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(54) **ELECTRONIC IGNITOR**
ELEKTRONISCHE ZÜNDVORRICHTUNG
ALLUMEUR ELECTRONIQUE

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Description

Technical Field

[0001] This invention relates to an improved electronic ignitor for gas burners, which provides a cheap and quick assembly of its components as well as a more functional and quick mounting of the electronic ignitor to the appliance.

Background Art

[0002] It is well known in the art to make use of push-button-controlled electronic ignitors for lighting gas burners of various appliances such as cooking ranges. Those ignitors comprise a circuit, which is connected to at least one output terminal. Each of said output terminals, in turn, is electrically connected to an electrode placed in the close vicinity of the burner. The current discharge generated in the circuit creates a high-voltage spark between the electrode and the burner, in order to light the gas.

[0003] The first known electronic ignitor comprises a two-compartment insulating casing; primary and secondary coils placed in one compartment of said casing, and a plate in the other compartment for carrying several electronic parts of the circuit. The secondary coils are connected to output terminals and the supply terminals are connected to the plate, which is in turn connected to the primary coil. The casing involves integral ducts opening at their one end to the respective compartments, into which output and supply terminals are individually tight fit so as to be insulated. Following the assembly of the coils and terminals, the first compartment is filled with liquid polymer resin, which eventually solidifies to fully cover and insulate the assembled parts.

[0004] However above explained ignitors are difficult and costly to manufacture. Moreover, their assembly is a quite tedious procedure, which raises the production duration considerably.

[0005] The prior art document US 6,429,606 offers an improved design to overcome above-mentioned problems. In this document, an electronic gas-lighting device having a casing defined by a cup-shaped body made of electrically insulating material is disclosed. An electronic high-voltage-pulse generator is housed in an inner cavity of the casing accessible through a mouth of the cup-shaped body. An output terminal is connected to the electronic pulse generator and housed through a respective seating duct formed integrally with a bottom wall of the cup-shaped body. A connecting board carrying an electric circuit and extending the full length of the cup-shaped body is positioned substantially closing the mouth, inside the cavity, and carries, on a first face facing the cavity, the electronic pulse generator connected mechanically and electrically to one another and to the board by the board itself and the circuit, so as to be housed in one continuous compartment defined by the inner cavity of

the casing and by the connecting board, and so as to be embedded, together with the connecting board, in a matrix of insulating polymer resin which fills the whole of the cavity up to a point flush with the mouth of the cavity. The board has at least one through opening enabling the polymer resin to be poured into the casing with the board already in position.

[0006] Another prior art document US 6,506,047 discloses an ignitor, which is grounded by means of a conducting U-shaped contact bracket that is gripped between the casing and the board of the range. The U-shaped contact bracket is connected to the board by soldering. The ignitor is removably fit to the board of the range via screws or two integrally formed teeth projecting laterally out from the walls of the casing. One of these teeth is on a lateral wall while the other is on a longitudinal one. However, this invention also suffers from the above-described drawbacks.

Another ignitor is further disclosed by the document WO/0006952.

[0007] Even though these three inventions seem to resolve some difficulties associated with the prior art, they bring about further difficulties such as the necessity to align and tight fit all output and supply terminals into the ducts, simultaneously. To illustrate, for an ordinary cooking range with four burners, four output terminals are required. This means that, in total six (four output and two supply) terminals must be aligned and fit together during the assembly of the ignitor, which is a difficult task. Moreover, for tight fitting, a considerably high force is applied, which may result in deformation of either the terminals or other components. Said high force may also cause a rupture in the conducting wires and a final electrical discontinuity in the device.

[0008] It should also be recalled that, placing a connecting board and assembling all the components to the board both mechanically and electrically requires additional assembly steps as well as alignment problems. Therefore, both the connecting board and said additional steps increase the cost of the ignitor.

[0009] In addition to said disadvantages, more resin is used in said casings, since the whole volume of the casing is filled, rather than the partial volume in the two-compartment casings. This is an additional factor to increase the cost. Besides, if the terminals are misaligned with the ducts, the initially liquid resin leaks out of the casing through the ducts. Increasing number of output terminals increases the probability of leakage.

Disclosure of Invention

[0010] It is an object of the present invention to provide an electronic ignitor, which overcomes the disadvantages of the prior art and especially which allows for cheap and easy manufacturing and fast assembly.

[0011] According to the present invention, the two-compartment structure of the previous casings is preserved. However, it differs from the previous art in that it

does not comprise any ducts on the casing. Two embodiments of the casing is provided, one with two side-by-side compartments closed by a common cap, and another with two compartments one-above the other, such that each closed by a different cap. Two assembly components with clips on their ends, project laterally outside from a wall of the casing for removable fitting of the ignitor to the cooking range. These components enable one-step mounting of the electronic ignitor to the conducting surface of the cooking range.

[0012] The secondary coil is wound around an insulating bobbin carcass that is produced with two integral ducts to house the output terminals. Moreover, output terminals are not tight fit to the ducts of the bobbin carcasses but rather, they are fit when the bobbin carcass is newly produced, i.e. when it is still hot, therefore soft. As the terminals are not tight fit to the casing, the alignment and deformation problems of the prior art techniques are overcome.

[0013] Free-of-ducts design of the casing allows for practical and flawless manufacture and assembly of the ignitor. Hence, the tedious assembly process of the previous technique is replaced with a simple one, which is unlikely to cause any malproductions.

[0014] At least one insulating cap covers the open surface of the casing. Said cap is permanently fastened to the casing by ultrasonic welding, in order to avoid unauthorized intervention. It also involves openings in the same number as that of output terminals, so that the ducts of the carcass housing the output terminals extend out of the cap when it is fastened onto the casing. Owing to said openings, output terminals may easily be connected to the electrodes on the cooking range.

[0015] At one end of the cap, there exists a protrusion extending towards a compartment of the casing and comprising three indentations formed side by side inside said protrusion. Said protrusion may or may not be integrally formed with the cap. Each of these indentations involves holes for the placement of respective supply and ground terminals. When the cap is positioned on the casing, supply and ground terminals remain inside the said indentations in said protrusion.

[0016] The ignitor of the present invention involves two different embodiments of grounding means, which allow for male-female type easy connection. The grounding means is made of a resiliently deformable, electrically conductive metal. Both embodiments enable one-step, simple grounding of the ignitor by simply attaching the grounding terminal to the grounding means. One end of the grounding means is bent for simple attachment to the grounding terminal and the other end extends outside the casing for providing electrical connection with the cooking range. Thus, the ignitor of the present invention brings another advantage over the prior art, as its grounding process does not require any specific joining such as soldering, welding, etc.

Brief Description of the Drawings

[0017] An exemplary embodiment of the present invention is explained in detail below by reference to the annexed drawings, in which:

[0018] Figure 1 shows a front view of the casing;

[0019] Figure 2 shows a top view of the casing;

[0020] Figure 3 shows a front view of the bobbin carcass;

[0021] Figure 4 shows a top view of the bobbin carcass;

[0022] Figure 5 shows a side view of the bobbin carcass;

[0023] Figure 6 shows a front view of the bobbin carcass without output terminal;

[0024] Figure 7 shows a top view of the primary coil;

[0025] Figure 8 shows a top view of the plate;

[0026] Figure 9 shows a front view of the plate;

[0027] Figure 10 shows a front view of the output terminal;

[0028] Figure 11 shows a side view of the cap;

[0029] Figure 12 shows a top view of the cap;

[0030] Figure 13 shows A-A section of the cap;

[0031] Figures 14, 15, and 16 show front, top and side views of one embodiment of the grounding means, respectively;

[0032] Figures 17 and 18 show front and top views of another embodiment of the grounding means, respectively;

[0033] Figure 19 shows one embodiment of the grounding means assembled to the casing.

