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(54) **Kitchen extractor hood with a retractable filtration unit**

(57) A kitchen cooker hood, of the type comprising a metal housing provided on top with a plenum chamber in which a traditional fan operates, the housing being provided in a lower position with an extraction-filtration unit capable of making vertical alternate travels that bring it from a rest position, in which it is exactly contained inside the space, to a working position, in which it protrudes from the housing for its entire height downwards.

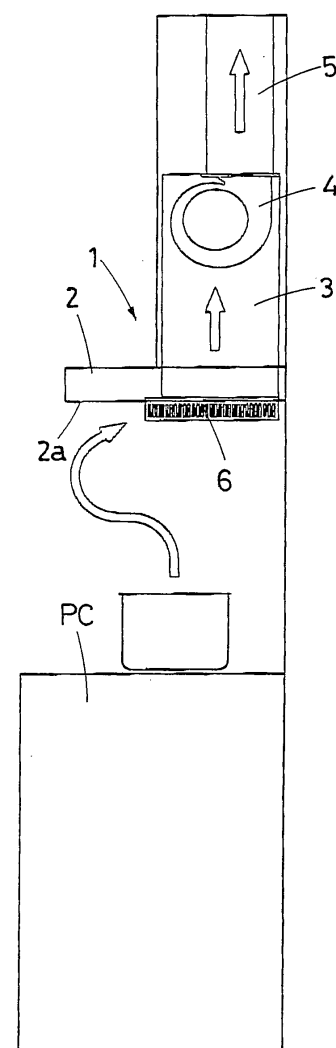


FIG. 2

Description

[0001] The present patent application refers to a kitchen cooker hood provided with a retractable extraction/filtration unit.

[0002] As it is known, kitchen cooker hoods comprise a metal housing that contains the air extraction unit and the set of filters used to purify the air sucked inside the cooker hood.

[0003] In traditional cooker hoods, the housing is closed by a lower wall provided with a grate that allows air circulation.

[0004] The grate is sometimes obtained by providing a dense, closely spaced series of small through slots on the lower wall; in other cases, the same grate is obtained by introducing grated panels in suitable openings provided on the lower wall.

[0005] Because of the action of the internal extraction unit, the air extracted from the cooktop penetrates into the housing through the grated lower wall and passes through the set of filters installed immediately below the grated lower wall.

[0006] This structural configuration has been so far considered as the only possible one, without alternatives, as shown by the fact that it is adopted by all traditional cooker hoods offered by the market.

[0007] Regardless of high technical-functional efficiency, the said configuration is impaired by a remarkable practical drawback.

[0008] The said drawback is related to the use of the grated lower wall and has a twofold practical effect.

[0009] With reference to walls with through slots, the said drawback consists in the high complexity of periodic cleaning operations.

[0010] This is due to the difficulties encountered when the user wants to remove the dirt that is easily deposited and incrusts - also in view of the fat contained in the extracted fumes - on the borders of the said through slots.

[0011] Another limitation of the traditional technology is related to the necessity to use the said standardised solution (i.e. adoption of the grated lower wall), which limits the designer's freedom when creating original innovative shapes that would be well received by demanding customers.

[0012] A careful examination of the drawbacks of the traditional technology has resulted in the new cooker hood of the invention, which does not have the said standardised structural configuration.

[0013] The main purpose of the present invention is to devise a kitchen cooker hood in which the metal housing with traditional configuration is characterised by the presence of a lower wall with closed, continuous surface (without grate), free from the drawbacks that are directly related with the use of traditional grated walls.

[0014] However, it appears evident that such a "closed" wall would not permit the access of fumes inside the housing; for this reason, the cooker hood of the invention comprises a retractable extraction/filtration unit,

capable of varying its position according to the working or idle state of the hood.

[0015] More precisely, the said extraction/filtration unit consists in a box-shaped body with reduced height and slightly lower base compared to the lower wall of the housing.

[0016] The said box-shaped body is closed by a completely closed lower wall, while the vertical borders on the perimeter sides are provided with a dense, closely series of through slots, with traditional air filters installed behind them.

[0017] The said box-shaped body is housed inside a corresponding space in the lower part of the housing, which communicates with the traditional plenum chamber of all cooker hoods.

[0018] Being provided with suitable actuators, the said extraction-filtration unit is able to slide vertically, from an idle position in which it is exactly contained inside its housing, to a working position in which it protrudes below the lower continuous lower wall that closes the housing.

[0019] When the extraction unit is contained inside the housing, its lower wall is flush with the wall that closes the housing, thus creating a perfectly smooth continuous surface that is extremely easy to clean and gives an innovative linear shape not found in traditional hoods.

[0020] When the user wants to operate the cooker hood of the invention, the extraction-filtration unit projects from its housing with a short downward travel, in such a way that its grated perimeter sides are brought under the lower wall of the housing, in order to extract the air loaded with fumes from the cooktop.

