Office de la Propriété Intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An agency of Industry Canada

CA 2530835 C 2013/12/17

(11)(21) 2 530 835

(12) BREVET CANADIEN
CANADIAN PATENT

(13) C

(86) Date de dépôt PCT/PCT Filing Date: 2004/06/30
(87) Date publication PCT/PCT Publication Date: 2005/01/20
(45) Date de délivrance/Issue Date: 2013/12/17
(85) Entrée phase nationale/National Entry: 2005/12/29
(86) N° demande PCT/PCT Application No.: US 2004/021138
(87) N° publication PCT/PCT Publication No.: 2005/004681
(30) Priorité/Priority: 2003/06/30 (US60/483,715)

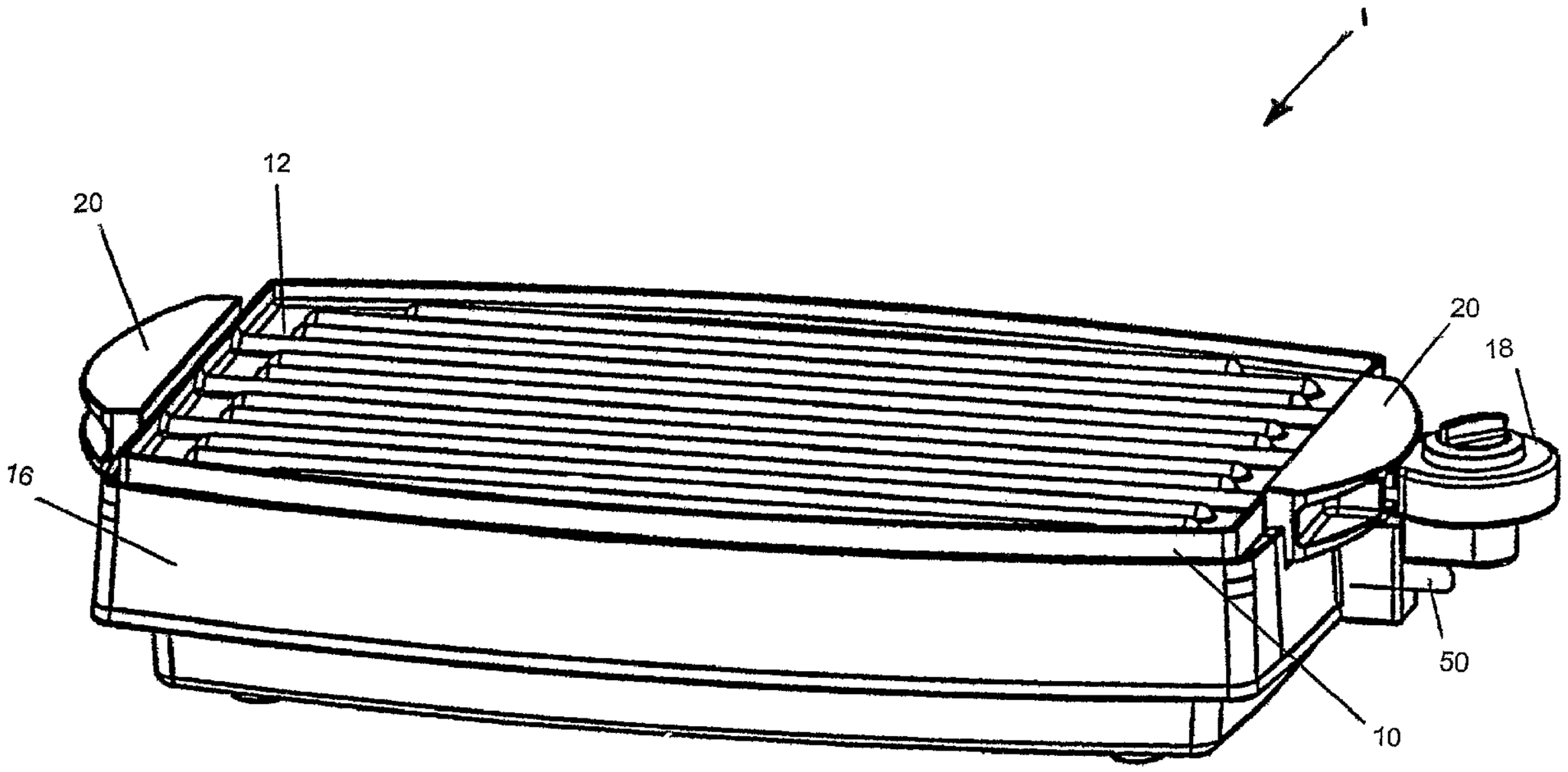
(51) Cl.Int./Int.Cl. *A47J 37/00* (2006.01)

(72) Inventeurs/Inventors:
STEINBERG, HOWARD I., US;
CARILLO, MICHELLE, US;
WANAT, DAVID J., US;
ORENT, JILL KREUTZER, US

(73) Propriétaire/Owner:
CONAIR CORPORATION, US

(74) Agent: SIM & MCBURNEY

(54) Titre : APPAREIL DE CUISSON REVERSIBLE
(54) Title: REVERSIBLE COOKING APPLIANCE



(57) Abrégé/Abstract:
A cooking appliance (1) is provided. The cooking appliance (1) has a heating plate (10) with at least one cooking surface (12), a heater (14) for heating the heating plate, a support structure (16) for supporting the heating plate, and an interface mechanism (46) that, in response to the heating plate being positioned on the support structure in a predetermined position, is actuated to permit heating of the heater.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 January 2005 (20.01.2005)

PCT

(10) International Publication Number
WO 2005/004681 A3

(51) International Patent Classification[7]: A47J 37/00

(21) International Application Number:
PCT/US2004/021138

(22) International Filing Date: 30 June 2004 (30.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/483,715 30 June 2003 (30.06.2003) US

(71) Applicant *(for all designated States except US)*: **CONAIR CORPORATION** [US/US]; One Cummings Point Road, Stamford, CT 06902 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **STEINBERG, Howard, I.** [US/US]; 121 Morningside Court, Shelton, CT 06484 (US). **CARILLO, Michelle** [US/US]; 97 Richards Ave., C-8, Norwalk, CT 06854 (US). **WANAT, David, J.** [US/US]; 37 Prann Court, Meriden, CT 06450 (US). **ORENT, Jill, Kreutzer** [US/US]; 4 Oakwood Lane, Westport, CT 06880 (US).

(74) Agent: **RUGGIERO, Charles, N., J.**; Ohlandt, Greeley, Ruggiero & Perle, LLP, One Landmark Square, Stamford, CT 06901-2682 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

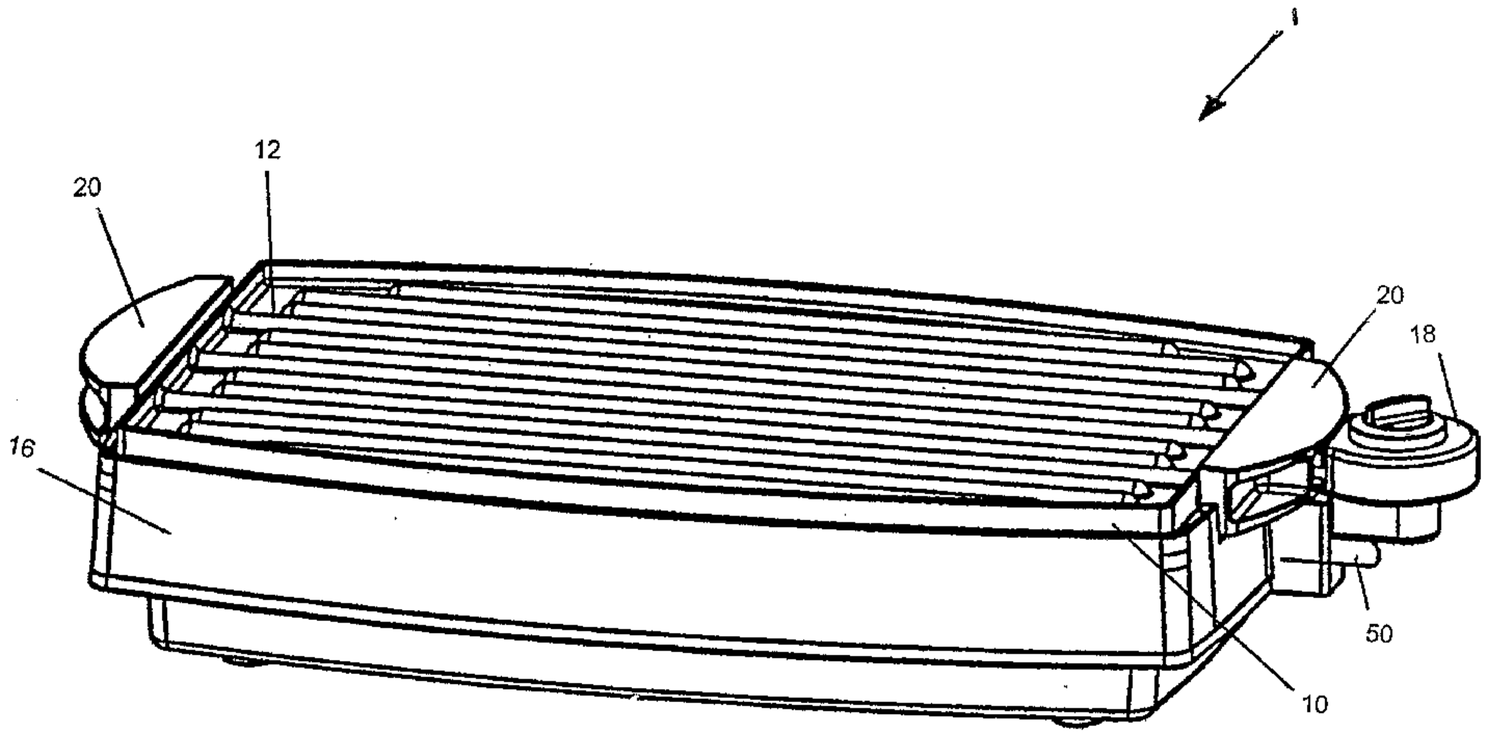
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
21 July 2005