[0034] Figure 20 shows another embodiment of the grounding means assembled to the casing.

[0035] Figure 21 shows a schematic view of the circuit map of the ignitor;

[0036] Figure 22 shows an exploded side view of the ignitor;

[0037] Figures 23, 24, 25, and 26 show left, top, front and right views of another embodiment of the ignitor;

[0038] Figures 27 and 28 show another embodiment of the ignitor when the top and bottom caps are open;

[0039] Figure 29 shows a section view of another embodiment of the ignitor;

[0040] Figures 30 and 31 show top and bottom caps of another embodiment of the ignitor;

[0041] Figures 32 and 33 show top and section views of the protrusion of another embodiment of the ignitor;

[0042] Figure 34 shows a front view of the plate of another embodiment of the ignitor;

[0043] Figures 35 and 36 show front and top views of the casing of an alternative embodiment of the casing;

[0044] Figures 37 and 38 show top and front views of the cap of an alternative embodiment of the casing;

[0045] Figure 39 shows front view of the assembly of an alternative embodiment of the casing.

[0046] Various parts in the drawings have been enumerated as follows:

1. Casing
2. Cap
3. Carcass
4. Output terminal
5. Primary coil
6. Plate
7. Board
8. Grounding means
9. Another embodiment of grounding means
10. Ground terminal
11. Positive supply terminal
12. Negative supply terminal

Best Mode for Carrying Out the Invention

[0047] The casing (1) of the electric ignitor is made of an insulating material and is in the form of a rectangular prism. It consists of two lateral (B and D), one front (A), one back (C) and a bottom side (E) and a top side (F). The casing (1) is divided into two compartments one for the coils and the other for the plate, separated from each other by an insulating wall, but still enabling the passage of connectors from the primary coil to the plate.

[0048] Figures 1 and 2 illustrate one embodiment of the casing (1) wherein the interior of the casing (1) is divided into two side-by-side compartments (1a and 1b) by a wall (1c) perpendicular to the interior of its bottom side (E). The top side (F) of the casing is open and both compartments (1a and 1b) are closed by a common cap (2). Two assembly means (1e) which are formed integrally with the casing, project perpendicularly outside from the front side (A). The assembly means (1e) are cylindrical or prismatic in shape. There exist one or two oppositely placed clips (1f) at the edge of each assembly means (1e). Said clips (1f) are also integral parts of the assembly means (1e). Said assembly means (1e) are designed for simple locking of the electronic ignitor to the board of cooking range (7). In an alternative embodiment (Fig. 20), the assembly means (1e) project from the edges at the intersections of the bottom (E) and the two side faces (B and D). Each of these assembly means involves two perpendicular planes with a screw hole on each.

[0049] Bobbin carcass (3) (Figs. 3-6), which is made of insulation material, preferably plastics, consists of a hollow (3c) cylindrical part (3b) around which the conductor wire of the secondary coil is wound and two integral (monobloc) ducts (3a) diagonally placed onto the two sides (G and H) of the cylindrical part. Two sides of the carcass (G and H) are parallel to each other. As soon as the bobbin carcass (3) is produced, when it is still warm or hot, one output terminal (4) is fit into a duct (3a). Thanks to the material characteristics of plastics, hot carcass shrinks as it cools down and permanently attaches to the output terminal, thereby eliminating the need to apply force for tight fitting of the terminal. This novel fitting method of the output terminals into the ducts of the carcass instead of ducts of the casing as in the prior art also prevents leakage of the polymer resin out of the casing.

The two free ends of the secondary coil are electrically connected to the respective output terminals (4) after this attachment process.

[0050] As shown in Figure 7, a conductor wire (5a) is wound around a solid, cylindrical ferrite core (5b) to form the primary coil (5). Primary coil (5) is placed into the cylindrical hole (3c) of the bobbin carcass (3). Therefore, secondary coil is coaxial with the primary coil (5). The mounted coils (3 and 5) are put into one compartment (1b) of the casing (1). Then, polymer resin is poured into said compartment (1b) to ensure insulation and fixation of the coils in the casing (1).

[0051] Several electronic components such as grounding terminal (10) and supply terminals (11, 12) are attached to the plate (6) (Figs. 8 and 9).

[0052] Figures 11 and 12 show the insulating cap (2) having the dimensions to fully cover the open side (F) of the casing (1). There exist openings (2d, 2e, 2f, and 2g) on the cap (2) so that they correspond, in number, shape and dimension, to the ducts (3a) of the carcass (3) when the cap (2) is fixed permanently onto the casing (1) via ultrasonic welding. The total height of the carcass (3) is greater than the total depth of the cap (2) and the casing (1) so that the ducts, and therefore the output terminals (4) extend at least slightly out of the cap through the respective openings (2d, 2e, 2f, and 2g).

[0053] At one end of the cap (2), there is a protrusion (2i) extending in a direction perpendicular to the plane of the cap (Fig. 13). Said protrusion may or may not be produced integrally with the cap. There are three side-by-side indentations (2a, 2b, and 2c) inside said protrusion (2i) each with a hole (2h) at their bases. When the cap (2) is placed on the casing (1), supply (11 and 12) and ground (10) terminals on the plate (6) remain inside respective indentations (2a, 2b and 2c) passing through said holes (2h).

[0054] Figures 14 through 18 illustrate two embodiments of the grounding means (8 and 9). Grounding means (8) is manufactured by first cutting it from a resiliently deformable and electrically conductive sheet material, and then bending it into the desired shape. Said means (8) is placed outside the cap so as to form a male-female type connection with the ground terminal. One end of the means provides contact with the terminal residing in its indentation whereas the other end provides contact with the board of the appliance.

[0055] The first embodiment of the grounding means (8) is used together with the assembly means (1e) illustrated in Figures 14-16. This embodiment (8) involves a flat part (8d) to be placed on the cap. Another part (8a) extends into an indentation (2a, 2b or 2c) of the cap, perpendicular to said flat part (8d). This part (8a) comprises two curved portions for providing contact with the ground terminal in the indentation (2a). Grounding means (8) involves a third part (8b) for providing electrical contact with the board (7) of the cooking range. In one embodiment said part has a U-shape, which extends parallel to front side (A) of the casing (1) to be trapped between

the casing and the board (7) of the cooking range. In another embodiment illustrated in Figure 16, said part (8b) is in the shape of a regular stripe which makes an angle with the front side (A) of the casing (1), again to be trapped between the casing and the board (7).

[0056] Second embodiment of grounding means (9) is used together with assembly means shown in Figure 20. Similar to the first embodiment, there exist a flat part (9d) to be placed on the cap and another part (9a) extending into an indentation (2a, 2b or 2c) of the cap, perpendicular to said flat part. This part (9a) comprises two curved portions for providing contact with the ground terminal in the indentation (2a, 2b or 2c). The third part (9b) extends in a direction parallel to one of the lateral sides (B or D), and has the same form as the assembly means. When one end (9a) of the grounding means (9) is attached to the grounding terminal which is housed in indentation (2a) of the cap (2), third part (9b) of the grounding means (9) resides on the assembly means (1e). Two holes (9c) on said part (9b) coincide with the holes of the assembly means. As soon as the casing is assembled to the board of the gas range via screws inserted through the holes on the grounding means and the holes of the assembly means, grounding is established.

