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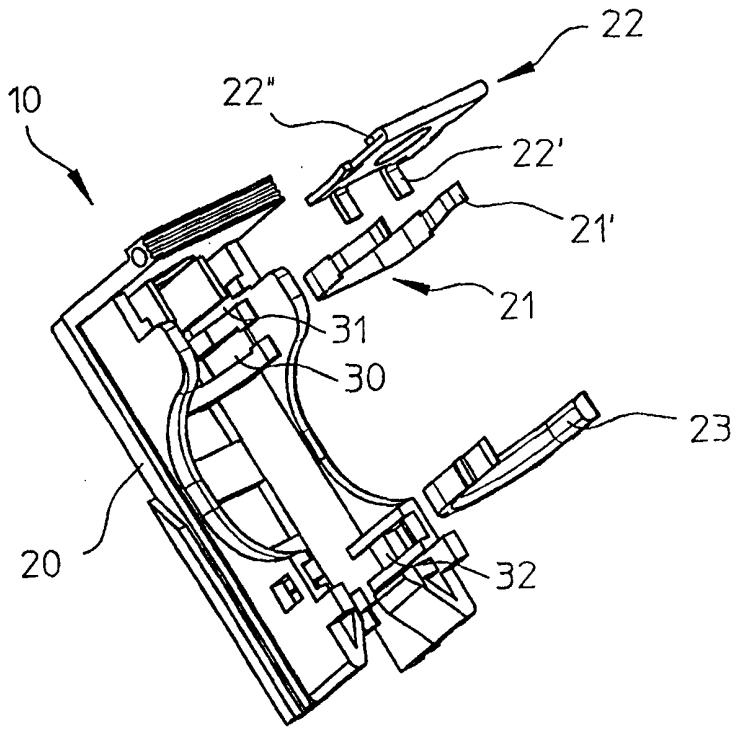
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(54) Title: ELECTRIC APPLIANCE SWITCH COMPRISING A FUSE SEAT

(57) Abstract

A wall of a seat (10) surrounding a fuse (11) is provided with a first and second guiding slot (31, 30), adjacent to each other at a first end of the seat (10), and a third guiding slot (32) at a second end of the seat (10), all transversal to the seat axis. In the first guiding slot (31) an electrically conducting intermediate plate (22) and in the second guiding slot (30) a bow spring (21) and in the third guiding slot (32) a size controlling bow insert (23) are engagably inserted. In the state of closed contacts, the intermediate plate (22) electrically contacts the down conductor contact (14), which is, through an insulating partition (15), completely electrically insulated from the surroundings. The bow spring (21) is elastically spreadable on both ends. The improved fuse seat makes possible a simple replacement of fuses of various dimensions and prevents a dropping of the fuses out of a magazine, the down conductor contact, however, is completely protected against being touched.



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ELECTRIC APPLIANCE SWITCH COMPRISING A FUSE SEAT

The invention concerns an electric appliance switch comprising a fuse seat and specially provided for mounting on a bar.

From the applicant's patent SI 9700256 there has been known an electric appliance switch having also a seat for a protective device or a fuse provided in its housing. The said seat is provided for the application of only one fuse dimension, for another fuse dimension the seat has to be replaced. When the electric appliance switch is installed in a horizontal position, any handling of the fuse is complicated or not possible at all. Since a down conductor contact is insufficiently protected against being touched, the electric appliance switch becomes dangerous if by mistake the lead-in side and the down side have been interchanged.

Consequently, the technical problem to be solved by the present invention is how to improve a fuse seat so that it will be able to be matched to fuses of various dimensions in a simple way, and how to insulate a down conductor contact, whereat a dropping of the fuses out of the seat should be made impossible and the down conductor contact should be protected against being touched.

A solution to the technical problem is given by the electric appliance switch according to the invention comprising a fuse seat and characterized in that a wall of the seat surrounding the fuse is provided with a first and a second guiding slot being adjacent to each other at a first end of the seat, and with a third guiding slot at a second end of the seat, all said slots being transversal to the seat axis, and that in the first guiding slot there is engagably inserted an electrically conducting intermediate plate, which in a state of closed contacts through its cuff electrically contacts a down conductor contact, which is protected by an insulated partition all

around except at the side of the cuff of the intermediate plate and in the second guiding slot a bow spring is engagably inserted and in the third guiding slot a size controlling bow insert is engagably inserted.

The electric appliance switch according to the invention is further characterized in that the intermediate plate is provided with feet pointing to the second end of the seat, and that the feet of the intermediate plate additionally fix the bow spring, whose both bow ends are elastically spreadable.

