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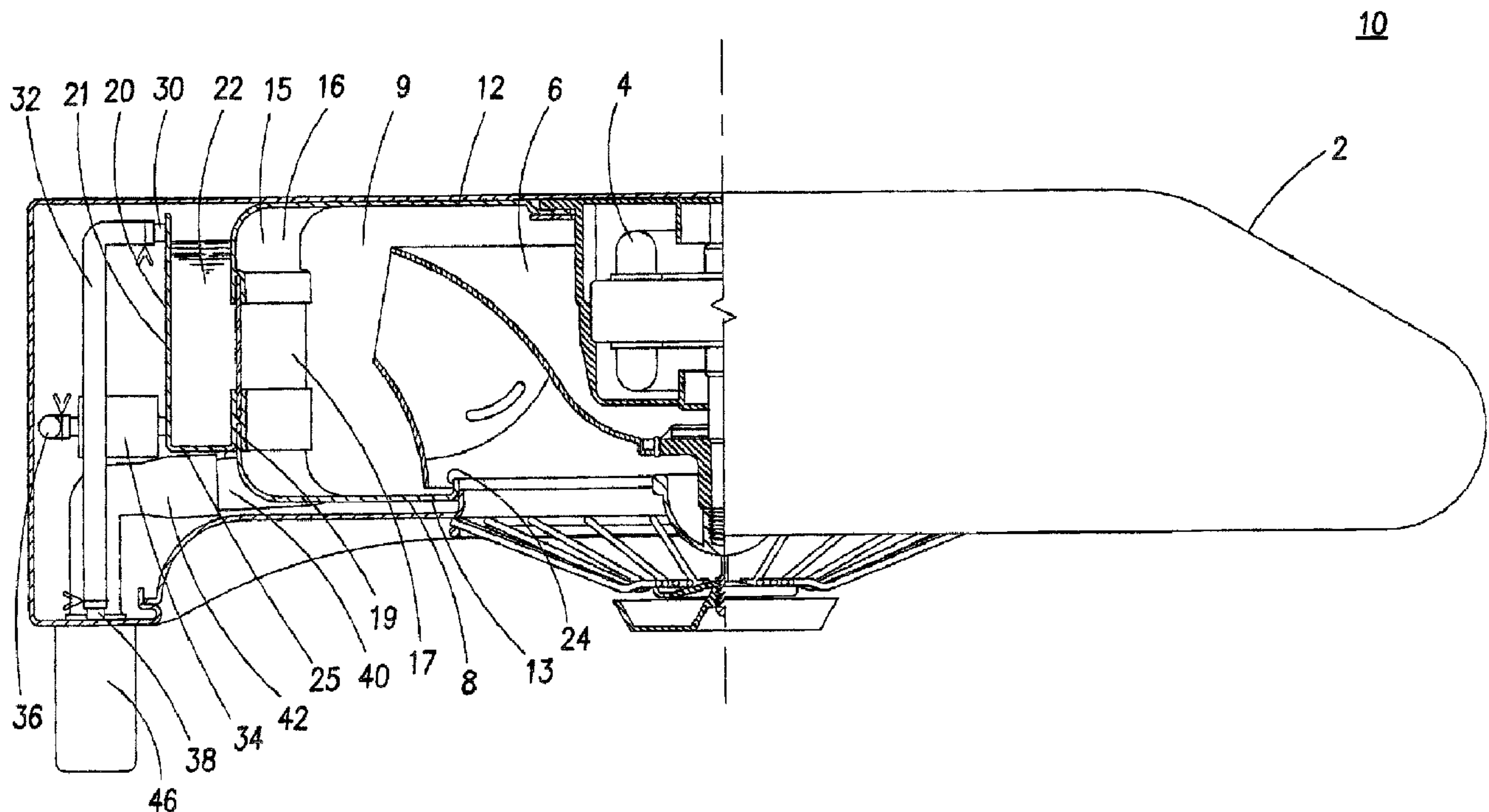
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(54) Titre : CARTER DE MOTEUR DE HOTTE DE CUISINE AVEC RESERVOIR CHAUFFANT INTEGRAL DE LIQUIDE DE NETTOYAGE

