

Title of invention

RANGE HOOD

Technical Field

[0001]

The present invention relates to a range hood for collecting and discharging oily smoke etc. generated during cooking with heat.

Background Art

[0002]

Conventionally, there has been known a range hood which comprises a hood, a filter, and a blower for collecting oily smoke etc. generated during cooking with heat in the hood, and for removing oil in the collected oily smoke etc. by the filter and then discharging it to the outside etc. by driving the blower.

Since oil adheres to and stains the filter in such a range hood, the stained filter is replaced with a new one or the stained filter is cleaned. However, a filter replacement work and a filter cleaning work are cumbersome.

Thus, such a range hood has been proposed that is configured to decompose and remove the oil adhering to the filter with irradiation of ultraviolet (UV) rays to the filter when the blower is driven, that is, when the range hood is operated (see PTL 1, for example).

Citation List

Patent Literature

[0003]

PTL 1: Japanese Patent Laid-Open No. 10-174827

Summary of the Invention

Problems to be solved by the Invention

[0004]

However, when UV rays are irradiated to the filter during operation of the range hood, a part of UV rays irradiated to the filter would be interrupted by the oily smoke etc. flowing through the hood, therefore, it is impossible to efficiently irradiate UV rays to the filter, and a decomposing performance of the oil adhering to the filter depending on UV rays is lowered.

To solve this, in the range hood disclosed in PTL 1, an UV light source is provided at a position other than a flow passage through which the oily smoke etc. flows in the hood, and a filter is configured to be rotatable so as to move between a position opposed to the flow passage and a position opposed to the UV light source and thus, UV rays irradiated to the filter may not be interrupted by the oily smoke etc. flowing through the hood, which enables an effective irradiation of UV rays to the filter, the decomposing performance of the oil adhering to the filter depending on UV rays is thereby improved.

However, even with the configuration, since a part of the oily smoke etc. would flow between the filter and the UV light source, a part of UV rays irradiated to the filter may be interrupted by the oily smoke etc. and an effective irradiation of UV rays would be difficult, the decomposing performance of the oil

depending on UV rays cannot be largely improved.

[0005]

To solve this, the inventors, etc. have improved an irradiation efficiency of UV rays to the filter regardless of the oily smoke etc. flowing through the food, so that the decomposing performance of the oil is sufficiently increased, by performing irradiation of UV rays to the filter after completion of operation of the range hood.

However, oxidation of the oil proceeds while performing decomposition of oil with irradiation of UV rays to the filter to which the oil is adhered, which results in generation of malodor and ozone.

Thus, while UV rays are irradiated to the filter after the operation of the range hood is stopped, a person in a room would sense the malodor and become uncomfortable, and ozone would be filled in the room, which may be likely to adversely affect a human body.

[0006]

The present invention has been made in view of the aforementioned problems and its object is to provide a range hood which can efficiently irradiate UV rays to the filter regardless of the oily smoke etc. flowing through the hood, and in which the person in a room would not sense malodor, and the ozone would not be filled in the room too.

Means to solve the Problems

[0007]

A first range hood of the present invention comprises a hood, a filter, a blower for rotating a fan by a fan motor, an UV light source for irradiating UV rays to the filter, and a control unit for controlling the fan motor and the UV light source, wherein the control unit is configured to turn on the UV light source for a set time after an operation is stopped from an operating state and to drive the fan motor for the set time at the same time, so that the fan is rotated while UV rays are irradiated.

[0008]

A second range hood of the present invention comprises a hood, a filter, a blower for rotating a fan by a fan motor, an UV light source for irradiating UV rays to the filter, and a control unit for controlling the fan motor and the UV light source, wherein the control unit is configured to turn on the UV light source for a set time after an operation is stopped from an operating state, to drive the fan motor at the same time for driving for a certain period of time even after the set time has passed and the UV light source is turned off, so that the fan is rotated for a certain period of time even after the UV light source is turned off.

