

The invention relates to an electric switching device for fitting on an installation automatic circuit-breaker, especially a power circuit-breaker, having contact points for at least two potential-free breaker poles which are acted on by an operating device which interacts with one or more coupling elements which penetrate the flat sides of the housings, constructed to a compact design, of the switching device and, if necessary, of an adjoining automatic circuit-breaker, it being the case that they can transfer the switch position of the latter to the breaker poles via the operating device.

In electrical low voltage switchgear, the circuits of which are protected by power circuit-breakers and, if necessary, by air-leakage circuit-breakers, there is frequently a need for so-called auxiliary circuits to be switched, that is to say connected or disconnected, at the same time as the triggering, performed by a response due to overcurrent or short-circuit current or fault current, of the protective automatic circuit-breakers and the interruption of the main circuits associated therewith.

Provided for this purpose are auxiliary switches which for the purpose of protecting the main circuits are additionally arranged next to the automatic circuit-breakers installed in meter mounting boards. It is obvious in this regard to fit the auxiliary switches to a permanently installed automatic circuit-breaker and connect them mechanically to the trigger thereof, so that in the case of triggering both the automatic circuit-breaker and the auxiliary switch fitted thereon are operated simultaneously.

Such an auxiliary switch fitting for power circuit-breakers has been disclosed in German Utility Model DE-GM 7,426,189, which has in a space isolated from the power circuit-breaker auxiliary contacts which are acted on by an operating device which engages with the adjoining automatic circuit-breaker. The auxiliary switch fitting has a plurality of contact points arranged one above another which are formed by juxtaposed fixed

contacts which can be connected in each case by means of a contact bridge.

5 The contact bridges are mounted on a contact bridge support which is constructed as a slide and can be displaced via a pivoting lever by an operating element of the adjacent automatic circuit-breaker. In the event of a change in the switch position of the automatic circuit-breaker, the position of the contact bridge support, and thus the switch position in the auxiliary switch fitting, also changes simultaneously via this operating element.

10 Depending on need, the contact point of the auxiliary switch can optionally be used as a break contact or as a make contact by converting the contact bridge on the contact bridge support.

15 It is the object of the invention, proceeding from this prior art, to improve a switching device of the type mentioned at the beginning with regard to its manipulation, functional reliability and range of use. In this case, the breaker is to be of compact configuration and easy to manipulate.

20 This object is achieved according to the invention when the operating device is formed from two mutually independent switch mechanisms which in each case have a coupling element which optionally engages with the adjoining automatic circuit-breaker, each switch mechanism acts on at least one breaker pole, each breaker pole is constructed as a two-way switch, and the operating device has a first operating handle and a second operating handle.

25 In a preferred embodiment of the invention, it can be provided that a first breaker pole serves as a signalling breaker indicating the connected position or the disconnected position, caused as a consequence of a fault, that is to say a short-circuit current or overcurrent, of the automatic circuit-breaker, while the at least second breaker pole serves to connect and disconnect other auxiliary circuits.

30 An advantageous embodiment of the invention provides for equipping the switch mechanism of the first

breaker pole, which is used as signalling pole, with a test device for monitoring the perfect functioning of the switch mechanism.

5 This test device can, however, also serve, in particular, for monitoring a signal circuit connected to this breaker pole. Consideration is also given in this case to the possibility that in the event of completed triggering of the adjoining automatic circuit-breaker the signal provided in this case is lacking because of a
10 fault in the signal circuit. The test device is also provided in order to be able to locate such fault sources without interrupting the main circuit.

This test device is formed from a spring-loaded longitudinally displaceable test key with a probe surface
15 on the end face and a sliding surface which is integrally formed obliquely on its opposite end face and which interacts with a triggering lever of the switch mechanism for the signalling breaker.

When the test device is operated, that is to say
20 the test key is pressed down, its sliding surface acts on a slider plate with a triggering nose which, for its part, moves the triggering lever of the switch mechanism from its rest position, and thus leads to unlatching of the switch mechanism, whereupon the associated breaker
25 pole passes into the disconnected position. At the same time as the movement of the slider plate, a driver pin which is mounted thereon or integrally formed in one piece acts on a driver, which is provided for this purpose on the associated operating handle and is pro-
30 vided with a latching nose, and displaces it in such a way that the operating handle passes into the "off" position.

As already mentioned, it is provided in accordance with the invention that the switch mechanisms for
35 the breaker poles are acted on independently of one another by the adjoining automatic circuit-breakers.