(54) Title: RANGE HOOD MOTOR HOUSING WITH INTEGRAL CLEANING FLUID HEATING RESERVOIR



(57) Abrégé/Abstract:

A motor housing having an integral cleaning fluid heating reservoir for use in a range hood. The motor housing comprises top and bottom sections connectable to one another. The top section has an upper surface and a perimeter side surface. A floor and a pair of end surfaces extend substantially perpendicularly from the perimeter side surface. An outer side surface extends from the floor and pair of end surfaces such that the outer side surface is spaced apart from the perimeter side surface, thereby forming the heating reservoir. The motor housing is made substantially of plastic with at least one portion of heat conducting material such as metal formed in the perimeter side surface in order to conduct heat from the motor housing interior to cleaning fluid within the heating reservoir.

ABSTRACT OF THE INVENTION

A motor housing having an integral cleaning fluid heating reservoir for use in a range hood. The motor housing comprises top and bottom sections connectable to one
5 another. The top section has an upper surface and a perimeter side surface. A floor and a pair of end surfaces extend substantially perpendicularly from the perimeter side surface. An outer side surface extends from the floor and pair of end surfaces such that the outer side surface is spaced apart from the perimeter side surface, thereby forming the heating reservoir. The motor housing is made substantially of
10 plastic with at least one portion of heat conducting material such as metal formed in the perimeter side surface in order to conduct heat from the motor housing interior to cleaning fluid within the heating reservoir.

TITLE OF THE INVENTION

5 **RANGE HOOD MOTOR HOUSING WITH INTEGRAL CLEANING FLUID HEATING
RESERVOIR**

FIELD OF THE INVENTION

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The present invention relates to a motor housing for use in kitchen range hoods, and more particularly to a motor housing having an integral cleaning fluid heating reservoir.

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BACKGROUND OF THE INVENTION

Range hoods are used above cooking surfaces to remove grease, common odors and hazardous gases created during the cooking process. Typically, range hoods for domestic use have a pair of motors horizontally installed in a motor housing within the hood body. Each motor drives a fan. The fans draw air from the cooking area below and force it through the motor housing to ventilation piping.

As the vaporized grease in the entrained air travels through the motor housing, some of it condenses on the inside walls of the housing and may accumulate. It is therefore known to provide a cleaning fluid under pressure in order to clean the interior of the exhaust system.

It is also known in the art to place a refillable reservoir within the interior of the range hood so as to provide an internal supply of cleaning fluid. The reservoir is typically

constructed of plastic in order to remove any concerns with respect to rust and is attached to the upper surface of the range hood body, towards the front of the range hood and separate from the motor housing. Fluid delivery means connected to the reservoir deliver fluid under pressure from the reservoir to the interior surfaces of the range hood, in particular the motor housing. The reservoir may be filled through a coverable hole located in the range hood exterior. Once used, the cleaning fluid and any grease travelling therewith drains to an external grease receptacle.

Because the reservoir is spaced apart from the motor housing, the temperature of the fluid contained within it remains at approximately room temperature. However, cleaning fluid becomes more effective at removing grease as its temperature increases.

It is therefore an object of an embodiment of the present invention to provide a range hood in which the cleaning fluid is heated above room temperature.

Other objects of the invention will be apparent from the description that follows.

20

SUMMARY OF THE INVENTION

According to the present invention there is provided a motor housing for enclosing a motor and fan for use in a range hood for venting air from above a cooking surface. The motor housing comprises a top section and a bottom section, the sections being adapted to connect together. The top section has an upper surface, a perimeter side surface and a cleaning fluid heating reservoir.

The heating reservoir comprises an outer side wall, a pair of end walls and a floor. The end walls and the floor depend from and are substantially perpendicular to the perimeter side surface. The outer side wall depends from the pair of end walls and

the floor such that the outer side wall is spaced apart from and shaped substantially identically to a corresponding portion of the perimeter side surface.

5 In another aspect, the heating reservoir further comprises an overflow outlet. A further outlet connects to a pump for pumping the cleaning fluid to spray nozzles which act to direct a spray of heated cleaning fluid against selected surfaces of the range hood.