[0057] In another embodiment of the invention (Figs. 23-34), the casing is still divided into two compartments via an insulating interior wall, however said compartments are placed one above the other. One compartment houses the plate whereas the other houses the primary and secondary coils. The interior wall involves means for the passage of conducting wires of the primary coil from one compartment to the other. The two compartments are open to two opposing sides of the casing and are closed by separate caps. Therefore, the cap of one compartment involves openings for the passage of the ducts of the bobbin carcass. On the other hand, the cap of the other compartment may have two different embodiments: In one embodiment (not shown in the drawings) said cap involves a protrusion for the supply and ground terminals. Again, the protrusion may or may not be an integral part of the respective cap. In another embodiment, said cap (Figures 26 and 31) is completely flat, in other words free of any protrusions, openings, indentations etc. In this latter embodiment, the protrusion (2i) (Figs. 32 and 33) is an independent piece, extending outside through an opening (2j) on a sidewall of the casing (Figures 23, 27 and 29). In this case, the supply and ground terminals (10, 11, and 12) are preferably bent perpendicular to the plane of the plate (6) into the indentations (2a, 2b and 2c) of the protrusion (2i).

[0058] Still another embodiment of the invention (Figs. 35-39) involves a casing divided into two side-by-side compartments via an insulating wall. However, in the present embodiment, in addition to the top side (F), a lateral side (D) of the casing is open as well (Fig. 35 and 36). Said lateral side is adjacent to the compartment (1a) housing the plate (6). As a result, the cap (2) comprises a section (2k) extending in a direction to close both open

sides (D and F) of the casing (Fig. 37 and 38). Said cap (2) comprises a number of openings (2d, 2e, 2f and 2g) for output terminals, a protrusion (2i) for housing supply and ground terminals, and, if necessary, another opening (13a) for the push-button (13). Said openings and protrusions may be distributed on the cap depending on the specific requirements of the application.

Industrial Applicability

[0059] An exemplary assembly procedure of the present invention will be explained hereafter, by reference to the first embodiment of the ignitor (Fig. 22). As soon as the bobbin carcass is extracted from the mold and when it is still hot, therefore soft, the output terminals are easily attached to the ducts (3a). While cooling, the carcass shrinks and permanently adheres to the output terminals. Next, the conductor wire is simply tied to the output terminal and then wound on the cylindrical part of the carcass. Then, the primary coil (5) is placed in the secondary coil (3) in the direction of arrow A. Then, they are placed together in the compartment (1b) of the casing in the direction of arrow B. Polymer resin is poured into this compartment and let to cool down. The conductor wire of the primary coil (5) is connected to the plate, which is then placed in the other compartment (1a) of the casing, in the direction of arrow C. Next, the cap is placed on the casing (in the direction of arrow D) so that the output terminals extend into the openings (2d, 2e, 2f, 2g) and ground and supply terminals extend into the indentations (2a, 2b, 2c). Said cap is permanently connected to the casing by ultrasonic welding. Finally the grounding means is attached to the ground terminal, which rests in an indentation (2a), and placed on the cap in the direction of arrow E.

Claims

1. An electronic ignitor for gas burners, comprising a casing (1) of insulating material and in the form of a rectangular prism divided into two compartments (1a and 1b) separated from each other by an insulating wall (1c) having means for electrical connection from one compartment to the other, and having at least one open side (D and/or F), one or more secondary coils wound around one or more bobbin carcasses (3) placed in the first compartment (1b), a primary coil (5) nested in said secondary coil(s), a plate (6) placed in the second compartment (1a) for carrying several electronic components such as ground and supply terminals (10, 11, and 12), at least one assembly means (1e) for removably fitting said casing to the board (7) of a gas burner and **characterized in that** said bobbin carcass (3) includes integrally formed ducts (3a) to house output terminals (4) connected to the secondary coil, so that said output terminals (4) can be fit into the ducts as soon as they

- are produced when they are warm or hot, therefore soft, and **in that** the open side(s) of the casing (1) is permanently closed by at least one cap (2) which has means for easy access to the ground, supply and/or output terminals.
2. The electronic ignitor of Claim 1, **characterized in that** the compartments (1a and 1b) of the casing are placed side-by-side to be opened to the same side of the casing and be closed by a common cap (2).
 3. The electronic ignitor of Claim 2, **characterized in that** the second compartment of the casing has an additional open side (D) and that said side is also closed by said cap via a section (2k) bent towards said open side.
 4. The electronic ignitor of Claim 1, **characterized in that** the compartments (1a and 1b) of the casing are placed one above the other, being opened to different sides of the casing and closed by separate caps.
 5. The electronic ignitor of any of the claims above, **characterized in that** the cap involves openings (2d, 2e, 2f, and 2g) that correspond, in number, shape and dimension, to the ducts (3a) of the carcass (3) when the cap (2) is fixed permanently onto the casing (1).
 6. The electronic ignitor of any of the claims above, **characterized in that** the cap involves one or more holes (2h) to house the supply and ground terminals on the plate (6).
 7. The electronic ignitor of Claim 6, **characterized in that** said holes (2h) are placed in one or more protrusions (2i) with one or more indentations (2a, 2b and 2c).
 8. The electronic ignitor of Claim 7, **characterized in that** said protrusion (2i) is an integral part of the cap.
 9. The electronic ignitor of Claim 7, **characterized in that** said protrusion (2i) is separately produced and than attached to the cap.
 10. The electronic ignitor of any of claims 1 to 5 above, **characterized in that** the casing (1) involves one or more holes (2j) to house the supply and ground terminals on the plate (6).
 11. The electronic ignitor of Claim 10, **characterized in that** said hole(s) (2j) house(s) one or more separately produced protrusions (2i) with one or more indentations (2a, 2b and 2c) to house said terminals (10, 11 and 12).
 12. The electronic ignitor of any of the claims above, **characterized in that** said cap is permanently fixed to the casing via ultrasonic welding.
 13. The electronic ignitor of any of the claims above, **characterized in that** it further comprises a grounding means (8 or 9) made of an electrically connecting, resiliently deformable material, involving mainly two parts, one (8a or 9a) for simple attachment to the ground terminal from outside the cap, and another (8b or 9b) for providing electrical connection between the ground terminal and the board of the gas burner.
 14. The electronic ignitor of Claim 13, **characterized in that** said part of the grounding means (8 or 9) for attachment to the ground terminal involves one or more curved portions (8a or 9a), extending into the indentation (2a) housing the ground terminal, for providing electrical contact with the ground terminal.
 15. The electronic ignitor of Claim 13 or 14, **characterized in that** said part (8b) of the grounding means (8) for providing contact with the board (7) has a U-shape, extending parallel to a side (A) of the casing (1) so as to be trapped between the casing and the board (7) of the gas range.
 16. The electronic ignitor of Claim 13 or 14, **characterized in that** said part (8b) of the grounding means (8) for providing contact with the board (7) is in the shape of a stripe, which makes an angle with a side (A) of the casing (1) so as to be trapped between the casing and the board (7).
 17. The electronic ignitor of Claim 13 or 14, **characterized in that** said part (9b) of the grounding means (9) for providing contact with the board (7) extends in a direction parallel to one of the lateral sides (B or D), and has the same form as the assembly means so that said parts (9b) reside on the assembly means (1e) and the two holes (9c) on said part (9b) coincide with the holes of the assembly means.