The signalling breaker, which serves, in particular, to indicate fault conditions in the main circuit of the automatic circuit-breaker - short-circuit current or

overcurrent - is connected for this purpose to a triggering element of the automatic circuit-breaker via the coupling element assigned to its switch mechanism. For its part, this triggering element interacts both with
5 the magnetic and with the thermal trigger of the automatic circuit-breaker and thus transmits the movement thereof directly to the coupling element, which operates the switch mechanism of the signalling breaker.

The switch mechanism of the at least second
10 breaker pole, which preferably serves as an auxiliary switch for connecting and disconnecting other auxiliary circuits, engages via the coupling element assigned to it with the moving contact piece of the automatic circuit-breaker.

15 In the known automatic circuit-breakers, to which the invention makes reference, the moving contact piece is mechanically coupled to the manual operating element of the automatic circuit-breaker and can therefore be manually operated thereby. Consequently, with each manual
20 operation of the manual operating element of the automatic circuit-breaker, which is transferred to the moving contact piece, there is a simultaneous operation of the at least second breaker pole, provided as auxiliary switch, of the fitted electric switch.

25 In accordance with the invention, the electric switch also has a switch-operating element, which is led out on the front side of the housing and serves, connected in a self-closed fashion to the automatic circuit-breaker manual operating element, for the manual connection of the fitted auxiliary and signalling breaker.
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In this case, the switch mechanism of the first
breaker pole, which serves as signalling breaker, is advantageously configured such that although the signalling pole can be connected it cannot be brought into
35 the disconnected position by manual operation of the manual operating element of the automatic circuit-breaker.

Consequently, after its connection the signalling breaker passes into the disconnected position only due to

the operation of the test key or to an actually occurring short-circuit current or overcurrent, irrespective of whether the adjoining automatic circuit-breaker has been brought manually into the disconnected position, it being
5 the case, however, that the disconnection of the signalling contact by means of the test device is not transferred to the adjoining automatic circuit-breaker.

In accordance with a further special embodiment of the invention, the electric switch is provided with a
10 manual operating element which serves as a visual switch position display.

In this case, the operating element is formed from two operating handles which are arranged capable of pivoting about a common axis of rotation. The first
15 operating handle, which for the purpose of differentiation has a different colour than the second operating switch, is connected to the switch mechanism of the signalling pole. The second of the two operating handles is prepared to engage in a self-closed fashion in the
20 manual operating element of the adjoining automatic circuit-breaker and serves for the simultaneous connection of the switching devices. In addition, it has a driver which serves to bring the switch mechanism of the signalling pole into the connected position.

As already mentioned above, the switch mechanism of the signalling breaker can be connected manually in
25 common with the adjoining automatic circuit-breaker or alone; manual disconnection of the signalling pole is, however, not possible. This is also not possible with the
30 operating handle directly engaged with the switch mechanism of the signalling pole, since the latching provided in the switch mechanism can be triggered only by operating the test key or by activating the thermal or
35 magnetic trigger of the automatic circuit-breaker. Both lead in each case to a change in the position of the coupling element and thus to triggering of the switch mechanism of the signalling breaker.

In a preferred embodiment of the invention, the electric built-on switch is accommodated in a double-

shell housing which consists of half shells formed in mirror-image fashion. The dividing plane of the switch housing, the thickness of which corresponds to half the module width of the conventional automatic circuit-breakers extends at half thickness parallel to the flat side of the switch housing and divides the latter into two equally thick halves which accommodate the individual parts of the switch, including the terminals.

It is possible in this way for the terminal screws, which are usually provided with terminals and are inserted into preformed recesses in the housing shells, to be installed without further measures, for example bonding, in an anti-rotation fashion secure even against high torques upon clamping of the electric supply leads.

A further advantage of the invention is to be seen in that the contact points for the breaker poles, signalling breakers and auxiliary switches are constructed in each case as two-way switches, thus guaranteeing optional use as make contact or break contact without additional outlay.

The terminal assignment for the contact points is provided in a known way in each case on the upper and lower end faces which face the breaker poles, it being possible to reach each terminal with its terminal screws, which is arranged countersunk, only by means of a tool.

For the purpose of joining them, the housing shells are provided during their production with alternately integrally formed hooks and corresponding recesses, which interlock.