10 The motor housing is preferably made substantially of plastic and has a portion made of heat conducting material. The heat conducting material, preferably a piece of metal molded into the plastic is positioned in at least the perimeter side surface of the motor housing. The heat conducting material may also form part of the perimeter side surface and the upper surface.

15 Other aspects of the invention will be appreciated by reference to the detailed description of the preferred embodiment and to the claims that follow.

BRIEF DESCRIPTION OF THE DRAWINGS

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These and other features of the invention will become more apparent from the following description in which reference is made to the appended drawings and wherein:

25 Fig. 1 is a perspective view of a motor housing with an integral cleaning fluid heating reservoir according to the preferred embodiment of the invention;

Fig. 2 is a sectional view taken along line 2-2 of Fig. 1;

Fig. 3 is a sectional view of the top section of the motor housing shown in Fig. 1 taken along line 3-3 of Fig. 1;

Fig. 4 is a sectional view of an alternative embodiment of a motor housing with an integral cleaning fluid heating reservoir.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

10 The preferred embodiment of a motor housing 12 having an integral cleaning fluid heating reservoir 20 according to the invention for use in a kitchen range hood 10 is shown in Figs. 1 and 2. An alternative embodiment of a motor housing and cleaning fluid heating reservoir is shown in Fig. 4.

15 Figs. 1 and 2 show a motor housing 12 having the cleaning fluid heating reservoir 20 of the present invention. The motor housing 12 defines an enclosure and is mountable within a further enclosure formed by a range hood body 2. The motor housing has a top surface 14 a bottom surface 8 and a perimeter side wall 16, which when viewed from the top of the motor housing generally defines a figure-eight. The
20 interior of the housing 12 is separated into two substantially similar, separate air chambers by divider wall 7, as shown in Fig. 1.

Each respective chamber has an air inlet defined in the bottom surface 8 of the motor housing 12 and a ventilation hole 9. Each chamber is designed to accommodate a
25 motor 4 and fan 6 which act to draw hot, grease laden air from above the cooking surface, into the chambers of the motor housing 12. Once inside the motor housing, the air is forced out the air outlet ventilation holes 9 to be vented to an external location.

The motor housing 12 is preferably formed of heat resistant plastic and has a top section 11 and a bottom section 13. The top and bottom sections 11, 13 are formed so as to be fitted together snugly at joint 19. Top section 11 has top surface 14, perimeter side surface 15 and integral cleaning fluid heating reservoir 20. Bottom
5 section 13 has bottom surface 8, outer side surface 18 and inner side surface 24. The top edge of outer side surface 18 is adapted to be snugly fitted in joint 19. Inner side surface 24, which defines the inlet opening of the motor housing is positioned radially inwards in relation to the lower rim of the fan.

10 Inner side surface 24 acts as a barrier for any grease accumulating in the motor housing, preventing it from draining back through the inlet opening to the cooking surface below. The bottom surface 8 is sloped from front to rear so that grease drains to the grease outlet 40 where it travels through grease conduit 42 to external waste receptacle 46.

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The cleaning fluid heating reservoir 20 forms an integral part of top section 11 of the motor housing. Heating reservoir 20 is formed by side surface 15, an outer wall 21, a pair of end walls 23 and a floor 25. Fluid 22 fills the interior of the reservoir bordered by perimeter side surface 15, outer wall 21, end walls 23 and floor 25. Preferably, the
20 pair of end walls and the floor extend from and are substantially perpendicular to the perimeter side surface 15. Outer wall 21 in turn extends from the pair of end walls 23 and the floor 25 such that outer wall 21 is spaced apart from and, preferably, shaped substantially identically to a corresponding portion of the perimeter side surface 15. While the reservoir 20 is shown extending from the sides of the motor housing about
25 the rear, it could be positioned in a variety of positions about the motor housing. There could also be more than one heating reservoir spaced about the perimeter of the motor housing.