Patentansprüche

1. Ein elektronischer Anzünder für Gasbrenner, der ein Gehäuse (1) aus Isoliermaterial und in Form eines rechtwinkligen Prismas umfaßt, welches in die durch eine Isolierwand (1c) voneinander getrennte zwei Kammern (1a und 1b) abgeteilt ist, aufweisend Mittel für elektrische Verbindung von einer Kammer zu der anderen und zumindest eine offene Seite (D und/oder F), eine oder mehrere auf einem oder mehreren in der ersten Kammer (1b) angeordneten Gerippe(n) der Spulenträgern (3) gewickelten sekundäre Spule(n), eine in die genannte sekundäre Spule (n) verschachtelte primäre Spule (5), eine in der zweiten Kammer (1a) angeordneten Platte (6) zur

- Beförderung mehrerer elektronischen Komponenten wie Erdanschlüsse und Anschlusspunkte (10, 11 und 12), sowie zumindest ein Einbaumittel zum ablösbaren Einbau des genannten Gehäuses an das Panel eines Gasbrenners und **dadurch gekennzeichnet, daß** der erwähnte Spulenträger (3) ganzheitlich ausgebildete Kanäle (3a) aufweist, um die an die sekundäre Spule angeschlossene Ausgangsanschlüsse (4) aufzunehmen, so dass die genannten Ausgangsanschlüsse (4) in die Kanäle eingebracht werden können, sobald sie produziert werden während sie warm oder heiss und daher weich sind und dass die offene Seite(n) des Gehäuses (1) mit mindestens einem Deckel (2) dauerhaft geschlossen ist, der die Mittel für einfachen Zugang zu den Erdanschlüssen, Anschlusspunkten und/oder den Ausgangsanschlüssen besitzt.
2. Elektronischer Anzünder nach Anspruch 1, **dadurch gekennzeichnet, dass** die Kammer (1a und 1b) des Gehäuses nebeneinander angeordnet sind, um zur gleichen Seite des Gehäuses geöffnet und durch einen gemeinsamen Deckel (2) geschlossen zu werden.
 3. Elektronischer Anzünder nach Anspruch 2, **dadurch gekennzeichnet, dass** die zweite Kammer des Gehäuses eine zusätzliche offene Seite (D) hat und dass die erwähnte Seite auch durch den erwähnten Deckel mittels eines gegen die erwähnte Seite geneigten Abschnitts (2k) abgeschlossen wird.
 4. Elektronischer Anzünder nach Anspruch 1, **dadurch gekennzeichnet, dass** die Kammer (1a und 1b) des Gehäuses übereinander angeordnet gegen unterschiedliche Seiten des Gehäuses geöffnet und durch gesonderte Deckel abgeschlossen werden.
 5. Elektronischer Anzünder nach einem der oben erwähnten Ansprüche, **dadurch gekennzeichnet, dass** der Deckel Öffnungen (2d, 2e, 2f ve 2g) umfasst, die sich in der Anzahl, Form und Abmessung dem Gerippe des Spulenträgers (3) entsprechen, während der Deckel (2) auf dem Gehäuse (1) dauerhaft befestigt ist.
 6. Elektronischer Anzünder nach einem der oben erwähnten Ansprüche, **dadurch gekennzeichnet, dass** der Deckel eine oder mehrere Bohrungen (2h) umfasst, um die Anschlusspunkte und Erdanschlüsse auf der Platte aufzunehmen.
 7. Elektronischer Anzünder nach Anspruch 6, **dadurch gekennzeichnet, dass** die genannten Bohrungen (2h) in einem oder mehreren Vorsprüngen (2i) mit einer bzw. mehreren Einkerbungen (2a, 2b und 2c) angeordnet sind.
 8. Elektronischer Anzünder nach Anspruch 7, **dadurch gekennzeichnet, dass** der genannte Vorsprung (2i) ein integraler Bestandteil des Deckels ist.
 9. Elektronischer Anzünder nach Anspruch 7, **dadurch gekennzeichnet, dass** der genannte Vorsprung (2i) gesondert hergestellt und dann an den Deckel angebracht ist.
 10. Elektronischer Anzünder nach einem der oben erwähnten Ansprüche von 1 bis 5, **dadurch gekennzeichnet, dass** das Gehäuse (1) eine oder mehrere Bohrung(en) (2j) aufweist, um die Erdanschlüsse und Anschlusspunkte auf der Platte (6) aufzunehmen.
 11. Elektronischer Anzünder nach Anspruch 10, **dadurch gekennzeichnet, dass** die genannten Bohrung(en) (2j) eine oder mehrere gesondert hergestellte Vorsprünge (2i) mit einer bzw. mehreren Einkerbungen (2a, 2b und 2c) umfasst, um die genannten Anschlüsse (10, 11 und 12) aufzunehmen.
 12. Elektronischer Anzünder nach einem der oben erwähnten Ansprüche, **dadurch gekennzeichnet, dass** der genannte Deckel durch Ultraschallschweißen an das Gehäuse dauerhaft befestigt ist.
 13. Elektronischer Anzünder nach einem der oben erwähnten Ansprüche, **dadurch gekennzeichnet, dass** er ferner Erdungsmittel (8 oder 9) aufweist, die aus einem elektrisch leitenden, elastisch verformbaren Material hergestellt ist sowie hauptsächlich zwei Teile, einen (8a oder 9a) zur einfachen Befestigung an die Erdanschlüsse von außerhalb des Deckels und einen anderen (8b oder 9b) zur Beschaffung der elektrischen Verbindung zwischen dem Erdanschluss und das Panel des Gasbrenners, umfasst.
 14. Elektronischer Anzünder nach Anspruch 13, **dadurch gekennzeichnet, dass** der genannte Teil des Erdungsmittels (8 oder 9), zur Befestigung an die Erdanschlüsse eine oder mehrere sich zur Erstellung des elektrischen Kontakts mit dem Erdanschluss bis in die den Erdanschluss aufnehmende Einkerbung (2a) erstreckende, kurvenförmige Bereiche umfasst.
 15. Elektronischer Anzünder nach Anspruch 13 oder 14, **dadurch gekennzeichnet, dass** der genannte Teil (8b) des Erdungsmittels (8) zur Erstellung des elektrischen Kontakts mit dem Panel (7) eine U-Form aufweist, die sich parallel zu einer Seite (A) des Gehäuses (1) erstreckt, so dass sie zwischen dem Gehäuse und dem Panel (7) des Gasbrenners eingeklemmt wird.
 16. Elektronischer Anzünder nach Anspruch 13 oder 14,

dadurch gekennzeichnet, dass der genannte Teil (8b) des Erdungsmittels (8) zur Erstellung des elektrischen Kontakts mit dem Panel (7) in Form eines Streifens gebildet ist, der mit einer Seite (A) des Gehäuses (1) einen Winkel bildet, um zwischen dem Gehäuse und dem Panel (7) geklemmt zu werden.

17. Elektronischer Anzünder nach Anspruch 13 oder 14, **dadurch gekennzeichnet, dass** der genannte Teil (9b) des Erdungsmittels (9) zur Erstellung des Kontakts mit dem Panel (7) in einer zu einer der lateralen Seiten (B oder D) parallelen Richtung verläuft und die gleiche Form wie die Einbaumittel besitzt, so dass sich die genannten Teile (9b) auf dem Einbaumittel (1e) befinden und die zwei Bohrungen (9c) auf dem genannten Teil (9b) sich mit den Bohrungen des Einbaumittels übereinstimmen.

