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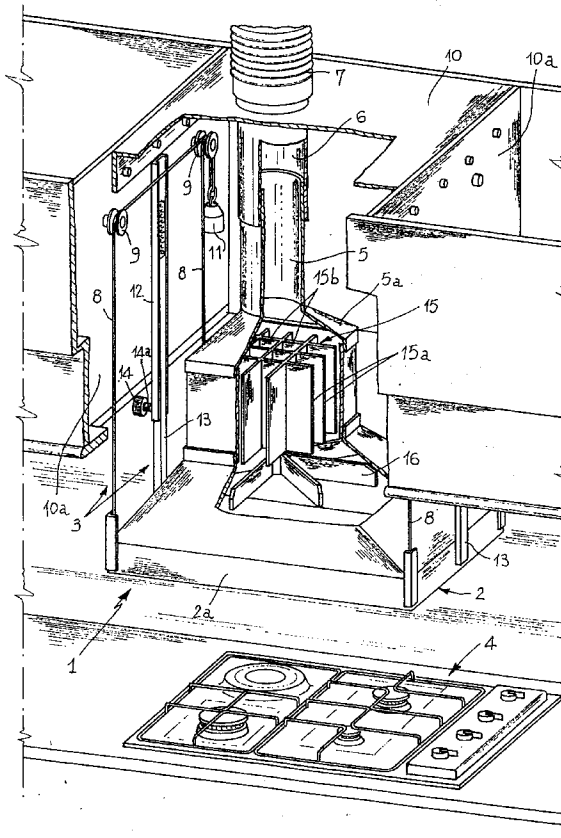
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(54) **Smoke and vapour-exhausting apparatus, in particular for cooking stoves.**

(57) A smoke and vapour-exhausting apparatus in particular for cooking stoves comprises a collecting element for smokes and vapours and means for supporting and moving the collecting element in a vertical direction, said means being adapted to enable the collection element to be selectively located for operation at variable-height positions within predetermined minimum and maximum heights.



The present invention relates to a smoke and vapour-exhausting apparatus, in particular for cooking stoves.

It is known that cooking of food on stoves gives rise to the formation of smokes or vapours (also referred to as fumes) which are sometimes very disagreeable and the elimination of which is usually attempted through the use of collecting and exhausting appliances of different types.

For example, hoods or coverings disposed over the area where said smokes and vapours are produced may be provided, said coverings involving a natural or forced suction action by means of appropriate fans conveying all fumes towards a discharge pipe or a flue. The use of forced-suction collecting elements provided with filters is also known, said elements reintroducing the filtered air into the inner environment, which will prevent the use of exhaust tubes discharging the fumes to the surrounding atmosphere.

The above described apparatuses, however, are not always quite efficient because, as they are located over the cooking stoves at a rather important distance therefrom in order to leave an appropriate working region above the stove itself, said apparatuses sometimes enable smokes and vapours to escape to a greater or lesser degree outside the region included between the collecting elements or hoods and the area where said smokes and vapours are produced.

In conclusion, in the known art it often happens that a regular smoke and vapour flow towards the hood and the discharge pipe is hardly created, while, on the contrary, there is the occurrence of vortices, irregular and return flows of smokes and vapours that therefore invade the whole room where the stove is located.

Under this situation the technical task underlying the present invention is to provide a smoke and vapour-exhausting apparatus, in particular for cooking stoves, capable of substantially eliminating the above drawbacks. Within the scope of this technical task it is an important aim of the invention to devise an apparatus capable of upwardly drawing and evacuating smokes and vapours with the greatest efficiency.

The technical task mentioned and the aim specified are substantially achieved by an apparatus for exhausting smokes and vapours, in particular for cooking stoves, which is characterized in that it comprises means for supporting and moving said collecting element in a vertical direction, which support and movement means is adapted to enable said collecting element to be selectively disposed for operation at variable-height locations between predetermined minimum and maximum heights above the area where said smokes and vapours are produced.

