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(54) **Interlocking for quick connection key in electrical mechanisms**

(57) It consists of an appendage -2- situated at the lower end of a quick connection key -1- and joined thereto by means of an area -4-, which confers flexibility to that area and permits the displacement of the entire appendage -2- to get closer to the key -1- upon pressing thereupon or separating it and returning it to its starting position by ceasing to apply pressure, pressure which can be applied on the appendage -2- or on the hook -3- with which said appendage finishes at its end. The key -1- is equipped at its upper end with a hollow -8- for the insertion of the end of the wire to be connected, and is placed on a U-shaped housing -5- of the body -6- of the mechanism, so that it can swing about an axis -7- of rotation. In the

swinging displacement of the key and upon approaching the external face -6a- of the body -6-, the end hook -3- of the appendage -2-, which constitutes the interlocking, comes into contact with the lower external face -9a- of a lower projection -9-, central and symmetrical, of said body -6-, sliding therealong until the aforementioned hook -3- is held back by clipping on the upper edge -9b- of the projection -9-, the key being immobilized. Once the hook -3- has been held back on the upper edge -9b- of the projection -9-, the appendage -2- being pressed, the unclipping of the hook -3- is caused given the elasticity of the material, said key freeing itself and permitting its swinging.

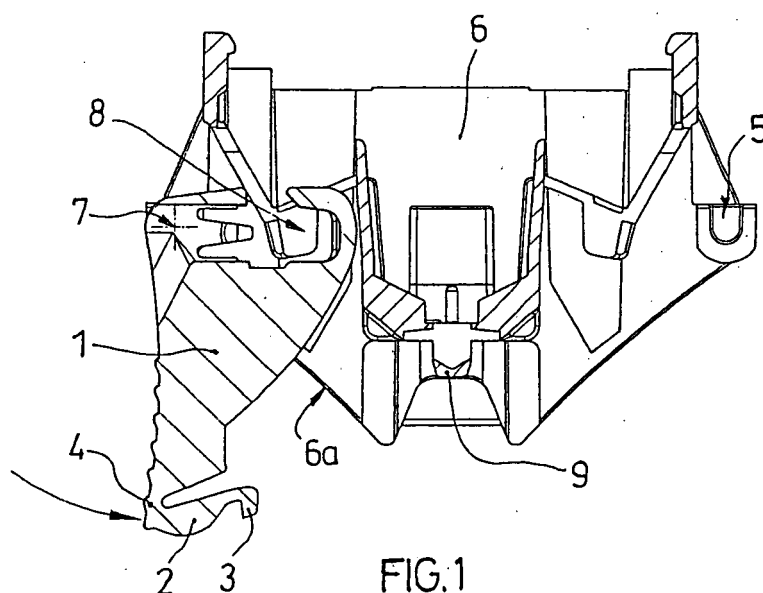


FIG.1

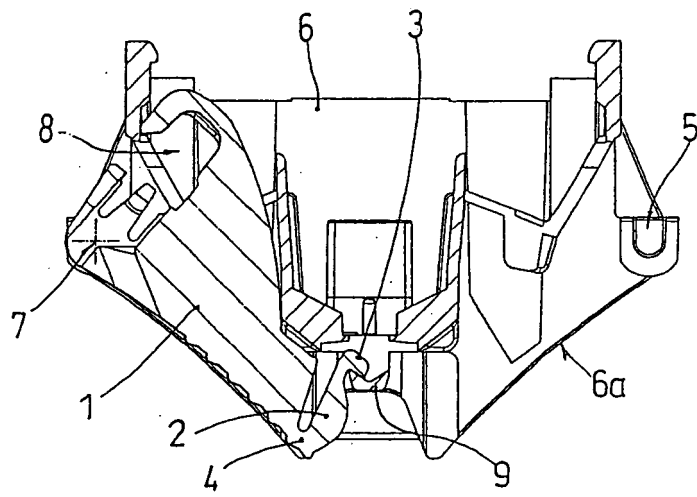


FIG. 4

Description

[0001] The present invention relates to an interlocking for the quick connection keys which are disposed in electrical mechanisms intended for controls, such as switches, push buttons, cross-over switches, plug outlets and such like, and whose essential characteristics are described below.

[0002] The need to reduce as much as possible the time used by the installer to correctly carry out the connection of the various conductor wires which come into contact with the body of an electrical mechanism in the applications cited, such as, for example, in the previous paragraph, has led to the development of different devices intended for this practical purpose.