Revendications

1. Un allumeur électronique pour les brûleurs de gaz, comportant un enveloppe (1) d'une forme rectangulaire parallélépipédique divisé en deux parois (1a et 1b) séparées par un mur isolant, un dispositif assurant la connexion électronique d'une paroi à l'autre au mur, au moins un côté ouvert (D et/ou F) dans l'enveloppe, un ou plusieurs enroulements secondaires enroulés autour d'une ou plusieurs carcasses de bobine (3) placées dans la première paroi (1b) un ou plusieurs enroulements primaires placés à l'intérieur desdits enroulements secondaires, une plaque (6) placée dans la deuxième paroi (1a) pour supporter divers parts électroniques tels que la mise à la terre et les terminaux d'alimentation (10, 11, et 12), au moins un pièce de connexion (1e) pour fermement fixer ledit enveloppe au panneau de brûleur de gaz (7), et canaux (3a) modelés dans une manière inséparable pour contenir les terminaux de sortie (4) liés aux enroulements dudit enveloppe de carcasse (4) **caractérisé en ce qu'il** est fermé de façon permanente par au moins un couvercle (2) dont le(s) côté(s) de l'enveloppe (1) assurant l'accès facile aux terminaux d'alimentation et de sortie et mise à la terre, et pouvant être attaché aux canaux dès que lesdits terminaux de sortie sont produits dans un état modéré et chaud, et donc souple.
2. Un allumeur électronique selon la revendication 1, **caractérisé en ce que** les parois (1a et 1b) de l'enveloppe sont placés côte à côte de manière à ce qu'ils seraient ouverts dans la même direction de l'enveloppe et qu'ils seraient fermés par un couvercle commun (2).
3. Un allumeur électronique selon la revendication 2, **caractérisé en ce que** la deuxième paroi de l'enveloppe possède un côté ouvert supplémentaire (D) et

que ledit côté est aussi fermé par une coupe courbée vers ledit côté ouvert (2k).

4. Un allumeur électronique selon la revendication 1, **caractérisé en ce que** les parois (1a et 1b) de l'enveloppe sont superposées et ouvertes aux côtés différents de l'enveloppe et fermées par couvercles séparés.
5. Un allumeur électronique selon l'une des revendications précédentes, **caractérisé en ce que** le couvercle prend à son intérieur les trous (2d, 2e, 2f, et 2g) correspondant aux canaux (3a) de la carcasse quand ledit couvercle (2) est fixé à l'enveloppe (1) dans une façon permanente.
6. Un allumeur électronique selon l'une des revendications précédentes, **caractérisé en ce que** le couvercle prend à son intérieur un ou plusieurs trous (2h) pour afin de protéger les terminaux d'alimentation et de mise à la terre sur la plaque (6).
7. Un allumeur électronique selon la revendication 6, **caractérisé en ce que** lesdits trous (2h) possèdent une ou plusieurs entailles (2a, 2b, et 2c) ou se trouvent sur une ou plusieurs saillies (2i).
8. Un allumeur électronique selon la revendication 7, **caractérisé en ce que** ladite saillie (2i) est la partie intégrale du couvercle.
9. Un allumeur électronique selon la revendication 7, **caractérisé en ce que** ladite saillie (2i) est produite séparément et qu'elle soit attachée au couvercle subséquent.
10. Un allumeur électronique selon l'une de revendications quelconques de 1 à 5 ci-dessus, **caractérisé en ce que** l'enveloppe (1) prend à son intérieur un ou plusieurs trous (2j) pour afin de protéger les terminaux d'alimentation et de mise à la terre sur la plaque (6).
11. Un allumeur électronique selon la revendication 10, **caractérisé en ce que** ledit(s) trou(s) (2j) comporte/comportent une ou plusieurs saillie(s) (2i) séparément produite(s) ayant une ou plusieurs entaille(s) (2a, 2b, et 2c).
12. Un allumeur électronique selon l'une des revendications quelconques ci-dessus, **caractérisé en ce que** ledit couvercle est fixé de façon permanente à l'enveloppe par soudure ultrasonique.
13. Un allumeur électronique selon l'une des revendications quelconques ci-dessus, **caractérisé en ce qu'il** comprend un dispositif de mise à la terre (8 ou 9) fait d'un matériau électrolyte, élastique, et défor-

mable et comportant deux pièces principaux, à savoir, l'un (8a ou 9a) pour l'attachement facile au terminal de mise à la terre de l'extérieur du couvercle, et l'autre (8a ou 9b) pour assurer la connexion électrique entre le terminal de mise à la terre et le brûleur de gaz. 5

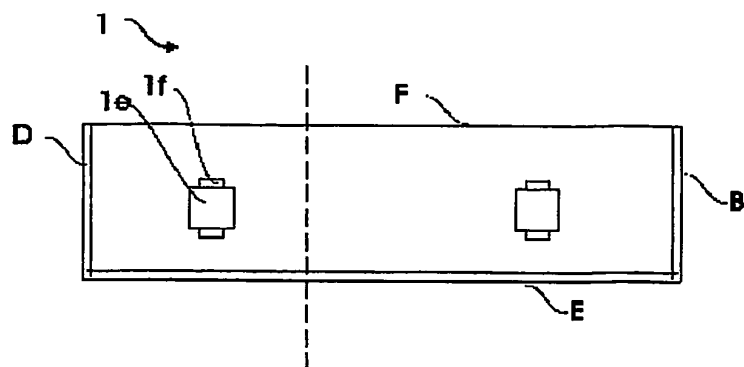
14. Un allumeur électronique selon la revendication 13, **caractérisé en ce que** le dispositif de mise à la terre comporte un ou plusieurs pièce(s) courbé(s) (8 ou 9) élongeant vers l'entaille (2a) fermant le couvercle du dispositif de mise à la terre (8 ou 9) pour l'attachement au terminal de mise à la terre et pour assurer le contact électrique avec le terminale de mise à la terre. 10 15
15. Un allumeur électronique selon la revendication 13 ou 14, **caractérisé en ce que** ledit pièce (8b) du dispositif de mise à la terre qui pourrait assurer le contact avec le panneau (7) s'élonge parallèlement vers l'un côté (A) de l'enveloppe de manière à ce que ledit pièce soit resté entre l'enveloppe et le panneau (7) du four à gaz, et soit en forme de « U ». 20
16. Un allumeur électronique selon la revendication 13 ou 14, **caractérisé en ce que** ledit pièce du dispositif de mise à la terre (8) assurant le contact avec le panneau (7) est en forme d'une bande faisant angle de manière à ce qu'il resterait entre un côté (A) de l'enveloppe et l'enveloppe et le panneau. 25 30
17. Un allumeur électronique selon la revendication 13 ou 14, **caractérisé en ce que** ledit pièce du dispositif de mise à la terre (9) assurant la connexion avec le panneau (7) s'élonge dans une direction parallèle à l'un des côtés latéraux (B ou D) et qu'il possède la même forme avec le pièce de connexion de manière à ce que lesdits pièces (9b) soient restés sur le pièce de connexion (1e) et que les deux trous (9c) sur ledit pièce correspondent à ceux du dispositif de connexion. 35 40

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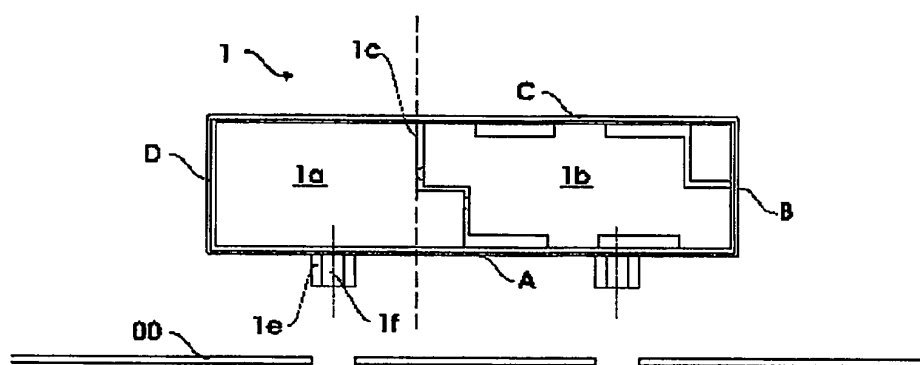
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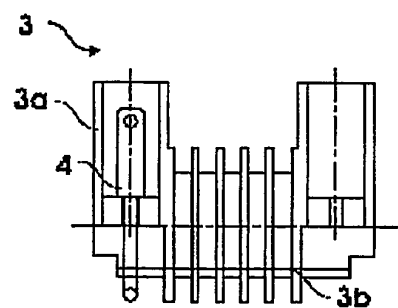
[Fig. 001]