[Continued on next page]

(54) Title: REVERSIBLE COOKING APPLIANCE



(57) Abstract: A cooking appliance (1) is provided. The cooking appliance (1) has a heating plate (10) with at least one cooking surface (12), a heater (14) for heating the heating plate, a support structure (16) for supporting the heating plate, and an interface mechanism (46) that, in response to the heating plate being positioned on the support structure in a predetermined position, is actuated to permit heating of the heater.

WO 2005/004681 A3

WO 2005/004681 A3

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

REVERSIBLE COOKING APPLIANCE

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention generally relates to cooking appliances. More particularly, the present invention relates to cooking appliances having more than one cooking surface.

2. Description of the Related Art

[0002] Different cooking appliances that accommodate different cooking styles are known in the art. For example, it is known to provide various cooking appliances with a flat cooking surface in order to facilitate griddling. Other types of surfaces are also known, such as a corrugated surface for grilling. Typically, the cooking surface of the different cooking appliances is permanently mounted to a base or support structure. Consequently, these conventional cooking appliances tend to be somewhat awkward and inconvenient to use and store. Efforts have been made to improve upon these conventional cooking appliances. Notwithstanding, there remains a need for an improved cooking appliance that is more effective and efficient in use and/or storage.

SUMMARY OF THE INVENTION

[0003] It is an object of the present invention to provide a cooking appliance that effectively and efficiently cooks and is conveniently stored.

[0004] It is another object of the present invention to provide a cooking appliance that has one or more two-sided heating plates with a heater therein.

[0005] It is still another object of the present invention to provide a cooking appliance having a heating plate that is reversible, having at least two different cooking surfaces.

[0006] It is yet another object of the present invention to provide a cooking appliance having one or more heating plates that are removable.

[0007] It is still yet another object of the present invention to provide a cooking appliance having one or more heating plates that are sealed or insulated to be waterproof.

[0008] It is yet still another object of the present invention to provide a cooking appliance that has a support or base for cooperating with the one or more heating plates so that the support or base directly supports the one or more heating plates.

[0009] It is even still another object of the present invention to provide a cooking appliance having at least one heating plate with a flat griddle surface in a first position and a corrugated grilling surface in a second position.

[0010] It is even yet another object of the present invention to provide a cooking appliance that minimizes the accumulation of grease on the cooking surfaces thereof during use.

[0011] It is a further object of the present invention to provide a cooking appliance that is dishwasher safe.

[0012] It is a still further object of the present invention to provide a cooking appliance that has a removable collecting tray for efficiently collecting and easily removing cooking residue.

[0013] It is a yet further object of the present invention to provide a cooking appliance that has a safety interlock cooperative with a temperature controller for preventing heating of the one or more heating plates when the one or more heating plates are not properly situated with respect to the base.

[0014] These and other objects and advantages of the present invention are achieved by a cooking appliance having at least one, preferably removable, heating plate with one or more cooking surfaces on either one or both sides thereof, and with a heater being integral therein. The at least one heating plate has a drainage system associated therewith and in cooperation with one or more collection reflectors or trays. The cooking appliance has a base or support structure cooperative with the at least one heating plate to provide support for and/or to suspend the at least one heating plate with respect to a supporting surface. The support structure receives and retains the tray (s) so that the trays can cooperate with the drainage system to collect cooking residue. Still further, the cooking appliance preferably cooperates with a controller that controls the operation thereof. The controller has an interface switch that controls the heating of the at least one heating plate.

[0015] Thus, the present invention provides for a safe, effective and efficient cooking appliance operable to accomplish a variety of different cooking operations.

[0015a] In accordance with an aspect of the present invention, there is provided a cooking appliance comprising: a heating plate having at least one cooking surface; a heater for heating said heating plate; a support structure for supporting said heating plate; and an interface mechanism comprising an interface control switch and an actuator that, in response to said heating plate being positioned on said support structure in a predetermined position, is actuated to permit activation of said heater.

[0015b] In accordance with another aspect of the present invention, there is provided a cooking appliance comprising: a heating plate; a heater for heating said heating plate; a support structure for supporting said heating plate; and an interface

mechanism comprising an interface control switch and an actuator that, in response to said heating plate being positioned on said support structure in a predetermined position, is actuated to permit activation of said heater, wherein said heating plate is reversible and has at least one cooking surface on either side thereof.

[0015c] In accordance with another aspect of the present invention, there is provided a cooking appliance comprising: a heating plate having at least one cooking surface; a heater embedded internally in said heating plate for heating said heating plate; a support structure for supporting said heating plate; and an interface mechanism comprising an interface control switch and an actuator that, in response to said heating plate being positioned on said support structure in a predetermined position, is actuated to permit activation of said heater; and a controller for controlling a setting for said heater, wherein said heating plate is reversible and has at least one cooking surface on either side thereof.

[0015d] In accordance with another aspect of the present invention, there is provided a cooking appliance comprising a base adapted to rest on a generally flat surface, said base comprising a floor and four sidewalls; a removable and reversible cooking plate having two cooking surfaces, one on either side thereof, for transferring heat to food product placed on said cooking surface; a heat element embedded in said cooking plate for generating heat from electrical energy and transferring said heat to said cooking surfaces; an electrical conductor socket adapted to plug into said cooking plate to deliver electrical energy to said appliance; a control dial residing on said conductor socket for controlling heat generated by said heat element; and a mechanical switch actuator formed as a horizontally extending member that extends outwardly from one of said sidewalls and that is adapted to activate said conductor socket to enable electrical energy to be delivered to said appliance when said socket is positioned in contact with said actuator in a predetermined position, and to disable electrical energy preventing its delivery to said appliance when said socket is positioned out of said predetermined position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Other and further objects, advantages and features of the present invention will be understood by reference to the following specification in conjunction with the accompanying drawings, in which like reference characters denote like elements of similar structure.

[0017] Fig. 1 is a front perspective view of an exemplary cooking appliance in accordance with the present invention;

[0018] Fig. 2 is top plan view of the cooking appliance of Fig. 1;

[0019] Fig. 3 is a side view of the cooking appliance of Fig. 1;

[0020] Fig. 4 is a first end view of the cooking appliance of Fig. 1;

[0021] Fig. 5 is a second end view of the cooking appliance of Fig. 1, showing a controller;

[0022] Fig. 6 is an end section view of the cooking appliance of Fig. 1;

[0023] Fig. 7 is a plan section view of the cooking appliance of Fig. 1;

[0024] Fig. 8 is a bottom plan view of the cooking appliance of Fig. 1;

[0025] Fig. 9 is a perspective view of the exemplary controller of Fig. 5;

[0026] Fig. 10 is an exploded view of the cooking appliance of Fig. 1; and

[0027] Fig. 11 is an exploded view of a cooking appliance in accordance with another illustrative embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0028] Referring to the drawings and in particular to Figs. 1 through 3, there is shown an illustrative embodiment of a cooking appliance generally represented by reference numeral 1. Cooking appliance 1 has at least one heating plate 10 with one or more cooking surfaces 12 on either and/or both sides thereof and a heater 14 integrally connected to the appliance. Heater 14 is clearly shown in Figs. 6 and 7. Cooking appliance 1 preferably has a base or support structure 16 that is operatively connectable with one heating plate 10 to provide support for and/or to suspend plate 10 with respect to a supporting surface. Further, the cooking appliance 1 is operatively connectable with a controller or thermostatic control 18 that controls the operation thereof.

[0029] Heating plate 10 preferably has either and/or both sides of the heating plate with any of a number and variety of cooking surfaces 12 such as, for example, a smooth cooking surface, a ribbed or corrugated cooking surface, or waffled or grated cooking surface. Thus, cooking appliance 1 can be used for a variety of different cooking or food preparation operations depending on the orientation or positioning of heating plate 10 with respect to support structure 16,.

[0030] In one embodiment of the present invention, heating plate 10 is preferably removable and/or reversible. In this manner, any of the number and variety of heating surfaces 10 can be selectively placed on

support structure 16 for cooking.