[0009]

In the first or second range hood of the present invention, there may be provided a filter motor for rotating the filter, and the control unit may be so configured to drive the filter motor at a high speed for a predetermined time after the operation is stopped, so that the filter is rotated at a high speed for

the predetermined time before UV rays are irradiated, and to control the UV light source and the fan motor after the predetermined time has passed.

With this configuration, since a part of the oil adhering to the filter may be scattered around the filter and thereby removed, it is only necessary to decompose the remaining oil with irradiation of UV rays and thus, the oil can be easily decomposed. Moreover, since irradiation of UV rays is performed in a state where excess oil has been removed and only the minimum amount of oil is adhered to the filter, an irradiation time of UV rays can be shortened.

[0010]

In any one of the first to third range hoods of the present invention, there may be provided a filter motor for rotating, and the control unit may be configured to drive the filter motor at a high speed after the set time has passed, so that the filter is rotated at a high speed.

With this configuration, since water generated by decomposing the oil adhering to the filter with the irradiation of UV rays may be scattered around the filter due to a centrifugal force by the rotation of the filter, water can be removed from the filter.

[0011]

In any one of the first to fourth range hoods of the present invention, there may be provided the filter motor for rotating the filter, and the control unit may be configured to drive the

filter motor at a high speed when the UV light source is turned on, so that the filter is rotated at a high speed while UV rays are irradiated.

With this configuration, the oil adhering to the filter has many opportunities to come into contact with oxygen required for decomposition of the oil, then the oil can be efficiently decomposed.

[0012]

In any one of the first to fourth range hoods of the present invention, there may be provided the filter motor for rotating the filter, and the control unit may be configured to drive the filter motor at a low speed when the UV light source is turned on, so that the filter is rotated at a low speed while UV rays are irradiated.

With the configuration, ultraviolet dose irradiated to unit area of the filter increases, the decomposing performance of the oil adhering to the filter becomes excellent, and the oil adhering to the filter can be sufficiently decomposed and the oil can be reliably removed from the filter.

Advantageous Effects of the Invention

[0013]

According to the first and second range hoods of the present invention, since UV rays are irradiated to the filter after the operation is stopped, it is possible to efficiently irradiate UV rays to the filter regardless of the oily smoke etc. flowing through the hood.

Therefore, the decomposing performance of the oil depending on irradiation of UV rays is excellent, and the filter can be cleaned up.

Moreover, since the fan of the blower is rotated while UV rays are irradiated to the filter, malodor and ozone generated by decomposition of the oil are discharged by the blower.

Therefore, the person in the room would not sense malodor, and ozone is prevented from filling in the room.

According to the second range hood of the present invention, since the fan of the blower is rotated even after completion of irradiation of UV rays, malodor and ozone generated by decomposition of the oil can be reliably discharged.

Brief Description of Drawings

Embodiments of the present Invention

[0014]

Fig. 1 is a cross-sectional view of a range hood illustrating an embodiment of the present invention.

Fig. 2 is an enlarged view of a mounting part of a filter.

Fig. 3 is an explanatory view of an operation control unit and a filter cleaning control unit.

Fig. 4 is an explanatory view illustrating another embodiment of the operation control unit and the filter cleaning control unit.

[0015]

A first embodiment of the present invention will be described by referring to Figs. 1, 2, and 3.

Fig. 1 is a cross-sectional view of a range hood, Fig. 2 is an enlarged view of a filter mounting part, and Fig. 3 is an explanatory view of an operating unit and a control unit.

A range hood 1 comprises a hood 2, a filter 3, a blower 4, and an UV light source 5.

The hood 2 is formed into a low rectangular box shape with a top surface plate 20, a peripheral surface plate 21, and a lower surface plate 22. The lower surface plate 22 has a recessed portion 23 recessed toward the top surface plate 20, a rectifying plate 24 is mounted in the recessed portion 23, and the rectifying plate 24 and the recessed portion 23 form a flow passage 25. A lower part of the flow passage 25 is open downward the hood 2, and an upper part of the flow passage 25 is open upward the hood 2 at an opening portion 26.

