electromotor composed of a cup located in the rear part of the cylindrical area of the casing, it having been provided that said cup be held inside the cylindrical area of the casing by means of a plurality of arcuate radial projections, in vane form, preventing access to moving parts.

[0012] Since said arcuate radial projections prevent accidental access to the active parts of the extractor, it makes it possible for the front cover arranged in correspondence with the perimetral opening of the casing to be provided with anchoring elements allowing its fixing and separation with regard to the perimetral rim of the support casing in a fast, practical and simple manner.

[0013] This allows better accessibility for carrying out internal cleaning thereof, with no hazard of accidentally accessing the fan, since it is protected by the radial projections.

[0014] The anchoring elements are composed of a series of lugs projecting from the inner surface of the front cover, in correspondence with respective holes made on the perimetral rim of the support casing.

[0015] In one embodiment, the ends of the lugs are provided with a magnetized base fixed on respective metal washers arranged at the bottom of the holes made in the perimetral rim of the support casing.

[0016] Another aspect of the invention is based on the arrangement of a housing in the perimetral rim of the support casing, which houses the connection, regulation and control elements of the electromotor, which housing is closed with a hinged cover integrated on the outer design of the perimetral rim of the casing, which is aided by a smooth opening spring.

DESCRIPTION OF THE DRAWINGS

[0017] To complement the description being made and for the purpose of aiding to better understand the features of the invention according to a preferred practical embodiment thereof, a set of drawings is attached as an integral part of said description, which, with an illustrative and non-limiting character, shows the following:

Figure 1 shows an exploded perspective view of the air extractor with an extractible front cover, carried out according to the object of the present invention, in which all the elements integrating it can be seen. Figure 2 shows a longitudinal sectional view of a duly assembled extractor. Figure 3 shows a plan view of the air extractor, without the front cover.

Figure 4 shows a view of a detail of the hinged cover integrated on the perimetral rim of the casing, in an open position.

Figure 5 shows a sectional view according to the D-D cut lines of figure 4, in which the arrangement of the smooth opening spring can be seen.

Figure 6 shows a sectional view of the A-A cut lines of figure 3, in which the arcuate radial projections, in vane form, can be seen.

Figure 7 shows a detailed sectional view of the anchoring of the front cover to the perimetral rim of the support casing by means of magnets.

PREFERRED EMBODIMENT OF THE INVENTION

[0018] In view of the indicated figures, it can be observed how the air extractor proposed by the invention is composed of a cylindrical configuration support casing (1), finished off on the suction side with a perimetral rim (2). Said casing (1) supports the different components integrating the extractor, such as the electromotor (3), the fan (4), as well as the corresponding connection, regulation and control elements housed in a housing (5) located on the perimetral rim (2), which is closed by a hinged cover (6) integrated on the outer design of the perimetral rim (2) and aided by a smooth opening spring (7).

[0019] This provides a great advantage from the aesthetic point of view, since it is completely hidden and camouflaged by the design of the extractor, as well as from the practical point of view, since it represents no obstacle or hazard when carrying out cleaning.

[0020] Another feature affecting the conservation and safety of the extractor is based on the housing of the electromotor (3), which is composed of a cup (8) coaxially located on the rear part of the cylindrical area of the casing (1) and held by means of a plurality of arcuate radial projections (9), in vane form, as can be seen in figure 6. Thus, it is possible to access a large part of the inside of the casing (1) to carry out cleaning thereof, the radial projections (9) preventing accidental access to the fan (4).

[0021] The arrangement of the plurality of arcuate radial projections (9) provides the safety necessary for preventing access to the moving parts, which allows installation of an extractible and easily removable front cover (10) arranged in correspondence with the perimetral suction opening of the casing (1), providing a pleasant appearance.

[0022] Said cover (10) is provided with anchoring elements allowing its fixing and separation with regard to the perimetral rim (2) composed of a series of lugs (11) projecting from the inner surface of the cover (10) in correspondence with respective holes (12) on the perimetral rim (2). The diameter of said lugs (11) is slightly greater than the diameter of the holes (12) for carrying out fixing thereof.

[0023] In another embodiment, as can be seen in figure 7, the ends of the lugs (11) are provided with a magnetized base (13) fixed on respective metal washers (14) located at the bottom of the holes (12).

ure 7, the ends of the lugs (11) are provided with a magnetized base (13) fixed on respective metal washers (14) located at the bottom of the holes (12).

