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(54)

A remote control device for a receiver

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A remote control device for a receiver comprises a case body (2) sealed by a closing plate (5) and containing an electronic circuit (16) for generating electromagnetic signals to be sent to the receiver. The device further comprises operating elements (17) attached to the closing plate (5) for operation of the above-mentioned electronic circuit. The case body (2) is at least partially covered by a cover element (6) made of elastomeric material, fixed to the case body in such a way that it is cannot be removed and positioned in such a way that it protects at least the case body (2) from impact and dropping.

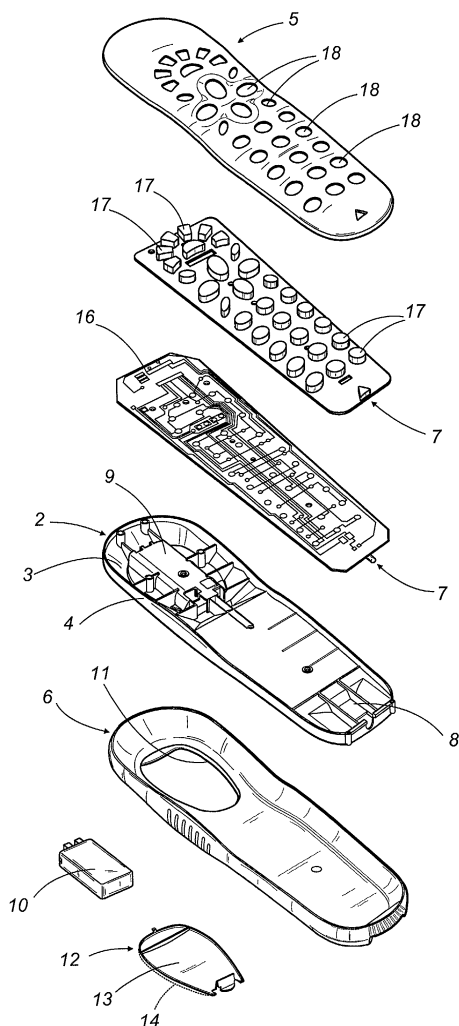


FIG. 2

Description

[0001] The present invention relates to a remote control device for a receiver.

[0002] As is known, many domestic appliances (such as televisions, hi-fi units, video recorders, etc.) and some machinery for industrial use may be controlled from a distance using suitable remote controls.

[0003] These normally consist of a box-shaped body containing all of the circuitry required to generate the signals to be sent to a receiver which converts the signals into commands. To allow a user to send different commands to the receiver device, the box-shaped body has a plurality of keys which are connected to the internal circuit. Therefore, by pressing different keys (even in particular sequences), the operator can obtain the desired function from the receiver.

[0004] Most remote controls are designed to be easily transported and handled by the user and, therefore, are small. In particular, known remote controls are made in such a way that they can be held and operated with just one hand.

[0005] Despite all of the structural devices which have been added in order to provide a grip which is as secure as possible, anyone in possession of a remote control doubtless knows how often it slips from the hand and is dropped, or is accidentally bumped, suffering irreparable damage.

[0006] In order to overcome this type of disadvantage, the prior art teaches the use of cases made of a deformable material (normally an elastomeric material) in which the remote control can be inserted, so as to lessen the impact suffered and, as a result, limit any damage.

[0007] A first practical disadvantage of this type of protective device is the difficulty in adapting it to fit remote controls of different sizes. Although made of a deformable material, protective cases do not have a sufficiently low coefficient of elasticity to provide satisfactory adaptation characteristics, since their shape and dimensions are substantially ready-formed and, as a result, they can only be used on a limited number of remote controls.

[0008] Moreover, covering the remote control at least partially with a container whose thickness is certainly not negligible makes the remote control less practical to use, since both the grip and access to the keys are obstructed.

[0009] In light of this, the aim of the present invention is to provide a remote control device, in particular for domestic appliances, which is effectively protected from external bumps and impact.

[0010] Another aim of the present invention is to provide a remote control device, in particular for domestic appliances, which is practical and easy to handle.

[0011] Another aim of the present invention is to provide a remote control device, in particular for domestic appliances, with dimensions which are substantially identical to those of a conventional remote control.

[0012] These and other aims are substantially achieved by a remote control device for a receiver as described in the claims herein.

[0013] Further characteristics and advantages are more clearly illustrated in the detailed description of the remote control device in particular for domestic appliances, with reference to the accompanying drawings, which illustrate a preferred embodiment without limiting the scope of application, and in which:

- Figure 1 is a perspective view of a device made in accordance with the present invention;
- Figure 2 is an exploded view of the device illustrated in Figure 1;
- Figure 3 is a side view of the device illustrated in Figure 1, according to the arrow F in Figure 1;
- Figure 4 is a side view of the device illustrated in Figure 1, according to the arrow G in Figure 1.