In the electric appliance switch according to the invention an improvement of a known fuse seat is accomplished by simple means; thus a simple replacement of the fuses of various dimensions is made possible and when the electric appliance switch is installed in a horizontal position, no dropping of the fuses out from a magazine in the seat happens. During handling the seat can remain in the electric appliance switch, however, switching on is only possible when the seat is inserted properly. By an insulating partition a down conductor contact is completely protected against being touched.

The invention will now be described by way of example and with reference to the accompanying drawings representing in:

Fig. 1 an improved fuse seat according to the invention in an electric appliance switch,

Fig. 2 the electric appliance switch provided with the fuse seat as improved by the invention, in a state of open contacts and with the fuse seat and a size controlling bow insert being drawn out, and

Fig. 3 in a longitudinal section, the electric appliance switch provided with the fuse seat as improved by the invention, in a state of closed contacts.

An electric appliance switch 1 comprising a seat 10, provided with a magazine 20 for a fuse 11, is represented in a state of open and closed contacts in Figs. 2 and 3, respectively, the actual seat 10 for the fuse 11, however, is shown in Fig. 1.

The wall of the seat 10 surrounding the fuse 11 is provided with a first and a second guiding slots 31, 30 being adjacent to each other at a first end of the seat 10 and

with a third guiding slot 32 at a second end of the seat 10. The slots 31, 30, 32 are transversal to the axis of the seat 10. In a state of closed contacts the first end of the seat 10 is situated next to a down conductor contact 14 and the second end of the seat 10 is situated next to an intermediate contact 12.

According to the invention, an electrically conducting intermediate plate 22 is engagably inserted in the first guiding slot 31, and a bow spring 21 is engagably inserted in the second guiding slot 30. A size controlling bow insert 23 is engagably inserted in the third guiding slot 32.

In the state of closed contacts, the intermediate plate 22 through its cuff 22" electrically contacts the down conductor contact 14, which is, through an insulating partition 15, completely electrically insulated from the surroundings. The insulating partition 15 is made in one piece together with the remaining housing of the electric switch 1. Hence by an appropriate form of the intermediate plate 22 an additional protection of the down conductor contact 14 against being touched is accomplished. The intermediate plate 22 also provides for an efficient thermal contact of the fuse 11 to the down conductor contact 14. The intermediate plate 22 makes possible a precise positioning of the seat 10 of the invention in the electric appliance switch 1.

In the closed state of the electric appliance switch 1, the fuse 11 electrically contacts an intermediate contact 12 at the one hand and the down conductor contact 14 at the other hand.

The intermediate plate 22 is provided with feet 22", preferably with two feet 22", pointing to the second end of the seat 10. In the assembled seat 10 of the invention the feet 22" push the bow spring 21 against the wall of the seat 10. So by means of the intermediate plate 22 the bow spring 21, whereby the fuse 11 is fastened in the intended position, is additionally fixed and it is prevented from dropping out of the guiding slot 30.

The bow spring 21 is provided with bow ends 21' which are elastically spreadable and embrace the inserted fuse 11.

The dimension of the fuse 11 is limited by the size controlling bow insert 23. It can be replaced when the seat 10 for the fuse 11 is drawn out from the electric appliance switch 1. Hereto a special tool is applied whereby the size controlling bow insert 23 is compressed slightly and pulled out from the slot 32 in the magazine 20.

When replacing the fuse 11, first a lever 17 is turned around whereby the lead-in contact 18 is disconnected from the down conductor contact 14. Hereby the seat 10 becomes disengaged. By exerting pressure on the seat 10 the intermediate plate 22 moves away from the down conductor contact 14 and the insulating partition 15. The seat 10 is rotated to its guides. Hereby a spring 16, exerting pressure on the intermediate contact 12, is compressed. The disengaged seat 10 may be drawn out from a confining element 13.

Now the fuse 11 is easily accessible and can be replaced by spreading out bow ends 21' of the bow spring 21. Just the elastic bow ends 21' make it possible that the electric appliance switch 1 can be used in a horizontal position. The handling of the seat 10, remaining all the time in the electric appliance switch 1, is not hindered. A hazard of touching parts conducting electric current by mistake is reduced. Thereafter the fuse 11 and/or the size controlling bow insert 23 can be replaced.

When the electric appliance switch 1 is switched on again, the procedure is reversed. The intermediate plate 22 and the insulating partition 15 prevent a turning around of the lever 17 and an establishing of an electric contact until the seat 10 is in a proper position.

Claims

1. Electric appliance switch, comprising a seat (10) for a fuse, characterized in that a wall of the seat (10) surrounding the fuse (11) is provided with a first and a second guiding slot (31, 30) adjacent to each other at a first end of the seat (10), and with a third guiding slot (32) at a second end of the seat (10), all said slots (31, 30, 32) being transversal to the axis of the seat (10),
and that in the first guiding slot (31) there is engagably inserted an electrically conducting intermediate plate (22), which in a state of closed contacts with its cuff (22") electrically contacts a down conductor contact (14), which is protected by an insulating partition (15) all around except from the side of the cuff (22") of the intermediate plate (22), and in the second guiding slot (30) a bow spring (21) is engagably inserted and in the third guiding slot (32) a size controlling bow insert (23) is engagably inserted.