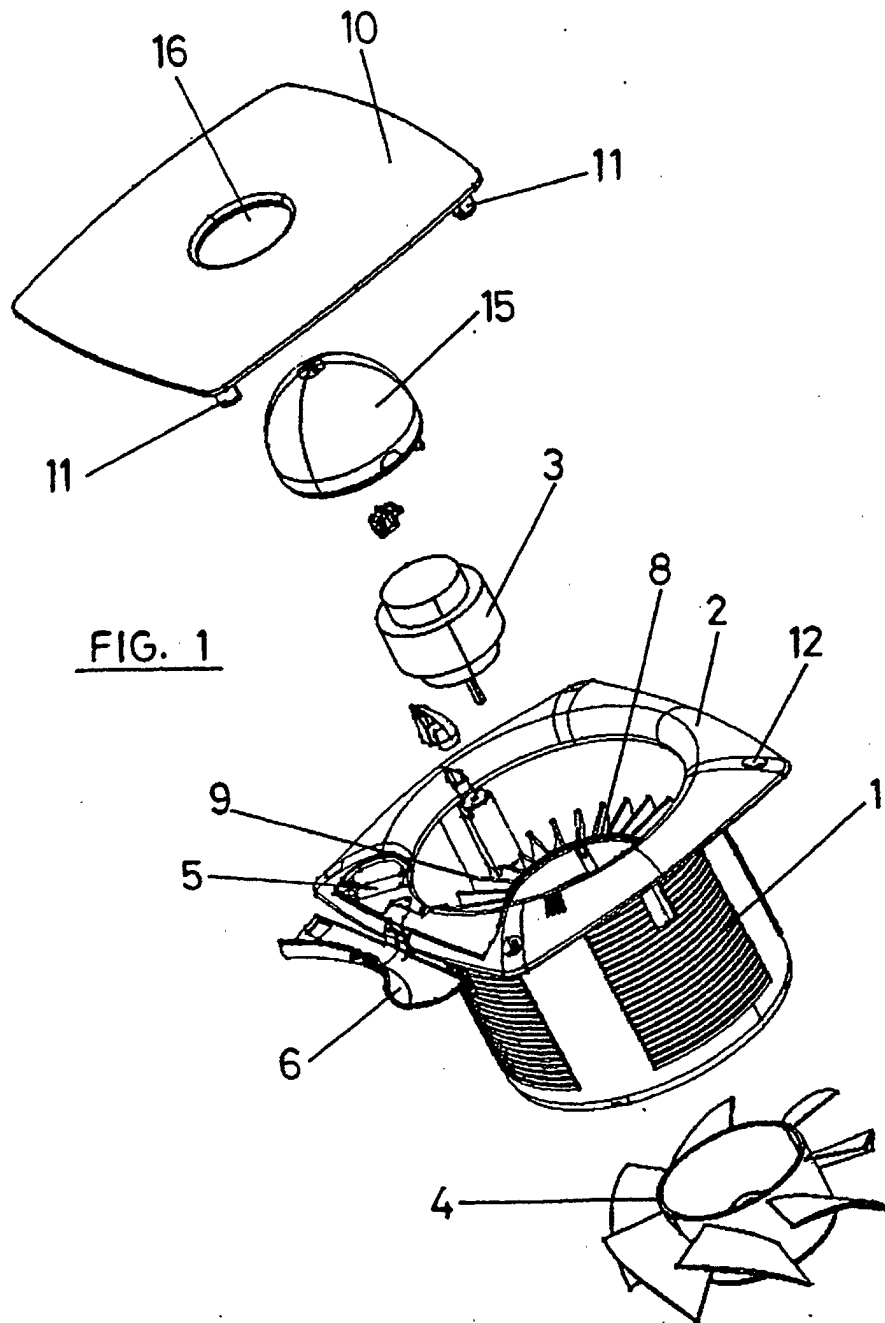
[0024] Thus, with just a slight pulling on the front cover (10) and with no type of tool, the user can withdraw the front cover (10) to carry out cleaning of the extractor with no hazard whatsoever.