[0014] The remote control device according to the present invention is labelled 1 as a whole in the accompanying drawings.

[0015] The device 1 comprises a case body 2, which is substantially box-shaped (illustrated in Figure 2), on which a closing plate 5 is securely fixed.

[0016] In particular with reference to Figure 2, the case body 2 has an internal surface 3 which forms a housing 8. Inside said housing 8 there are electronic control means 7, whose function is to generate electromagnetic control signals with which the user can operate a receiver.

[0017] To protect at least the case body 2 and the circuitry contained inside it from bumps and dropping, there is a cover element 6 fixed to an outer surface 4 of the case body 2 in such a way that it cannot be removed.

[0018] The cover element 6 is a sheath made of an elastomeric material which surrounds the case body 2.

[0019] Moreover, in the outer surface 4 of the case body 2 there is a cavity 9 in which a power unit 10 (basically, the batteries) is inserted, to allow operation of the electronic control means 7.

[0020] At the cavity 9, the cover element 6 has a through-hole 11, allowing the user access to the power unit 10 so that, for example, it may be substituted when low.

[0021] In order to effectively protect the power unit 10 as well, the device 1 has a sealing cover 12 which normally seals the above-mentioned through-hole 11, and which is fixed close to the hole 11.

[0022] The sealing cover 12 may be removed, allowing access to the power unit 10 if necessary.

[0023] In order to make the device 1 practical and easy to handle, as well as giving it an attractive appearance, the sealing cover 12 is made in such a way that its shape substantially matches that of the through-hole 11 in the cover element 6.

[0024] The sealing cover 12 (as is schematically illustrated in Figure 2) normally consists of a single rigid sur-

face 13.

[0025] Alternatively, this sealing cover may comprise a first layer 13 made of a rigid material, and a second layer 14 (illustrated with a dashed line), fixed to the first layer 13 and made of an elastomeric material.

[0026] In this alternative embodiment, when the sealing cover 12 is fixed to the rest of the device 1, at the through-hole 11, the first layer 13 is opposite the power unit 10, whilst the second layer 14 may be an extension of the cover element 6, forming a single, substantially continuous surface with the above-mentioned cover element 6.

[0027] Advantageously, the cavity 9 is made in the outer surface 4 in such a way that the power unit 10 is distanced from the surface on which the device 1 rests. This feature allows improved isolation of the power unit 10 from humidity and, in general, from harmful substances with which the cover element 6 may come into contact.

[0028] The case body 2 and cover element 6 have an elongated shape and extend substantially in a direction defined by a longitudinal axis (not illustrated) of the case body 2. Moreover, to improve both the user's grip and the natural barycentre, the cover element 6 has a curved configuration 6a on the side opposite the case body 2 (see Figure 4).

[0029] Despite this particular shape, a suitable distribution of the weights of the various parts of the device 1 means that, when the device 1 is placed on a surface in such a way that it rests on the cover element 6, it maintains a substantially stable, balanced position.

[0030] The cover element 6 also has a plurality of mouldings 15 (see Figure 3) which extend transversally relative to the longitudinal axis of the case body 2, and of which at least three, labelled 15a, 15b and 15c, are contact zones for resting the device 1 on a fixed surface PF.

[0031] In particular, two of these mouldings, 15a and 15b, are located at the ends of the cover element 6, whilst the third is substantially at the centre of the cover element 6.

[0032] In addition, the sealing cover 12 of the through-hole 11 in the cover element 6 has a convex shape such that the through-hole remains clear of the fixed surface PF. This protects the electrical contacts from any liquids or other elements present on the fixed surface PF, which might damage the circuits in the device 1.

[0033] The control means 7 basically consist of an electronic circuit 16 and a plurality of elements 17 for operation of the electronic circuit 16.

[0034] The electronic circuit 16 is positioned inside the housing 8, formed by the inner surface 3 of the case body 2 and is designed to generate electromagnetic signals to be sent to the receiver (for example, a television).

[0035] The operating elements 17 are normally keys positioned in a plurality of through-holes 18 made in the closing plate 5. In this way, the keys may be reached by the user who, pressing them, can select which control

signals should be transmitted to the receiver.