The filter 3 is provided in the flow passage 25, and the filter 3 is opposed to the opening portion 26. As a result, oily smoke etc. having flowed into the flowing passage 25 flows into the opening portion 26 through the filter 3. The filter 3 of the range hood 1 in this embodiment is driven and rotated by a filter motor 30.

[0016]

An embodiment of mounting of the filter 3 will be described by referring to Fig. 2.

A plate 31 is mounted to the opening portion 26 of the hood 2. The plate 31 has a hole 31a having a diameter slightly smaller than an outer diameter of the filter 3, and a motor mounting plate

32 is mounted on the plate 31 so as to span a center part of the hole 31a. A width of the motor mounting plate 32 is extremely smaller than a diameter of the hole 31a so as not to interrupt air flowing through the hole 31a. The filter motor 30 is mounted on an upper surface of the motor mounting plate 32.

A rotating shaft 30a of the filter motor 30 passes through the hole 31a of the plate 31 and protrudes to the flow passage 25 of the hood 2, and the filter 3 is mounted on its protruding part.

A fluid storing member 33 having a ring shape is mounted on a lower surface of the plate 31 so as to surround the filter 3.

The fluid storing member 33 has a ring-shaped fluid storing portion 33c at its lower part which is continuous in a circumferential direction and opens upwardly, and which is formed by a cylindrical body 33a with an inner diameter larger than the outer diameter of the filter 3 and an upward hook-shaped piece 33b mounted at a lower end of an inner peripheral surface of the cylindrical body 33a and continuously in the circumferential direction.

[0017]

As illustrated in Fig. 1, the blower 4 has a housing 41 provided in a blower box 40, a fan 42 provided in the housing 41, and a fan motor 43 for rotating the fan 42.

The blower box 40 is mounted on the top surface plate 20 of the hood 2, and an inlet hole 41a of the housing 41 communicates

with the opening portion 26 of the hood 2. An exhaust hole 41b of the housing 41 communicates with an exhaust duct 44.

With the configuration, as the fan 42 is rotated by the fan motor 43, oily smoke etc. generated during cooking with heat is collected in the flow passage 25 in the hood 2. Oil in the collected oily smoke etc. is adhered to the filter 3 and is thereby removed, and then oily smoke etc. is discharged as air not containing oil from the exhaust duct 44.

The UV light source 5 irradiates UV rays to an oil adhering surface of the filter 3. An UV lamp, an LED, or a mercury lamp etc. is used as the UV light source 5.

[0018]

In this embodiment, a plurality of the UV ray lamps is mounted as the UV light source 5 at an interval in the circumferential direction on the inner peripheral surface of the cylindrical body 33a of the fluid storing member 33 as illustrated in Fig. 2.

With the configuration, the UV light source 5 is prevented from being interrupted by the oily smoke etc. flowing toward the filter 3.

The UV light source 5 (UV ray lamps) irradiates UV rays obliquely upward so that the whole surface of the lower surface in the filter 3 (the whole surface of the oil adhering surface) can be irradiated with UV rays.

Note that, since the UV ray lamp is simply required to irradiate the whole surface of the lower surface of the filter 3, only one UV ray lamp may be used, if even one UV ray lamp is

sufficient for irradiating the wide area of the whole surface of the lower surface of the filter 3.

[0019]

As illustrated in Fig. 1, a drive-operation part 6 for drive-operating the range hood 1 is mounted on the peripheral surface plate 21 of the hood 2.

A control unit 7 is provided in the hood 2. The control unit 7 controls to drive the fan motor 43 and to turn on or off the UV light source 5 according to an instruction from the drive-operation part 6.

[0020]

As illustrated in Fig. 3, the drive-operation part 6 has a high-power operation switch 60, a medium-power operation switch 61, a low-power operation switch 62, and a stop switch 63.

The high-power operation switch 60 is operated at a start of cooking with heat of a heating cooker and outputs a high-power operation instruction to the control unit 7. The medium-power operation switch 61 is operated at the start of the cooking with heat of the heating cooker and outputs a medium-power operation instruction to the control unit 7. The low-power operation switch 62 is operated at the start of cooking with heat of the heating cooker and outputs a low-power operation instruction to the control unit 7.