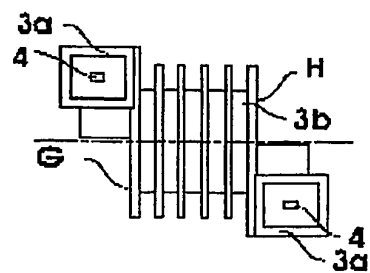
[Fig. 002]



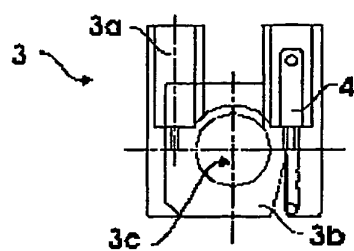
[Fig. 003]



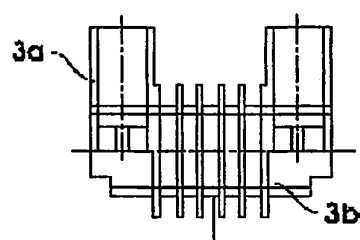
[Fig. 004]



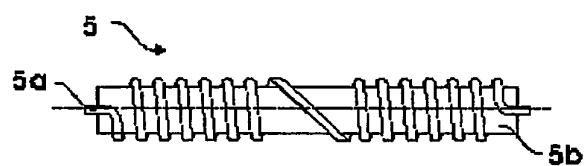
[Fig. 005]



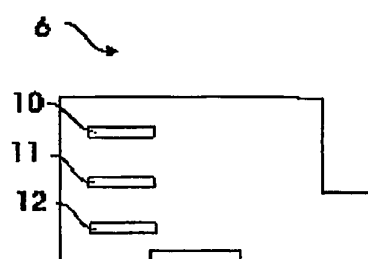
[Fig. 006]



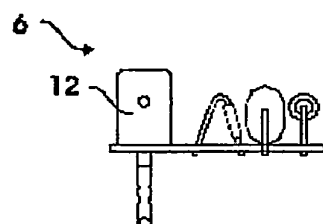
[Fig. 007]



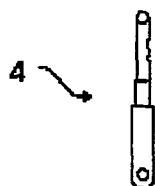
[Fig. 008]



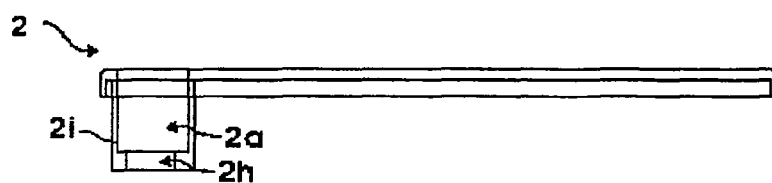
[Fig. 009]



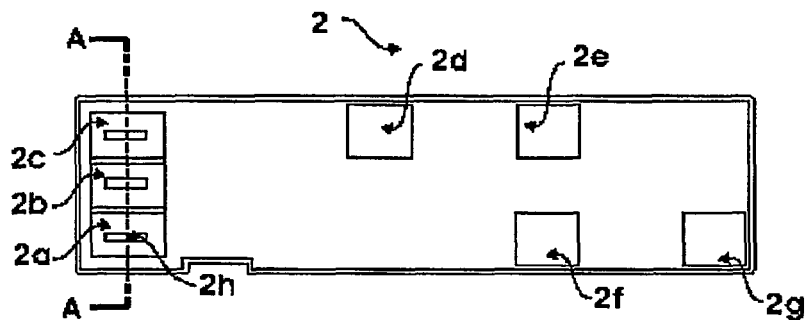
[Fig. 010]



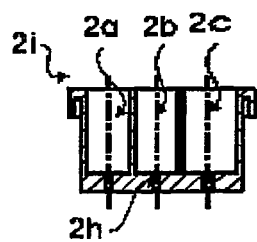
[Fig. 011]



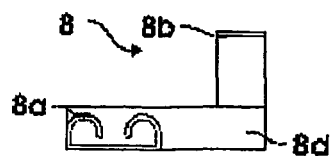
[Fig. 012]



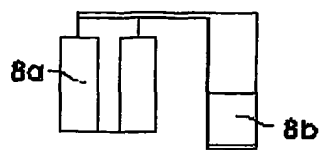
[Fig. 013]



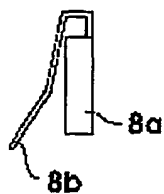
[Fig. 014]



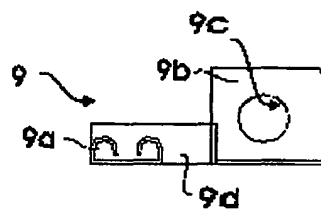
[Fig. 015]



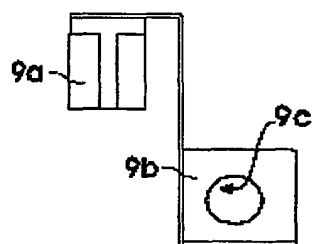
[Fig. 016]



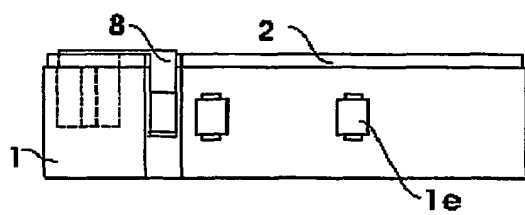
[Fig. 017]



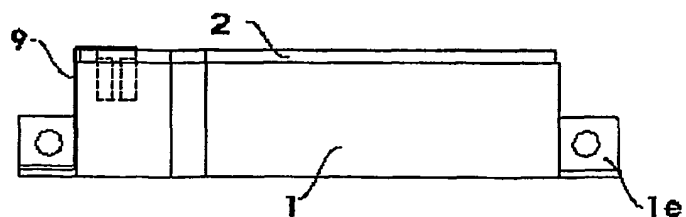
[Fig. 018]