Fitting the electric switch to an automatic circuit-breaker is possible at any time, that is to say even subsequently by the customer, to the extent that the automatic circuit-breakers provided are prepared for this purpose.

According to a special embodiment of the invention, the switching device is mounted on the automatic circuit-breaker by means of clamps which in each case grip the narrow sides of the two housings and latch tight in self-closed fashion in recesses on the flat sides.

According to another embodiment, pin-shaped connecting elements, for example screws or rivets, which penetrate the housings are provided for mounting purposes.

5 These and further advantageous embodiments of the invention are specified in the subclaims.

 The invention, advantageous embodiments and further advantages of the invention are to be explained in more detail and described with the aid of the drawing,
10 which reproduces an exemplary embodiment of the invention and wherein:

 Figure 1 shows an arrangement of electric automatic circuit-breakers and the switching device according to the invention on a support rail, in an oblique view,
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 Figure 2 shows the switching device according to the invention in an oblique view

 Figure 3 shows the switching device according to Figure 2 in a longitudinal section in the "off" switch position,
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 Figure 4 shows the switching device in accordance with Figure 2 in longitudinal section in the "on" switch position,

 Figure 5 shows the switching device in accordance with Figure 2 in longitudinal section in the "trigger-free" switch position
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 Figure 6 shows the switch mechanism of the signalling breaker pole,

 Figure 7 shows a view of an operating handle, and

30 Figure 8 shows a longitudinal section through the operating handle in accordance with Figure 7 (along the line VII-VII).

 Represented in Figure 1 is an arrangement of electric automatic circuit-breakers 10 and an electric switching device 12 according to the invention, which are
35 mounted on a support rail 14.

 In a known way, the electric automatic circuit-breakers 10 are provided for the purpose of automatic triggering of the previously connected automatic

circuit-breakers 10 with triggering elements - thermal and magnetic triggers - which are not represented in more detail. As is to be explained in further detail below, the switching device 12 according to the invention
5 arranged between two electric automatic circuit-breakers 10 has no automatic trigger, but is coupled with the aid of coupling elements 16 which are not recognisable in this representation to one of the adjoining automatic circuit-breakers 10.

10 As may be gathered furthermore from this representation, the contour of the housing of the switching device 12 according to the invention follows the shape of the automatic circuit-breaker 10, that is to say the switching device 12 forms a unitary switch block with the
15 automatic circuit-breakers 10 lined up alongside it.

It is shown additionally in Figure 1 that the switching device 12 has an operating element which is formed from two operating handles 20, 21 and is aligned with the operating knobs 22 of the adjacent automatic
20 circuit-breakers 10, 11.

The switching device 12 additionally has on both sides of the operating element 20, 21 respectively three juxtaposed terminal screws 24 which belong to screw terminals 25 which are not shown in this representation
25 and can be reached via access openings 26 arranged one above another on the narrow end faces of the switching device 12.

In contrast, in the automatic circuit-breakers 10, only one electric terminal 28, which can be reached
30 via access openings 29, is provided in each case on each of the two narrow end faces. The automatic circuit-breakers 10 are provided in a known way with a groove 30 which has a permanently integrally formed latching nose and a moving latching slide by means of which the auto-
35 matic circuit-breakers 10 are snapped onto the support rail 14, which is constructed as a top-hat rail.

The switching device 12 is represented in Figure 2 individually oblique in an view, there being shown, in particular, the previously nonrecognisable coupling

elements 16, 18 and the groove 31, which is formed in the rear of the switch and accommodates the support rail 14.

By contrast with the automatic circuit-breakers 10, the groove 31 has neither a permanently integrally formed latching nose nor a moving latching slide, since
5 provision is made only for mounting on adjoining automatic circuit-breakers 11 in retaining openings 34.

The coupling elements 16, 18, which penetrate a flat side 32 of the switching device 12 at a distance
10 from one another, are guided in gaps 17, 19 extending - in a manner resembling a switch gate - in a curved fashion in the side wall 32 of the switching device 12.

As shown in Figure 1, the purpose of mounting on the automatic circuit-breaker 11 is served by the
15 retaining openings 34, which serve to accommodate retaining elements which are not shown in more detail and are connected to the automatic circuit-breaker 11 in a force-closed and/or self-closed fashion.