[0031] Preferably, the heating plate 10 has one or more handles 20 that are either separably connectable with or securely connected to the heating plate 10. Handles 20 facilitate the removal of heating plate 10 and/or the general manipulation thereof. Preferably, each handle 20 is formed from an insulating material, e.g. plastic, that is sufficiently strong to withstand the wear and tear associated with extended use and repeated washing of cooking appliance 1.

[0032] A variety of moldable materials are appropriate for forming handles 20. Such materials should assure that handles 20 can be gripped during use without risk of burning a user's hands. Handles 20 can have any of a variety of shapes, sizes and/or configurations suitable to facilitate easy and convenient storage of cooking appliance 1.

[0033] Heating plate 10, as noted above, preferably is formed of a heat conducting material that is cast about a heater 14, shown particularly in Fig. 7. As shown, in Figs. 6 and 7, heater 14 preferably includes at least two laterally spaced, parallel extensions 24 and 26. Preferably, each extension 24, 26 has an inner heat conducting element 27 encased in an outer sheath 28. A similar intermediate extension 30

preferably extends between corresponding ends of the at least two laterally spaced extensions 24 and 26 to provide electrical continuity between the extensions. The heater 14 is located at an opposite end to the intermediate extension 30, preferably terminated at one or more conductive connectors 32 and 34, which preferably protrude from an end of heating plate 10. Preferably, heating plate 10 and conductive connectors 32 and 34 assure a positive seal against any water or other materials from entering the casting such as, for example, via bushings 36 and 38 associated with the conductive connectors 32 and 34.

[0034] Preferably, at least one of handles 20 has at least one socket 40 cooperative with and/or associated with the conductive connectors 32 and 34 to receive, retain, and/or surround a separable thermostatic controller or control jack 19, shown in Fig. 9. Preferably, control jack 19 has one or more contacts 42 for conductively cooperating with conductive connectors 32 and 34.

[0035] Control jack 19 preferably has a housing 44 encompassing an interface control switch 46 shown in Fig. 5. Control jack 19 has a control knob 48 situated thereon in a readily accessible position. Interface switch 46 must preferably be satisfied in order for the heating plate 10 to be operative. Referring to Fig. 5, interface switch 46 preferably is cooperative with an actuator 50 associated with the support structure 16.

Thus, interface switch 46 preferably prevents heating plate 10 from being heated and/or operatively used unless heating plate 10 is properly positioned on support structure 16. That is, the heating plate must be properly positioned with respect to support structure 16 so that the thermostatic control jack 19 can be operatively connected to heating plate 10, via socket 40 and actuator 50 for heating plate 10 to be operative. Actuator 50 interacts with interface switch 46 to enable power to be supplied to heating plate 10. Referring to Fig. 5, interface switch is shown interfacing with actuator 50. Interface switch 46 can be mechanical (e.g., spring biases), a circuit, an electric, electronic, electromechanical, or any other type of switch suitable to accomplish the objects of the present invention.

[0036] Referring to Fig. 9, control knob 48 preferably controls the operation of thermostatic control 18 through a rotary shaft 52. Control knob 48 can be rotatably positioned in any of a variety of preset positions corresponding to a desired operative function, such as, for example, “on”, “off”, “warm”, “hi”, “lo”, and/or any other settings appropriate for cooking appliance 1.

[0037] It is noted that a light and/or an LED/LCD display 54 can be provided on housing 44, as shown in Fig. 9. Preferably, display 54 cooperates with control knob 48 to indicate or reflect the status of

thermostatic control jack 19.

[0038] Control knob 48 can have any of a variety of shapes, sizes and/or configurations.

[0039] Referring to Fig. 2, heating plate 10 preferably has a drainage system 56 associated therewith. Drainage system 56 preferably cooperates with one or more collection reflectors or trays 58 associated with the support structure 16. Drainage system 56 preferably includes at least one or more drain channels 60, as shown in Fig. 6 and/or one or more drain apertures 62, as shown in Fig. 8. Preferably, drain channels 60 facilitate in transferring cooking residue such as, for example, grease or the like, to the one or more drain apertures 62, which in turn facilitate transferring the cooking residue to collection trays 58.

[0040] It is noted that the one or more drain channels 60 and/or the one or more drain apertures 62 can be associated with either and/or both sides of heating plate 10. It is also noted that at least some of the one or more drain channels 60 may be internal to heating plate 10.

[0041] It is still further noted that heating plate 10 and/or the

one or more drain channels 60 can be formed to have a slope or slant associated therewith in order to improve the drainage effect via gravity.

[0042] Referring to Fig. 10, support structure 16 is preferably capable of receiving and/or retaining the one or more trays 58 so that the trays cooperate with drainage system 56 to collect cooking residue. Support structure 16 preferably has one or more receiving compartments 64 for removably receiving and/or retaining the one or more trays 58. Preferably, the one or more trays 58 are relatively compact in size to facilitate convenient and easy removal and/or cleaning. Also preferably, the one or more trays 58 have a handle 66, as shown in Fig. 11 associated therewith to facilitate the handling or manipulation of the one or more trays 58. The support structure 16 can be fashioned with the one or more trays 58 integral therewith.

[0043] Support structure 16 can have any of a variety of configurations. For example, as shown in Fig. 3, support structure 16 can have a heat resistant floor 68 and walls 70 to form a basin 71 suitable for supporting/suspending heating plate 10. As shown in Fig. 7, support structure 16 can have one or more post-like structures 72 having heat resistant characteristics associated therewith. The one or more post-like structures 72 can have a heat resistant pad 73, as shown in Fig. 6, for contacting heating plate 10. Post-like structures 72 can be adjustable so

that heating plate 10 can be adjustably elevated and/or suspended with respect to a support surface to improve the drainage effect via gravity.

[0044] Thus, the present invention provides a safe, effective and efficient cooking appliance 1 operable to accomplish a variety of different cooking operations and capable of withstanding the wear and tear associated with maintenance, cleaning and storage.

[0045] It should also be appreciated by those skilled in the art that the particular functions and other aspects of the teachings herein are but examples of the present invention, and thus do not limit the scope or variety of applications that the present invention may be suitably implemented. Thus, it should be understood that the foregoing description is only illustrative of a present implementation of the present invention. Various alternatives and modification may be devised by those skilled in the art without departing from the present invention. Accordingly, the present invention is intended to embrace all such alternatives, modifications, and variances which fall within the scope of the appended claims.

WHAT IS CLAIMED IS:

1. A cooking appliance comprising:

- a heating plate;

- a heater for heating said heating plate;

- a support structure for supporting said heating plate; and

- an interface mechanism comprising an interface control switch and;

- an actuator that, in response to said heating plate being positioned on said support structure in a predetermined position, is actuated to permit activation of said heater,

wherein said heating plate is reversible and has at least one cooking surface on either side thereof.

2. The cooking appliance of claim 1, further comprising a controller for controlling a setting for said heater.

3. The cooking appliance of claim 2, wherein said setting is selected from a group consisting of On, Off, Warm, High, Low, a predetermined temperature degree setting, and any combinations thereof.

4. The cooking appliance of claim 2 or 3, wherein said controller comprises a switch for selectively selecting said setting.

5. The cooking appliance of claim 4, wherein said switch is selected from a group consisting of a rotatable knob, a toggle switch, a rocker switch, a LED control interface, an LCD control interface, a micro- switch, or any combinations thereof.

6. The cooking appliance of any one of claims 2 to 5, further comprising at least one conductive connector connected to said heating plate for providing an electrically conductive path between said heater and said controller.

7. The cooking appliance of any one of claims 1 to 6, wherein said heating plate is removably supported by said support structure.

8. The cooking appliance of any one of claims 1 to 7, further comprising at least one handle located on said support structure.

9. The cooking appliance of claim 8, wherein said support structure has two handles, and wherein said two handles are located at opposing ends of said support surface.

10. The cooking appliance of any one of claims 1 to 9, further comprising a socket for receiving said controller therein.

11. The cooking appliance of claim 10, further comprising at least one electrical contact located in said socket for interfacing with an electrical contact located in or on said controller.

12. The cooking appliance of any one of claims 1 to 11, wherein said heater is embedded internally in said heating plate.

13. The cooking appliance of any one of claims 1 to 12, further comprising an actuator that cooperates with said interface mechanism to indicate said heating plate is in said predetermined position.

14. The cooking appliance of any one of claims 1 to 13, further comprising at least one support post for supporting said heating plate thereon.

15. The cooking appliance of claim 14, wherein said at least one support post comprises a heat resistant pad that contacts said heating plate.

16. The cooking appliance of any one of claims 1 to 15, further comprising a drain channel for draining cooking residue away from at least a portion of said at least one cooking surface of said heating plate.

17. The cooking appliance of claim 16, further comprising a drain aperture in fluid communication with said drain channel for receiving said cooking residue from said drain channel.

18. The cooking appliance of claim 16 or 17, further comprising a collection tray for collecting said cooking residue.

19. The cooking appliance of claim 18, wherein said collection tray is selectively removable from said support structure.

20. A cooking appliance comprising:
- a heating plate having at least one cooking surface;
- a heater embedded internally in said heating plate for heating said heating plate;
- a support structure for supporting said heating plate; and
- an interface mechanism comprising an interface control switch and an actuator that, in response to said heating plate being positioned on said support structure in a predetermined position, is actuated to permit activation of said heater; and a controller for controlling a setting for said heater, wherein said plate is reversible and has at least one cooking surface on either side thereof.

