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(57) **ABSTRACT**

A ventilator having an optimum air box includes an outer hood, an air box, and a fan motor. The air box is mounted in the outer hood and is provided with a receiving zone which is extended forward, so that the smoke suction port of the outer hood and the fan motor are displaced forward and are located above the range exactly, so that the oily smoke produced from the range is sucked into the smoke suction port of the outer hood entirely and completely, thereby greatly enhancing the ventilating effect.

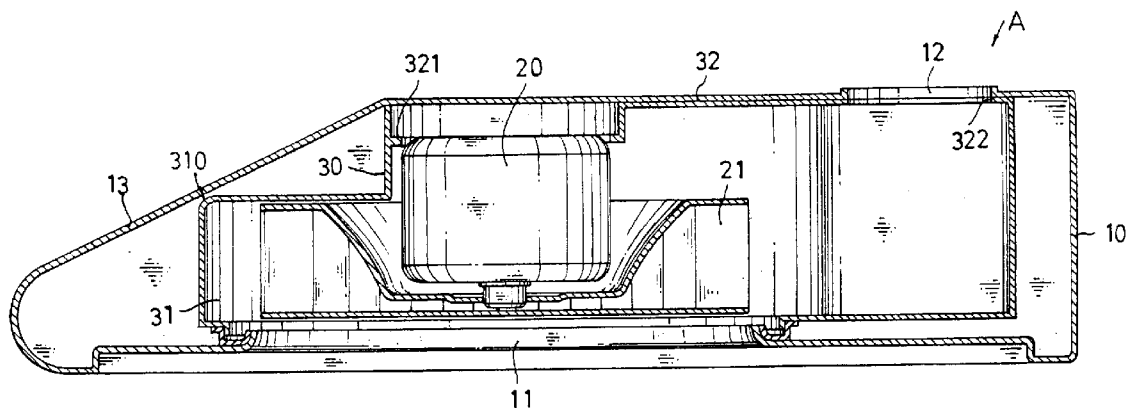
(57)

ABSTRACT

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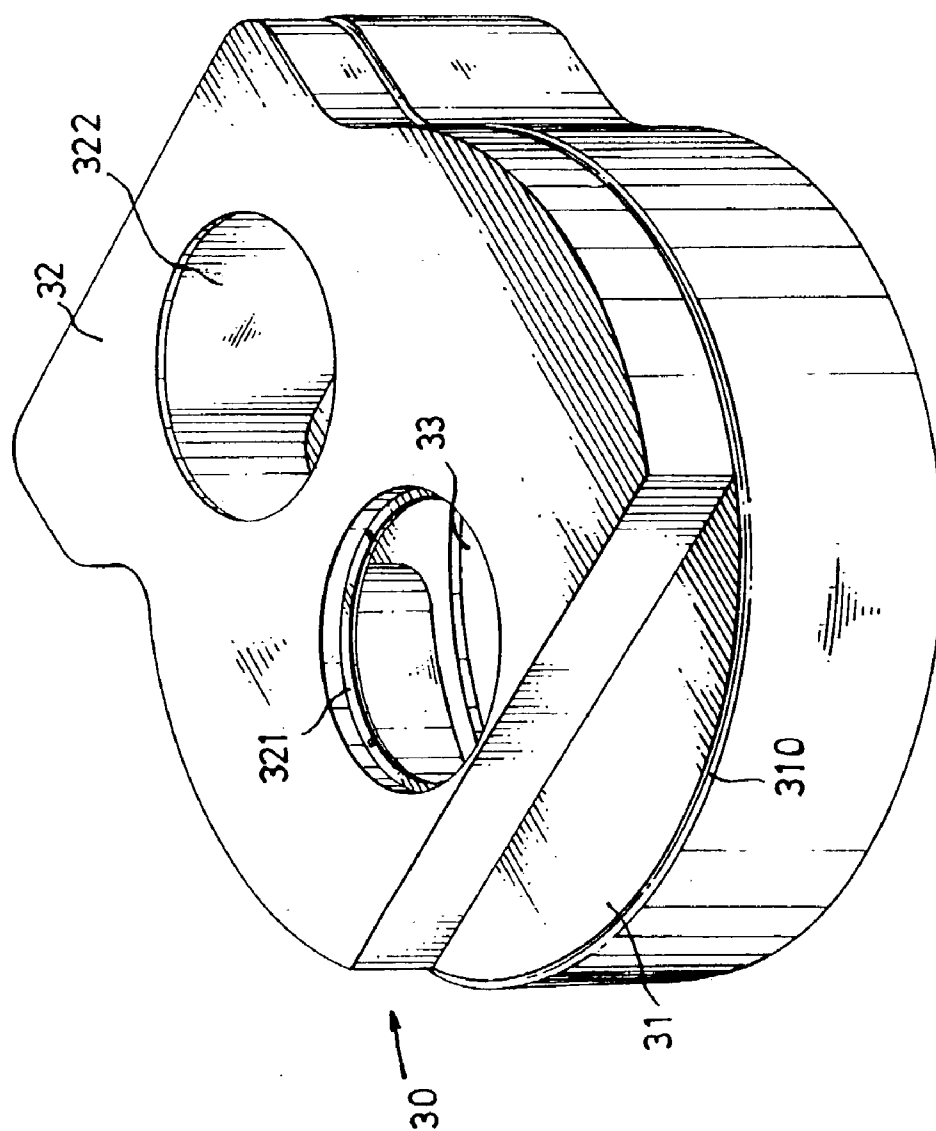