Note that, it is possible to output different operation instructions by operating different operation switches during cooking with heat.

The stop switch 63 is operated at an end of the cooking with heat of the heating cooker and outputs an operation stop instruction to the control unit 7.

The control unit 7 has an operation control unit 70 and a filter cleaning control unit 71.

[0021]

When the high-power operation instruction is input, the operation control unit 70 drives the fan motor 43 of the blower 4 at a high speed and rotates the fan 42 of the blower 4 at a high speed, so that the range hood 1 is operated at a high-power operation. When a medium-power operation instruction is input, the operation control unit 70 drives the fan motor 43 at a medium speed and rotates the fan 42 of the blower 4 at a medium speed, so that the range hood 1 is operated at a medium-power operation. When a low-power operation instruction is input, the operation control unit 70 drives the fan motor 43 at a low speed and rotates the fan 42 of the blower 4 at a low speed, so that the range hood 1 is operated at a low-power operation.

When an operation stop instruction is input while the range hood 1 is in the high-power operation, the medium-power operation or the low-power operation, the operation control unit 70 stops driving of the fan motor 43 and stops the rotation of the fan 42 of the blower 4, so that the operation of the range hood 1 is stopped.

[0022]

When the operation stop instruction is input while the range

hood 1 is operated, a filter cleaning control unit 71 turns on the UV light source 5 for a set time, drives the fan motor 43 for the set time and rotates the fan 42 of the blower 4 for the set time.

And after lapse of the set time from when the operation stop instruction is input, the UV light source 5 is turned off, driving of the fan motor 43 is stopped, and the rotation of the fan 42 of the blower 4 is stopped.

The set time means a period of time from receiving an input of the operation stop instruction until completion of decomposition and discharge of the oil adhering to the filter 3.

Note that, when the operation stop instruction is input, the operation control unit 70 may be configured not to stop driving of the fan motor 43 but continuously drive the fan motor 43, so that the fan 42 of the blower 4 is rotated, even when the operation stop instruction is input.

[0023]

That is, the control unit 7 turns on the UV light source 5 for the set time after completion of cooking of a heating cooker with heat and the operation of the range hood 1 is stopped and drives the fan motor 43 when UV light source 5 is turned on so as to rotate the fan 42 of the blower 4.

In a case that the range hood 1 is to be operated or stopped linked with the heating cooker, it is configured that the fan motor 43 is rotated by an ON instruction of the heating cooker,

driving of the fan motor 43 is stopped and the UV light source 5 is turned on by its OFF instruction, and the fan 42 of the blower 4 is rotated by driving the fan motor 43 while the UV light source 5 is turned on. Note that, it may be so configured that the fan motor 43 is continuously rotated without stopping by the OFF instruction.

As described above, since UV rays are irradiated to the filter 3 and decomposition and removal of the adhering oil are thereby performed in the state that cooking with heat of the heating cooker is ended, the operation of the range hood 1 in operation is stopped, and the oily smoke etc. does not flow through the flow passage 25 of the hood 2, UV rays can be efficiently irradiated to the oil adhering surface of the filter 3 regardless of the oily smoke etc. flowing through the hood 2.

[0024]

Therefore, the performance of decomposition of the oil adhering to the filter 3 is excellent, and the filter 3 can be cleaned up.

Moreover, since the fan 42 of the blower 4 is rotated during decomposition of the oil with irradiation of UV rays to the filter 3, malodor and ozone generated during the decomposition of the oil are discharged by the blower 4.

Therefore, according to the range hood, the person in the room would not sense the malodor, and the ozone is not filled in the room.

[0025]

Next, a second embodiment of the present invention will be described.

The configuration of the range hood 1 is like the range hood 1 in the first embodiment illustrated in Figs. 1 and 2, and a control unit 7 is different from the control unit 7 in the first embodiment.