21. The cooking appliance of claim 1 or 20, further comprising an LED display to indicate the status of said interface mechanism.

22. The cooking appliance of claim 1 or 20, further comprising an LCD display to indicate the status of said interface mechanism.

23. A cooking appliance comprising:

- a base adapted to rest on a generally flat surface, said base comprising a floor and four sidewalls;
- a removable and reversible cooking plate having two cooking surfaces, one on either side thereof, for transferring heat to food product placed on said cooking surface;
- a heat element embedded in said cooking plate for generating heat from electrical energy and transferring said heat to said cooking surfaces;
- an electrical conductor socket adapted to plug into said cooking plate to deliver electrical energy to said appliance;
- a control dial residing on said conductor socket for controlling heat generated by said heat element; and
- a mechanical switch actuator formed as a horizontally extending member that extends outwardly from one of said sidewalls and that is adapted to activate said conductor socket to enable electrical energy to be delivered to said appliance when said socket is positioned in contact with said actuator in a predetermined position, and to disable electrical energy preventing its delivery to said appliance when said socket is positioned out of said predetermined position.

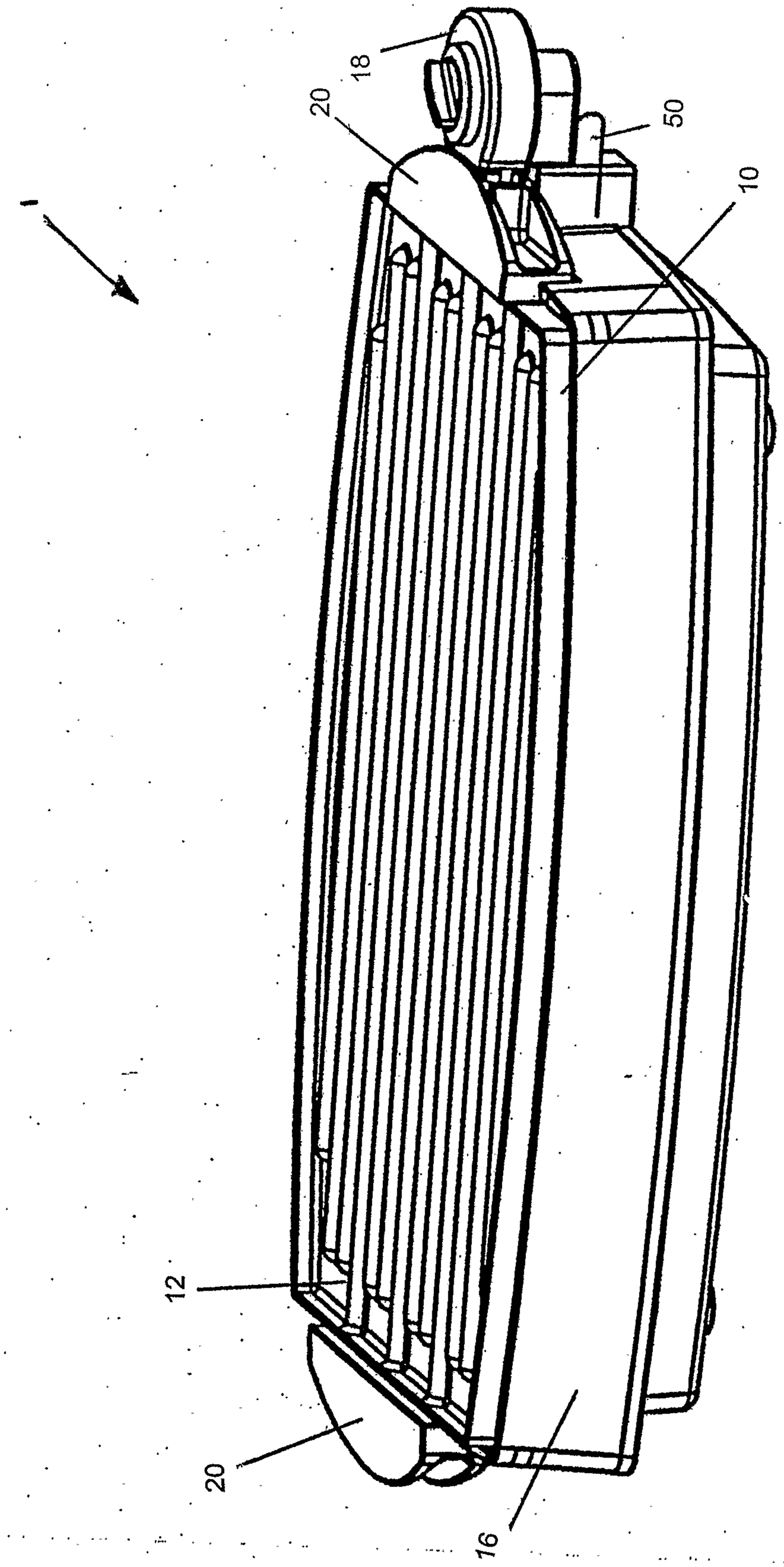


Fig. 1

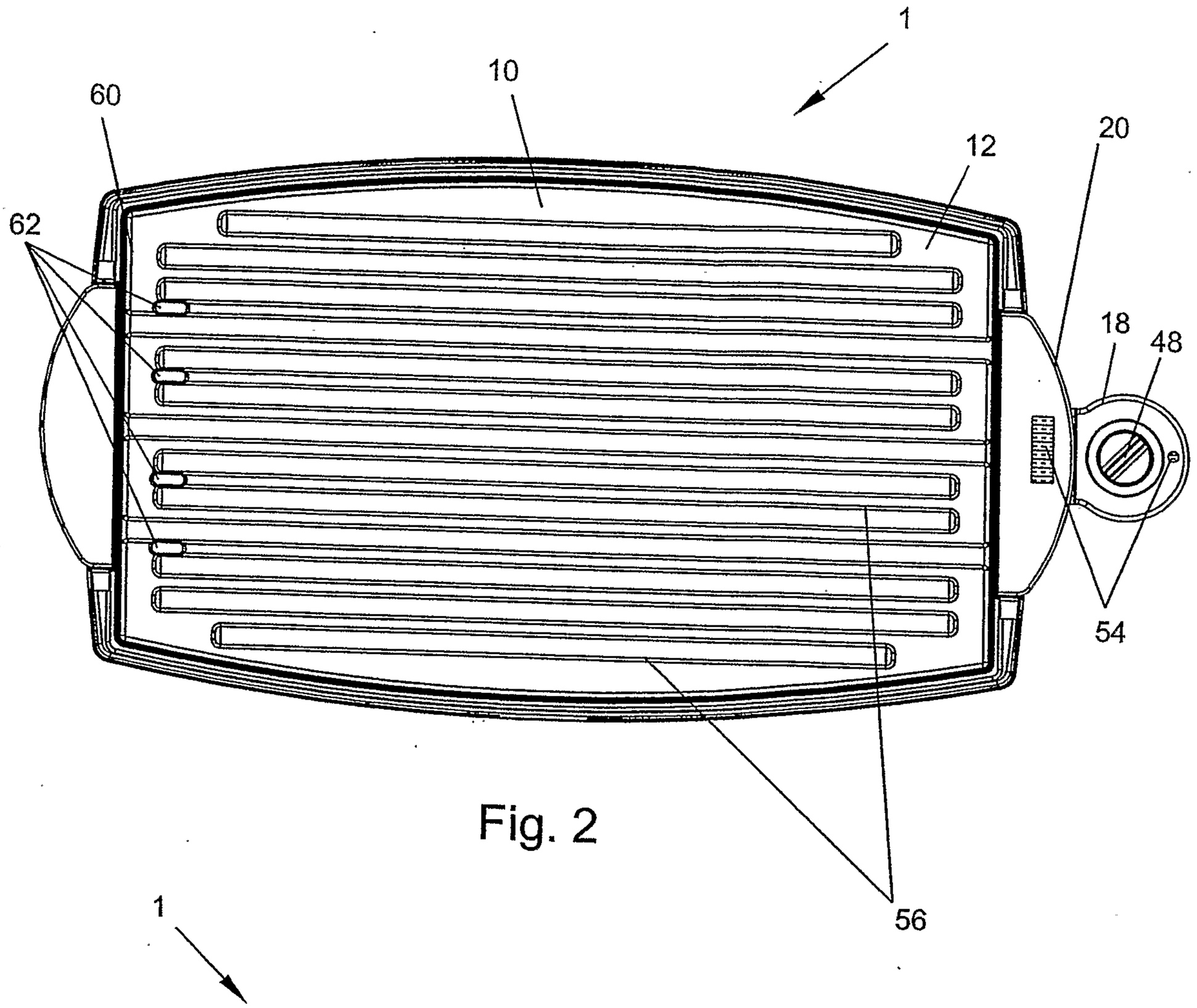

1
10
60
12
20
62
18
48
54
56

Fig. 2

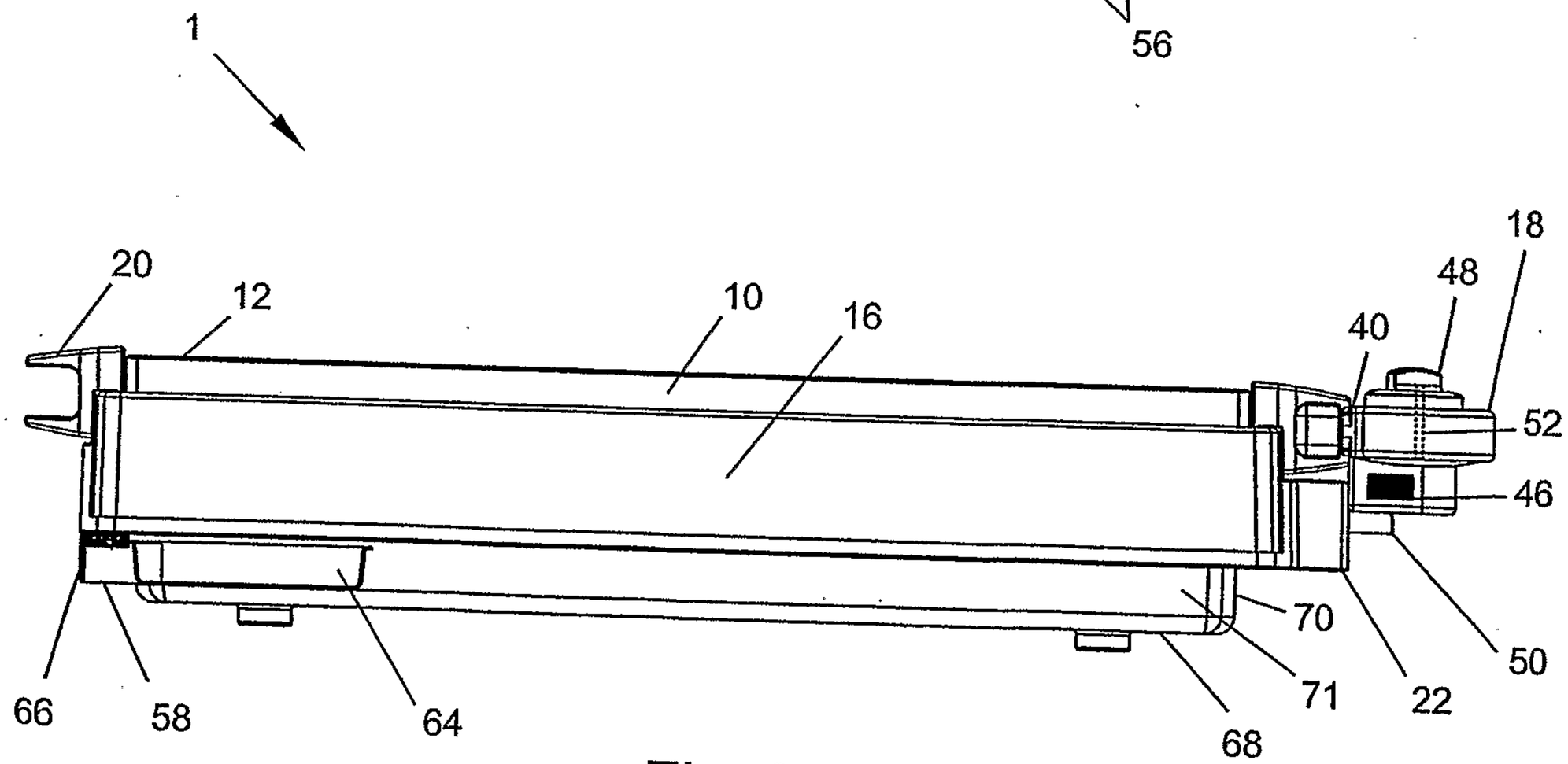

1
20
12
10
16
40
48
18
52
46
70
50
66
58
64
71
22
68

Fig. 3

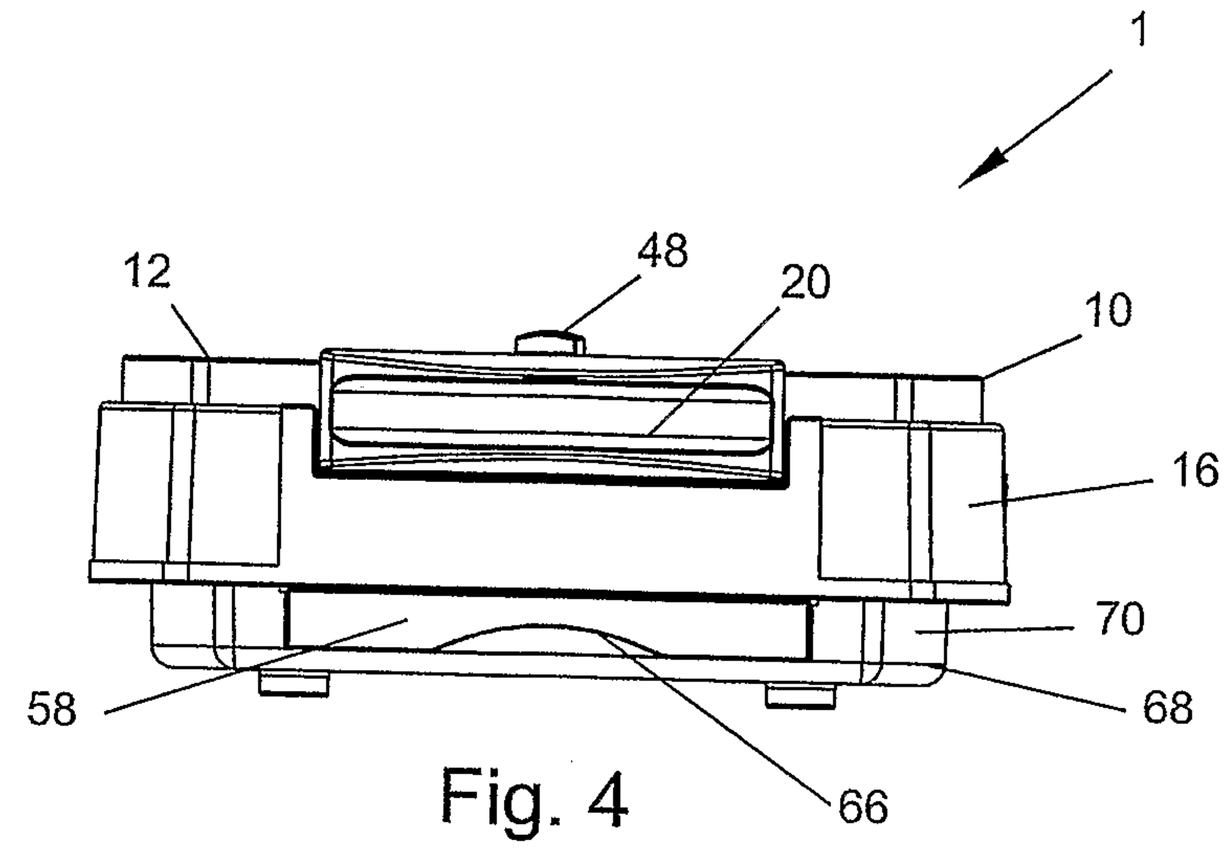


Fig. 4