Figure 3 shows the longitudinal section through
20 the switching device 12. It may be seen in this representation that the switching device 12 has two breaker poles 35, 45 which in each case are acted on by an assigned switch mechanism 36, 46. Each of the breaker poles is constructed as a two-way switch and has in each
25 case three terminals 25 for connection of the electrical incoming feeders and outgoing feeders. The terminals 25 situated closest to the rear with the groove 31 serve as incoming terminals 37, 47, while the terminals 25 situated above them are provided as outgoing terminals
30 38, 39, 48, 49.

The incoming terminals 37, 47 are connected in each case via a flexible conductor piece 50, 51 to a moving contact 52, 53.

Each of the moving contacts 52, 53 is assembled
35 from a rotary handle 54, 55 and a contact arm 56, 57 integrally formed thereon and having a contact piece.

The contact arms 56, 57 pivot as a consequence of being acted on by the switch mechanisms 36, 46 from a fixed contact piece 60, 61 to a fixed contact piece

62, 63 situated opposite.

Actuating arms 58, 59 which act on the rotary handles 54, 55 serve for connection to the switch mechanisms 36, 46. Provided as electrical insulation between the moving contacts 52, 53 is a partition 42 which is integrally formed above the groove 31 on the rear wall of the switch housing 40.

The breaker pole 35 arranged in Figure 3 to the right of the partition 42 is provided in accordance with the invention as a signalling breaker, and is operated in normal use via the coupling element 18, which is coupled to the switch mechanism 36, by the adjoining automatic circuit-breaker 11 when the thermal or magnetic trigger thereof has responded.

Manual operation of the moving contact of the signalling breaker pole 35 is possible in accordance with the invention only by operating a test device 44. The test device 44 is formed from a spring-loaded probe which has a probe surface, is arranged next to the operating element 20, 21 and, as may be seen in Figure 3, has an obliquely positioned sliding surface 64 which acts on a triggering pin 66 whose change in position leads to operation of the moving contact 52 by the switch mechanism 36.

The switch position represented in Figure 3 is defined with reference to the position of the operating element 21 as a disconnected position, since in this position of the manual operating knob 22 of the automatic circuit-breakers 10, 11 the contacts thereof are open.

The breaker pole 45 arranged to the left of the partition 42 serves as auxiliary switch for connecting or disconnecting auxiliary circuits in the case of triggering of the automatic circuit-breaker caused by over-current or short-circuit current.

The switch mechanism 46 consists of two lever arms 72, 74 which are rigidly connected to one another at a specific angle and pivot about a point 70 of rotation when the coupling element 16, which engages with the moving contact of the adjoining automatic circuit-breaker

11, is moved. The double lever 72, 74 thereby executes a pivoting movement by means of which the contact arm 57 of the moving contact 53 is pivoted to the other fixed contact 63.

5 The terminals 25 are accessible through tunnel-like recesses 24 for operating tools, for example screw-drivers, as well as via supply openings 26 for the connection of electric leads.

10 It is provided furthermore in accordance with the invention that the bipartite operating element serves simultaneously as switch position display for the signalling breaker pole 35. It is provided in this case that the first operating handle 21 which is covered in Figure 3 by the second operating handle 21 and connected
15 directly to the switch mechanism 36 of the signalling breaker pole, specifies the respective switch position of the moving contact 52 of the signalling breaker pole 35. The result of this is to allow the signalling breaker pole 35 to be reconnected manually after its
20 disconnection.

 An operating pin 67 provided on the switch mechanism 36 interacts in this case with a driver which is arranged on the second operating handle 21 and not shown in more detail. It is therefore possible when the
25 switch mechanism 36 has been triggered for the latter to be returned to its connected position.

 Figure 4 reproduces the switching device 12 shown in Figure 2 and explained above in the "on" switch position in longitudinal section.

30 With respect to the details of the switching device 12 which can be seen in the figure, reference is made to the explanations relating to Figure 3, since they agree with the details explained there and differ only in the switch position. The different switch position is
35 initially easy to see by comparison with Figure 3.

 The contact arms 56, 57 of the moving contacts 52, 53 are pivoted in each case to the other fixed contact 62, 63. In addition, the other switch position is also shown at the position of the second operating handle

21, which is pivoted to the right with respect to the disconnected position shown in Figure 3.

Figure 5 shows the switching device 12 in accordance with Figure 2 in the "trigger-free" switch position in longitudinal section.

