

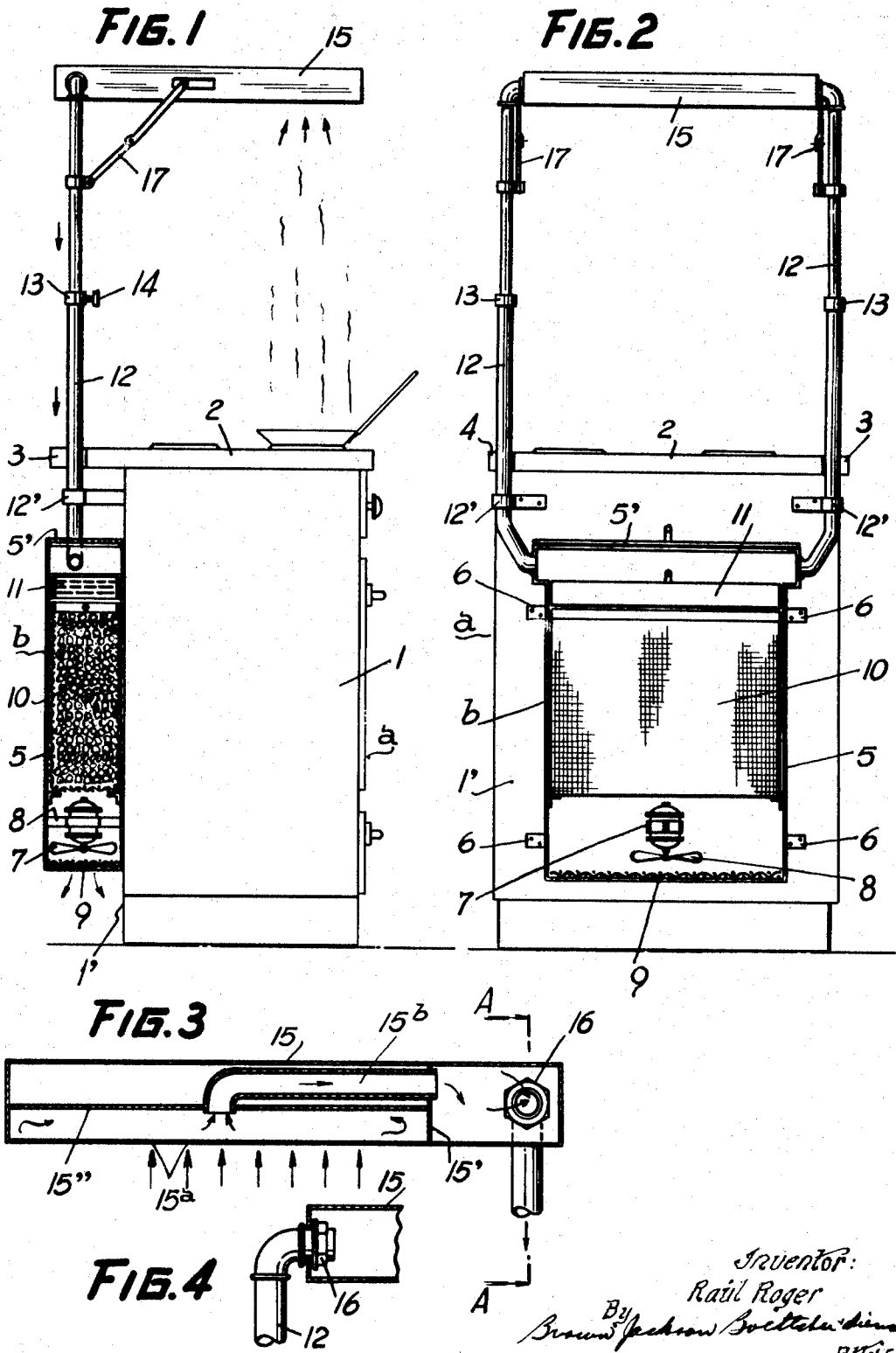
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R. ROGER

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UNITIZED COOKING RANGE AND AIR CLEANER

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Inventor:
Raul Roger
By *Brown Jackson & Co. Attorneys*
ATTYS.

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UNITIZED COOKING RANGE AND AIR CLEANER

Raul Roger, 2363 Bartolome Mitre St.,

Buenos Aires, Argentina

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ABSTRACT OF THE DISCLOSURE

A unitized cooking range and hood therefor having a gathering hood located over the cooking range, two conduits conducting gases gathered in the gathering hood to a filter housing mounted on a side wall of the cooking range and said filter housing containing a preliminary filter, an activated carbon filter and a fan.

