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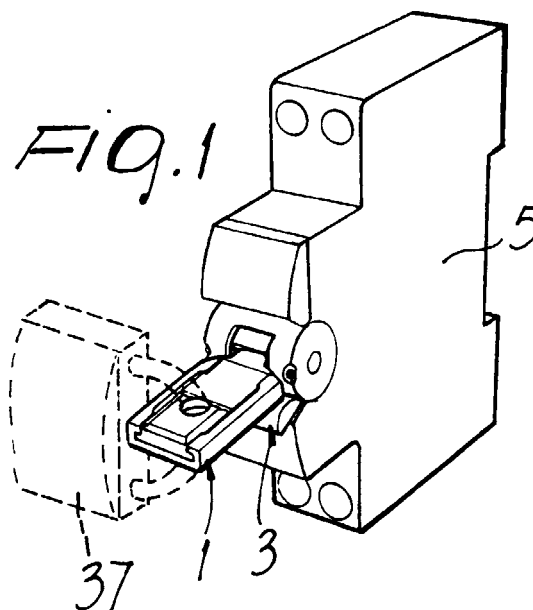
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(54) **Safety lock for electrical devices, particularly for electric switches**

(57) A safety lock for electrical devices, particularly for electrical switches, includes a base body, a sliding body, which can move along the longitudinal axis of the base body, and a hook member which is stationary with respect to the base body and determines at least two positions: a closed position, in which the hook member engages a control member (3) of an electrical device, so as to prevent its functional movement, and an open position, in which the hook member can be disengaged from the actuation member in order to allow its actuation.



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Description

[0001] The present invention relates to a safety lock for electrical devices, particularly for electrical switches.

[0002] The need is felt, especially in the professional environment, to prevent the unauthorized operation of an electrical switch, for example to prevent a unit from being switched on accidentally during work on its electrical systems, posing a severe risk to operators.

[0003] Vice versa, it can be necessary to lock one or more switches in the closed position to prevent systems or instruments from being powered off.

[0004] Systems for locking switches are known for this purpose; some use conventional key-operated devices, such as padlocks.

[0005] The aim of the present invention is to provide a safety lock for electrical devices, particularly for the handle of electrical switches, which has improved performance and is less awkward to use.

[0006] An object of the invention is to provide a safety lock which is cheap and simple from the point of view of production.

[0007] This aim, this object and others which will become apparent hereinafter are achieved by a safety lock for electrical devices, particularly for electrical switches, characterized in that it comprises a base body, a sliding body which can move along the longitudinal axis of the base body, and a hook member which is fixed with respect to the base body and is adapted to determine at least two positions: a closed position, in which the hook member engages a control member of an electrical device, so as to prevent its functional movement, and an open position, in which the hook member can be disengaged from the control member in order to allow actuation of said control member.

[0008] Further characteristics and advantages will become apparent from the description of the safety lock for electrical devices, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

FIG. 1 is a perspective view of a switch provided with the safety lock according to the invention;

FIG. 2 is a perspective view of the lock according to the invention, shown in the open position, ready to be applied to a switch handle;

FIG. 3 is a view, similar to FIG. 2, in which the lock is shown in the closed position for locking a handle;

FIG. 4 is a sectional front view of the lock according to the invention, shown in the open position and ready to be applied to a handle;

FIG. 5 is a view, similar to FIG. 4, in which the lock is shown in the closed position for locking a handle;

FIG. 6 is a view, similar to FIG. 5 but nonsectional,

in which the lock is shown in the closed position for locking a handle;

FIG. 7 is a sectional side view of the lock according to the invention, shown in the closed position for locking a handle of a switch;

FIG. 8 is a detail perspective view of the handle of the switch of FIG. 1 without the safety lock according to the invention.

[0009] With reference to the above figures, the safety lock for electrical devices according to the invention, generally designated by the reference numeral 1, is particularly suitable for locking the handle 3 of an electric switch 5, as shown in the present example.

[0010] The handle 3 of the switch 5 has two recesses 7 which are respectively arranged above and below the grip portion 9, so that one recess 7 is always located at lateral holes 11 formed in the body of the switch both when the handle is in the closed-switch position and when it is in the open-switch position. FIGS. 1 and 8 illustrate the open-switch position.