2. Electric appliance switch as recited in claim 1, characterized in
that the intermediate plate (22) is provided with feet (22') pointing to the second end of the seat (10).

3. Electric appliance switch as recited in claim 2, characterized in
that the feet (22') of the intermediate plate (22) additionally fix the bow spring (21) whose both bow ends (21') are elastically spreadable.

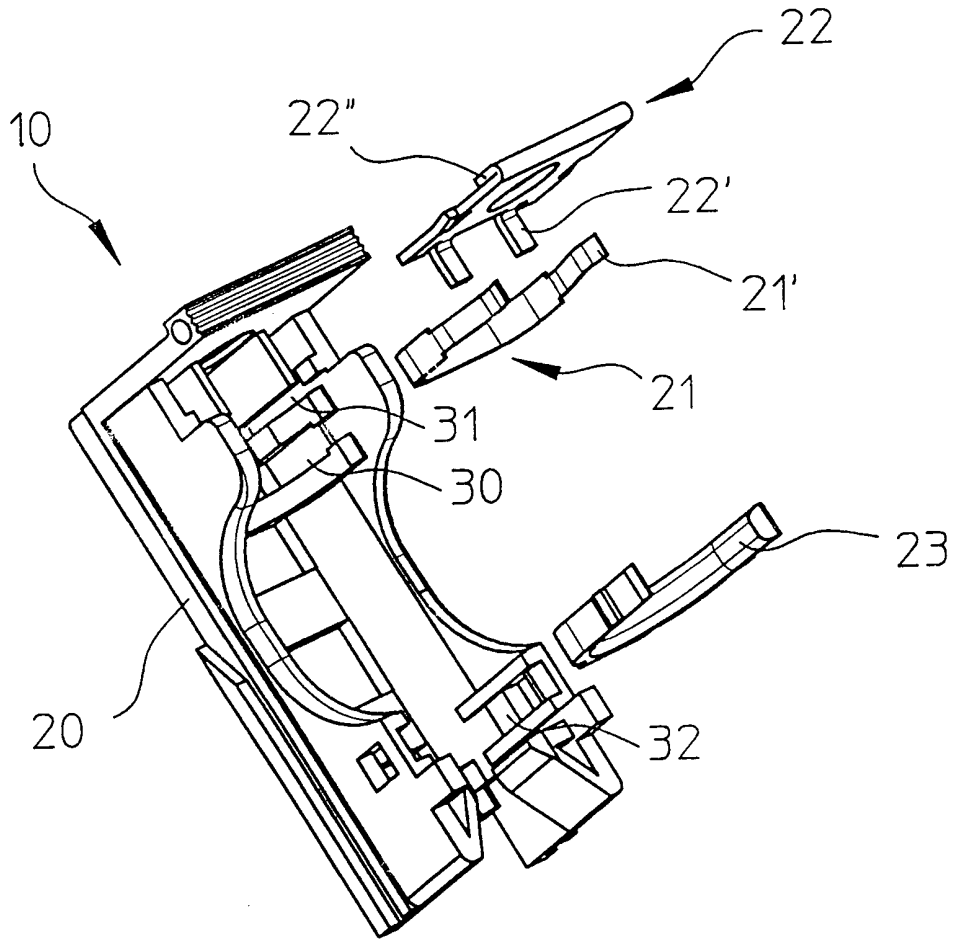


Fig. 1

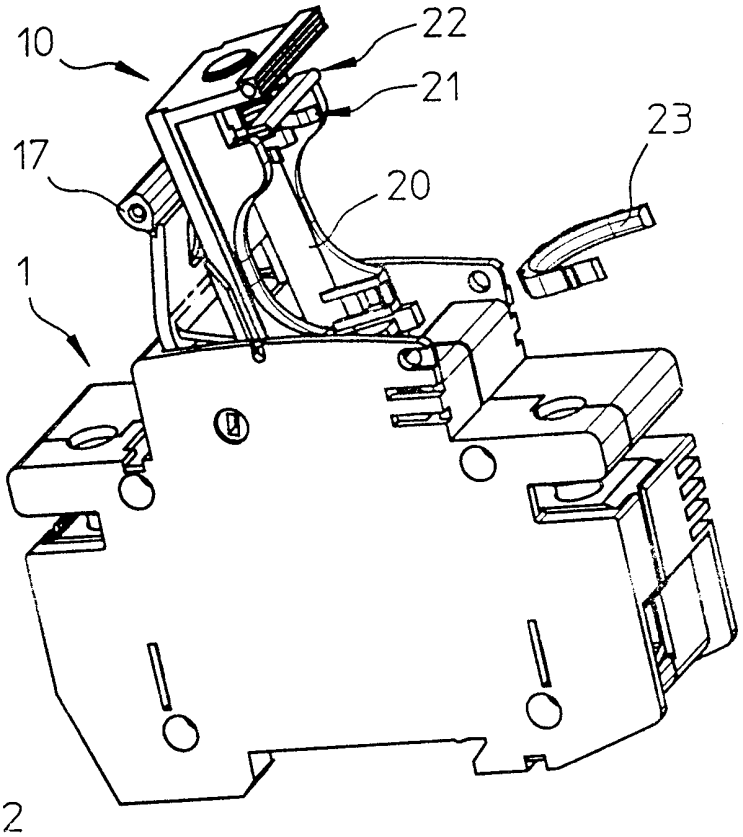


Fig. 2

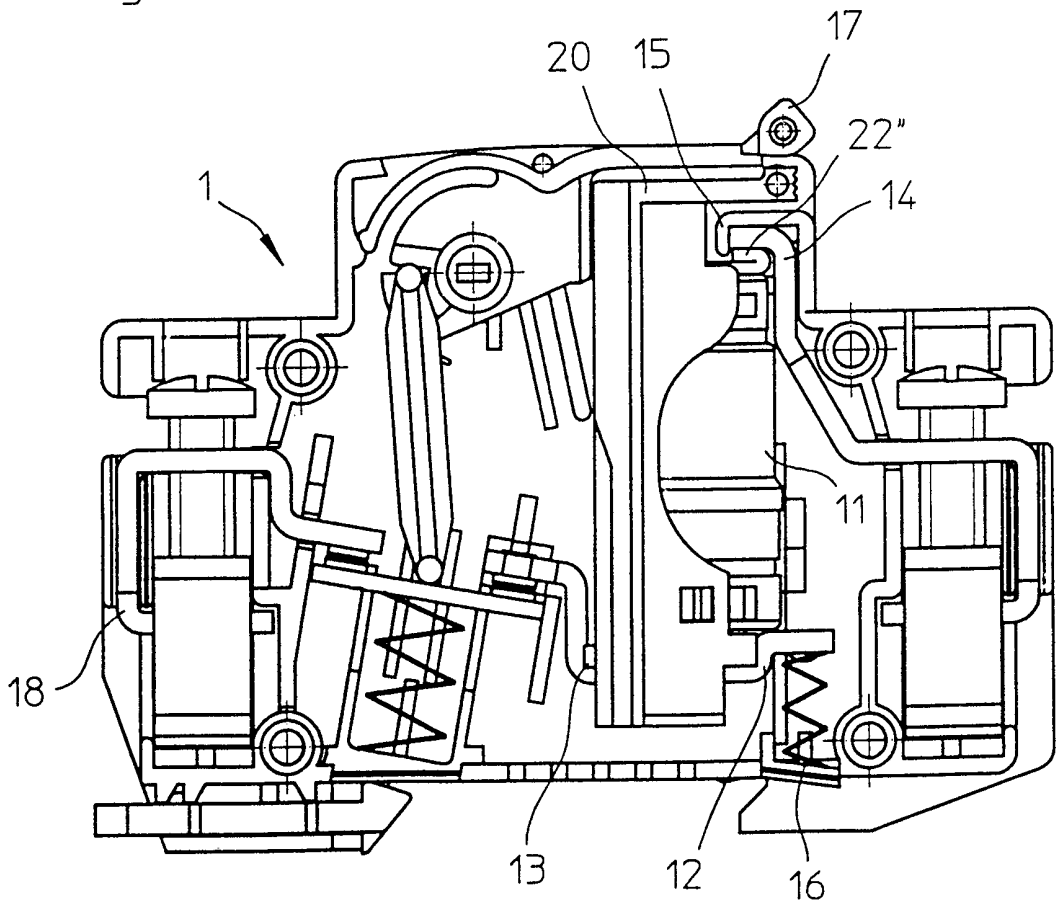


Fig. 3

INTERNATIONAL SEARCH REPORT

Int tional Application No
PCT/SI 99/00023

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01H9/10

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)
IPC 7 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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 27 54 195 A (KNUDSEN NORDISK ELECT) 15 June 1978 (1978-06-15) the whole document	1
A,P	WO 99 18589 A (SEMROV ANTON ;ETI ELEKTROELEMENT D D (SI)) 15 April 1999 (1999-04-15) cited in the application	

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☒ Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

Information on patent family members

Int ational Application No
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