With reference to the position of the contact arms 56, 57 of the moving contacts 52, 53, in this switch position there is no difference with respect to the "off" switch position which is represented in Figure 3. However, it may be seen from Figure 5 that the second operating handle 21 is situated in the position which corresponds to the connected position. This is rendered possible due to the fact that a latching lever 76 which is normally supported in a latching position 77 on a spring-loaded triggering lever 78 is triggered by the displacement of an S-shaped slider plate 80 and in this case brings the contact arm 56 into the disconnected position.

This displacement of the slider plate 80, which leads to triggering of the latching lever 76, is transferred by the coupling element 18 from the adjoining automatic circuit-breaker 11 to the switch mechanism 36. In the same way, the coupling element 16 transfers the contact movement from the automatic circuit-breaker 11 to the switch mechanism 46. In this case, it is understood by trigger-free that the connection is to be performed although there is an overcurrent or short-circuit current at the instant of connection on the basis of which the thermal or magnetic trigger responds.

Figure 7 shows the side view of the second operating handle 21, which has a body 90 made from insulating material and on which a projection 92 is integrally formed for self-closed connection to the operating handle 22 of the adjoining automatic circuit-breaker 11. In the interior of the second operating handle 21 an elongated cavity 91 is provided which serves as a guide for the driver 94 already mentioned. The driver 94 is a punched sheet metal part which because of the low cost is preferably produced from sheet steel, but

also, as the case may be, from copper alloy or aluminium alloy, and has in longitudinal section the shape of a circular disc with an integrally formed shank. The shank serves as a guide in the cavity 91, while the circular disc fulfils a plurality of functions. Firstly, the circular disc is provided with a central recess 99 for accommodating the pivoting axis 96 for the second operating handle 21. The recess 99 has an oval shape and thus permits eccentric displacements of the circular disc. This permits the driver 94 to slide back into the cavity 91, which additionally accommodates a compression spring 98 for acting on the driver. A latching nose 95 integrally formed on the external circumference of the circular disc of the driver 94 drives the axis 81 of rotation of the actuating lever 75 and thus brings the switch mechanism 36 and the operating handle 20, connected thereto, of the signalling breaker pole 35 into the connected position during a pivoting movement of the operating handle.

A longitudinal section through the second operating handle 21 in accordance with Figure 7 along the line of section VII-VII is shown in Figure 8, in which it is possible to see that the driver 24 is retained by means of two bent-over lugs 97 in the housing body 90 of the operating handle 21. Likewise shown is the arrangement of the compression spring 98 which acts on the driver in the longitudinal direction of the cavity 91, that is to say radially relative to the pivoting axis 96 of the second operating handle 21. In addition, two longitudinal gaps 93 which serve to accommodate the lugs 97 are provided for the longitudinal mobility of the driver 94.

The structure and mode of operation of the two switch mechanisms 36, 46 are to be explained below.

The switch mechanism 46 for the auxiliary breaker pole 45 has the coupling element 16, the pivoting arm 72 which accommodates the coupling element 16 at one end, and the transfer lever 74, which is rigidly connected at an angle at the other end of the pivoting arm 72, which is pivotably mounted here on a housing pin 70.

The pivoting movement of the coupling element 16, which it executes when interacting with the adjoining automatic circuit-breaker 11 as the latter is triggered, is transferred correspondingly to the transfer lever 74, the change in position of its free end, to which the connecting rod 59 which is connected to the moving contact 53 is pivoted, leading to a change in the switch position of the auxiliary breaker pole 53.

The structure and the mode of operation of the switch mechanism 36 is more extensive by comparison with the switch mechanism 46. Consequently, more detail is to be given in this regard with the aid of the sketch of the principle represented in Figure 6.

The central switch mechanism element of the switch mechanism 36 is the slider plate 80 already mentioned, which is displaceably guided on a circular path about the point of rotation of the second operating handle 21 by means of an elongated hole 82 and a guide pin 84 which is integrally formed on the opposite side of the slider plate 80 and covered in this view, for which reason it is drawn in with dashes. The elongated hole 82 grips a housing pin 71, while the guide pin 84 (lacuna) guided in a housing gap not shown here, which is formed, for example, by two parallel housing webs.

A further guide pin 86, which supports the coupling element 18, slides in a cutout in the shape of a circular arc in the housing cover, and thus prevents the tilting of the slider plate 80, whose S-shaped external contour approximately corresponds to the curved displacement path.

Except for the "trigger-free" switch position, the latching point 77 simultaneously forms a point of rotation for the latching lever 76, which is connected to the second operating handle 21 via an actuating lever 75. The switch position shown in Figure 6 corresponds to the connected position.