FIG. 1

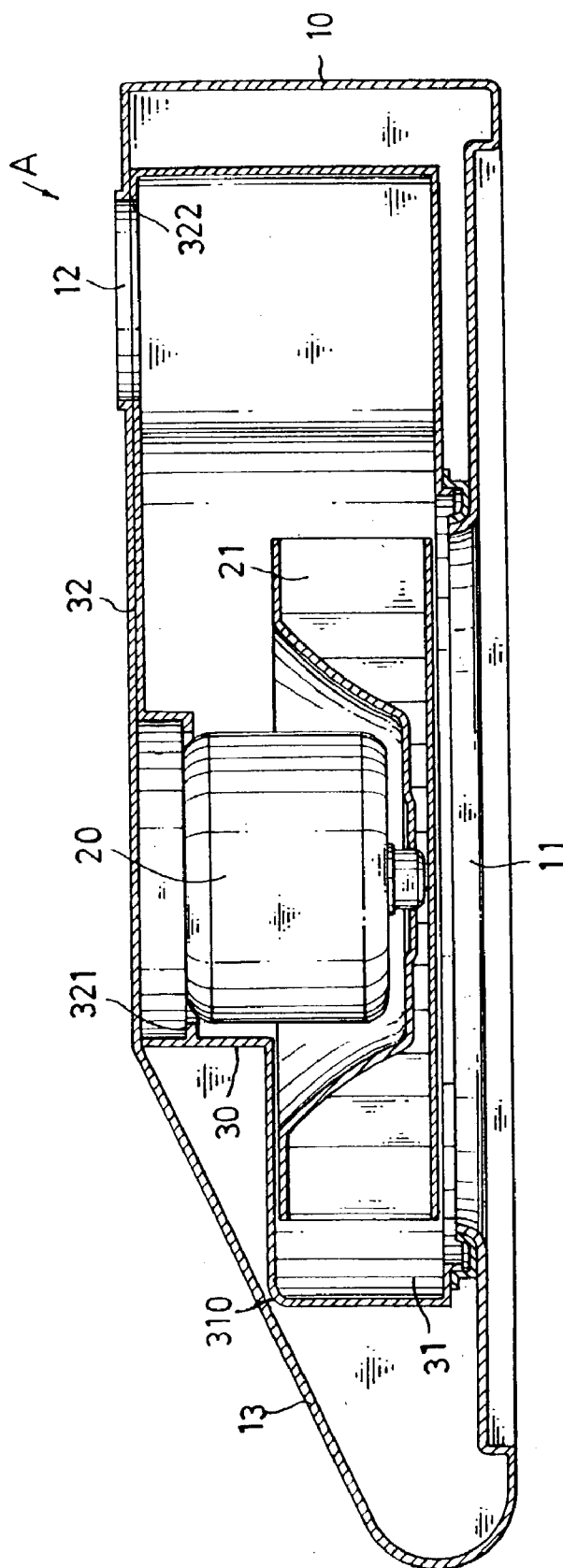


FIG. 2

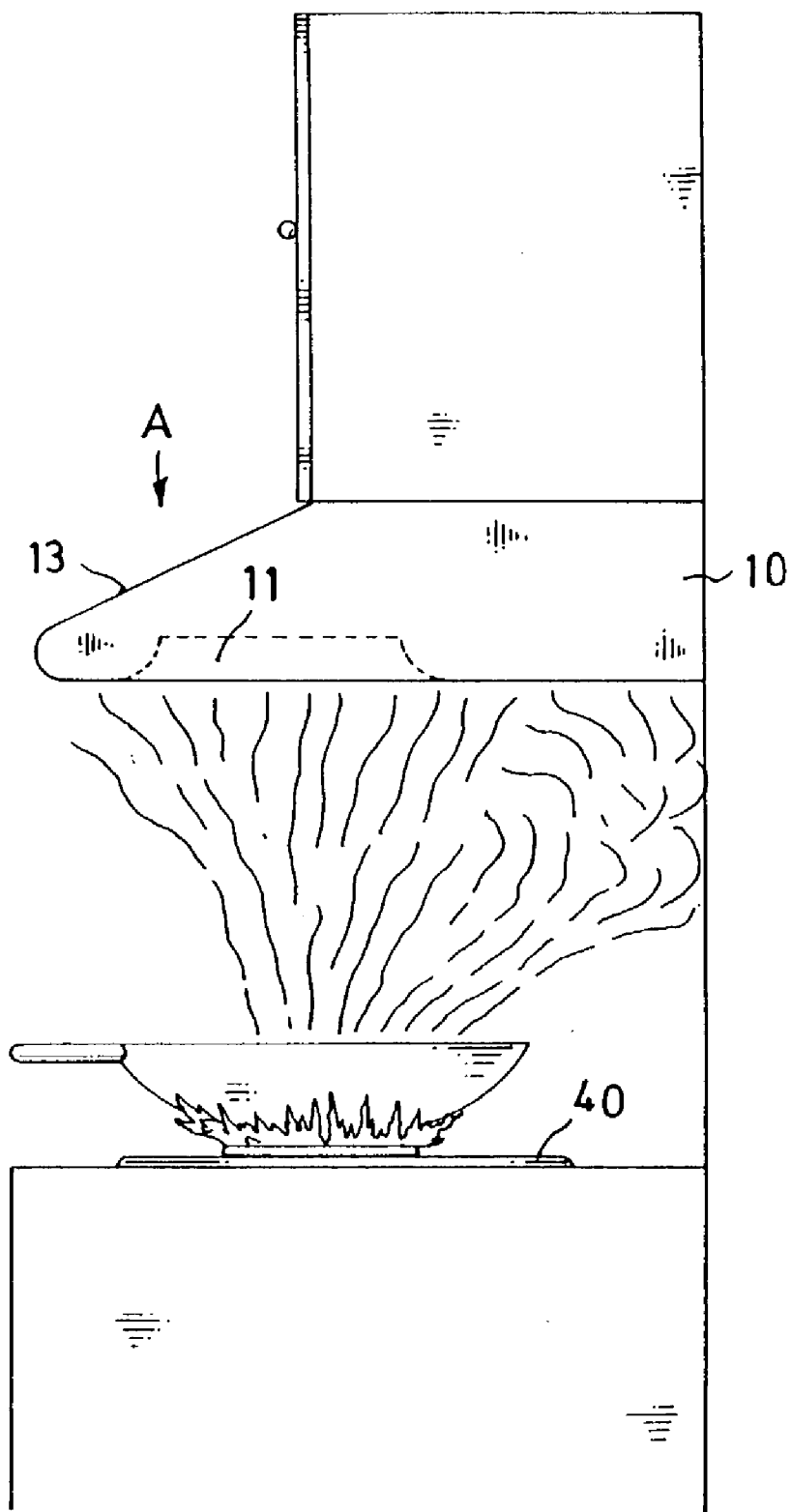


FIG . 3

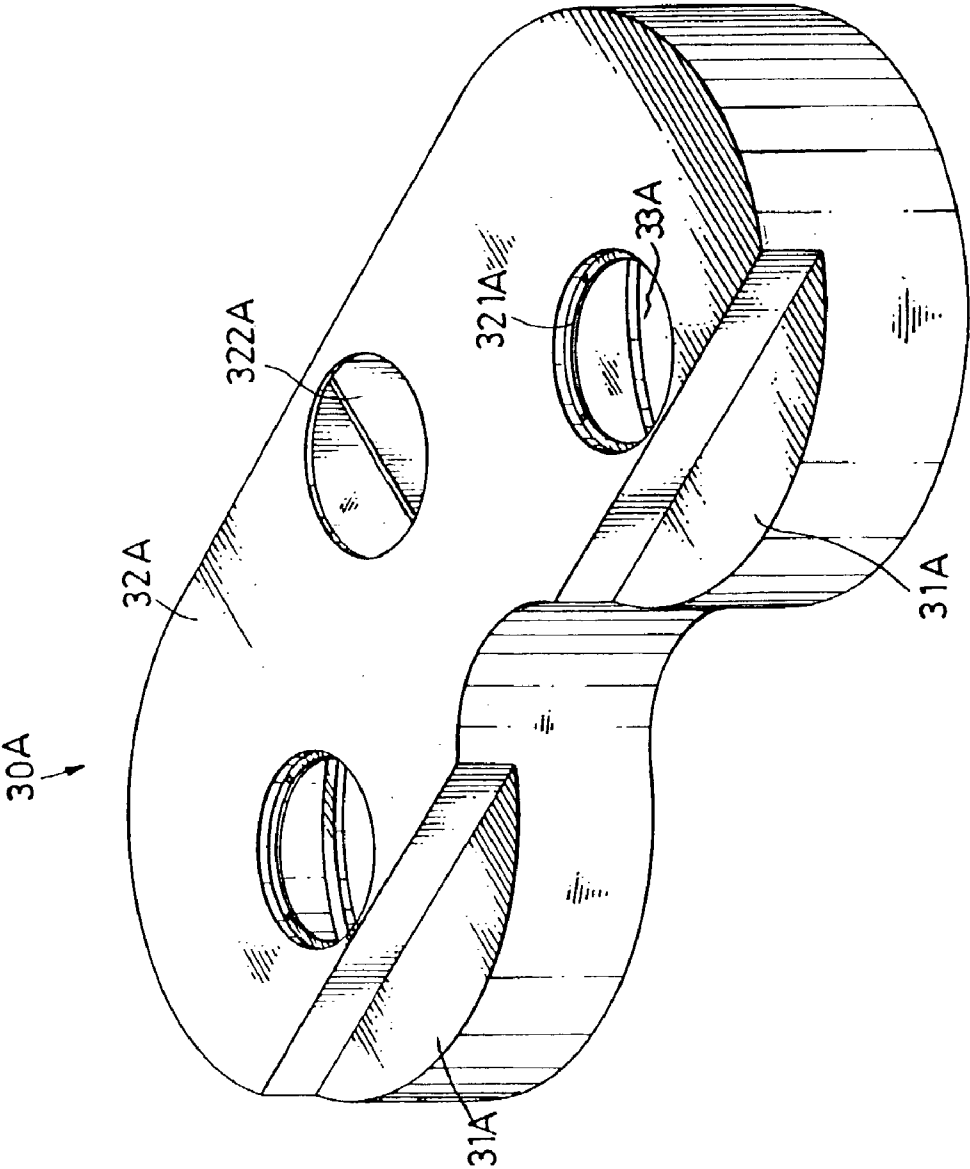


FIG. 4

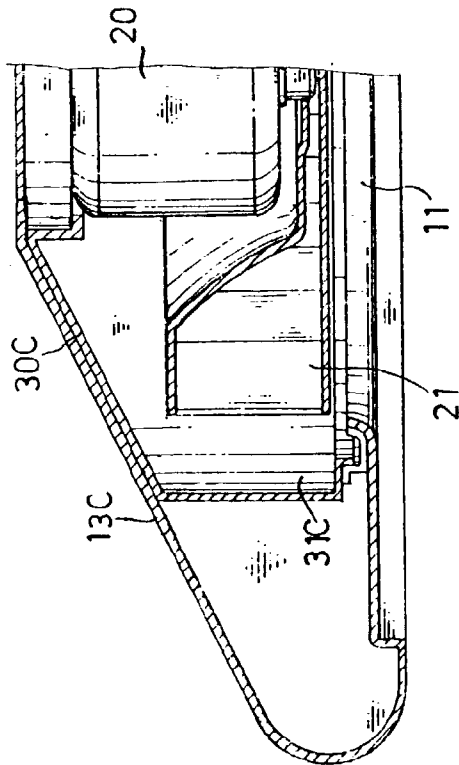


FIG . 5

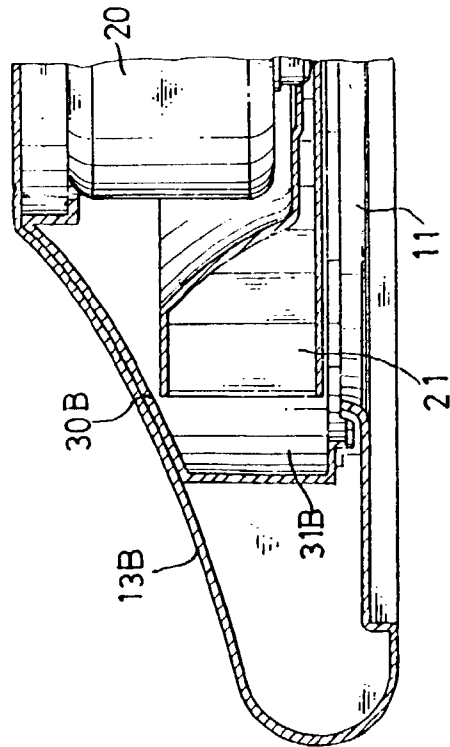


FIG . 6

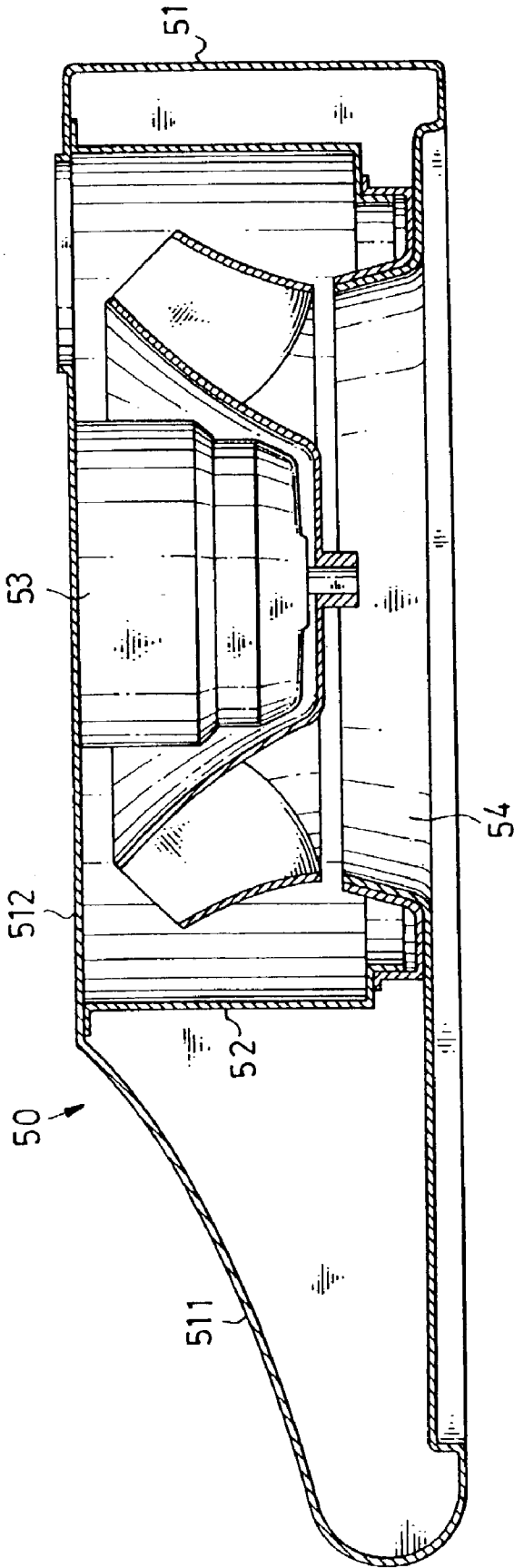


FIG. 7
PRIOR ART

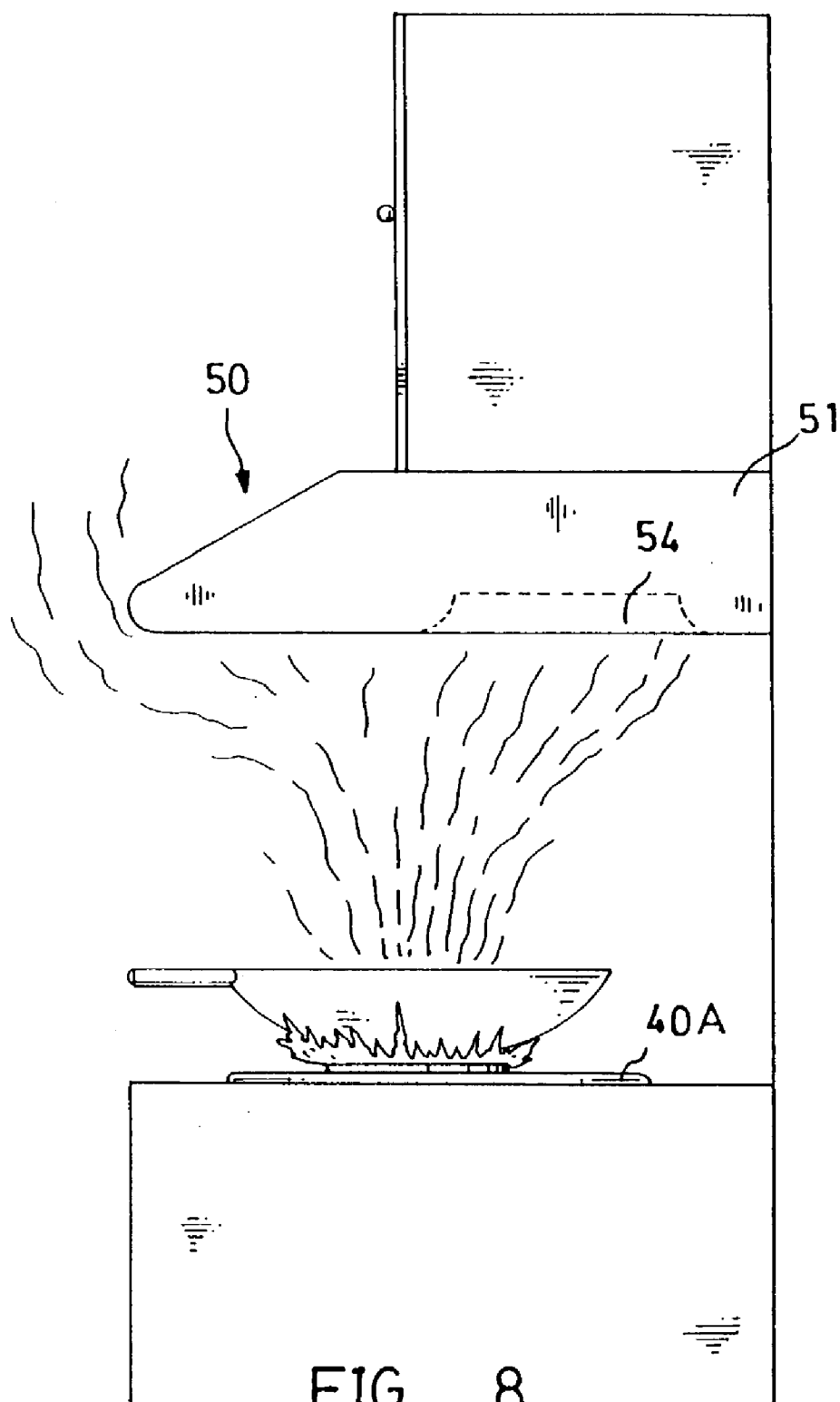


FIG. 8
PRIOR ART

VENTILATOR HAVING AN OPTIMUM AIR BOX

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a ventilator having an optimum air box, and more