This invention relates to air cleaning apparatus for kitchen use, and more particularly to a novel unitized cooking range and air cleaning appliance.

Several types of air cleaning apparatus for domestic kitchen use are known which constitute independent units, generally comprising a chimney funnel-shaped member having a suction fan and air filtering means included therein.

This known air cleaning apparatus must obviously be installed so that they will project over the cooking range and, therefore, while they perform their function in a generally satisfactory manner, they are unsightly and also not as efficient as could be expected, inasmuch as due to the necessity of installing them over the range at a height sufficient to avoid interfering with the movements of the user, they permit the dispersion of a certain amount of contaminated air into the surrounding atmosphere.

These drawbacks are overcome by the unitized cooking range and air cleaner of this invention, wherein the contaminated air suction device can be placed in an adjustable working position at a preferred or necessary height over the range, and also in a collapsed position when not in use.

Briefly, the unitized cooking range and air cleaner in accordance with the present invention comprises a casing enclosing an electric air suction fan and means for filtering contaminated air, said casing being secured to the outer side of a cooking range body, preferably to the rear wall thereof, and including a removable cover, a pair of extensible air conduits extending from the upper side portions of said casing, upwardly for a certain distance above the range upper plate, a collapsible suction chamber connected to the upper ends of said air conduits, said suction chamber being capable of assuming a substantially vertical inoperative or collapsed position and a substantially horizontal operative position, and means for retaining said suction chamber in its operative position.

In order that the invention may be more clearly understood and readily carried into practice, one of the presently preferred embodiments thereof has been illustrated by way of example in the accompanying drawings, wherein:

FIG. 1 is a side elevational view of a unitized cooking range and air cleaner in accordance with the present invention;

FIG. 2 is a rear elevational view of the appliance shown in FIG. 1;

FIG. 3 is a sectional elevational view of the suction chamber forming part of the appliance as shown in FIGS. 1 and 2 and showing in a somewhat enlarged scale the details of the construction thereof; and

FIG. 4 is a sectional view taken along the lines A—A in FIG. 3.

The same reference characters are used to indicate like or corresponding parts throughout the various views.

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As shown in the drawings, the cooking range *a* is of a conventional type, i.e., comprising a box-shaped body **1**. While it will be understood that the air cleaning fixture could equally well be attached to the outer face of either of the side walls of the body **1**, it is shown as secured to the outer face of the rear wall thereof and, therefore, in the present instance the top plate **2** of the range is made horizontally movable by any suitable known means to and from the position shown in dot-and-dash lines in FIG. 1. The rear corner portions of the plate **2** are formed with notches **3** and **4**, for a purpose which will be explained hereinafter.

The contaminated air cleaner *b* comprises a rectangular prismatic casing **5** which is secured by respective supports **6** externally to the rear wall **1'** of the range body **1** and carries housed therein an electric air suction fan **7** mounted on a suitable support **8** and positioned coaxially with an opening **9** provided in the bottom of the casing **5**. Correlatively and coaxially above said suction fan, and supported by respective supporting means of any suitable known type, the casing **5** contains a wire screen box **10** containing activated carbon as absorbing means in the purifying of contaminated air from the combustion and cooking, and a filter **11** defined by three superposed expanded metal sheets and acting as primary means for retaining impurities. The casing **5** has a removable cover **5'** through which access may be had to the aforesaid filters **10** and **11** and suction fan **7**.

In a plane immediately below the cover **5'**, each of the side walls of the casing **5** is provided with a hole from which extends a respective air conduit **12** which is suitably bent as shown more clearly in FIG. 2. These air conduits **12** are secured to the range rear wall **1'** by means of suitable brackets **12'** and are extensible, inasmuch as they each comprise telescopically engaged sections, for which purpose they are provided with corresponding collars and clamping screws **13** and **14**, respectively. The air conduits **12** extend upwardly beyond the range top plate **2**, and for this purpose the plate **2** is formed with the aforesaid notches **3** and **4** at the rear corner portions thereof. In order to have access to the removable cover **5'** of the casing **5**, said range plate **2** should be horizontally movable backwards and forwards for a distance sufficient to expose said cover **5'**, as shown in dot-and-dash lines in FIG. 1. Any suitable known arrangement may be used for attaining this purpose.