The control unit 7 has an operation control unit 70 and a filter cleaning control unit 71 like the control unit 7 illustrated in Fig. 3.

The filter cleaning control unit 71 turns on the UV light source 5 for a set time like the filter cleaning control unit 71 in the first embodiment when the operation stop instruction is input, and rotates the fan 42 of the blower 4 by driving the fan motor 43.

After lapse of the set time from when the operation stop instruction is input, the UV light source 5 is turned off while the fan motor 43 is continuously driven, and after a certain period of time has passed, driving of the fan motor 43 is stopped, and the rotation of the fan 42 of the blower 4 is stopped.

[0026]

That is, the control unit 7 turns on the UV light source 5 and rotates the fan 42 of the blower 4 after the operation of the range hood 1 in operation is stopped. After lapse of the set time from when the operation is stopped, the UV light source 5 is turned off, the fan 42 of the blower 4 is continued to be rotated and the rotation of the fan 42 of the blower 4 is stopped after

a certain period of time has passed.

Since the control unit 7 of the second embodiment controls the UV light source 5 and the fan motor 43 as described above, malodor and ozone generated when the oil is decomposed with irradiation of UV rays to the filter 3 are discharged by the blower 4 during irradiation of UV rays and after irradiation of the UV rays.

Therefore, malodor and ozone can be reliably discharged.

As described above, since the filter motor 30 is not operated in the first and second embodiments, the filter motor 30 does not have to be provided. That is, the range hood in the first and second embodiments may be a range hood including the filter 3 rotatable by the filter motor 30 or may be a range hood including a filter 3 which has no filter motor 30 and is non-rotatable.

[0027]

Next, a third embodiment of the present invention will be described.

The configuration of the range hood 1 is like the range hood 1 in the first embodiment illustrated in Figs. 1 and 2, and a control unit 7 is different from the control unit 7 in the first embodiment.

The control unit 7 has an operation control unit 70 and a filter cleaning control unit 71 as illustrated in Fig. 4.

The operation control unit 70 is the same as the operation control unit 70 in the first embodiment.

The filter cleaning control unit 71 controls the filter

motor 30 as follows before controlling the UV light source 5 and the fan motor 43 like the first embodiment or the second embodiment.

When the operation stop instruction is input while the operation instruction is input, the filter motor 30 is driven at a high speed for a predetermined time, so that the filter 3 is rotated at a high speed for the predetermined time before the UV light source 5 is turned on and the fan motor 43 is driven.

[0028]

After the predetermined time has passed, driving of the filter motor 30 is stopped, and the rotation of the filter 3 is stopped.

That is, before UV rays are irradiated, the filter 3 is rotated at a high speed for the predetermined time. After lapse of the predetermined time from when the operation stop instruction is input, the UV light source 5 and the fan motor 43 are controlled like the first embodiment or the second embodiment. Note that the filter motor 30 may be continued to be driven so that the filter 3 may be continued to be rotated after the predetermined time has passed.

[0029]

As described above, by rotating the filter 3 at a high speed before UV rays are irradiated to the filter 3, a part of the oil adhering to the filter 3 is scattered around the filter 3 and removed from the filter 3.

Therefore, it is only necessary to decompose the oil remaining on the filter 3 with use of UV rays, and the oil adhering

to the filter 3 can be easily decomposed with UV rays. Moreover, since UV rays are irradiated in a state that excess oil is removed and only the minimum oil is adhering to the filter 3, irradiation time of UV rays can be shortened.

Since the oil scattered around the filter 3 is stored in the fluid storing portion 33c of the fluid storing member 33, the hood 2 is not stained.

[0030]

Next, a fourth embodiment of the present invention will be described.

The configuration of the range hood 1 is like the range hood 1 in the first embodiment illustrated in Figs. 1 and 2, and a control unit 7 is different from the control unit 7 in the first embodiment.

The control unit 7 has an operation control unit 70 and a filter cleaning control unit 71 as illustrated in Fig. 4.

The operation control unit 70 is the same as the operation control unit 70 in the first embodiment.