[0036] In order to make the device 1 even more safe and strong, in an alternative embodiment illustrated in Figures 3 and 4, the cover element 6 has at least one extending portion 19, extending transversally to the longitudinal axis of the case body 2, that is to say, parallel with the mouldings 15. The function of said portion 19, which partially covers the closing plate 5, is to prevent any damage to the device 1 if the device 1 is dropped or bumped on the closing plate 5.

[0037] The present invention has important advantages.

[0038] Firstly, a remote control device for a receiver which is made in accordance with the present invention is extremely practical and easy to handle, since the addition of the protective material does not change its dimensions relative to those of a conventional remote control and does not obstruct user access to the keypad.

[0039] Another advantage lies in the fact that, thanks to suitable shaping of the profile of the transversal mouldings in the deformable material, it is easier for the user to grip and much more secure than a conventional remote control, with reduced risks even for the internal circuits. The risk of dropping the remote control, with consequent malfunctions, is therefore much reduced.

[0040] It is also important to emphasise that, even from an economic viewpoint, the remote control device according to the present invention is extremely advantageous since, with a protective structure like the one described above, the product obtained is substantially the same price as a conventional remote control, but has the added advantage of being shock resistant to bumps and less easy to drop.

[0041] A further advantage emerges by observing that a careful distribution of the weights and shape of the various parts of the device allows the device to remain in a stable, balanced position when placed with the keys uppermost, despite the fact that the deformable portion has a curved configuration in the area rested on the surface.

[0042] The invention described can be subject to numerous modifications and variations without thereby departing from the scope of the inventive concept. Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A remote control device for a receiver, **characterised in that** it comprises:

- a case body (2) whose inner surface (3) forms a housing (8), and an outer surface (4);
- a closing plate (5) integral with the case body (2);
- a cover element (6) fixed to the case body (2) in such a way that it cannot be removed and

- made of an elastomeric material in order to protect the case body (2);
- electronic control means (7), at least partially positioned in said housing (8), for generating electromagnetic control signals for the receiver. 5
2. The device according to claim 1, **characterised in that** the outer surface (4) of the case body (2) has a cavity (9) for housing a power unit (10), the cover element (6) having a through-hole (11) at the cavity (9), allowing access to the power unit (10). 10
 3. The device according to claim 2, **characterised in that** it also comprises a sealing cover (12) substantially shaped in such a way that it matches the shape of the through-hole (11), and can be fixed in a removable manner in the hole (11). 15
 4. The device according to claim 3, **characterised in that** the sealing cover (12) comprises: 20
 - a first layer (13) of rigid material opposite the power unit (10);
 - a second layer (14) of elastomeric material, fixed to the first layer (13) and designed to form an extension of the cover element (6). 25
 5. The device according to any of the foregoing claims, **characterised in that** the case body (2) and cover element (6) have an elongated shape, extending in a direction defined by a longitudinal axis of the case body (2); the cover element (6) having a plurality of mouldings (15) extending transversally to the longitudinal axis. 30
 6. The device according to any of the foregoing claims, **characterised in that** the cover element (6) has a plurality of mouldings (15) extending transversally to the longitudinal axis, at least two of the mouldings (15a, 15b) forming contact zones for resting the device on a fixed surface (PF). 35 40
 7. The device according to any of the foregoing claims, **characterised in that** the cover element (6) has a plurality of mouldings (15) extending transversally to the longitudinal axis, at least three of the mouldings (15a, 15b, 15c) forming contact zones for resting the device on a fixed surface (PF). 45
 8. The device according to any of the foregoing claims, **characterised in that** the cover element (6) has a plurality of mouldings (15) extending transversally to the longitudinal axis, at least two of the mouldings (15a, 15b), being positioned at the ends of the cover element (6), forming contact zones for resting the device on a fixed surface (PF). 50 55
 9. The device according to any of the foregoing claims,
- characterised in that** the cover element (6) has a through-hole (11) for connection to the sealing cover (12), the latter having a convex shape such that the through-hole remains clear of the fixed surface (PF) on which the device is rested.
10. The device according to any of the foregoing claims, **characterised in that** a section of the cover element (6) is substantially concave, being designed to give the device a substantially stable equilibrium with the plate (5) facing upwards.
 11. The device according to any of the foregoing claims, **characterised in that** the electronic control means (7) comprise:
 - an electronic circuit (16) inside the housing (8), generating the electromagnetic signals to be sent to the receiver;
 - a plurality of operating elements (17) positioned close to the main closing plate (5) and operatively attached to the electronic circuit (16), for operating the electronic circuit (16).
 12. The device according to claim 11, **characterised in that** the closing plate (5) has a plurality of through-holes (18), the operating elements (17) being positioned at these holes to allow access to the operating elements (17).
 13. The device according to claim 5, **characterised in that** the cover element (6) comprises at least one extending portion (19), that is substantially transversal to the longitudinal axis and at least partially covers the closing plate (5).