[0011] The lock 1 includes a base body 13, a sliding body 15 which can move along the longitudinal axis of the base body 13, and a hook member 17 which is stationary with respect to the base body 13.

[0012] The hook member 17 is constituted by a wire-like body which has two flexible arms 19, each of which has a hook-shaped end 21; the flexible arms are joined by a transverse arm 23 which is rigidly coupled to the base body 13. In greater detail, the transverse arm 23 is arranged in a slot which is formed in a block 25 which is rigidly coupled to the base body 13. The sliding body 15 includes two shaped walls 27 and a central member 29 which are adapted to guide the movement of the flexible arms 19 of the hook member 17. The flexible arms 19 are in fact set at an appropriate angle with respect to the longitudinal axis of the lock, so that a movement of the sliding body 15 with respect to the base body 13 is matched by a movement of the flexible arms 19. In particular, the flexible arms 19 determine two positions: a closed position (FIGS. 3, 5, 6 and 7), in which the arms are spaced apart and the hook-shaped ends 21 are located outside the tip 31 formed by the front ends of the sliding body 15 and of the base body 13, and an open position (FIGS. 2 and 4), in which the arms are joined and the hook-shaped ends 21 lie inside the tip 31.

[0013] In the closed position (FIGS. 3, 5, 6 and 7), the sliding body 15 remains substantially inside the base body 13, so that a hole 33 formed in the base body 13 and a hole 35 formed in the sliding body 15 match up, allowing the insertion of a locking means of the padlock type or the like (FIG. 1) to prevent the opening of the lock, which occurs by sliding the sliding body with respect to the base body, extracting it partially and allowing the arms 19 to join by virtue of the action of the

shaped walls 27 on the arms.

[0014] The operation of the lock according to the invention is simple and effective. For example, if one wishes to lock a switch 5 in the open position, shown in FIGS. 1 and 8, it is sufficient to place the lock in the open position (FIGS. 2 and 4), making the sliding body 15 slide backward with respect to the fixed body 13, and then insert the tip 31 in front of the recess 7 of the handle 3. By moving the sliding body 15 into the retracted or closed position (FIGS. 3, 5, 6 and 7), the hook-shaped ends 21 are made to protrude and enter the lateral holes 11 formed in the body of the switch. A padlock 37 or the like, inserted in the holes 33 and 35 of the lock, prevents the sliding of the sliding body 15 with respect to the base body 13 and therefore the extraction of the lock and accordingly prevents unauthorized actuation of the switch.

[0015] It should be noted that the presence of the lock does not alter in any way the electrical operation of the switch and therefore the operation of the safety devices, both when the handle is locked in the open-switch position, as shown in the figures, and when it is locked in the closed-switch position.

[0016] In practice it has been found that the invention achieves the intended aim and object, a safety lock for electrical devices, particularly handle electrical switches, having been provided which allows to lock the switch in a chosen position with an optional key-operated means.