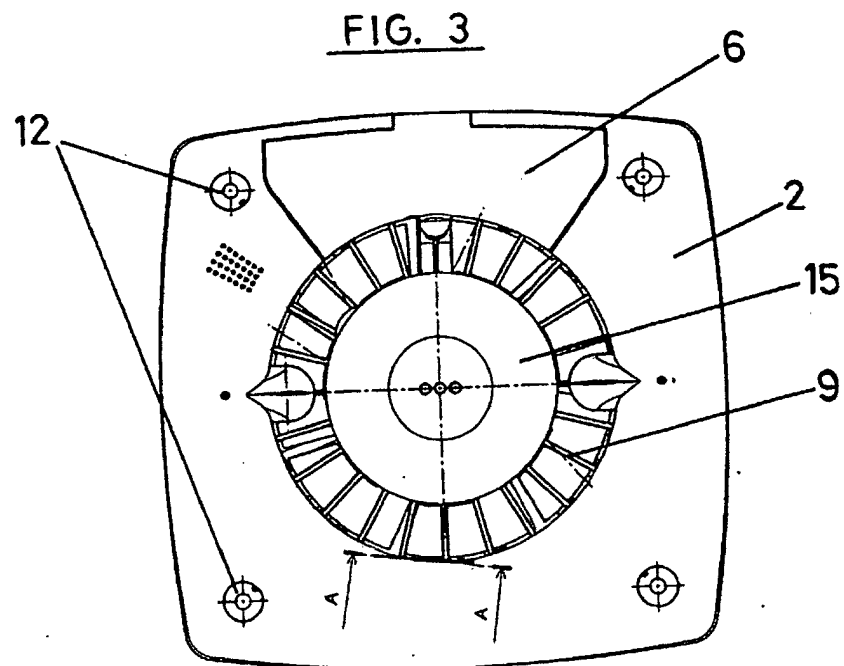
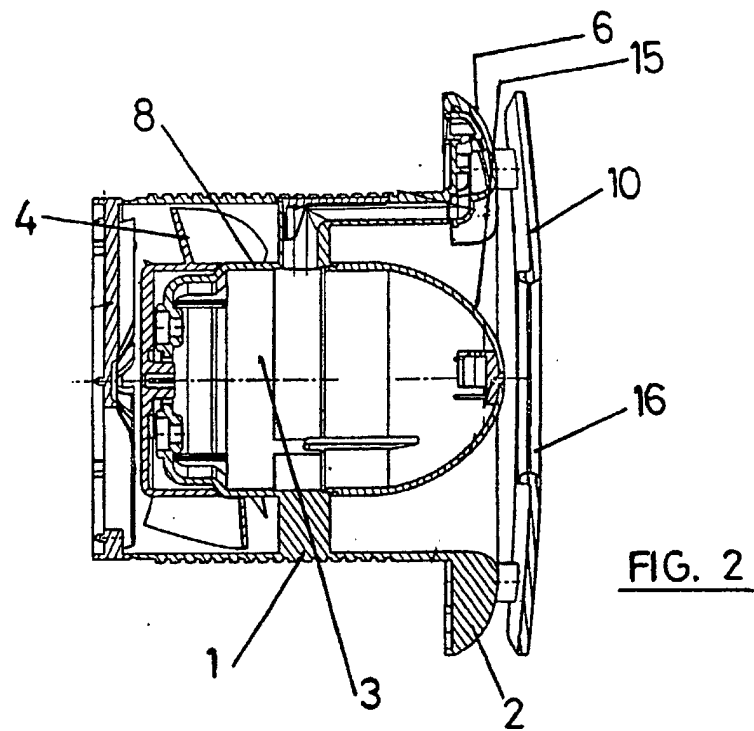
[0025] Finally, the electromotor (3) is covered by an approximately semi-oval shaped dome (15) in correspondence with the central hole (16) provided on the front cover (10).

[0026] Suction of the air is carried out through the central hole (16) of the front cover (10), as well as through the space existing between the front cover (10) and the perimetral rim (2).

Claims

1. An air extractor with an extractible front cover, of the type comprising a cylindrical configuration support casing, finished off on the suction side with a perimetral rim on which a front cover is assembled, and housing an electromotor, a fan and regulation and control means, **characterized in that** the electromotor is arranged inside the casing in a housing composed of a cup located in the upper part of the cylindrical area of the casing, it having been provided that said cup be held inside the cylindrical area by means of a plurality of arcuate radial projections, in vane form, preventing access to the moving parts; and which front cover is provided with anchoring elements for anchoring it to the perimetral rim, allowing its fixing and separation with regard to said perimetral rim, which anchoring elements are composed of a series of lugs projecting from the inner surface of the front cover, in correspondence with respective holes made on the perimetral rim of the support casing.
2. An air extractor according to claim 1, **characterized in that** the perimetral rim of the support casing is provided with a housing which houses the connection, regulation and control elements of the electromotor, which housing is closed by a hinged cover integrated on the outer design of the perimetral rim of the casing, which is aided by a smooth opening spring.
3. An air extractor according to claim 1, **characterized in that** the ends of the lugs are provided with a magnetized base fixed on respective metal washers arranged at the bottom of the holes made on the perimetral rim of the support casing.