FIG. 1

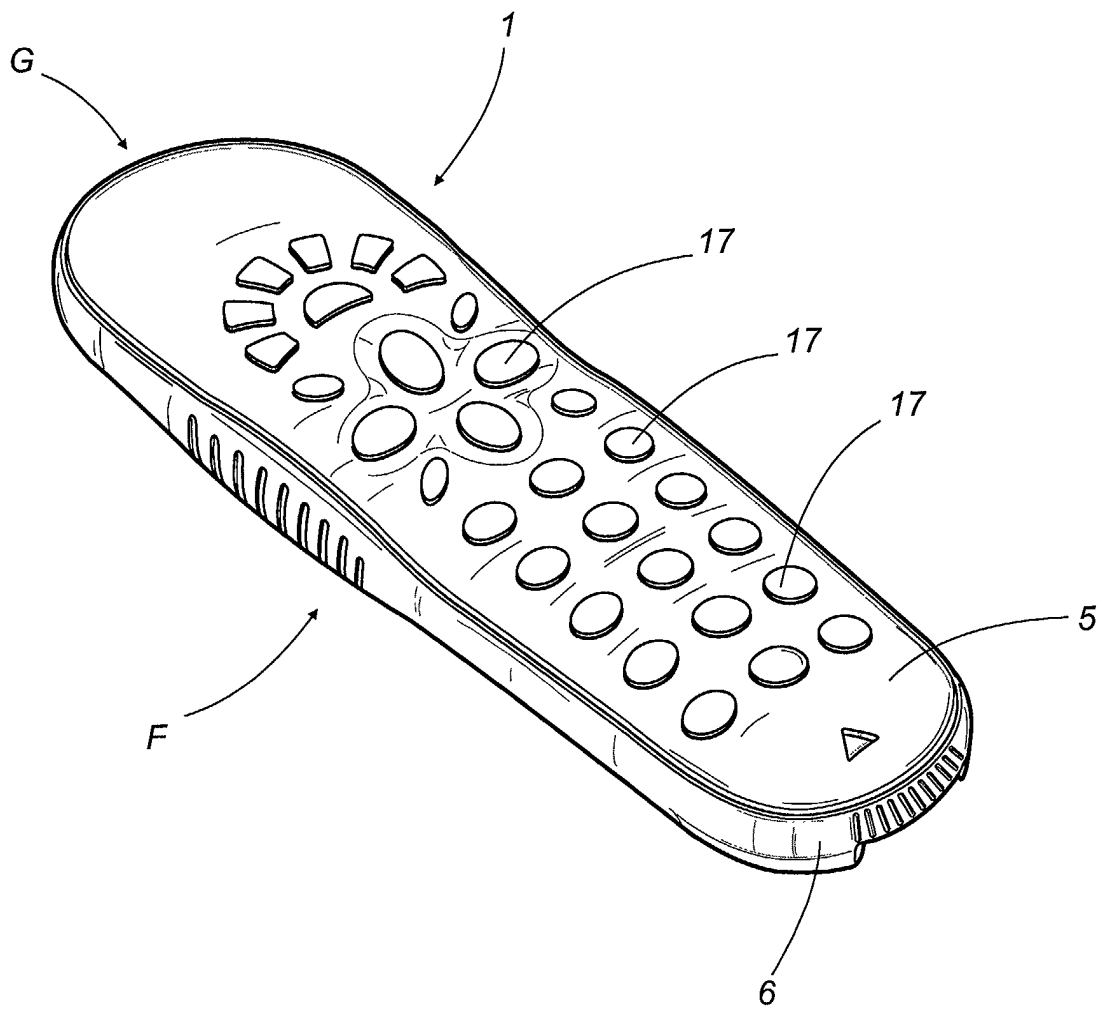


FIG. 2

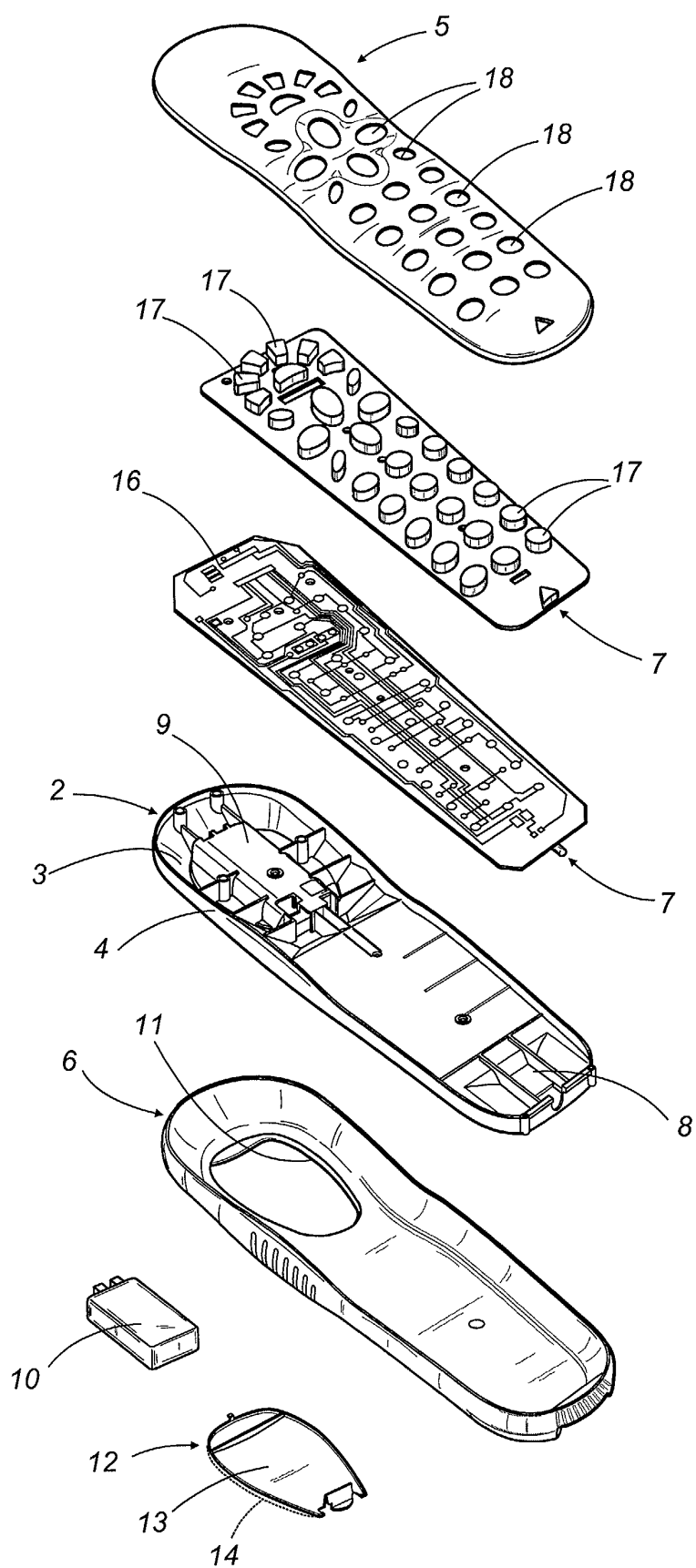