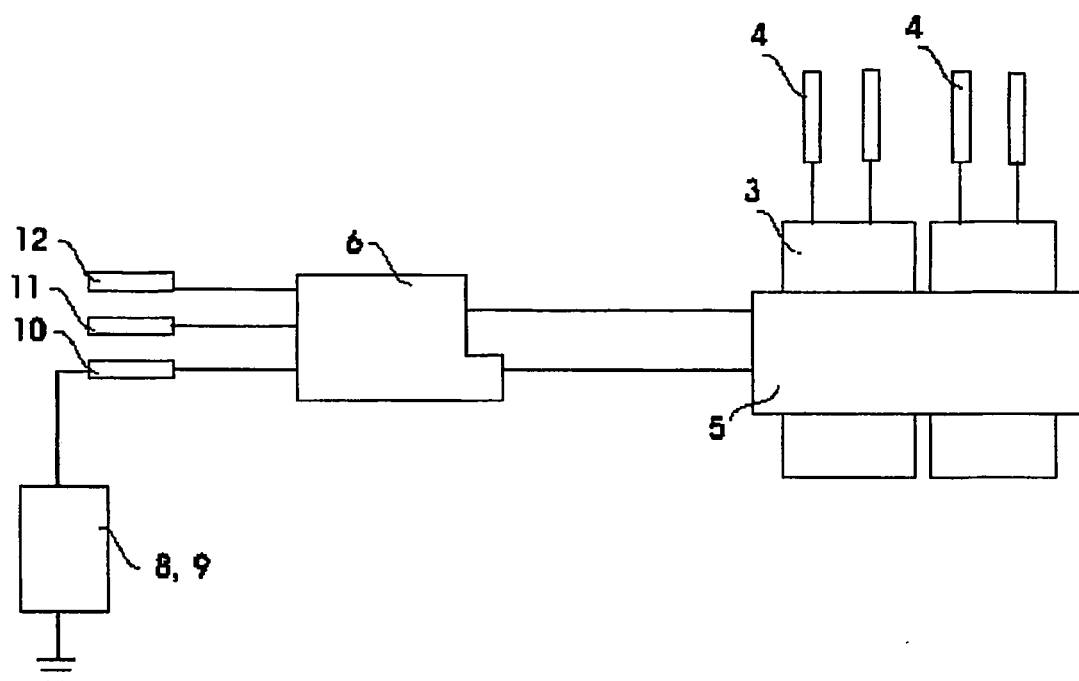
[Fig. 019]



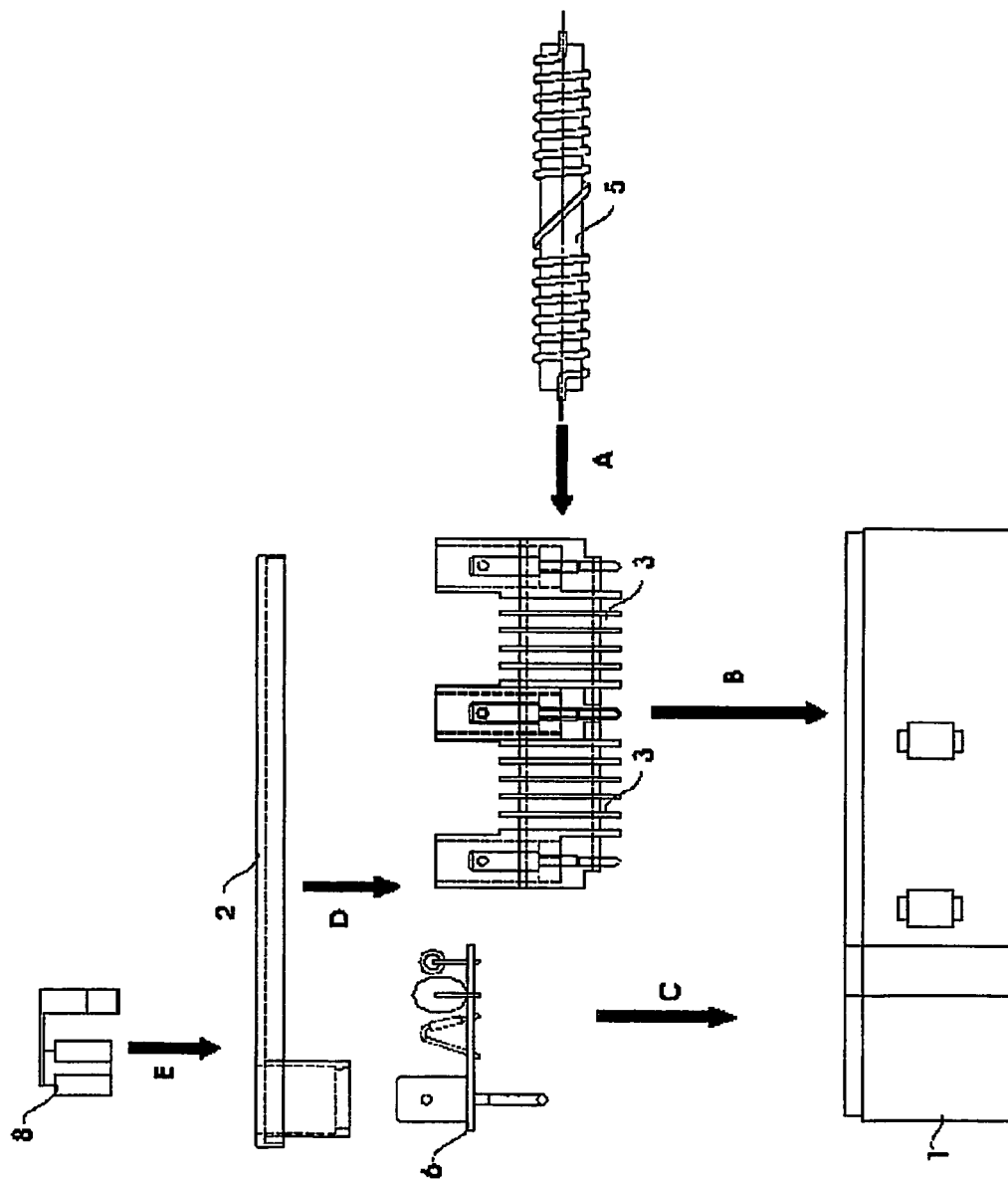
[Fig. 020]



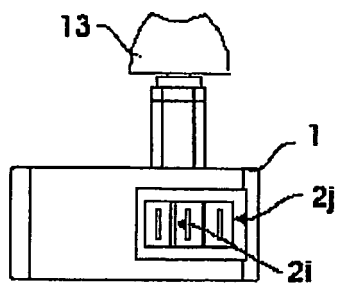
[Fig. 021]



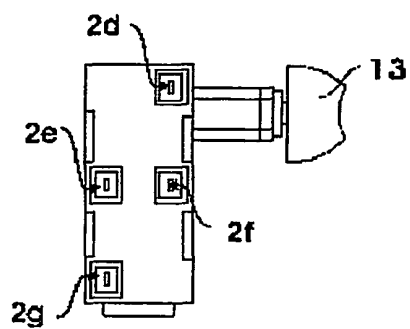
[Fig. 022]



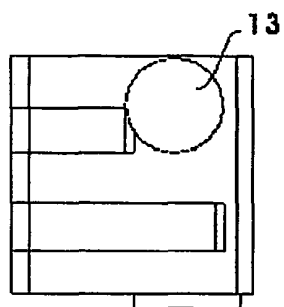
[Fig. 023]



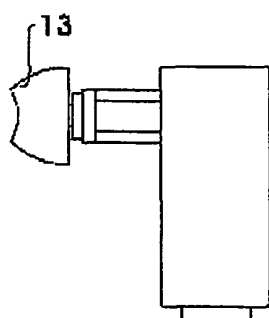
[Fig. 024]



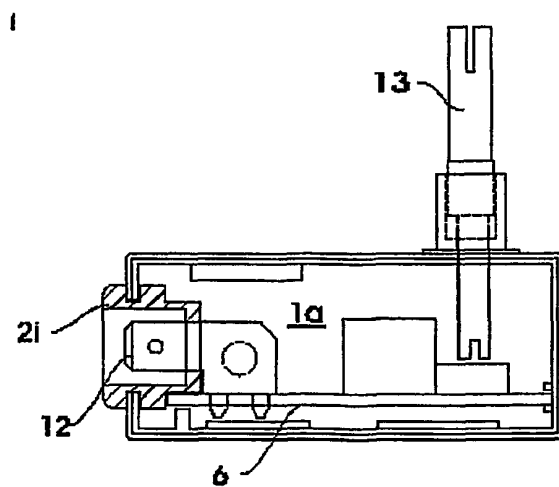
[Fig. 025]