[0003] We can highlight among these devices the known quick connection keys, which permit this operation to be carried out with the simple insertion of the end of the wire to be connected into the hollow which it has for this purpose, and a subsequent displacement in swinging direction with the aim of holding the aforementioned cable and guaranteeing its positioning and mobility, while at the same time ensuring that the key itself ceases to be an external obstacle, as it is situated next to the wall of the body of the mechanism.

[0004] Nevertheless, this device suffers from the drawback that it can become accidentally separated from the aforementioned body, where the wire that was previously connected becomes unattached and can leave its housing, disconnecting and leaving the electrical mechanism in an incorrect, non-operational situation.

[0005] The device object of the present invention offers a practical and efficient solution, at the same time very simple, as it features an interlocking, situated at the lower end of the key to be fastened, by clipping, on a projection at the bottom of the body of the mechanism, preventing any accidental displacement of the key.

[0006] The design of this interlocking permits that at any moment, and by means of the manual actuation of the operator, the external element of the hook which constitutes the interlocking itself can be unlocked, permitting at the same time, that the key can be separated, by means of its swinging, in order to remove the wire or place it, if it still weren't connected.

[0007] With the aim of aiding in the description of the interlocking being disclosed, drawings have been attached wherein a practical embodiment of a quick connection key provided with the interlocking of the invention has been represented in an illustrative manner.

fig. 1 is a sectional view of the body of the mechanism, a quick connection key being situated on one side thereof, in its initial opening position, wherein the end of the wire or electrical conductor to be connected can be placed;

fig. 2 is a complementary view of the previous figure, with the key displaced towards its connecting position;

fig. 3 is a close-up view, in larger scale, of the area of the key where the interlocking is found, in the position prior to its clipping on the projection at the bottom of the body;

5 fig. 4 is a close-up view, also sectional, similar to figures 1 and 2, showing the key already fastened by its interlocking; and finally

fig. 5 is a perspective and partially sectional view, of the body of the mechanism, with the key interlocked, this being drawn also in cross-section by the same sectional plane as the body.

[0008] In accordance with the drawings indicated, the interlocking for quick connection key, used in electrical mechanisms such as switches, push buttons, cross-over switches, plug outlets and such like, consists of an appendage -2-, situated at the lower end of the quick connection key -1-, which finishes in a hook -3-, projecting inwards, this appendage -2- being joined to the quick connection key -1- by an area -4-, which offers flexibility to said joint and permits that the entire appendage -2- can move towards the body of the quick connection key -1- when it is pressed or on its hook -3-, returning to its starting position at the time when this pressure stops being applied.

[0009] The quick connection key -1- is placed on the U-shaped housing -5- of the body -6- of the mechanism on both sides. In the various figures, the housing of the side is visible where the quick connection key -1- is not placed, while the key -1- hides the housing where it is placed and whereon it swings freely, although the axis of rotation -7- of the quick connection key -1- is indicated with tracing lines in its swinging movement.

[0010] The hollow -8- of the upper part of the quick connection key -1- can also be observed in the different figures, where the end of the wire to be connected (not drawn) is inserted, hollow which changes position as the key -1- swings on the aforementioned axis -7-, getting closer to the external lateral face -6a- of the body -6-, as can be observed in figures 2 and 4, and which causes the retention of the wire for its connection.

[0011] In this swinging displacement of the quick connection key -1-, highlighted with both arrows in figures 1 and 2, the hook-shaped end -3- of the appendage -2- comes into contact with the lower external face -9a- of the lower projection-9- of the body -6-, sliding along said face, as can be observed in the close-up of fig. 3, until the hook -3- is held back above the upper edge -9b- of this lower projection-9-, when the quick connection key -1- is immobilized by clipping, therefore the cable which has been suitably attached for its connection not being able to become detached.

[0012] Once clipped, the hook -3- of the appendage -2- which constitutes the interlocking, between the lower face -2a- of said appendage and the upper face -9b- of the lower projection-9-, is unclipped from the upper edge -9b- of the projection-9-, thanks to the elasticity of the material with which the entire quick connection key -1-

has been constructed.