[0021] The extraction-filtration unit is internally provided with grated surfaces, downstream the set of filters; in this way, after passing through the said filters, the extracted air is conveyed towards the plenum chamber above and finally towards the flue for final ejection into the air.

[0022] When the user deactivates the cooker hood of the invention, the extraction-filtration unit is brought back inside the housing with a short upward travel; in this way, the unit is no longer visible and the continuity and planarity of the lower surface of the housing are restored.

[0023] For major clarity the description of the invention continues with reference to the enclosed drawings, which are supplied only as an explanatory and not limiting example, wherein:

- figures 1 and 2 are diagrammatic side views of the cooker of the invention in idle and working position, respectively;
- figure 3 is an axonometric top view of the extraction-filtration unit of the hood.

[0024] With reference to the enclosed figures, the cooker hood of the invention (1) traditionally comprises a metal housing (2) with any shape and size, provided on top with a vertical tubular element (3), normally designed to act as plenum chamber, in which a traditional

fan (4) operates; it being traditionally provided that the plenum chamber (3) is connected to a flue (5) to eject fumes into the air.

[0025] The housing (2) is closed by a lower wall (2a) with continuous surface, with a space in perfectly aligned position with the plenum chamber (3) that exactly contains a special extraction-filtration unit (6) with box-shaped structure in horizontal position.

[0026] In particular, the filtration unit (6) is closed by a lower closed wall (6a) and is enclosed by short vertical perimeter walls (6b) with basically grated configuration, being provided with a dense, closely spaced series of slots.

[0027] With reference to figure 3, the same extraction-filtration unit (6) is provided with a niche (7) with upward opening enclosed by vertical walls (7a) with grated structure, which structurally correspond to the said external grated walls (6b).

[0028] As mentioned above, the peculiarity of the extraction-filtration unit (6) consists in the fact that it can make short vertical alternated travels, in parallel direction to its axis, by means of traditional actuators (not shown in the enclosed figures).

[0029] When the hood of the invention (1) is in idle condition, the extraction-filtration unit with box-shaped structure (6) is exactly contained in the space provided in the housing (2), as shown in figure 1.

[0030] When the hood (1) is activated, the extraction-filtration unit (6) makes a short downward travel and protrudes in its entire height from the space in which it is housed, as shown in figure 2.

[0031] Further to the activation of the fan (4) housed in the plenum chamber (3), the perimeter grated walls (6b) extract suck the air coming from the cooktop (PC) into the hood (1). In particular, the air extracted through the external grated walls (6b) passes through the traditional set of filters situated behind the said walls and is evacuated upwards, towards the plenum chamber (3) through the internal grated walls (7a) that surround the niche (7) of the same extraction-filtration unit (6); this fact can be exactly verified based on the crossed examination of figures 2 and 3 and relevant flow arrows.

[0032] Without leaving the same inventive principle, a version of the present invention can be obtained in which the housing (2) incorporates several retractable extraction-filtration units (6), possibly one for each burner of the cooktop.

[0033] In such a case, the spaces that house the multiple retractable extraction-filtration units (6) must be in communication with the plenum chamber (3) traditionally provided above the housing (2).

[0034] According to another constructive embodiment of the present invention, the traditional set of filters is situated inside the plenum chamber (3), and not inside each retractable extraction unit (6).

Claims

1. Kitchen cooker hood of the type comprising a metal housing (2) provided on top with a plenum chamber (3) in which a traditional fan (4) operates, **characterised in that** the housing (2) is closed by a lower wall (2a) with continuous surface, provided with one or more spaces in communication with the plenum chamber (3) designed to exactly contain a special extraction-filtration unit (6) with box-shaped structure in horizontal position, which makes vertical alternate travels thanks to the cooperation of suitable actuators, in such a way that it is alternatively brought from a position in which it is exactly contained inside the space to a position in which it protrudes downwards for its entire height; it being provided that the said extraction unit (6) is closed by a lower closed wall (6a) surrounded by vertical perimeter walls with grated structure (6b), and is provided with an internal niche (7) with upward opening, enclosed by vertical walls (7a) with grated structure.
2. Cooker hood as claimed in claim 1, **characterised in that** the downward and upward travels of the extraction unit (6) are respectively produced when the fan (4) of the hood (1) is activated and deactivated.
3. Cooker hood as claimed in claim 1, **characterised in that** the external grated vertical walls (6b) and the internal grated vertical walls (7a) of the extraction unit (6) are obtained by means of a closely spaced dense series of through slots.
4. Cooker hood as claimed in one or more of the above claims, **characterised in that** it is provided with a traditional series of filters in each retractable extraction units (6), immediately behind the external grated walls (6b).
5. Cooker hood as claimed in one or more of claims 1 to 3, **characterised in that** it is provided with a traditional series of filters in the plenum chamber (3).