The filter cleaning control unit 71 controls the UV light source 5 and the fan motor 43 like the first embodiment or the second embodiment. At the same time, the filter motor 30 is controlled as follows.

When the operation stop instruction is input while the operation instruction is input, the UV light source 5 is turned off after an irradiation set time of the UV light source 5 has passed, the filter 3 is rotated at a high speed for a certain

period of time by driving the filter motor 30 at a high speed for a certain period of time.

After a certain period of time has passed, driving of the filter motor 30 is stopped and the rotation of the filter 3 is stopped.

[0031]

As described above, by rotating the filter 3 at the high speed after completion of irradiation of UV rays to the filter 3, water generated by decomposing the oil adhering to the filter 3 is scattered around the filter 3 and can be removed from the filter 3.

That is, since the oil adhering to the filter 3 is decomposed into water and carbon dioxide with the irradiation of UV rays, by rotating the filter 3 at the high speed, water on the filter 3 is scattered around by the centrifugal force and removed.

Carbon dioxide is discharged by the blower 4.

Since water scattered around the filter 3 is stored in the fluid storing portion 33c of the fluid storing member 33, water is prevented from flowing into the hood 2.

Note that, like the third embodiment, it may be so configured that, when the operation stop instruction is input while the operation instruction is input, the filter motor 30 is driven at a high speed for a predetermined time, so that the filter 3 is rotated at the high speed for the predetermined time before the UV light source 5 is turned on and the fan motor 43 is driven.

[0032]

Next, a fifth embodiment of the present invention will be described.

The configuration of the range hood 1 is like the range hood 1 in the first embodiment illustrated in Figs. 1 and 2, and a control unit 7 is different from the control unit 7 in the first embodiment.

The control unit 7 has an operation control unit 70 and a filter cleaning control unit 71 as illustrated in Fig. 4.

The operation control unit 70 is the same as the operation control unit 70 in the first embodiment.

The filter cleaning control unit 71 controls the UV light source 5 and the fan motor 43 like the first embodiment or the second embodiment. At the same time, the filter motor 30 is controlled as follows.

When the operation stop instruction is input while the operation instruction is input, the filter motor 30 is driven at a high speed for the same set time as the irradiation time of the UV light source 5 simultaneously with turning on of the UV light source 5, so that the filter 3 is rotated at a high speed for the set time. After the set time has passed, driving of the filter motor 30 is stopped, and the rotation of the filter 3 is stopped. That is, the filter 3 is rotated at a high speed while UV rays are irradiated.

[0033]

As described above, by rotating the filter 3 at the high speed while UV rays are irradiated to the filter 3, the oil adhering

to the filter 3 has many opportunities to come into contact with oxygen required for decomposing the oil, and the oil can be efficiently decomposed.

Note that, like the third embodiment, it may be so configured that, when the operation stop instruction is input while the operation instruction is input, the filter motor 30 is driven at a high speed for the predetermined time, so that the filter 3 is rotated at a high speed for the predetermined time, before the UV light source 5 is turned on and the fan motor 43 is driven.

Moreover, like the fourth embodiment, when the operation stop instruction is input while the operation instruction is input, and after the irradiation set time of the UV light source 5 has passed, the UV light source 5 is turned off and the filter motor 30 is driven at a high speed for a certain period of time, so that the filter 3 is rotated at a high speed for a certain period of time.

It may be so configured that driving of the filter motor 30 is stopped after a certain period of time has passed so that the rotation of the filter 3 is stopped.

Moreover, it has been described that the filter motor 30 is driven at a high speed simultaneously with turning on of the UV light source 5, and the filter 3 is rotated at a high speed for the set time, but this is not limited thereto, high-speed driving of the filter motor 30 may not have to be performed simultaneously with turning on of the UV light source 5.

That is, high-speed driving of the filter motor 30 may not

have to be performed simultaneously with turning on of the UV light source 5 but may be performed after lapse of a time from when turning on, or high-speed driving time of the filter motor 30 may not limited to the set time but may be a part of the set time. When the filter motor 30 is driven at a high speed for only a part of the set time, the stop state and the high-speed driving state may be achieved intermittently.