particularly to a ventilator having an optimum air box, wherein the smoke suction port of the outer hood aligns with the range exactly, so that the oily smoke produced from the range is sucked into the smoke suction port of the outer hood entirely and completely, thereby greatly enhancing the ventilating effect.

[0003] 2. Description of the Related Art

[0004] The ventilator usually comprises a fan motor that is operated at a high rotational speed, so as to drain the oily smoke contained in the kitchen outward, thereby achieving the ventilating effect.

[0005] A conventional ventilator **50** in accordance with the prior art shown in **FIGS. 7 and 8** comprises an outer hood **51**, an air box **52** and a fan motor **53**. The outer hood **51** has a top plate **512** and a front hood plate **511**. The outer hood **51** has a bottom formed with a smoke suction port **54**. The air box **52** and the fan motor **53** are mounted on the top plate **512**. As shown in **FIG. 8**, the smoke suction port **54** is located adjacent to the wall and is located rearward of the range **40A**, so that the oily smoke produced from the range **40A** cannot be directly sucked into the smoke suction port **54** of the outer hood **51** entirely and completely, thereby greatly decreasing the ventilating effect.

SUMMARY OF THE INVENTION

[0006] The present invention has arisen to mitigate and/or obviate the disadvantage of the conventional ventilator.

[0007] The primary objective of the present invention is to provide a ventilator having an optimum air box, wherein the smoke suction port of the outer hood aligns with the range exactly, so that the oily smoke produced from the range is sucked into the smoke suction port of the outer hood entirely and completely, thereby greatly enhancing the ventilating effect.

[0008] Another objective of the present invention is to provide a ventilator having an optimum air box, wherein the smoke suction port of the outer hood and the fan motor are displaced forward and are located at the front side of the outer hood, thereby enhancing the ventilating effect.