The upper ends of the air conduits **12** each engage a hole in the rear portion of the respective side of a collapsible suction chamber **15**. For this purpose, said conduit upper ends are bent and provided with external screw-threads and retaining nuts **16**, the connection being such that the suction chamber **15** may be swung about said conduit ends. Suitable means are provided for retaining the suction chamber **15** in operative or horizontal position, such as for example a conventional articulated arm arrangement **17**.

The chamber **15** comprises a prismatic casing having a width substantially equivalent to that of the cooking range top plate **2**. As clearly shown in FIG. 3, an inner vertical partition **15'** is provided near the rear wall of the casing, whereas the front zone defined by said partition **15'** is provided with a horizontal partition **15''** dividing same into two halves, so as to form a lower pre-chamber for receiving the combustion gases and cooking vapors through a plurality of orifices **15a** provided in the lower wall of said pre-chamber. The horizontal partition **15''** is provided with a central opening receiving one end of an air conduit **15b** communicating the aforesaid pre-chamber with the suction chamber proper, located at the rear of the vertical partition **15'** and from which a flow connection is established with the air cleaning casing **5** by means of the air conduits **12**.

It will be readily understood that when the suction chamber 15 is collapsed to its inoperative position, i.e., swung about the upper ends of the air conduits 12 to its vertical position, by simply loosening the clamping screws 14 the front wall of the suction chamber 15 can be made to rest upon the rear edge portion of the range plate 2, thereby serving as a back therefor.

The electric suction fan 7 is of a conventional type and is electrically connected to an electric current source by means of the usual electric wire and plug arrangement (not shown). It will be understood that the electrical connection may conveniently include a switch for controlling the operation of the suction fan 7.

With the suction chamber 15 in its horizontal position as shown, the operation of the suction fan 7 will cause the contaminated air, combustion gases and cooking vapors to enter the pre-chamber through the orifices 15a, from which they will be drawn into the suction chamber through the air conduit 15b and into the air cleaner casing 5 through the air conduits 12, through the metal filter 11 and activated carbon filter 10, the cleaned air being discharged to the surrounding atmosphere through the opening 9 in the bottom of the casing 5.

It is evident that in carrying the invention into practice, many changes and/or modifications will occur to those skilled in the art without departing from the scope of the invention as clearly set forth in the appended claims.

What is claimed is:

1. A unitized cooking range and air cleaner, comprising a cooking range having side and rear walls and a top plate, a casing exteriorly secured to one of said range walls and housing therein air filtering means and an electrically operated suction fan, said casing having a removable cover and a cleaned air discharge opening, a pair of extensible air conduits extending upwardly from the upper portion of said casing, below said cover, for an adjustable distance above said range top plate, a collapsible suction chamber connected to the upper ends of said upwardly extending air conduits, and means for retaining said suction chamber in a substantially horizontal operative position.

2. A unitized cooking range and air cleaner as claimed in claim 1, wherein said suction chamber is prismatic and comprises a body having a vertical partition near the rear wall thereof, the front portion of said body having a horizontal partition dividing same into two halves, determining the formation of a lower pre-chamber having a plurality of orifices in the lower wall thereof through which it is adapted to receive the combustion gases and cooking vapors, and a contaminated air conduit extending from a central hole in said horizontal partition to a hole in the upper portion of said vertical partition.

3. A unitized cooking range and air cleaner as claimed in claim 1, wherein said means for retaining said suction

chamber in its operative position includes two pairs of articulated arms, one arm of each pair being connected to one of said upwardly extending air conduits and the other arm of each pair being connected to one side of said suction chamber.

4. A unitized cooking range and air cleaner, comprising a cooking range having side and rear walls and a movable top plate, a casing exteriorly secured to said range rear wall and housing therein air filtering means and an electrically operated suction fan, said casing having a removable cover and a cleaned air discharge opening, a pair of extensible air conduits extending upwardly from the upper portion of said casing, below said removable cover, for an adjustable distance above said range top plate, a collapsible suction chamber connected to the upper ends of said upwardly extending air conduits, and means for holding said suction chamber in a substantially horizontal operative position.

5. A unitized cooking range and air cleaner as claimed in claim 4, wherein said pair of extensible upwardly extending air conduits each extend from one of the casing side walls and engage respective notches provided in the rear corner portions of said range top plate.

6. A unitized cooking range and air cleaner as claimed in claim 4, wherein said upwardly extending air conduits comprise telescopically engaged sections and means for clamping said sections at the desired extension thereof.

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HARRY B. THORNTON, *Primary Examiner.*

D. TALBERT, *Assistant Examiner.*