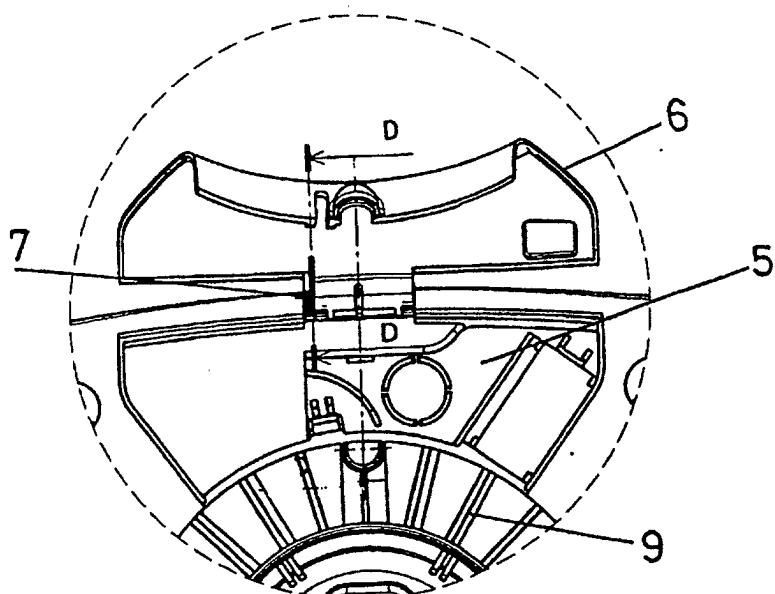


FIG. 4

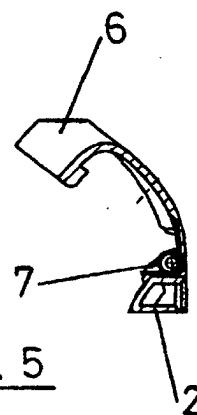


FIG. 5

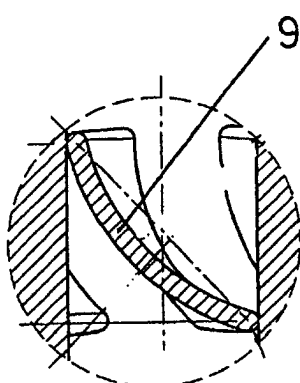


FIG. 6

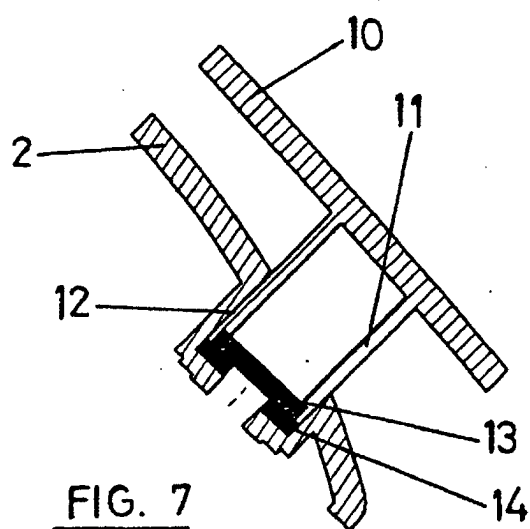


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES03/00023

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 F04D29/52, F24F13/20, 7/013, F04D25/12 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)		
IPC 7 F04D+, F24F+		
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)		
CIBEPAT, EPODOC, WPI, PAJ		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2181183 A (HUNTER INT LTD) 15.04.1987, abstract, figure 3.	1
A	US 5294195 A (AMR, Yehia M. et al.) 15.03.1994, abstract, figure 1.	2
A	US 4353680 A (HIRAOKA, Shunji et al.) 12.10.1982, abstract, figures.	1
A	ES 1038510 U (ELECTROMECÁNICA CATA, S.A) 01.07.1998	
☐ Further documents are listed in the continuation of Box C. ☒ 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 document 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
31 March 2003 (31. 03. 03)		10 April 2003 (10. 04. 03)
Name and mailing address of the ISA/ E. P. O.		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ES03/00023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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