[0009] A further objective of the present invention is to provide a ventilator having an optimum air box, wherein the air box is provided with a receiving zone which is extended forward, so that the smoke suction port of the outer hood and the fan motor are displaced forward and are located above the range exactly, so that the oily smoke produced from the range is sucked into the smoke suction port of the outer hood entirely and completely, thereby greatly enhancing the ventilating effect.

[0010] A further objective of the present invention is to provide a ventilator having an optimum air box, wherein the air box is provided with a receiving zone which is extended forward, so that the top plate of the outer hood is contracted inward, and the front hood plate of the outer hood is also

contracted inward, thereby saving the storage space, and thereby enhancing the aesthetic quality of the ventilator.

[0011] In accordance with the present invention, there is provided a ventilator having an optimum air box, comprising an outer hood, an air box, and a fan motor, wherein:

[0012] the outer hood has a bottom having a front side formed with a smoke suction port, the outer hood has a front side formed with a front hood plate,

[0013] the air box is mounted in the outer hood, the air box has a front side provided with a receiving zone which is extended to a lower portion of an inner wall of the front hood plate of the outer hood; and

[0014] the fan motor is mounted on the front side of the air box and is located above the smoke suction port of the outer hood.

[0015] Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] **FIG. 1** is a perspective view of an air box of a ventilator in accordance with a first embodiment of the present invention;

[0017] **FIG. 2** is a side plan cross-sectional assembly view of the ventilator in accordance with the first embodiment of the present invention;

[0018] **FIG. 3** is a schematic side plan operational view of the ventilator in accordance with the first embodiment of the present invention;

[0019] **FIG. 4** is a perspective view of an air box of a ventilator in accordance with a second embodiment of the present invention;

[0020] **FIG. 5** is a partially cut-away side plan cross-sectional assembly view of a ventilator in accordance with a third embodiment of the present invention;

[0021] **FIG. 6** is a partially cut-away side plan cross-sectional assembly view of a ventilator in accordance with a fourth embodiment of the present invention;

[0022] **FIG. 7** is a side plan cross-sectional assembly view of a conventional ventilator in accordance with the prior art; and

[0023] **FIG. 8** is a schematic side plan operational view of the conventional ventilator in accordance with the prior art.

DETAILED DESCRIPTION OF THE INVENTION

[0024] Referring to the drawings and initially to **FIGS. 1 and 2**, a ventilator **A** in accordance with a first embodiment of the present invention comprises an outer hood **10**, an air box **30**, and a fan motor **20**.

[0025] The outer hood **10** has a bottom having a front side formed with a smoke suction port **11** and a top having a rear side formed with a smoke drainage port **12**. The outer hood **10** has a front side formed with a front hood plate **13**.

[0026] The air box **30** is mounted in the outer hood **10**. The air box **30** has a top plate **32** having a front side formed with a receiving seat **321** and a rear side formed with an air outlet **322** aligning with the smoke drainage port **12** of the outer hood **10**. The fan motor **20** is mounted in the receiving seat **321** of the air box **30** and includes a rotation vane **21**. The air box **30** has a bottom plate having a front side formed with an air inlet **33** aligning with the smoke suction port **11** of the outer hood **10**.

[0027] In operation, when the fan motor **20** is operated at a determined rotational speed, the oil smoke is sucked through the smoke suction port **11** of the outer hood **10** into the air inlet **33** of the air box **30**, and is then drained outward from the smoke drainage port **12** of the outer hood **10** through the air outlet **322** of the air box **30**, so as to drain the oily smoke contained in the kitchen outward, thereby achieving the ventilating effect.

[0028] The air box **30** has a front side provided with a receiving zone **31** which is extended to a lower portion of an inner wall of the front hood plate **13** of the outer hood **10**. Preferably, the receiving zone **31** of the air box **30** has a front edge formed with a chamfered corner **310** as shown in FIG. 2, thereby facilitating assembly of the air box **30** and the rotation vane **21** of the fan motor **20**. Preferably, the air box **30** is integrally formed with the receiving zone **31** which is extended forward. Alternatively, the air box **30** and the receiving zone **31** are separated from each other and are formed by two separate plates.

[0029] In assembly, by provision of the receiving zone **31** which is extended to the lower portion of the inner wall of the front hood plate **13** of the front side of the outer hood **10**, the fan motor **20** is mounted on the front side of the air box **30**, and the front side of the rotation vane **21** of the fan motor **20** is received in the receiving zone **31** of the air box **30**. At the same time, the fan motor **20** is mounted on the front side of the air box **30**, so that the smoke suction port **11** of the outer hood **10** is exactly located under the fan motor **20** as shown in FIG. 2.