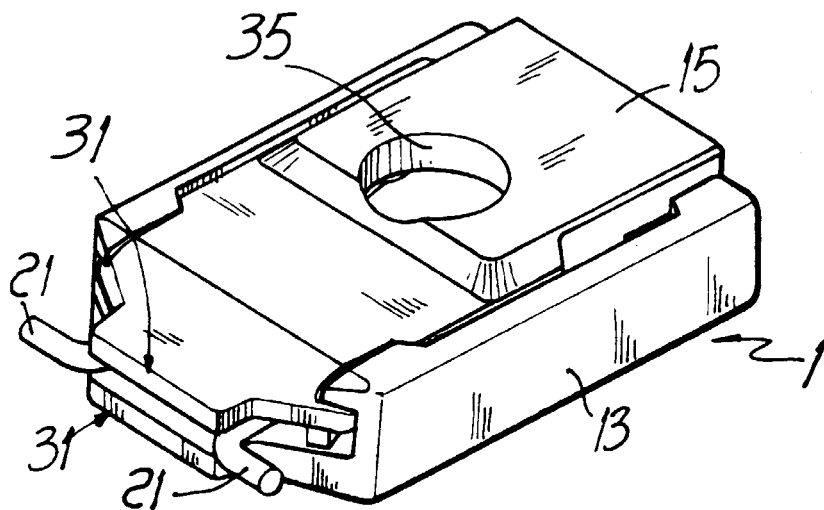
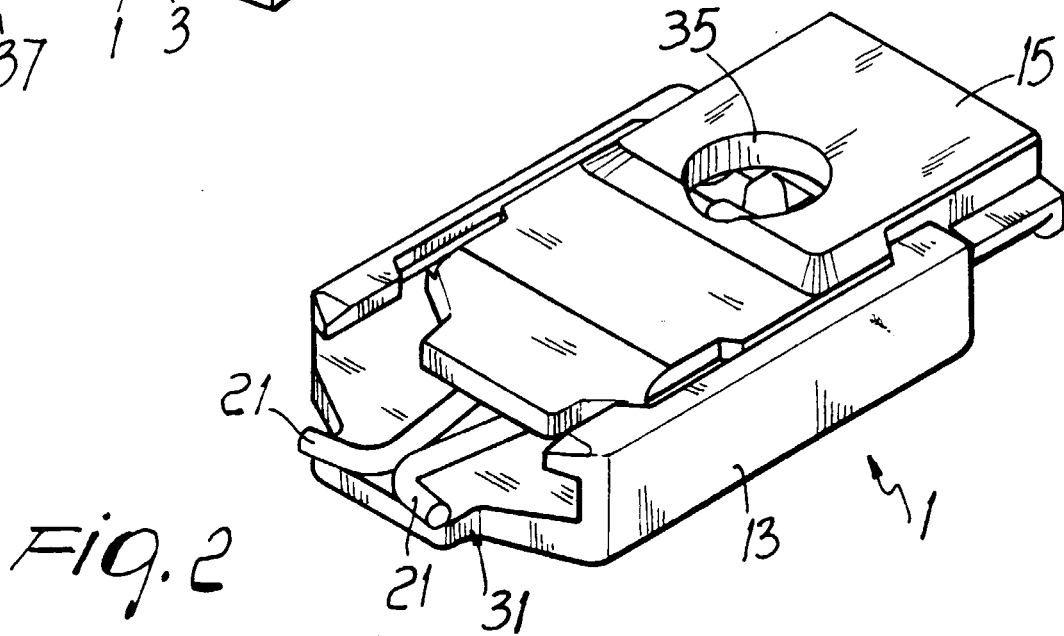
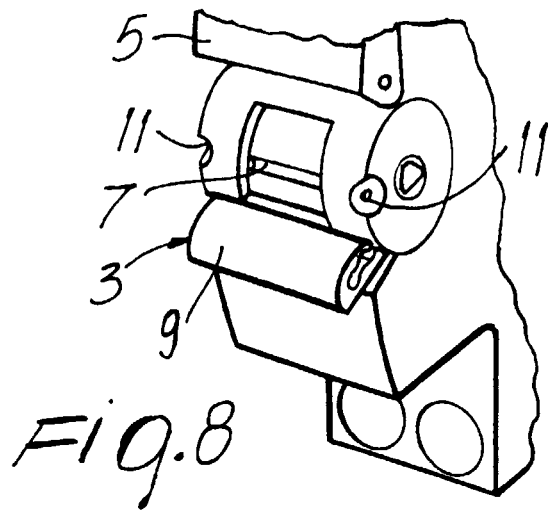
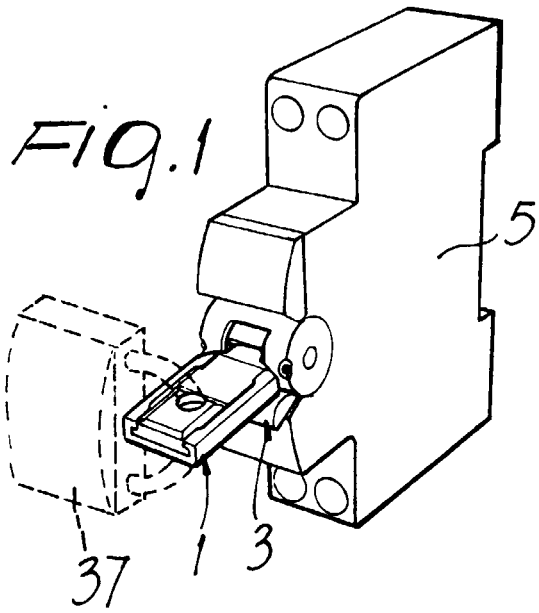
[0017] The materials used, as well as the dimensions, may of course be any according to the requirements and the state of the art.

