Title: A TRANSMISSION ELEMENT

Abstract: This invention relates to a transmission element (1) which ensures the control buttons (10) situated on the front panel of electronic devices to function with lower malfunction rates. The transmission element which is realized in order to attain the object of the invention is produced as a mono-block device which comprises, fundamentally, contact surfaces (2) whereon the control buttons contact, transmission surface (3) which enables transmission by contacting the contact points and latches (4) which readily fixes the transmission element behind the circuit card or the panel.
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.
Description

A TRANSMISSION ELEMENT

[001] Technical Field

[002] This invention relates to a transmission element which ensures the control buttons situated on the front panel of electronic devices to function with lower malfunction rates.

[003] Prior Art

[004] In the state of art, the buttons used in electronic devices directly presses against the contact points which are coupled to the chassis.

[005] On the front panel of electronic devices (for example, televisions, monitors or audio systems) buttons are used for control purposes. These buttons, which are used for carrying out main functions such as adjusting volume, changing channels, turning on the menu, fulfill their functions by pressing against contact points by means of legs produced in different sizes.

[006] The control buttons are produced in different sizes and shapes. Different type and size control buttons are used in different types of devices and also control buttons with different sizes can also be used on the same device for carrying out different functions. As different types of control buttons are used and as these control buttons have legs with different sizes, standardization cannot be obtained and these buttons might not always press against the contact points. Furthermore, it is observed that the control buttons cannot fulfill their functions due to the gradual wear of the control buttons.

[007] Solutions for ensuring control buttons to function with lower malfunction rates have been proposed due to the aforementioned problems.

[008] One of these solutions is disclosed in the United States patent application US6784874. The object of the invention disclosed herein is to produce control buttons which take up lesser amount of space in panels comprising plurality of control buttons. In this way more control buttons can be situated on the panel. In order to create a more practical usage especially for kids and the aged, the control buttons have different size legs to facilitate transmission.

[009] Another solution has been disclosed in the United States patent application US6664491. With the invention disclosed herein, the durability of the small sized control buttons is increased with metal legs. Moreover, the control buttons have a flexible structure by means of the elastic piece to which the metal legs are connected.

[010] Another solution has been disclosed in the United States patent application US 4582967. The invention disclosed herein comprises a transmission element used between the control button and the contact points. In this way, the control buttons readily contact the contact points.
In the applications known in the art, the control buttons either press against the contact points by means of different size legs or a transmission element is used between the contact points. In the case wherein the control buttons directly press against the contact points, the increase of malfunction rates caused by the gradual wear of legs cannot be prevented. Moreover, when different circuit cards and different type of control buttons are used, incompatibility may arise due to different size tolerances.

Costs tend to increase in methods wherein a transmission element is used between the control buttons and contact points in order to use different control buttons. Production of transmission elements becomes difficult as they are composed of plurality of parts. Moreover, as it is necessary to use screws in assembling these transmission elements, damage occurs on the contact points or on the circuit card. Also, removing and mounting the transmission elements using screws when it is necessary to change the control button after it is damaged, again causes damages on the contact points or on the circuit card.

**Brief Description of the Invention**

The object of the invention is to realize a transmission element which ensures the control buttons situated on the front panel of electronic devices to function with lower malfunction rates.

The transmission element which is realized in order to attain the object of the invention is produced as a mono-block device which comprises, fundamentally, contact surfaces whereon the control buttons contact, transmission surface which enables transmission by contacting the contact points and latches which readily fixes the transmission element behind the circuit card or the panel.

Owing to the wide structure of the contact surfaces, different size legs of all types of control buttons are able to contact these contact surfaces. By contacting the contact surface the transmission surface contacts the contact points and in this way the function of the control button is fulfilled. The transmission element is readily mounted behind the panel or on the circuit card and removed by means of its latches. The production cost of the transmission element is decreased as it is produced as a mono-block.

**Detailed Description of the Invention**

The transmission element realized in order to attain the object of the invention is illustrated in the accompanying figures, wherein;

- Figure 1 – is a perspective view of the transmission element;
- Figure 2 – is a view of the transmission surface of the transmission element;
- Figure 3 – is a view of the transmission element between the control button and the contact points.

The components in the figures have each been numbered corresponding to the
following:
1. Transmission element
2. Contact surface
3. Transmission surface
4. Latch
5. Lateral surface
6. Upper Surface
7. Curtain
8. Circuit card
9. Contact point
10. Control button

[023] The transmission element (1) which is realized in order to attain the object of the invention is produced as a mono-block device which comprises, fundamentally, at least one contact surface (2) whereon the control buttons (10) contact, at least one transmission surface (3) which enables transmission by contacting the contact points (9) and latches (4) which readily fixes the transmission element to the circuit card (8) or behind the panel.