Preferably, cleaning fluid is poured through an opening in the range hood exterior (not
30 shown) through a hose (not shown) and into the reservoir 20. It is also contemplated

that the heating reservoir could be filled by way of an additional, separate cleaning fluid reservoir. Cleaning fluid from the additional reservoir would be pumped into the heating reservoir on an as needed basis. In this manner, the range hood's capacity for cleaning fluid can be increased, thereby reducing the number of times that it must be refilled. The heating reservoir is prevented from overflowing by way of overflow outlets 30 located below the top edge of the reservoir 20. Once the level of the fluid 22 within the reservoir reaches the outlets 30, it drains through conduits 32 to external receptacle 46.

10 In order to provide suitable conductance of the heat energy from within the motor housing to the fluid 22 in the reservoir 20, at least a portion of the motor housing is made of a heat conducting material. Preferably, a piece of heat conducting material such as metal plate 17 is molded into the top section 11, thereby forming a portion of the side surface 15. Preferably there will be a plurality of metal pieces interspersed
15 along the side surface 15 as shown in Fig. 3, where the metal plates 17 molded into the plastic of top section 11 are separated from one another by the plastic within which they are seated.

In addition, the size of the heat conducting portion may be varied. For example, in
20 the alternative embodiment shown in Fig. 4, the metal piece 47 forms a portion of the side surface and of the top surface 14 of the top section 11 of the motor housing 12. Because there is a greater amount of metal to be heated by the incoming heated air, more heat energy can be transferred to the cleaning fluid within the heating reservoir.

25 The presence of the heat conducting metal plate(s) aid(s) in the transfer of heat energy from within the motor housing to fluid contained within the cleaning fluid reservoir. Hot air from a cooking surface is drawn into the motor housing. As this hot air circulates through the motor housing interior before being forced out the ventilation holes, it acts to heat the surfaces it comes into contact with. The heat energy
30 absorbed by the metal is transferred to the cleaning fluid within the cleaning fluid

reservoir thereby raising the temperature of the fluid above that of normal room temperature. By elevating the temperature of the cleaning fluid 22, the fluid becomes more effective at removing grease that it comes into contact with when used for cleaning purposes.

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Fluid delivery means or pumps 34 connected to the heating chamber 20 at a spray outlet deliver the cleaning fluid under pressure from the heating reservoir to the interior surfaces of the range hood, in particular the motor housing. Activation of pump 34 results in cleaning fluid being pumped through conduit 36 to spray nozzles
10 (not shown) which act to direct a spray of cleaning fluid against surfaces of the range hood interior requiring cleaning, such as the motor housing interior and the fan.

The heating reservoir utilizes only existing space within the range hood body, so the overall size of the range hood need not be increased in order to accommodate it.

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It is contemplated that the preferred and alternative embodiments of a motor housing heating chamber having an integral cleaning fluid heating reservoir according to the invention may be adapted to be used in conjunction with a variety of motor housing designs beyond that which was disclosed herein. In particular, it is contemplated that
20 the inlet opening in the motor housing could be varied such that it is adapted to be connected to a separate grease tray as is known in the art.

It will be appreciated by those skilled in the art that the preferred and alternative embodiments have been described in some detail but that certain modifications may
25 be practiced without departing from the principles of the invention.

CLAIMS

What is claimed is:

- 5 1. A motor housing for enclosing a motor and fan for use in a range hood for venting air from above a cooking surface, said motor housing comprising:

a top section and a bottom section, said top and bottom sections being adapted to connect together;

10

said top section having an integrally formed cleaning fluid heating reservoir;

said top section comprising an upper surface, a perimeter side surface extending downwards from said upper surface, a pair of end walls and a floor extending
15 outwards from said perimeter side surface to an outer wall, said outer wall being spaced apart from said perimeter side wall; and

wherein said perimeter side surface, said pair of end walls, said floor and said outer wall defining said cleaning fluid heating reservoir.

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2. The motor housing of claim 1 wherein said pair of end walls and said floor are substantially perpendicular to said perimeter side surface.

3. The motor housing of claim 2 wherein said heating reservoir further comprises
25 an overflow outlet positioned at the top of the reservoir.

4. The motor housing of claim 1, 2, or 3 wherein said motor housing is made substantially of plastic.

5. The motor housing of claim 4 wherein a portion of said perimeter side surface is made of a heat conducting material.

6. The motor housing of claim 4 wherein a portion of said upper and perimeter
5 side surfaces is made of a heat conducting material.