The description of a preferred embodiment of smoke and accordance with the invention is given hereinafter, by way of non-limiting example, with ref-

erence to the accompanying drawing in which the only figure is a perspective view, in split, of the apparatus of the invention disposed in an operating position over a cooking stove.

Referring to the drawing, an apparatus for drawing smokes and vapours upwardly in particular for cooking stoves, in accordance with the present invention, has been generally identified by reference numeral 1.

Apparatus 1 comprises a collecting element for smokes and vapors 2, substantially defined by a hood, of the natural-suction type for example.

In an original manner, the hood 2 is supported and made movable in a vertical direction by support and movement means 3 adapted to enable the hood 2 to be selectively located or operation, depending on requirements, at variable-height positions above the area where smokes and vapours are produced, said area being for example embodied by a cooking stove. Said heights can be selected within a predetermined range of minimum and maximum heights, as allowed by the support and movement means 3.

A conveying pipe length 5 is located uppermost with respect to the hood 2 for receiving the fumes coming from the hood itself, which pipe length is slidably coupled to the inside of an end portion 6 of a discharge pipe 7. The longitudinal sizes of the pipe length 5 and end portion 6 are provided to be at least equal to the maximum stroke to be executed by the hood 2 so as to enable the latter to vertically slide between said minimum and maximum heights.

In the embodiment shown the support and movement means 3 comprises a plurality of supporting cables 8, for example four in number (one of which is not discernible in the figure), engaged at one end thereof to the hood 2 and passing over idler pulleys 9 for example connected to the standards 10a of a cabinet 10 inside which the apparatus 1 is located. The supporting cables 8 are connected at their other end to one or more counterweights 11 suitably calibrated so as to balance the weight of the hood 2 and other components integral therewith, thereby enabling the hood to keep a steady position at any height it is located.

For example, as shown in the drawing, the idler pulleys 9 may be provided to rotate about axes parallel to the front face 2a of the hood 2 and each pair of cables 8 engaged at one side of the hood 2 may be connected to a single counterweight 11 which in this case will be located rearwardly of the hood itself. Alternatively, the idler pulleys 9 may have their own rotational axes directed perpendicularly to the front face 2a of the hood 2, so that the cable portions integral with the counterweights 11 are placed at laterally external positions with respect to the hood 2. In this case each cable 8 will be provided with its own counterweight. Advantageously, the cables 8 and counterweight 11 can be arranged within appropriate boxes

provided at the standards 10a.

In order to guide the hood 2 along a precise vertical path, provision may be made for two guide rails 12 (only one of which is shown in the figure), in addition to the supporting cables 8. Said guide rails 12 are directed vertically and, for example, are integral with the standards 10a.

Engaged to the hood 2 are coupling members 13 to be slidably coupled to the guide rails 12, the shape of which matches that of said guide rails.

Engaging elements may be also provided between the guide rails 12 and coupling members 13. They are defined for example by screw threaded pins 14a (only one of which is shown in the figure) to be screwed down across the guide rails themselves. Said threaded pins 14a, to be operated by respective working knobs 14, lend themselves to act against the coupling members 13 in order to cause fastening of the hood 2 to the desired work position. In addition to the threaded pins 14a or in place of them, friction pads integral with the coupling members 13 may be provided and they are urged against the guide rails 12 by countersprings. The interference achieved by said friction pads must be appropriate to sustain the hood weight and the components integral therewith, while at the same time enabling said hood to vertically slide when a change in the height of same is required.

By a suitable arrangement of the above described engaging elements it is also possible to provide for the use of the only guide rails 12 and related coupling members 13 as the support and movement means 3, thereby eliminating the presence of the supporting cables 8.

Advantageously, between the pipe length 5 and hood 2, in addition to a substantially funnel-shaped tubular interconnecting portion 5a provision is also made for a division element 15 designed to discretely route to the pipe length 5 all smokes and vapours collected in the hood 2. The division element 15 is internally comprised of a plurality of partitions 15a defining conveying channels 15b extending substantially parallel to one another.

The conveying channels 15b are adapted to divide the overall fume flow collected in the hood 2 into a plurality of partial flows.