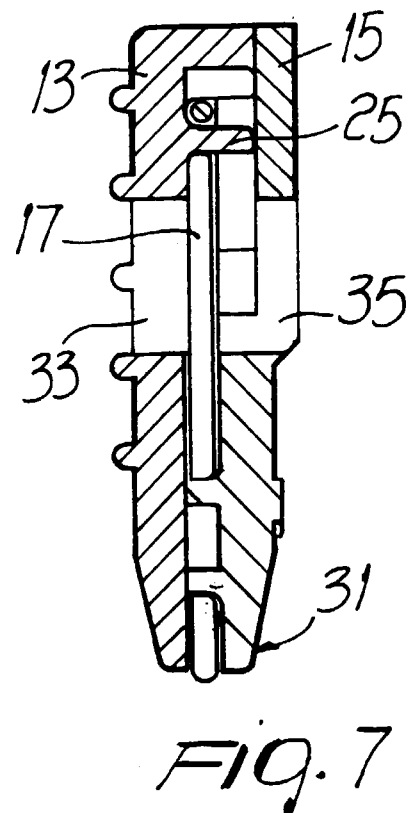
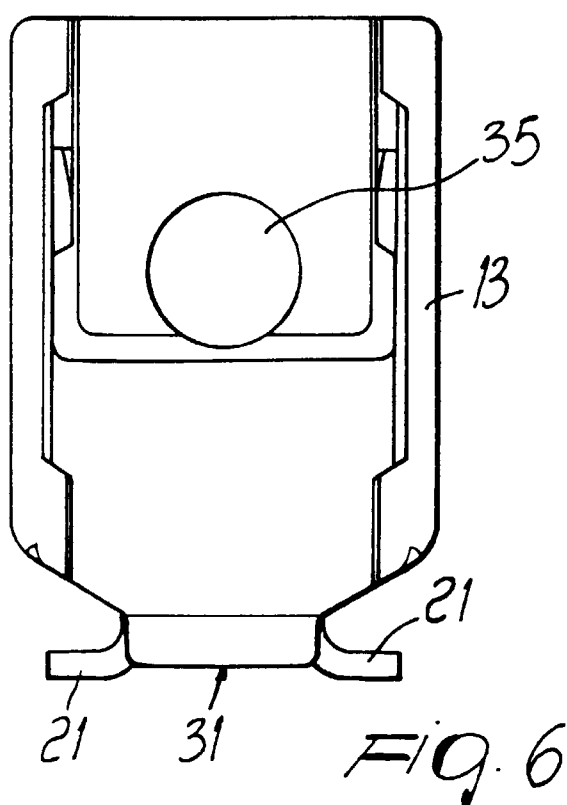
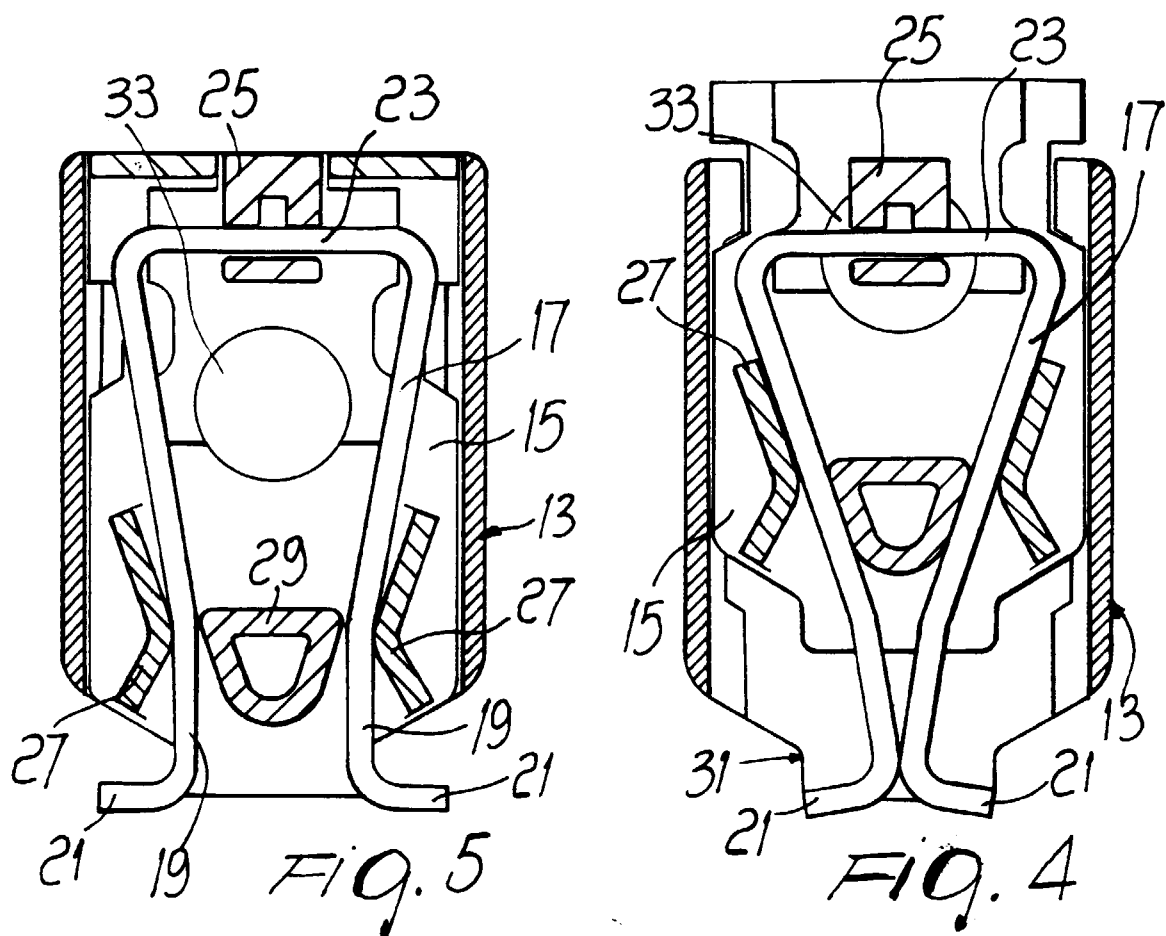
Claims