7. The motor housing of claim 5 wherein said heat conducting material is metal.

8. The motor housing of claim 6 wherein said heat conducting material is metal.

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9. The motor housing of claim 8 wherein said metal is molded into said plastic.

10. A motor housing for use in a range hood for venting air from above a cooking surface, said motor housing comprising:

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top, bottom and perimeter side surfaces defining an enclosure for mounting a motor and fan;

20

at least one air outlet in said top surface and at least one air inlet in said bottom surface; and

25

a cleaning fluid heating reservoir integrally formed with and extending outward from said perimeter side surface, said reservoir defined by said perimeter side surface, a pair of end walls and a floor extending outwards from said perimeter side surface, and an outer wall, said outer wall extending from said pair of end wall and said floor and being spaced apart from said perimeter side wall.

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11. The motor housing of claim 10 wherein said motor housing is made substantially of plastic with at least one portion of heat conducting material forming a portion of said perimeter side surface.

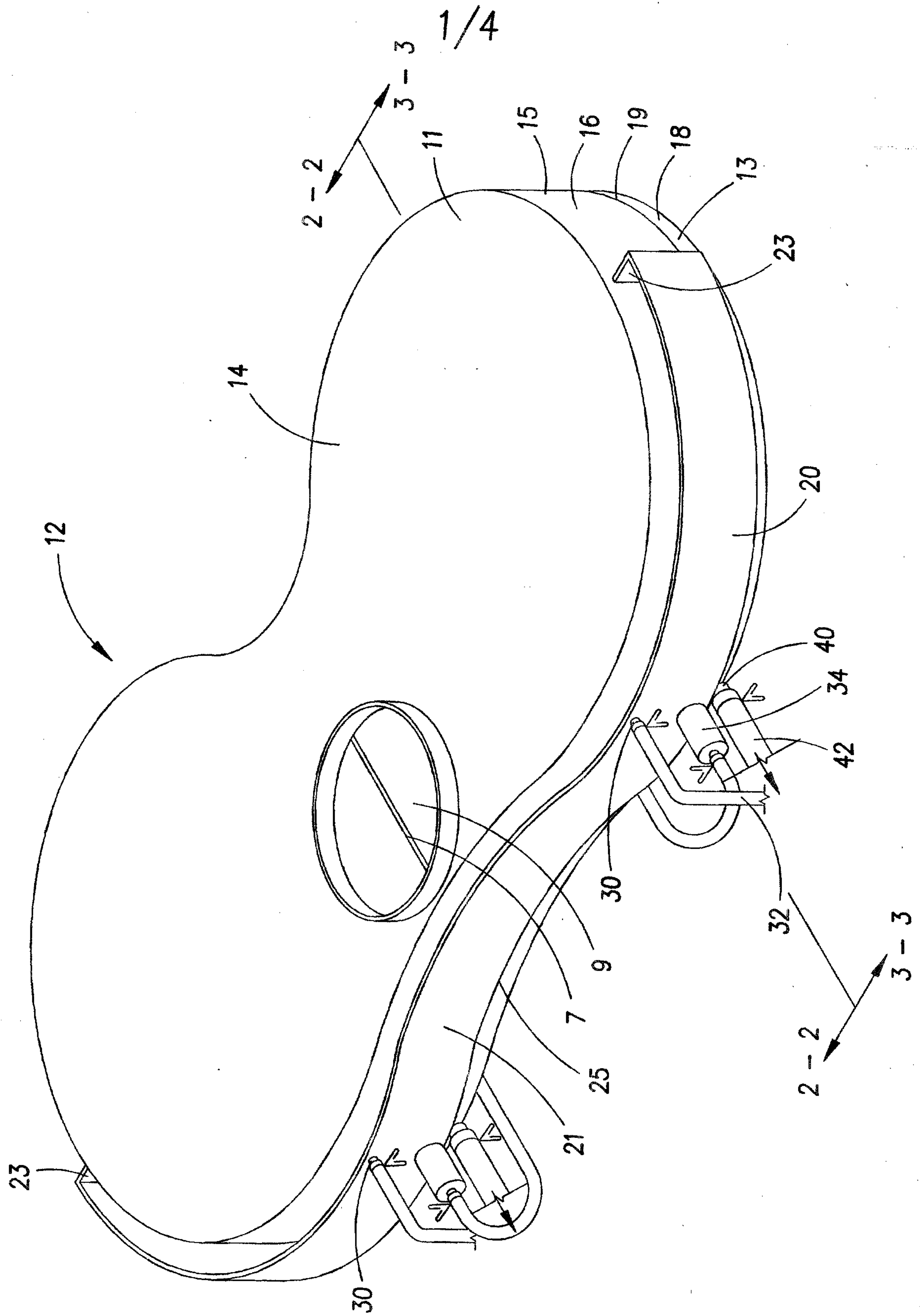


FIG. 1

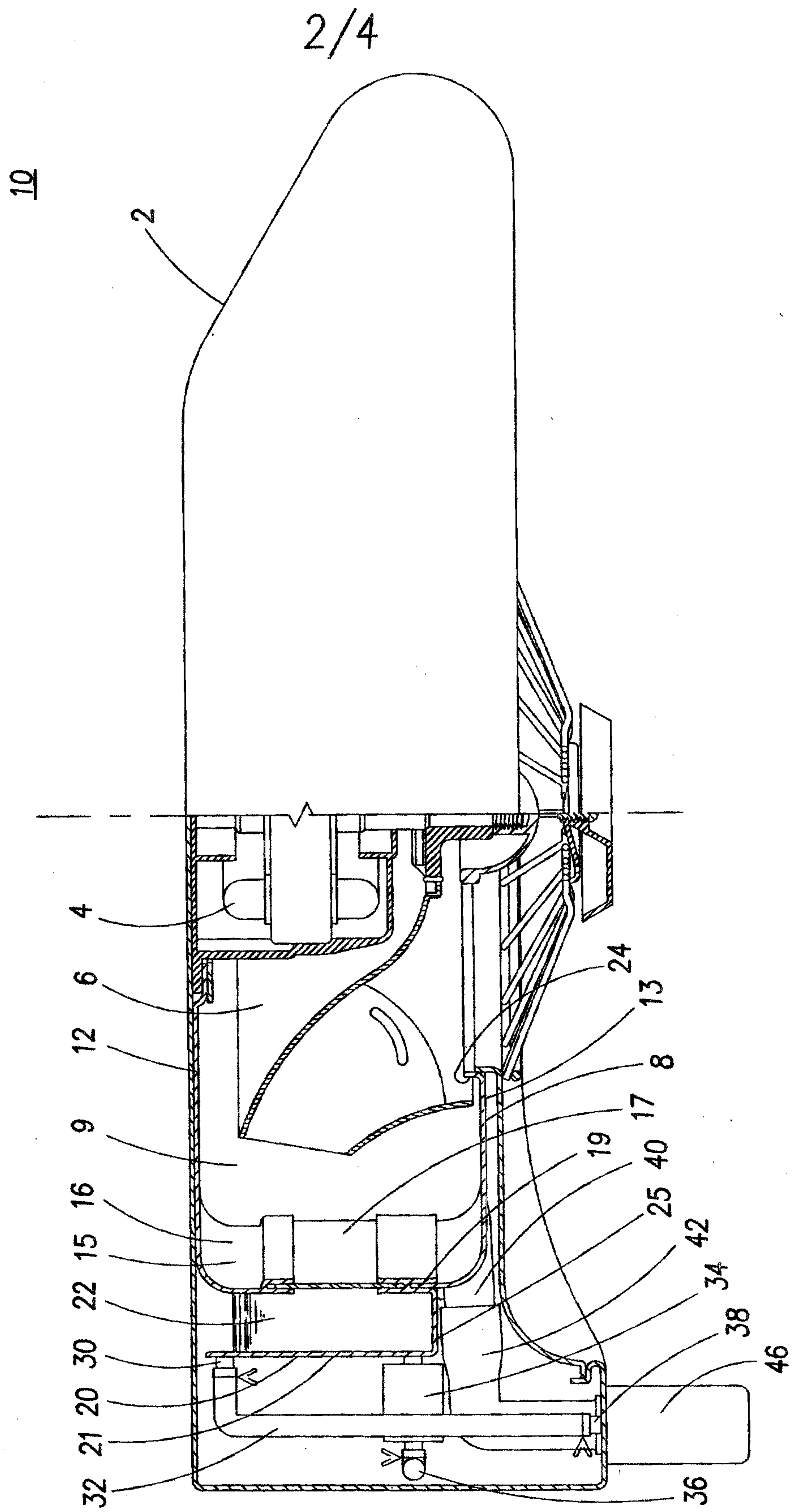


FIG. 2

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11

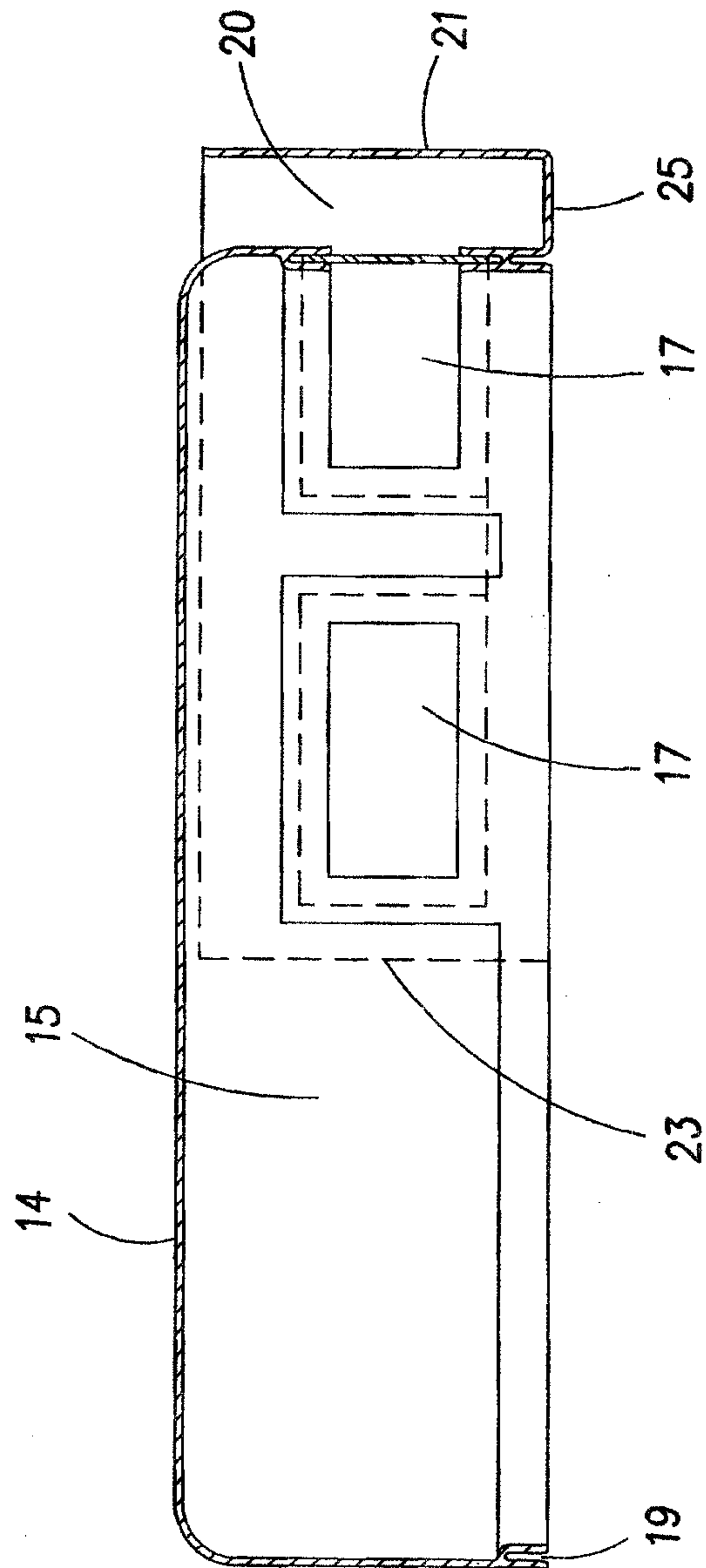


FIG. 3

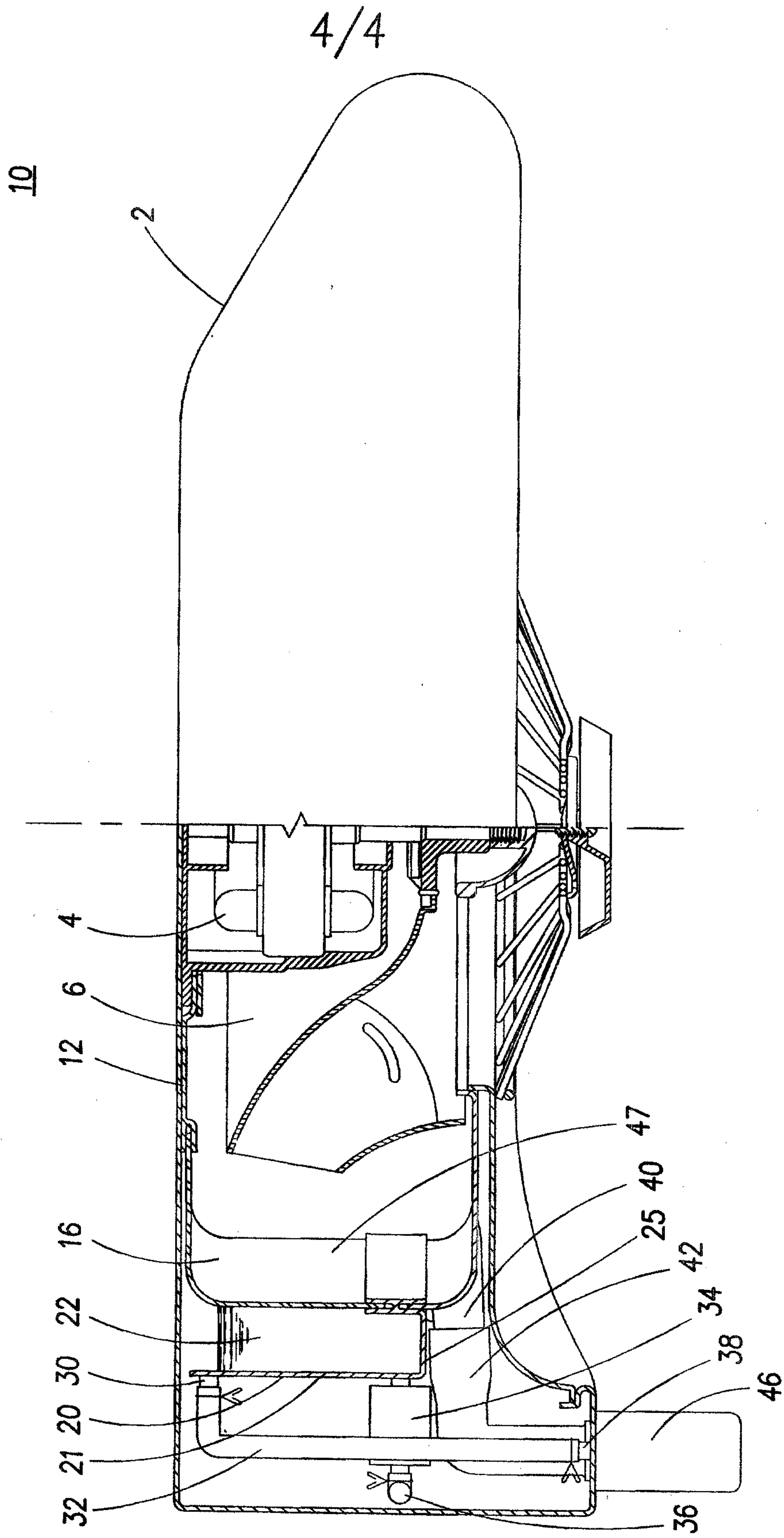


FIG. 4