FIG. 3

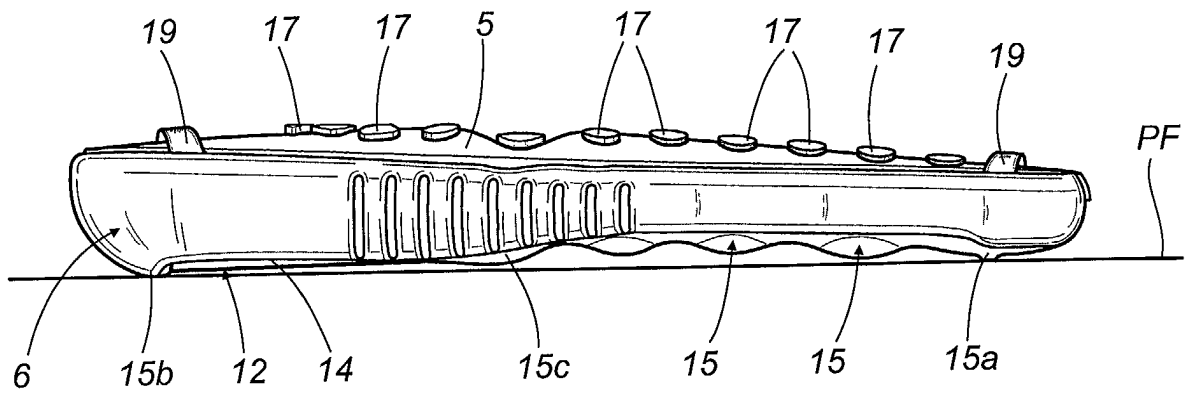


FIG. 4