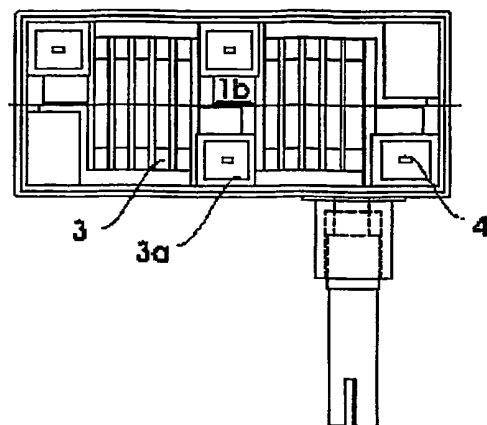
[Fig. 026]



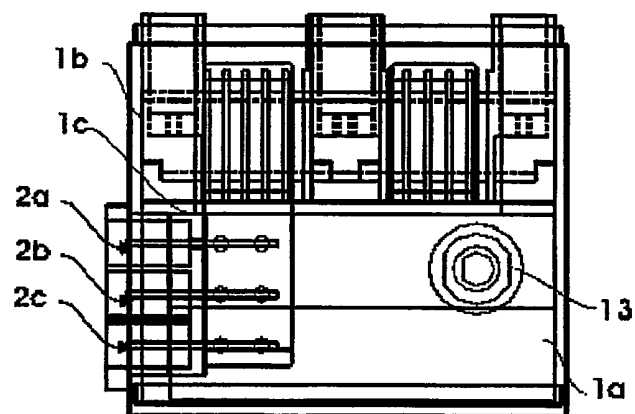
[Fig. 027]



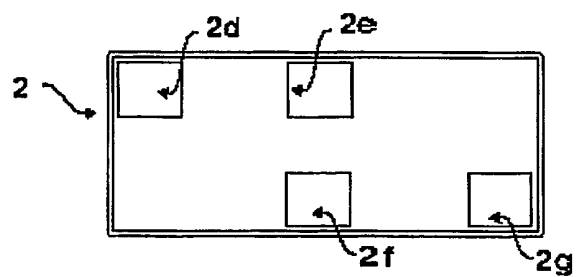
[Fig. 028]



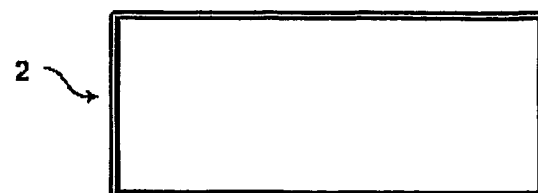
[Fig. 029]



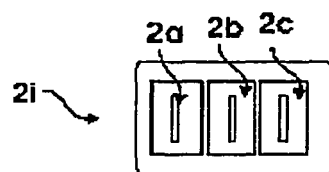
[Fig. 030]



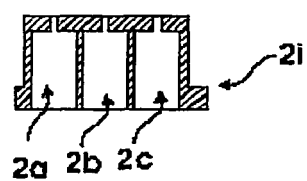
[Fig. 031]



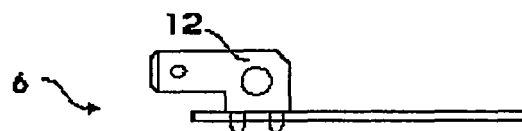
[Fig. 032]



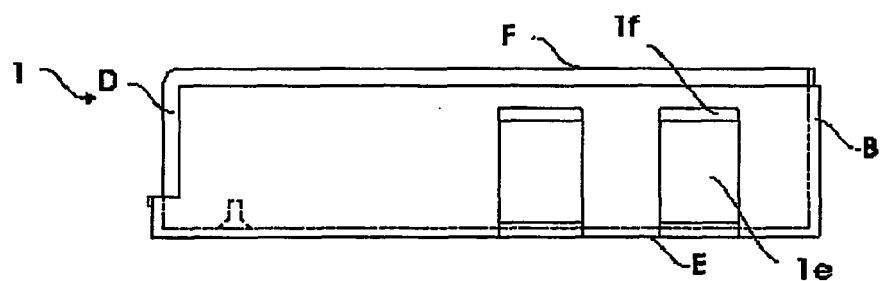
[Fig. 033]



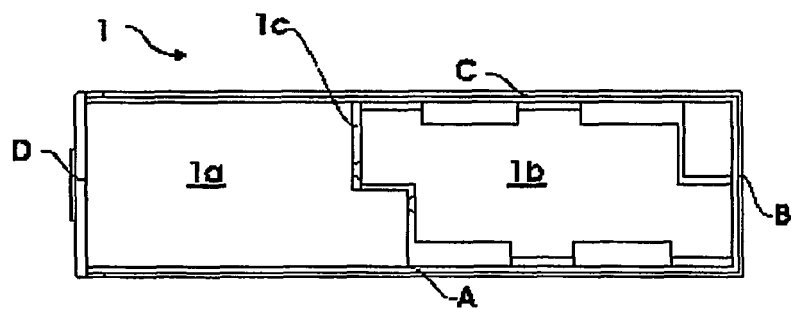
[Fig. 034]



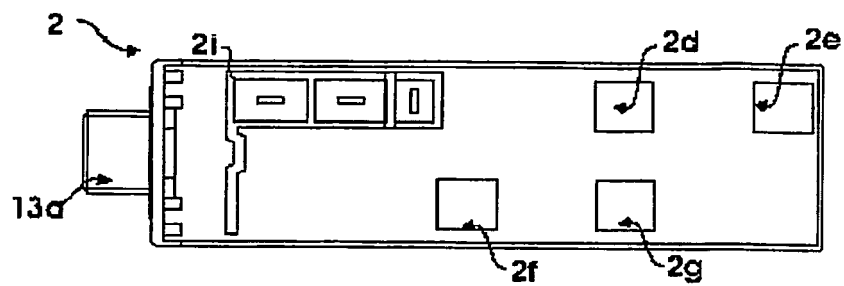
[Fig. 035]



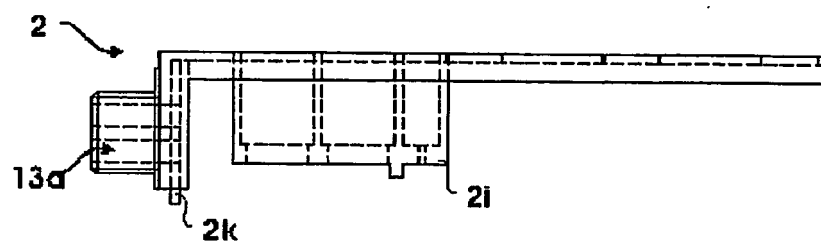
[Fig. 036]



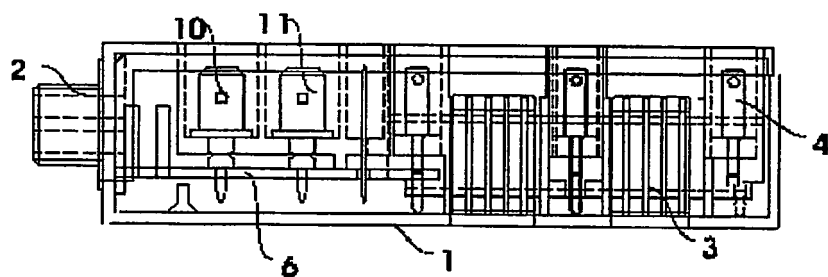
[Fig. 037]



[Fig. 038]



[Fig. 039]



REFERENCES CITED IN THE DESCRIPTION

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