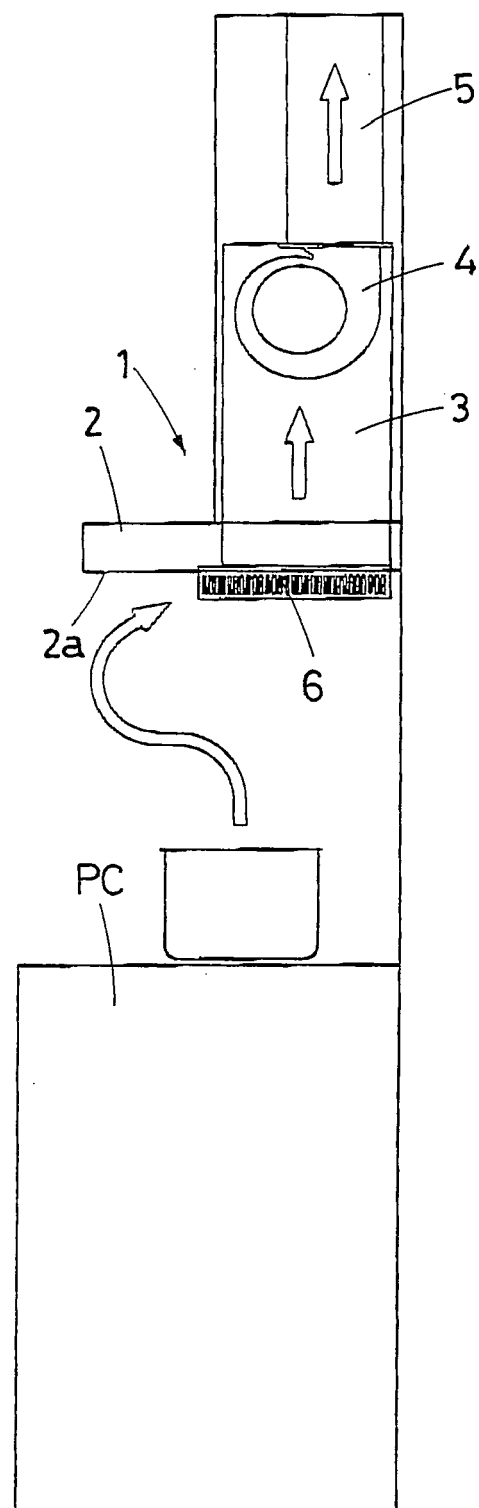


FIG. 2

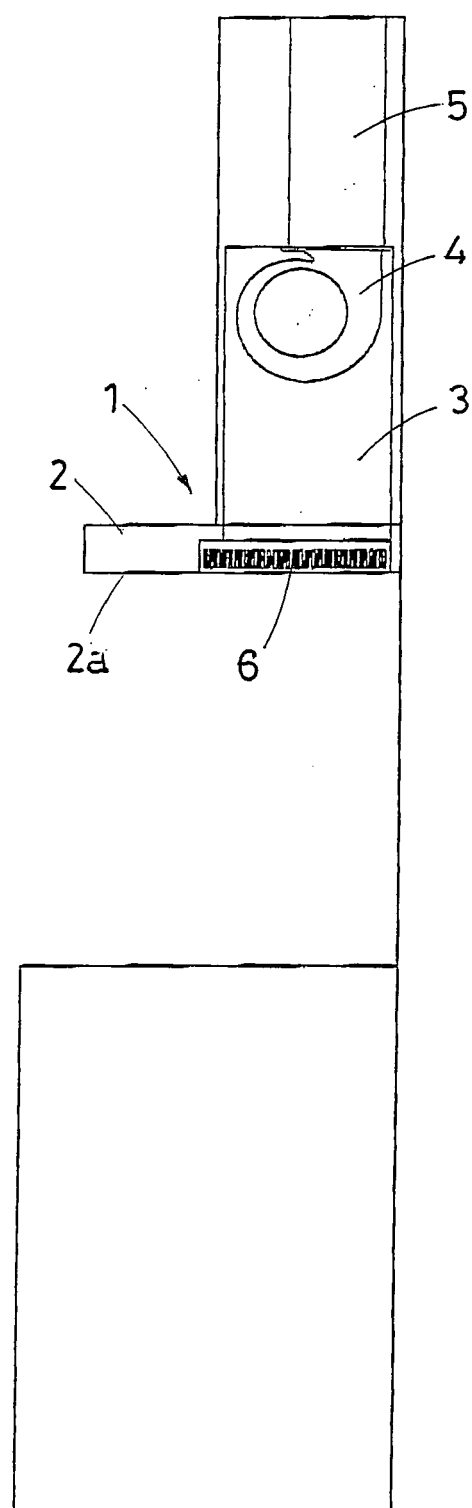


FIG. 1