1. A safety lock for electrical devices, particularly for electrical switches, characterized in that it comprises a base body, a sliding body which can move along the longitudinal axis of said base body, and a hook member which is stationary with respect to the base body and is adapted to determine at least two positions: a closed position, in which said hook member engages a control member of an electrical device, so as to prevent its functional movement, and an open position, in which said hook member can be disengaged from said control member in order to allow actuation of said control member.
2. The lock according to claim 1, characterized in that said hook member comprises a wirelike body provided with two flexible arms, each arm being provided with a hook-shaped end and being joined by a transverse arm which is rigidly coupled to said base body.
3. The lock according to claim 2, characterized in that said transverse arm is arranged in a slot formed in a block which is rigidly coupled to said base body,

said sliding body comprising two shaped walls and a central member which are adapted to guide the movement of said flexible arms, said flexible arms being suitably angled, with respect to the longitudinal axis of the lock, so that a movement of said sliding body with respect to said base body is matched by a movement of the flexible arms, said flexible arms determining two positions: said closed position, in which said arms are spaced apart and said hook-shaped ends lie outside a tip formed by the front ends of said sliding body and of said base body, and said open position, in which the arms are joined and said hook-shaped ends are located inside said tip.

4. The lock according to one or more of the preceding claims, characterized in that it comprises a hole provided in said base body and a hole provided in said sliding body, said sliding body, in said closed position, remaining substantially inside said base body so that said hole formed in the base body and said hole formed in said sliding body match up, allowing the insertion of a locking means, such as a padlock type or the like, which is adapted to prevent the mutual sliding of said bodies.







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EUROPEAN SEARCH REPORT

Application Number
EP 99 11 5554

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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Place of search		Date of completion of the search	Examiner
THE HAGUE		26 January 2000	Van Beurden, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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