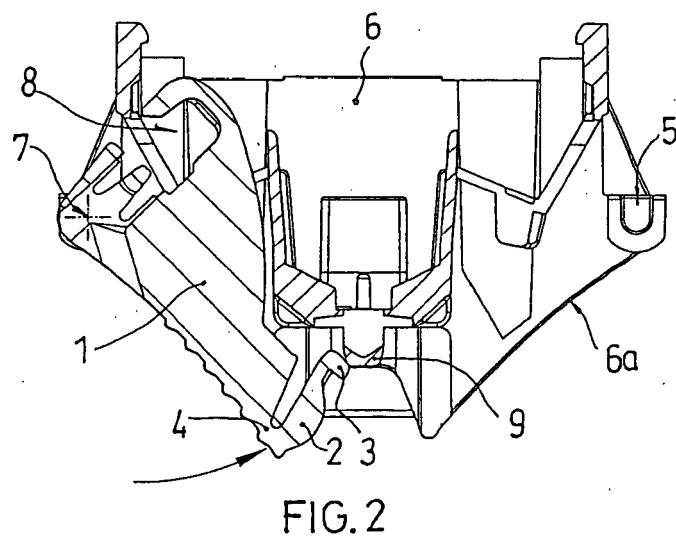
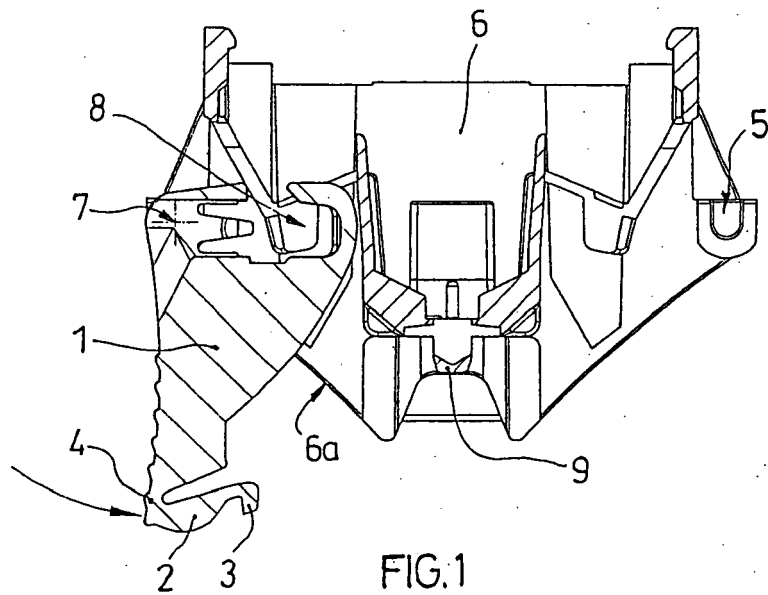
[0013] This action having been carried out, said key -1- will be able to swing again and separate itself from the side -6a- of the body -6- with the aim of removing the wire which could be connected or placing one for its connection. 5

[0014] The object of the present invention having been sufficiently described, it should be pointed out that any variation in shapes, dimensions, appearance and type of materials used in the practical embodiment of these keys provided with interlocking, shall not in any way alter the essential nature thereof, which is summarised in the following claims. 10

Claims 15

1. Interlocking for quick connection key in electrical mechanisms, such as switches, push buttons, cross-over switches, plug outlets and such like, **characterized in that** it comprises an appendage -2- situated at the lower end of a quick connection key -1- and joined thereto by means of an area -4- which confers flexibility upon this area and permits the displacement of the entire appendage -2- to get closer to the key -1- by pressing it or separating it and returning it to its starting position by ceasing to apply pressure, pressure which can be applied on the appendage -2- or on the hook -3- with which the appendage finishes at its lower end. 20 25 30
2. Interlocking for quick connection key in electrical mechanisms, such as switches, push buttons, cross-over switches, plug outlets and such like, according to the previous claim, **characterized in that** the quick connection key -1- is provided in its upper part with a hollow -8- for the insertion of the end of the wire or conductor which is to be connected, the aforementioned quick connection key -1- being placed on a U-shaped housing -5- of the body -6- of the mechanism, so that it can swing about an axis -7- of rotation, and **in that** in the swinging displacement of the quick connection key -1- and approaching the external face -6a- of the body -6-, the end hook -3- of the appendage -2-, which constitutes the interlocking, comes into contact with the lower external face -9a- of the lower projection-9-, central and symmetrical, of said body -6-, sliding thereon until the aforementioned hook -3- is held back by clipping on the upper edge -9b- of the projection-9-, the entire quick connection key -1- being immobilized in the connection position. 35 40 45 50
3. Interlocking for quick connection key in electrical mechanisms, such as switches, push buttons, cross-over switches, plug outlets and such like, according to claims 1 and 2, **characterized in that** once the hook -3- has been held back on the upper edge -9b- 55

of the projection-9, by means of the pressing of the appendage -2- itself, the unclipping of the hook -3- of the upper edge -9b- of the projection-9- is caused, given the elasticity of the material with which the entire key -1- has been constructed, freeing said key and permitting its swinging.