[0034]

Next, a sixth embodiment of the present invention will be described.

The configuration of the range hood 1 is like the range hood 1 in the first embodiment illustrated in Figs. 1 and 2, and a control unit 7 is different from the control unit 7 in the first embodiment.

The control unit 7 has an operation control unit 70 and a filter cleaning control unit 71 as illustrated in Fig. 4.

The operation control unit 70 is the same as the operation control unit 70 in the first embodiment.

The filter cleaning control unit 71 controls the UV light source 5 and the fan motor 43 like the first embodiment or the second embodiment. At the same time, the filter motor 30 is controlled as follows.

When the operation stop instruction is input while the operation instruction is input, the filter motor 30 is driven at a low speed, simultaneously with turning on of the UV light source 5, for the same set time as the irradiation time of the

UV light source 5 so that the filter 3 is rotated at a low speed for the set time. That is, the filter 3 is rotated at the low speed while UV rays are irradiated.

After the set time has passed, driving of the filter motor 30 is stopped, and the rotation of the filter 3 is stopped.

Note that, it may be so configured that the filter motor 30 is continued to be driven after lapse of the set time, so that the filter 3 is continued to be rotated.

[0035]

As described above, by rotating the filter 3 at a low speed while UV rays are irradiated to the filter 3, the amount of UV rays irradiated to the unit area of the filter 3 is increased, and the decomposing performance of the oil adhering to the filter 3 becomes excellent.

Therefore, the oil adhering to the filter 3 can be sufficiently decomposed and reliably removed from the filter 3.

Note that, like the third embodiment, it may be so configured that, when the operation stop instruction is input while the operation instruction is input, the filter motor 30 is driven at a high speed for the predetermined time, so that the filter 3 is rotated at a high speed for the predetermined time, before the UV light source 5 is turned on and the fan motor 43 is driven.

Moreover, like the fourth embodiment, when the operation stop instruction is input while the operation instruction is input, and after the irradiation set time of the UV light source 5 has passed, the UV light source 5 is turned off and the filter motor

30 is driven at a high speed for a certain period of time, so that the filter 3 is rotated at a high speed for a certain period of time.

It may be so configured that driving of the filter motor 30 is stopped after a certain period of time has passed, so that the rotation of the filter 3 is stopped.

Moreover, it has been described that the filter motor 30 is driven at a low speed simultaneously with turning on of the UV light source 5, and the filter 3 is rotated at a low speed for the set time, but this is not limited thereto, low-speed driving of the filter motor 30 may not have to be simultaneously with turning on of the UV light source 5.

That is, low-speed driving of the filter motor 30 may not have to be performed simultaneously with turning on of the UV light source 5 but may be performed after lapse of a time from turning on, or the low-speed driving time of the filter motor 30 may not be limited to the set time but may be only a part of the set time. When the filter motor 30 is driven at a low speed for only a part of the set time, the stop state and the low-speed driving state may be achieved intermittently.

[0036]

In each of the aforementioned embodiments, the high-speed rotation of the filter 3 is of 800 rpm or more.

The low-speed rotation of the filter 3 is of less than 800 rpm.

Moreover, the filter 3 is preferably the one in which a

photocatalyst is applied on a surface to which the oil adheres.

In each of the abovementioned embodiments, the rectifying plate 24 is provided in the hood 2 to form the flow passage 25, but the flow passage 25 may be provided in the hood 2 without providing the rectifying plate.

As in the third to sixth embodiments, in the range hood of the type in which UV rays are irradiated while rotating the filter 3, area to be irradiated by UV rays of the UV light source 5 may not be limited to the whole surface of the lower surface of the filter 3, but an area at least from an edge part of the filter 3 to a rotation center of the filter 3 for irradiation may be sufficient. In this case, by rotating the filter 3 while UV rays are irradiated, the whole surface of the lower surface of the filter 3 may be irradiated by UV rays.