[024] The transmission element (1), which is the subject of the invention, is mounted between the control buttons (10) and the contact points (9). The transmission element (1) contacts the contact points when the legs of the control buttons (10) contacts the transmission element and in this way the control buttons (10) are able to carry out their function.

[025] The transmission element (1) is produced as a mono-block due to its structure. The transmission element (1), which has an inverted U shape, is composed, fundamentally, of lateral surfaces (5) and an upper surface (6). There are integrated curtains which are parallel to the lateral surfaces and perpendicular to the upper surface. These curtains (7) ensure separating the contact surfaces from each other when there are more than one contact surfaces (2).

[026] The contact surface (2) is integrated with an intermediate cross-section to the upper surface (6) in such a way that it is perpendicular to the upper surface (6). In this way it has a flexible structure. In the preferred embodiment, the transmission element (1) comprises 3 contact surfaces (2). The contact surfaces (2) are independent of each other. The transmission element (1) can comprise lesser or more contact surfaces (2). The legs of the control buttons (10) contact the contact surface (2). Owing to the wide contact surface (2), the transmission element (1) can be used together with the control buttons (10) which have different type and size legs.

[027] There are transmission surfaces (3) right behind the contact surfaces (2). The transmission surfaces (3) form a protrusion in the direction such that they contact the
contact surfaces (9). In this way their contact with the contact surfaces is guaranteed. When the leg of the control button (10) contacts the contact surface (2), the contact surface (2) and the transmission surface (3), which is situated behind the contact surface (2) and at the same time integrated with the contact surface (2), moves towards the contact points (9) as the intermediate cross-sections begins to bend. By contacting the contact point (9), the transmission surface (3) helps the control buttons (10) fulfill their functions.

The lateral surfaces (5) enable fixing the transmission element (1) on the circuit card (8) or on the rear panel. The two lateral surfaces (5) help realize this process of fixing by means of the latches (4) they comprise at the side where the contact surfaces (2) are present. As there is no need to use any screws thanks to the latches (4), cost decreases and also any damages that may occur during assembly is prevented. Moreover, the control buttons (10) and thus the transmission elements (1) can be readily removed in situations of malfunction. In this way, any damage that may arise during removing these parts is prevented.

The mono-block production of the transmission element (1) simplifies its structure and also decreases production costs. Also, it does not create any space problems as it is designed to cover minimum amount of space. It is practical as it is possible to use it together with the control buttons (10) which have different type and size legs. In this way, any incompatibility is prevented that may arise when production tolerances of different parts operate in opposite directions.

Moreover, the transmission element (1) is designed with a readily moldable structure and thus there is no need for extra active parts (spade, jiggle etc.) during the process of molding.

It is possible to develop wide range of embodiments for the mechanism which is the subject of the invention without departing from this main concept and the invention is principally as disclosed in the claims and it cannot be restricted with the examples stated herein.
Claims

[001] A transmission element (1) which ensures the control buttons situated on the front panel of electronic devices to function with lower malfunction rates and which is produced as a mono-block such that it comprises; at least one contact surface (2) to which the control buttons (10) come into contact with; at least one transmission surface (3) which is to ensure transmission by contacting the contact points (9), and; latches (4) which ensure fixing it readily to the circuit card (8) or behind the panel.

[002] A transmission element (1) as defined in Claim 1 characterized in that it comprises lateral surfaces (5) and an upper surface which is perpendicular to the lateral surfaces and integrated from its ends.

[003] A transmission element (1) as defined in Claim 1 and 2 characterized in that it comprises curtains (7) which is parallel to the lateral surfaces (5), perpendicular to the upper surface (6) and integrated, and which ensure separating the contact surfaces (2) from each other when there are more than one contact surfaces (2).

[004] A transmission element (1) as defined in any of the preceding claims above characterized in that it comprises a contact surface (2) which is integrated with an intermediate cross-section to an upper surface (6) such that it is perpendicular to the upper surface (6) and in this way which moves flexibly and whereon the legs of the control buttons come into contact.

[005] A transmission element (1) as defined in Claims 1 and 4 characterized in that it comprises a contact surface (2) which has a wide surface and in this way which enables using the transmission element together with control buttons (10) having different type and size legs.

[006] A transmission element (1) characterized in that it comprises a transmission surface (3) which is located right behind the contact surfaces (2), which forms protrusions in the direction such that it contacts the contact points (9) and which contacts the contact points (9) by bending together with the contact surface (2) when the leg of the control button (10) comes into contact with the contact surface (2).

[007] A transmission element (1) as defined in any of the preceding claims above characterized in that it comprises lateral surfaces which enable fixing the transmission element (1) on the circuit card (8) or the rear panel by means of the latches (4).

[008] A transmission element (1) as defined in any of the preceding claims above characterized in that it comprises latches (4) which facilitate the assembly and removal of the transmission element (1).
A. CLASSIFICATION OF SUBJECT MATTER
INV. H01H13/705

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
H01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Authorized officer
Drabko, J
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