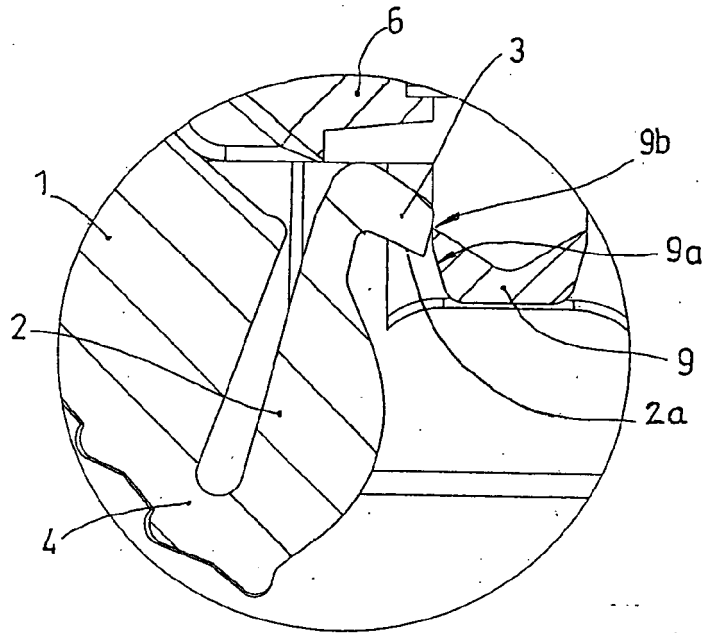


FIG. 3

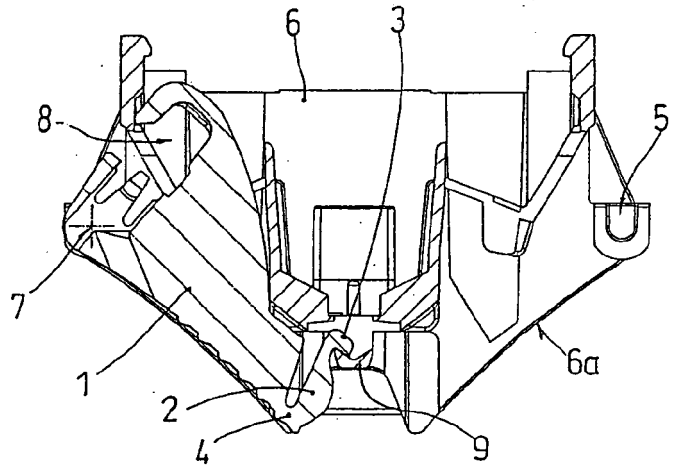


FIG. 4

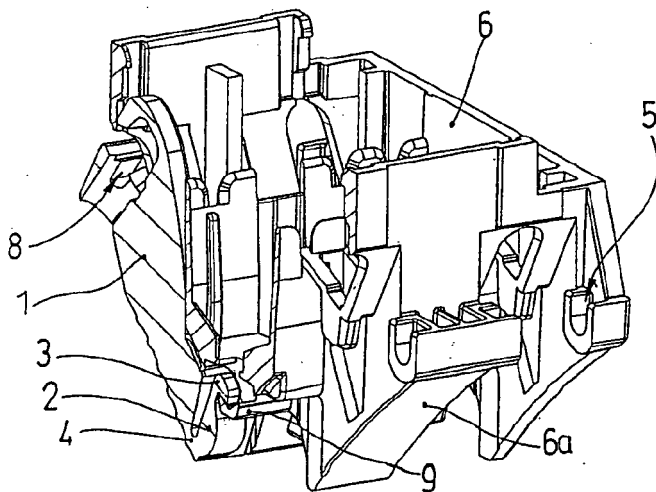


FIG. 5