Reference Signs List

[0037]

1... range hood, 2... hood, 3 filter, 4 ...blower, 5... UV light source, 6 ...drive-operation part, 7 ...control unit, 30... filter motor, 33... fluid storing member, 33c... fluid storing portion, 42 fan, 43... fan motor

CLAIMS

1. A range hood comprising a hood, a filter, a blower for rotating a fan by a fan motor, an UV light source for irradiating UV rays to the filter, and a control unit for controlling the fan motor and the UV light source, wherein the UV light source is located on an outer side outer than an outer peripheral surface of the filter, and the control unit is configured to turn off the UV light source in an operating state, to turn on the UV light source for a set time so as to decompose and to remove oil adhering to the filter during operation after a completion of a cooking with heat by a heat cooker and the operation is stopped from an operating state, and to drive the fan motor for the set time at the same time so that the fan is rotated while UV rays are irradiated so as to discharge malodor and ozone generated during the decomposition of the oil; and

the range hood further comprising a filter motor for rotating the filter, wherein the control unit is configured to drive the filter motor at a high speed for a predetermined time after the operation is stopped so that the filter is rotated at a high speed for a predetermined time before the UV rays are irradiated, and to control the UV light source and the fan motor after the predetermined time has passed.

2. A range hood comprising a hood, a filter, a blower for rotating a fan by a fan motor, an UV light source for irradiating UV rays to the filter, and a control unit for controlling the fan motor and the UV light source, wherein the UV light source is located on an outer side outer than an

outer peripheral surface of the filter, and the control unit is configured to turn off the UV light source in an operating state, to turn on the UV light source for a set time so as to decompose and to remove oil adhering to the filter during operation after a completion of a cooking with heat by a heat cooker and the operation is stopped from an operating state, and to drive the fan motor for the set time at the same time so that the fan is rotated while UV rays are irradiated so as to discharge malodor and ozone generated during the decomposition of the oil; and

the range hood further comprising a filter motor for rotating the filter, wherein the control unit is configured to drive the filter motor at a high speed after the set time has passed, so that the filter is rotated at a high speed.

3. A range hood comprising a hood, a filter, a blower for rotating a fan by a fan motor, an UV light source for irradiating UV rays to the filter, and a control unit for controlling the fan motor and the UV light source, wherein the UV light source is located on an outer side outer than an outer peripheral surface of the filter, and the control unit is configured to turn off the UV light source in an operating state, to turn on the UV light source for a set time so as to decompose and to remove oil adhering to the filter during operation after a completion of a cooking with heat by a heat cooker and the operation is stopped from an operating state, and to drive the fan motor for the set time at the same time so that the fan is rotated while UV rays are irradiated so as to discharge malodor and ozone generated during the decomposition of the oil; and

the range hood further comprising a filter motor for rotating the filter, wherein the control unit is configured to drive the filter motor at a high speed when the UV light source is turned on, so that the filter is rotated at a high speed while UV rays are irradiated.

4. A range hood comprising a hood, a filter, a blower for rotating a fan by a fan motor, an UV light source for irradiating UV rays to the filter, and a control unit for controlling the fan motor and the UV light source, wherein the UV light source is located on an outer side outer than an outer peripheral surface of the filter, and the control unit is configured to turn off the UV light source in an operating state, to turn on the UV light source for a set time so as to decompose and to remove oil adhering to the filter during operation after a completion of a cooking with heat by a heat cooker and the operation is stopped from an operating state, and to drive the fan motor for the set time at the same time so that the fan is rotated while UV rays are irradiated so as to discharge malodor and ozone generated during the decomposition of the oil; and

the range hood further comprising a filter motor for rotating the filter, wherein the control unit is configured to drive the filter motor at a low speed when the UV light source is turned on, so that the filter is rotated at a low speed while UV rays are irradiated.

5. The range hood according to any one of claims 1 to 4, wherein

the control unit is configured to drive the fan motor for a certain period of time even after the set time has passed

and the UV light source is turned off so that the fan is rotated for a certain period of time even after the UV light source is turned off.