

PATENT SPECIFICATION

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(54) SET OF COMPONENTS FOR FORMING THE CASING OF A CONTROL DEVICE OR BATTERY

(71) I, RICHARD SOBECK, a citizen of the Federal Republic of Germany, of Gutzkowstrasse 3, D-6000 Frankfurt a.M. 70, Federal Republic of Germany, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in any by the following statement:—

The invention relates to a set of components for selectively forming the casing of either a control device or a battery.

In accordance with the invention a set of components for constructing an electric batter and regulator housing comprises:

(a) a hollow housing body forming a battery casing and open at one end to receive at least two batteries in side-by-side relationship, and having a base provided with inner contact elements for one pole of each battery respectively and outer contact elements connected to respective ones of the inner contact elements;

(b) a detachable cap for the open end of the housing body provided with further contact elements for the opposite pole of each battery respectively, said cap being securable on to a tubular flange at the open end of the housing body by co-operating elements on the cap and flange respectively which engage and disengage when the cap and the flange are rotated to each other in opposite directions;

(c) an outer casing attachable to the housing body so as to at least partly enclose the housing body, and provided with electrical connections connectable to the outer contact elements; and

(d) a rotary knob controlled variable potentiometer mountable on the outer casing and connectable to the said electrical connections of the outer casing or mountable on the cap and connectable to said further contact elements of said cap.

The various combinations of the components can be put to the following uses:

(a) battery casing, cap, outer casing and

potentiometer — for a complete control unit,

(b) battery casing, cap, outer casing and closure cap — as a battery holder with an on and off switch,

(c) outer casing, push-on cap and potentiometer — as a control device,

(d) battery casing, cap, modified outer casing and potentiometer in the cap of the battery casing — as an adjustable battery-powered appliance, and

(e) battery casing, cap and modified outer casing — as a non-adjustable, battery-powered appliance having only an on or off switch.

The invention will now be explained in more detail with reference to embodiments illustrated in the accompanying drawings, in which:—

Fig. 1 is a view of the elements of a set of components in a separated condition,

Fig. 2 is a diagrammatic sectional view of a complete control device made up of the parts of the set of components,

Fig. 3 illustrates a first example of the use of a combination of components that constitutes a modified form of the Fig. 2 combination, and

Fig. 4 illustrates a further example of use.

The set of components shown in Fig. 1 comprises a battery casing 1 for accommodating batteries 2, a closure cap 3 for the battery casing 1, an outer casing 4, a closure cap 5-5a, and potentiometer 6.

At one of its ends the battery casing has two contacts 10 which are disposed in alignment with the axes of the batteries 2 that are to be inserted. These contacts are preferably in the form of soldered connexions, i.e. they can be shaped like hollow rivets so that an electrical connecting lead can be soldered into the bore of each hollow rivet. The battery casing 1 also has a collar 11 which has perforations 12 near its circumference. A cylindrical attachment 13 on the battery casing is engaged by the push-on cap 3. This engagement is achieved in the

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customary manner by means of spiral slots in which engage pips 14 formed integrally with the cap 3.

5 A contact disc 15 is resiliently mounted in the cap 3. This contact disc has studs 16 which, when the device is switched on, are aligned with the axes of the torch batteries 2.

10 The cap 3 is thus held on the attachment 13 in the manner of a bayonet connexion and, when turned, moves towards or away from the collar 11. This arrangement constitutes an on and off switch.

15 The outer casing 4 is designed as a cylinder, one end-face 17 of which is open, projecting pins 18 being provided on the circumferential edge. The pins 18 are aligned with the perforations 12 in the battery casing and serve to connect the outer casing 4 to the battery casing 1.

20 The other end-face 19 of the outer casing is closed. The outer casing carries at any suitable point an electric plug connexion 20, preferably in the form of what is known as a diode plug, which in the arrangement illustrated is disposed precisely along the central axis of the casing.