In addition to the division element 15 or in place of it, a plurality of dividing webs 16 is provided to be disposed within the hood 2. Said dividing webs too form a plurality of conveying channels adapted to divide the overall fume flow into a plurality of partial flows, when the fumes are still in the hood 2.

Operation of the smoke and vapour-exhausting apparatus 1 described above mainly as regards structure is as follows.

The support and movement means 3 enables the hood 2 to be quickly moved to the desired height and to be locked to said height. In this manner said hood 2 can be located closely spaced apart from the cook-

ers and saucepans during the cooking steps. Vapours and smokes are therefore collected by the hood 2 substantially at the area where they are formed and any side escape of same towards the surrounding environment is practically impossible. The presence of the division element 15 and/or dividing webs 16 within the hood 2 further helps in creating an unturbulent flow, thereby improving the natural suction capability of the hood 2 to a greater extent.

As soon as it is necessary to manually intervene on the saucepans and cookers, the hood 2 can be moved upwardly exactly the indispensable distance by a mere manual operation and subsequently by another operation as quick and easy as the preceding one, it can be brought back to the lowered position, so that its suction capability will be completely exploited.

It will be moreover recognized that the particular embodiment shown is also advantageous in its most specific aspects.

The invention is susceptible of many modifications and variations, all of them falling within the scope of the inventive idea.

In addition, all of the details may be replaced by technically equivalent elements. In carrying out the invention practically the materials, shapes and sizes may be whatever in accordance with requirements.

Claims

1. A smoke and vapour-exhausting apparatus, in particular for cooking stoves, comprising a collecting element (2) for said smokes and vapours, characterized in that it comprises means (3) for supporting and moving said collecting element (2) in a vertical direction, which support and movement means (3) is adapted to enable said collecting element (2) to be selectively disposed for operation at variable-height locations between predetermined minimum and maximum heights above the area (4) where said smokes and vapours are produced.
2. An apparatus according to claim 1, in which said support and movement means (3) comprises a plurality of supporting cables (8) engaged at one end thereof to said collecting element (2), idler pulleys (9) for said supporting cables (8), and at least one counterweight (11) engaged to a second end of said supporting cables (8).
3. An apparatus according to claim 1, in which said support and movement means (3) comprises:
 - at least one pair of fixed guide rails (12), directed vertically;
 - coupling members (13) to be slidably coupled to said guide rails (12), integral with

- said collecting element (2); and
- engaging elements (14a) interposed between said guide rails (12) and slidable coupling members (13) for selectively locking the coupling members themselves to said guide rails. 5
4. An apparatus according to claim 1, in which said support and movement means (3) comprises:
- at least one pair of fixed guide rails (12), directed vertically; 10
 - coupling members (13) to be slidably coupled to said guide rails (12), integral with said collecting element (2);
 - a plurality of supporting cables (8) engaged at one end thereof to said collecting element (2); 15
 - idler pulleys (9) for said supporting cables (8); and
 - at least one counterweight (11) engaged to a second end of said supporting cables (8). 20
5. An apparatus according to claim 1, in which said collecting element (2) for said smokes and vapours is defined by a hood and in which provision is made for a pipe length (5) for conveying said smokes and vapours, located uppermost with respect to said hood (2), and a discharge pipe (7) exhibiting an end portion (6) slidably coupled to said pipe length (5) to enable said hood (2) to be displaced between said predetermined minimum and maximum heights. 25 30
6. An apparatus according to claim 5, in which at least one division element (15) for said smokes and vapours is provided between said hood (2) and conveying pipe length (5), which division element comprises a plurality of partitions (15a) defining conveying channels (15b) substantially extending parallel to one another and adapted to divide the overall flow of said fumes into a plurality of partial flows. 35 40
7. An apparatus according to claim 6, in which a substantially funnel-shaped interconnecting pipe portion (5a) is provided between said division element (15) and conveying pipe length (5). 45
8. An apparatus according to claim 5, in which a plurality of dividing webs (16) is provided within said hood (2), which webs (16) define conveying channels adapted to divide the overall flow of said fumes into a plurality of partial flows. 50

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