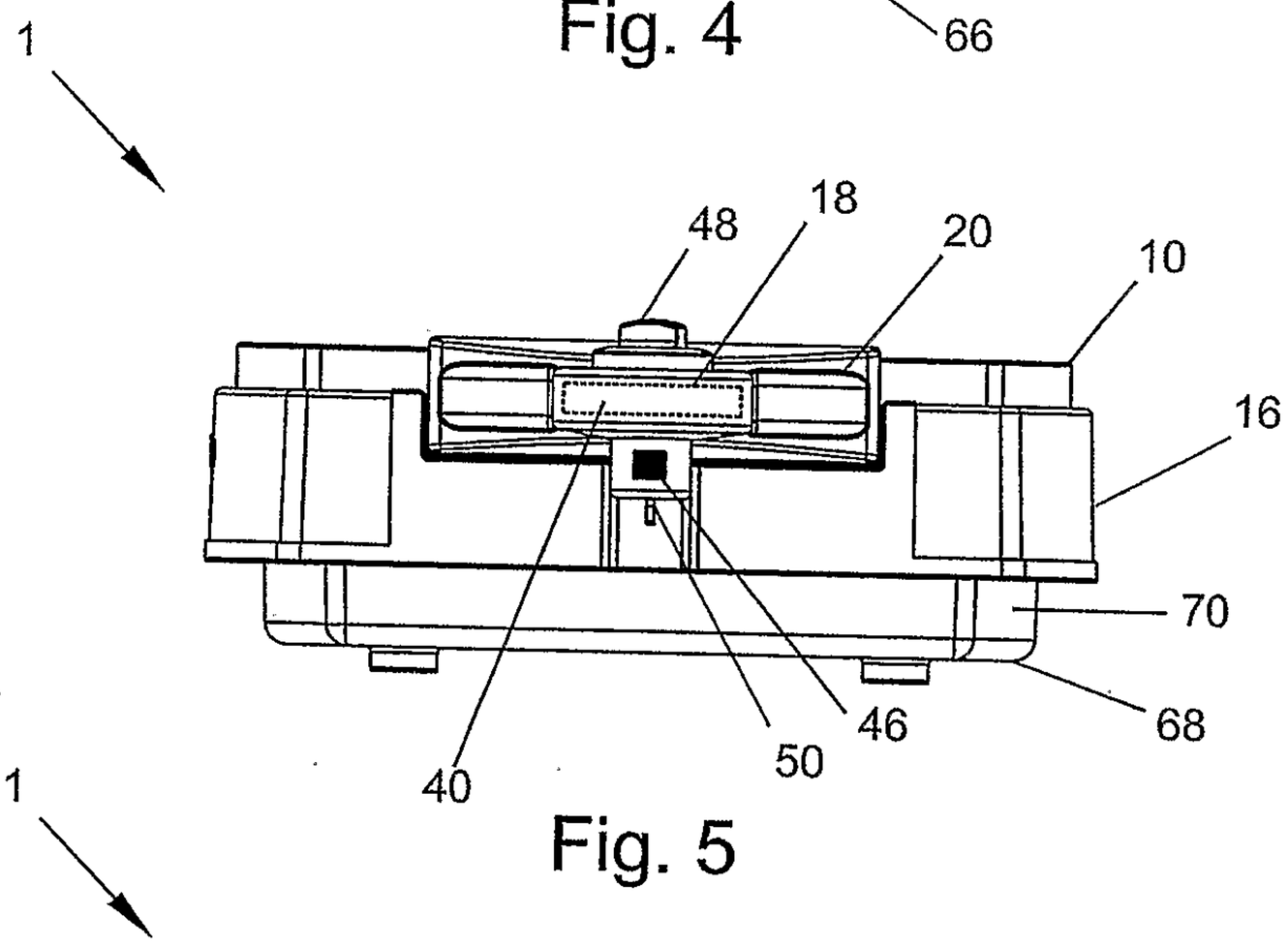


Fig. 5

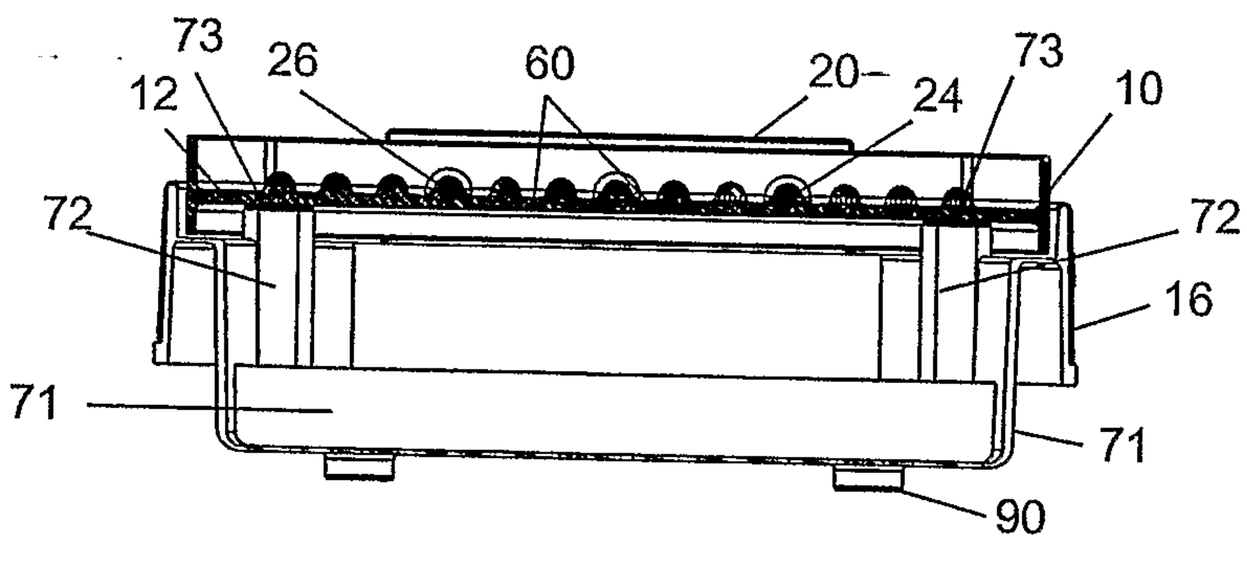


Fig. 6

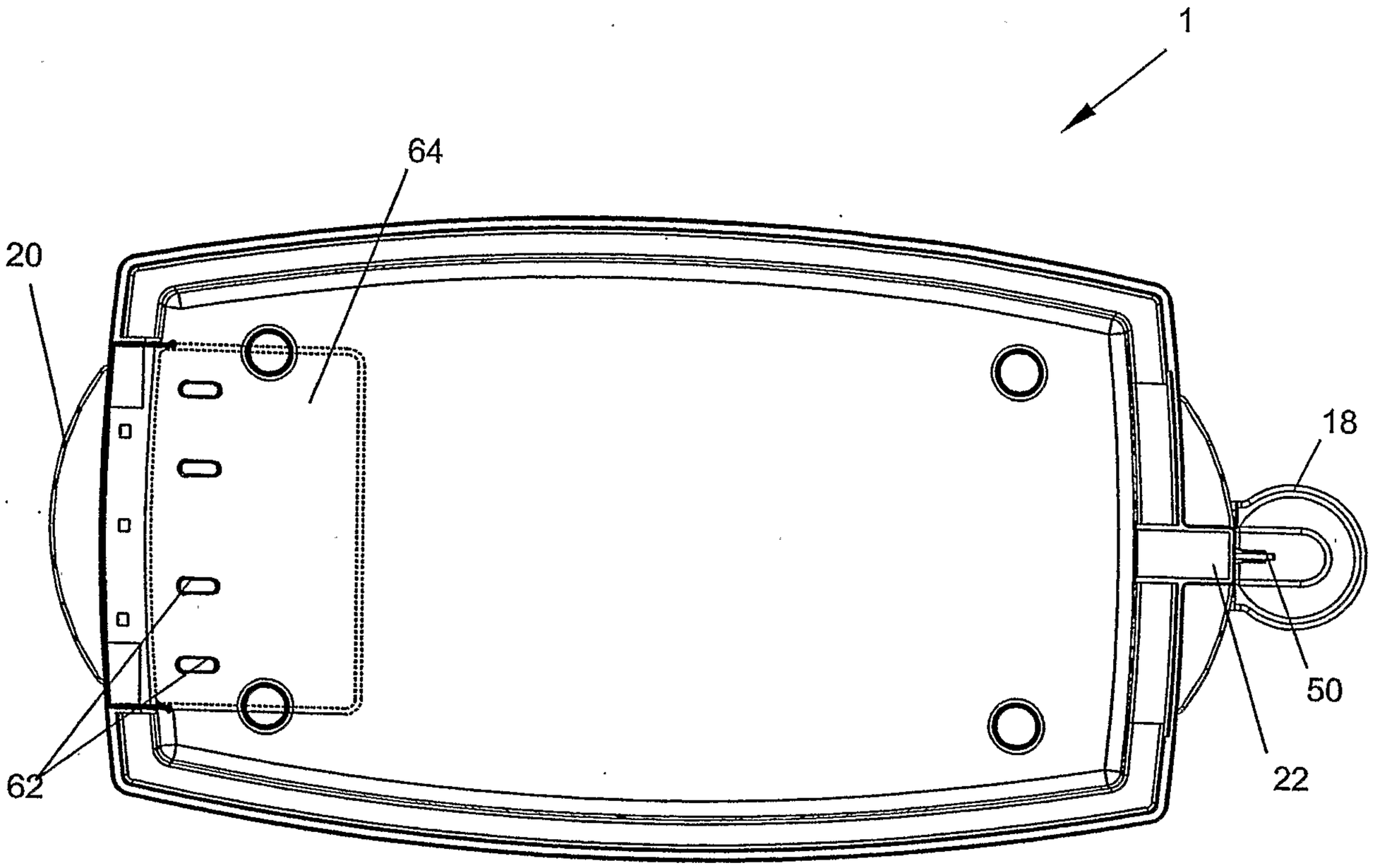


Fig. 8

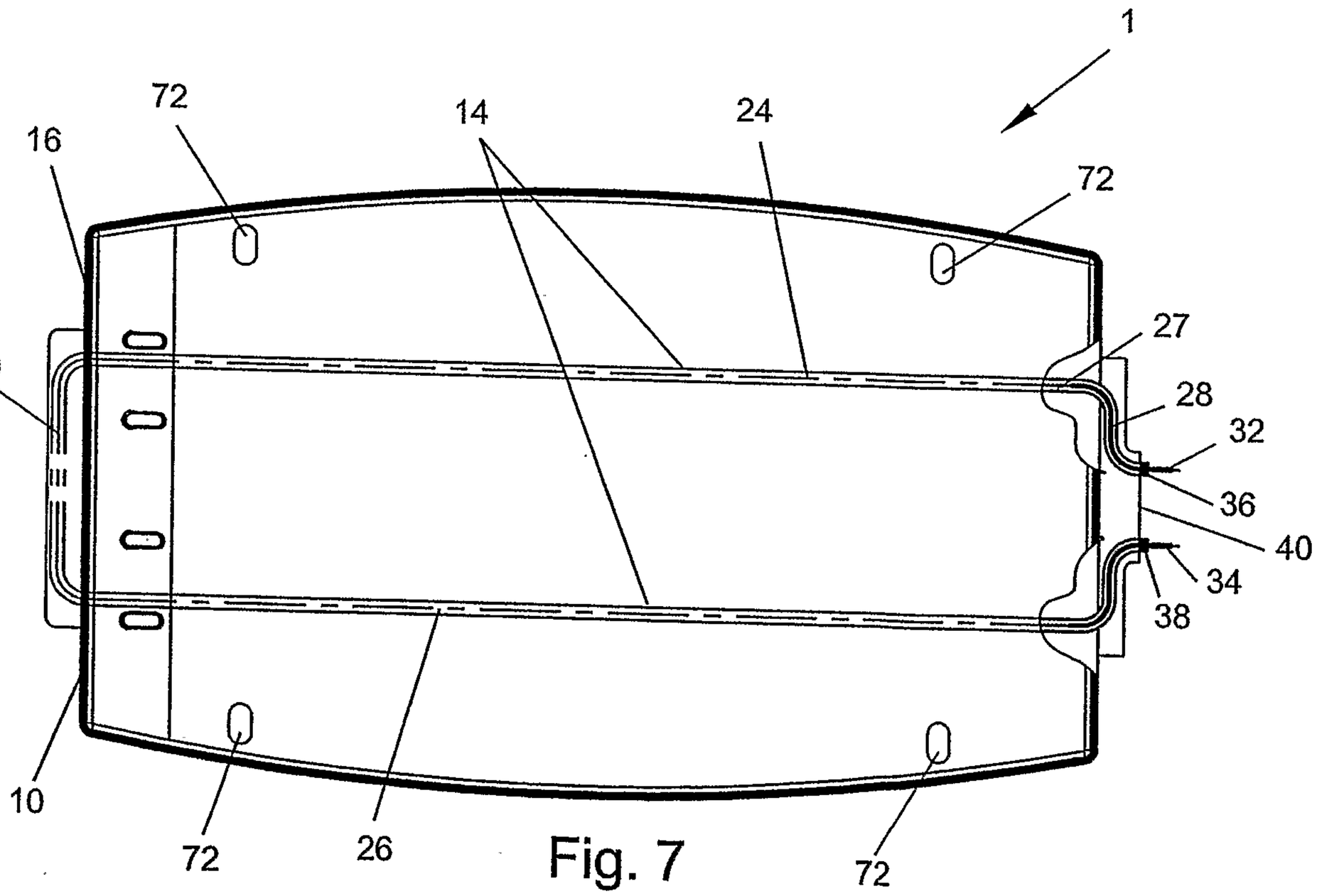


Fig. 7

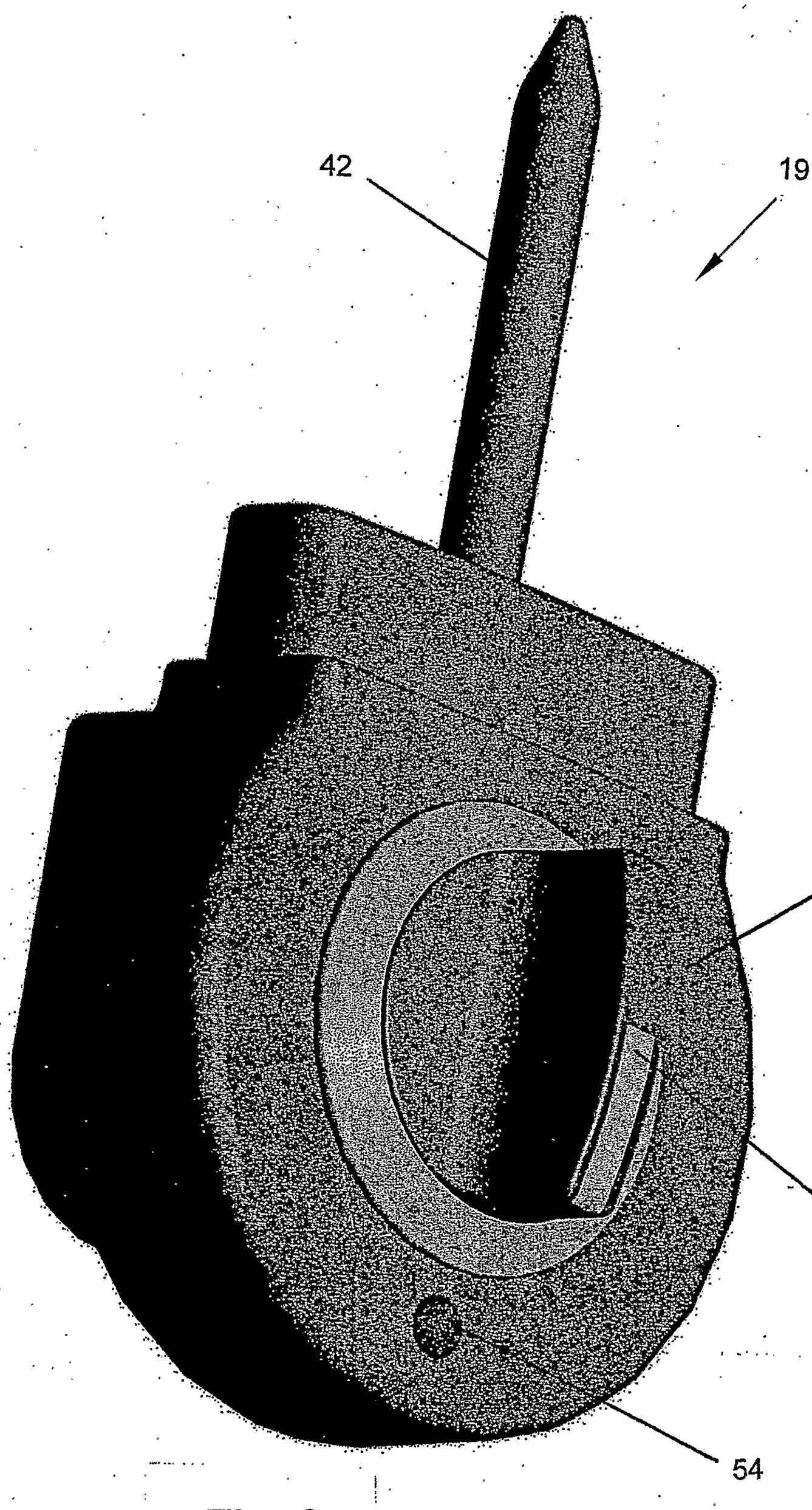


Fig. 9

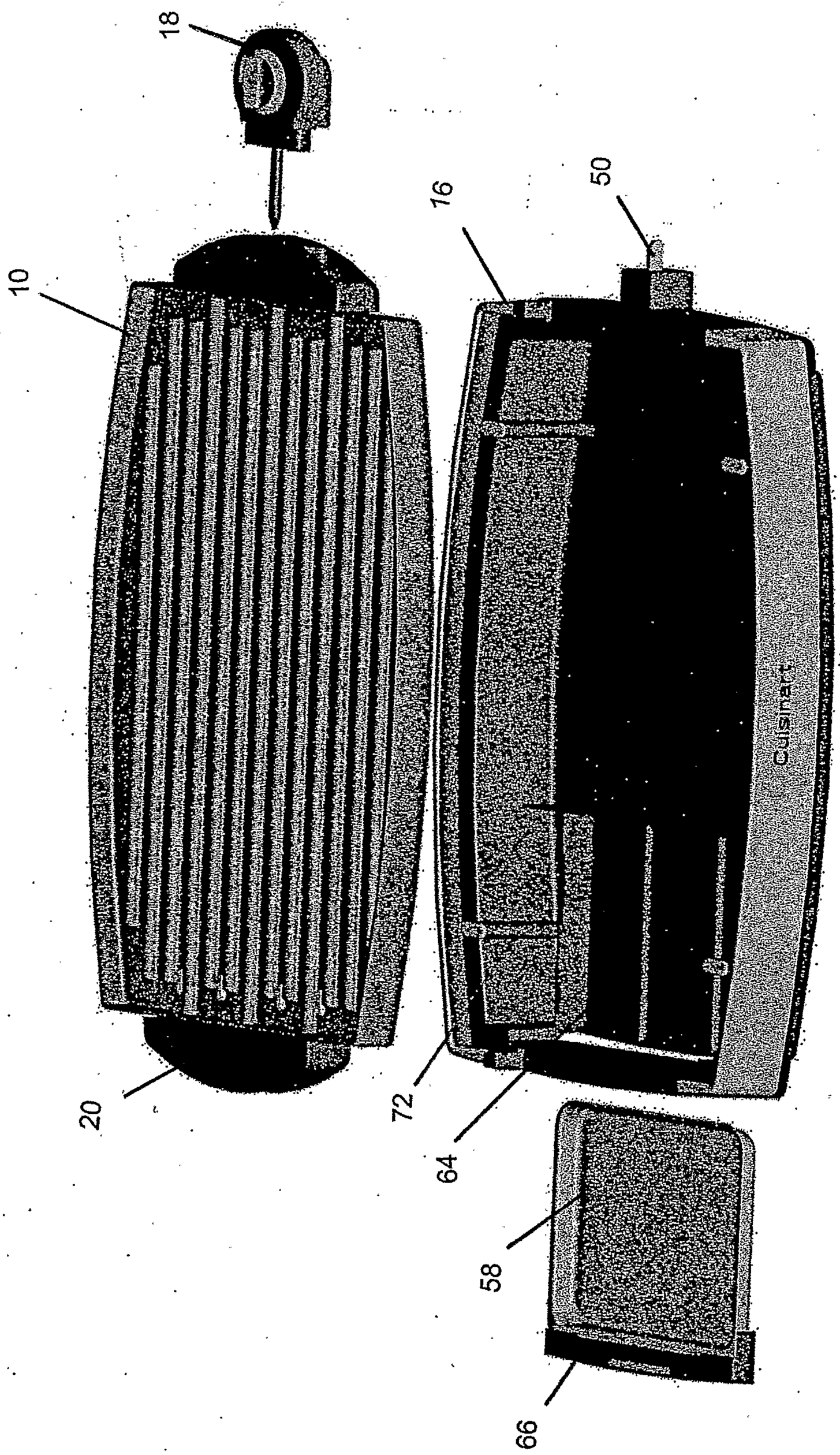


Fig. 10

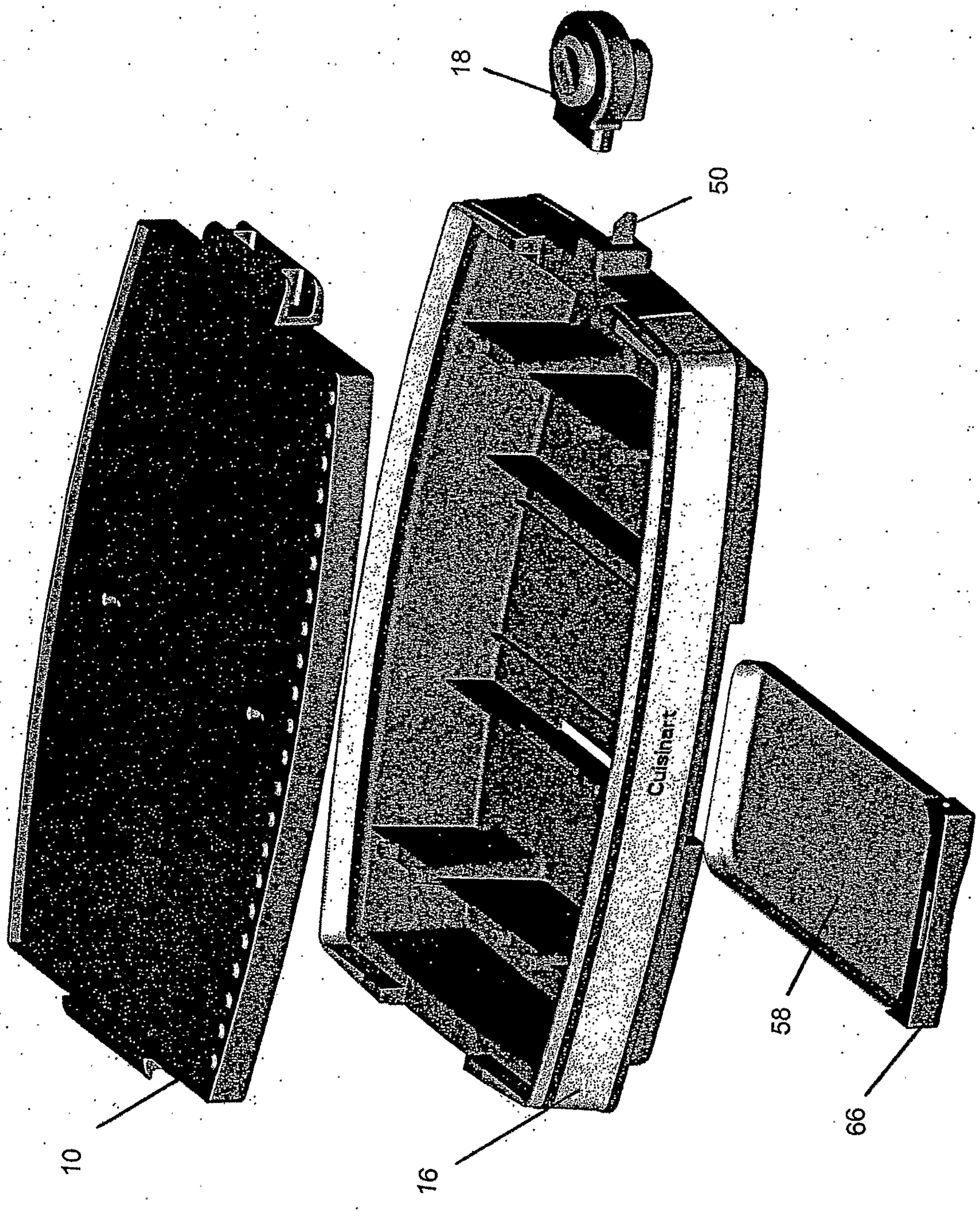
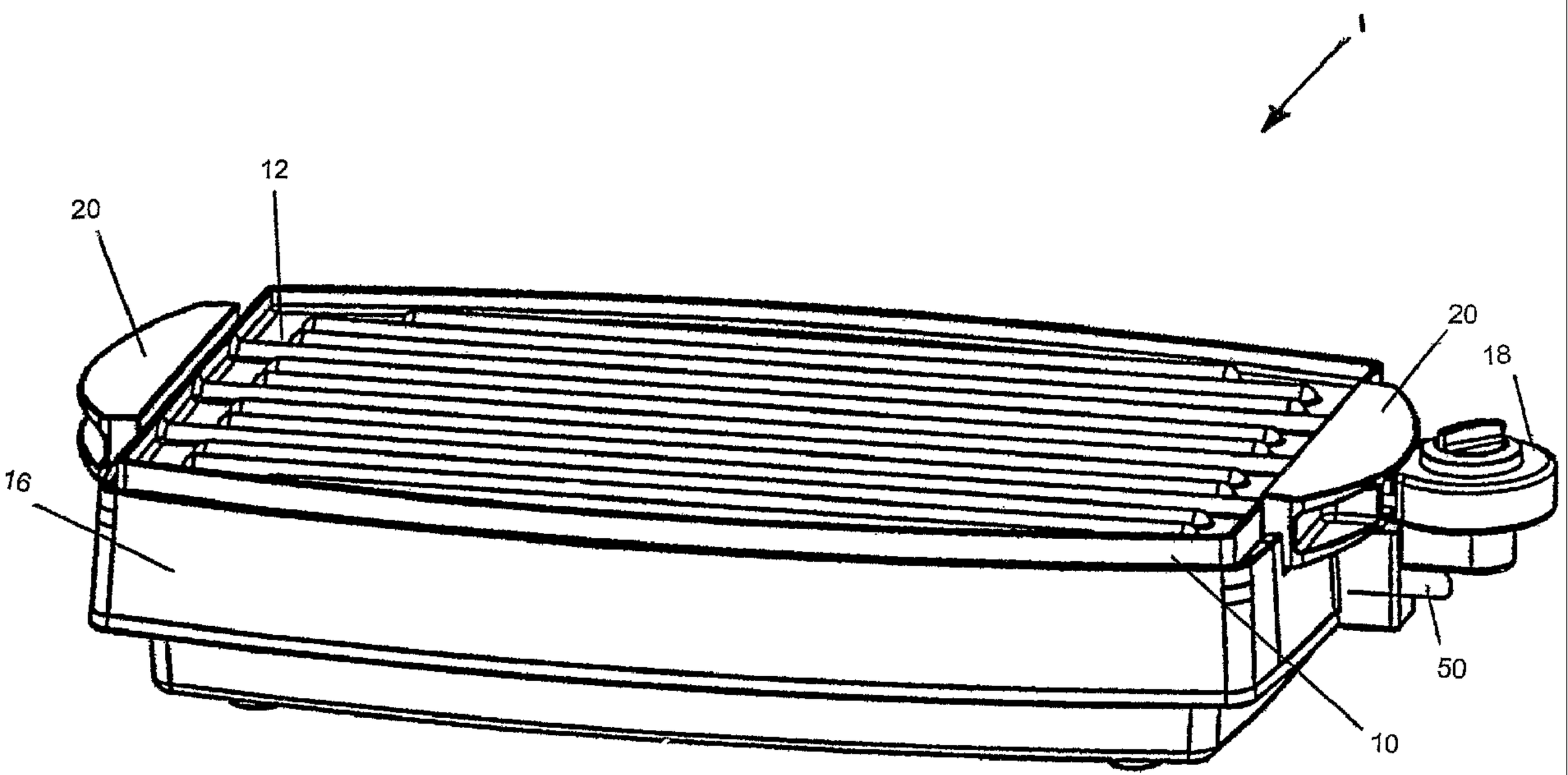


Fig. 11


1
12
20
20
18
16
50
10