25 The outer casing 4 has an opening 21 through its wall. Near the periphery of this opening 21 are holes 22 for receiving pins 23 which are provided on the inner face of a cap or cover 5.

30 The potentiometer 6 consists of a potentiometer winding 24, which is provided with soldered vanes. A rotatable knob 26 can be fitted on the drive spindle of the potentiometer 24. The potentiometer includes an alternative closure cap 5a.

35 To enable the parts to be assembled in a non-interchangeable manner, the pins 18 and 23 are preferably so disposed that they can only fit in the corresponding holes 12, 27, and 22, respectively.

40 An assembled complete housing of a control device is shown diagrammatically and in section in Fig. 2, for example.

45 It can be seen from the illustration that the spindle of the potentiometer 24 projects through the lateral opening 21 in the outer casing, so that the rotatable knob 26 can be fitted on from the outside.

50 In the arrangement illustrated in Fig. 3, the battery casing 1 with its attachment 13 and the slots 28 thereon can be seen. Here, the potentiometer 24 is, in addition, fitted in the cap 3, and the rotatable knob 24 is mounted on the potentiometer spindle which is fitted in an opening, not illustrated, in the outer end-wall of the cap 3. In this arrangement, the potentiometer may also have an on-off switch.

55 In this example, the outer casing 30 may form a battery-powered massage appliance which is made mainly of a foamed plastics material or rubber. The driven part is an electric motor 31, the supply leads 32 of

which are directly connected to the contacts 10 of the battery casing 1.

It can be seen from Fig. 1 that the wiring 50 can be provided loosely in the interior of the outer casing to suit the combination of components that is used. The further flow of current is along the broken lines 51.

70 In the example shown in Fig. 4, the outer casing is constituted by soft-foamed cup-like parts 40 which are inter-connected by straps 41 and 42 to form a massage appliance of the brassiere type.

75 Here again, the driven parts are constituted by motors 43 which can be embedded in the outer casing when the latter is being formed by foaming.

80 It will be seen that any other required use for a battery casing or control device casing is possible. If the battery is to be used as a separate control-device casing, it can be connected, for operation from a distance, to a battery-driven appliance by means of a control cord releasably connected to the plug connexion 20.

85 It is also possible, for example, to accommodate a drive motor and the actual battery casing in a battery-driven appliance and to connect this by way of a control cord to the outer casing 4 which only contains the potentiometer 6.

WHAT I CLAIM IS:—

1. A set of components for constructing an electric battery and regulator housing comprising:

100 (a) a hollow housing body forming a battery casing and open at one end to receive at least two batteries in side-by-side relationship, and having a base provided with inner contact elements for one pole of each battery respectively and outer contact elements connected to respective ones of the inner contact elements;

105 (b) a detachable cap for the open end of the housing body provided with further contact elements for the opposite pole of each battery respectively, said cap being securable on to a tubular flange at the open end of the housing body by co-operating elements on the cap and the flange respectively which engage and disengage when the cap and the flange are rotated relative to each other in opposite directions;

110 (c) an outer casing attachable to the housing body so as to at least partly enclose the housing body, and provided with electrical connections connectable to the outer contact elements; and

115 (d) a rotary knob controlled variable potentiometer mountable on the outer casing and connectable to the said electrical connections of the outer casing or mountable on the cap and connectable to said further contact elements of said cap respectively.

customary manner by means of spiral slots in which engage pips 14 formed integrally with the cap 3.

5 A contact disc 15 is resiliently mounted in the cap 3. This contact disc has studs 16 which, when the device is switched on, are aligned with the axes of the torch batteries 2.

10 The cap 3 is thus held on the attachment 13 in the manner of a bayonet connexion and, when turned, moves towards or away from the collar 11. This arrangement constitutes an on and off switch.

15 The outer casing 4 is designed as a cylinder, one end-face 17 of which is open, projecting pins 18 being provided on the circumferential edge. The pins 18 are aligned with the perforations 12 in the battery casing and serve to connect the outer casing 4 to the battery casing 1.