[0030] In such a manner, the smoke suction port **11** of the outer hood **10** and the fan motor **20** are displaced forward and are located at the front side of the outer hood **10** as shown in FIG. 2. Thus, as shown in FIG. 3, the smoke suction port **11** of the outer hood **10** aligns with the range **40** exactly, so that the oily smoke produced from the range **40** is sucked into the smoke suction port **11** of the outer hood **10** entirely and completely, thereby greatly enhancing the ventilating effect.

[0031] Accordingly, the ventilator in accordance with the present invention has the following advantages.

[0032] 1. The air box **30** is provided with a receiving zone **31** which is extended forward, so that the smoke suction port **11** of the outer hood **10** and the fan motor **20** are displaced forward and are located above the range **40** exactly, so that the oily smoke produced from the range **40** is sucked into the smoke suction port **11** of the outer hood **10** entirely and completely, thereby greatly enhancing the ventilating effect.

[0033] 2. The air box **30** is provided with a receiving zone **31** which is extended forward, so that the top plate of the outer hood **10** is contracted inward, and the front hood plate **13** of the outer hood **10** is also contracted inward, thereby

saving the storage space, and thereby enhancing the aesthetic quality of the ventilator.

[0034] Referring to FIG. 4, a ventilator in accordance with a second embodiment of the present invention is shown, wherein the front side of the air box **30A** is provided with two receiving zones **31A**. In addition, the air box **30A** has a top plate **32A** having a front side formed with two receiving seats **321A** and a rear side formed with an air outlet **322A**. Further, the air box **30A** has a bottom plate having a front side formed with two air inlets **33A**.

[0035] Referring to FIG. 5, a ventilator in accordance with a third embodiment of the present invention is shown, wherein the receiving zone **31B** of the air box **30B** has a front side having a top portion formed with a concave shape so as to mate with the configuration of the front hood plate **13B**.

[0036] Referring to FIG. 6, a ventilator in accordance with a fourth embodiment of the present invention is shown, wherein the receiving zone **31C** of the air box **30C** has a front side having a top portion formed with an oblique shape so as to mate with the configuration of the front hood plate **13C**.

[0037] Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.

What is claimed is:

1. A ventilator having an optimum air box, comprising an outer hood, an air box, and a fan motor, wherein:

the outer hood has a bottom having a front side formed with a smoke suction port, the outer hood has a front side formed with a front hood plate;

the air box is mounted in the outer hood, the air box has a front side provided with a receiving zone which is extended to a lower portion of an inner wall of the front hood plate of the outer hood; and

the fan motor is mounted on the front side of the air box and is located above the smoke suction port of the outer hood.

2. The ventilator having an optimum air box in accordance with claim 1, wherein the outer hood has a top having a rear side formed with a smoke drainage port, and the air box has a top plate having a rear side formed with an air outlet aligning with the smoke drainage port of the outer hood.

3. The ventilator having an optimum air box in accordance with claim 1, wherein the air box has a top plate having a front side formed with a receiving seat for receiving the fan motor.

4. The ventilator having an optimum air box in accordance with claim 1, wherein the air box has a bottom plate having a front side formed with an air inlet aligning with the smoke suction port of the outer hood.

5. The ventilator having an optimum air box in accordance with claim 1, wherein the fan motor includes a rotation vane having a front side received in the receiving zone of the air box.

6. The ventilator having an optimum air box in accordance with claim 1, wherein the receiving zone of the air box has a front edge formed with a chamfered corner.

7. The ventilator having an optimum air box in accordance with claim 1, wherein the air box is integrally formed with the receiving zone which is extended forward.

8. The ventilator having an optimum air box in accordance with claim 1, wherein the air box and the receiving zone are separated from each other and are formed by two separate plates.

9. The ventilator having an optimum air box in accordance with claim 1, wherein the smoke suction port of the outer hood and the fan motor are displaced forward and are located at the front side of the outer hood.

10. The ventilator having an optimum air box in accordance with, claim 1, wherein the front side of the air box is

provided with two receiving zones, the air box has a top plate having a front side formed with two receiving seats and a rear side formed with an air outlet, and the air box has a bottom plate having a front side formed with two air inlets.

11. The ventilator having an optimum air box in accordance with claim 1, wherein the receiving zone of the air box has a front side having a top portion formed with a concave shape so as to mate with the configuration of the front hood plate.

12. The ventilator having an optimum air box in accordance with claim 1, wherein the receiving zone of the air box has a front side having a top portion formed with an oblique shape so as to mate with the configuration of the front hood plate.

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