20 The other end-face 19 of the outer casing is closed. The outer casing carries at any suitable point an electric plug connexion 20, preferably in the form of what is known as a diode plug, which in the arrangement illustrated is disposed precisely along the central axis of the casing.

30 The outer casing 4 has an opening 21 through its wall. Near the periphery of this opening 21 are holes 22 for receiving pins 23 which are provided on the inner face of a cap or cover 5.

35 The potentiometer 6 consists of a potentiometer winding 24, which is provided with soldered vanes. A rotatable knob 26 can be fitted on the drive spindle of the potentiometer 24. The potentiometer includes an alternative closure cap 5a.

40 To enable the parts to be assembled in a non-interchangeable manner, the pins 18 and 23 are preferably so disposed that they can only fit in the corresponding holes 12, 27, and 22, respectively.

45 An assembled complete housing of a control device is shown diagrammatically and in section in Fig. 2, for example.

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which are directly connected to the contacts 10 of the battery casing 1.

It can be seen from Fig. 1 that the wiring 50 can be provided loosely in the interior of the outer casing to suit the combination of components that is used. The further flow of current is along the broken lines 51.

70 In the example shown in Fig. 4, the outer casing is constituted by soft-foamed cup-like parts 40 which are inter-connected by straps 41 and 42 to form a massage appliance of the brassiere type.

75 Here again, the driven parts are constituted by motors 43 which can be embedded in the outer casing when the latter is being formed by foaming.

80 It will be seen that any other required use for a battery casing or control device casing is possible. If the battery is to be used as a separate control-device casing, it can be connected, for operation from a distance, to a battery-driven appliance by means of a control cord releasably connected to the plug connexion 20.

85 It is also possible, for example, to accommodate a drive motor and the actual battery casing in a battery-driven appliance and to connect this by way of a control cord to the outer casing 4 which only contains the potentiometer 6.

WHAT I CLAIM IS:—

1. A set of components for constructing an electric battery and regulator housing comprising:

(a) a hollow housing body forming a battery casing and open at one end to receive at least two batteries in side-by-side relationship, and having a base provided with inner contact elements for one pole of each battery respectively and outer contact elements connected to respective ones of the inner contact elements;

(b) a detachable cap for the open end of the housing body provided with further contact elements for the opposite pole of each battery respectively, said cap being securable on to a tubular flange at the open end of the housing body by co-operating elements on the cap and the flange respectively which engage and disengage when the cap and the flange are rotated relative to each other in opposite directions;

(c) an outer casing attachable to the housing body so as to at least partly enclose the housing body, and provided with electrical connections connectable to the outer contact elements; and

(d) a rotary knob controlled variable potentiometer mountable on the outer casing and connectable to the said electrical connections of the outer casing or mountable on the cap and connectable to said further contact elements of said cap respectively.



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2. A set of components according to claim 1 wherein the contact elements of the cap are connectable to contact lugs on the ends of the potentiometer. 20
- 5 3. A set of components according to claims 1 or 2, wherein the potentiometer is mounted on the cap and its control knob is arranged coaxially with and located on the cap. 25
- 10 4. A set of components according to any of claims 1—3, wherein the cap forms a rotary on/off switch for the battery contacts. 30
- 15 5. A set of components according to any of claims 1—3, wherein the potentiometer has an on/off switch.
6. A set of components according to any of claims 1 to 5, wherein the means for securing the connecting flange of the body to the casing comprises holes in the flange which receive pins on the casing.
7. A set of components according to any of claims 1—5, wherein the casing has an external plug connection in circuit with the battery contacts in the housing body.
8. A set of components according to any of claims 1 to 7, wherein the casing is formed by part of a battery driven article.
9. A set of components for constructing an electric battery and regulator housing constructed and arranged substantially as hereinbefore described and shown in Figures 1, 2, or 3, or 4 of the accompanying drawings.
- For the Applicant:
D. YOUNG & CO.,
9 & 10 Staple Inn,
London, WC1V 7RD.

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