With the exception of the trigger-free switch position, the latching lever 76 pivots about the latching point 77 because of actuation by the actuating lever 75.

When the operating handle 21 is situated in the disconnected position, its pivoting point 81 for the actuating lever 75 is situated at a greater distance relative to the latching lever 76 than in the connected position. Because of the rigid coupling by means of the actuating lever 75, the latching lever 76 is correspondingly pulled along and pivots about the latching point 77. In this case, the moving signalling contact 52, which is not shown here and whose pivoting lever 54, as shown in Figure 3, is mounted in each case about a housing pin 41 in the same way as in the case of the auxiliary contact 53, is operated via the transfer lever 58.

In the event of operation of the test device 44, in which the bevel 64 acts on the triggering pin 66, the slider plate 80 is correspondingly displaced to the right and presses with its triggering nose 83 against the triggering lever 78, as a result of which the latching point 77 releases the latching lever 76. The pivoting point 79 on the latching lever 76 thereby serves as a floating bearing for the actuating lever 75 about which the support arm 76 is pivoted in the clockwise direction and in the process likewise operates the signalling contact 52 via the transfer lever 58.

The driver 94 arranged in the second operating handle 21 is acted on at the same time as the displacement of the slider plate 80 by means of a driver pin 67 integrally formed thereon. In this case, the driver pin 67 presses against the driver 94, as a result of which the latter slides back into the cavity 91 provided in the second operating handle as a longitudinal guide, with the result that the latching nose 95 integrally formed on the driver 94 does not engage and the second operating handle 21 returns after the unlatching process into the disconnected position.

The same process takes place in the so-called trigger-free switch position, the coupling element 18 ensuring the lateral displacement of the slider plate 80.

The axis of rotation of the pivoting point 79 is guided in this case in a groove in the shape of a

circular arc in the housing lower part, and thereby fixes the sequence of motion for the latching lever 76 and the transfer lever 58, which is connected thereto.



Patent claims

1. Electric switching device (12) for fitting on an installation automatic circuit-breaker (10, 11), especially a power circuit-breaker, having contact points
5 (60, 61, 62, 63) for at least two potential-free breaker poles (35, 45) which are acted on by an operating device (36, 46) which interacts with one or more coupling elements (16, 18) which penetrate the flat sides (32) of the housings, constructed to a compact design, of the
10 switching device (12) and, if necessary, of an adjoining automatic circuit-breaker (11), it being the case that they transfer the switch position of the latter to the breaker poles (35, 45) via the operating device (36, 46), characterised in that the operating device is formed from
15 two mutually independent switch mechanisms (34, 46) which in each case have a coupling element (16, 18) which optionally engages with the adjoining automatic circuit-breaker (11), in that each switch mechanism (36, 46) acts on at least one breaker pole (35, 45), in that each
20 breaker pole (35, 45) is constructed as a two-way switch, and in that the operating device has a first operating handle (20) and a second operating handle (21).

2. Electric switching device according to Claim 1, characterised in that the operating device has a test
25 device (44) which serves for functional testing of the first switch mechanism (36) and of the assigned breaker pole (35).

3. Electric switching device according to Claim 2, characterised in that the test device (44) serves for
30 controlling a signal circuit connected to the assigned breaker pole (35).

4. Electric switching device according to Claim 2 or 3, characterised in that the test device (44) is
35 configured as a longitudinally displaceable test key having a probe surface on the end face and a sliding surface (64) integrally formed obliquely on its opposite end face for acting on a triggering pin (66) of the first switch mechanism (36).

5. Electric switching device according to one of the



preceding claims, characterised in that two breaker poles (35, 45) are provided, of which the first breaker pole (35) serves as signalling breaker and the second breaker pole (45) serves as auxiliary switch.

5 6. Electric switching device according to one of the preceding claims, characterised in that the first breaker pole (35), which is provided as signalling pole, is acted on by the first switch mechanism (36), which is provided with the test device (44).

10 7. Electric switching device according to one of the preceding claims, characterised in that the coupling element (18) of the switch mechanism (36) for the first breaker pole (35) engages in a triggering lever of the adjoining automatic circuit-breaker (11), and transfers
15 the switching movement thereof, which is caused by a thermal or magnetic trigger in the event of response, to the first breaker pole (35) via the first switch mechanism (36).

20 8. Electric switching device according to one of the preceding claims, characterised in that the coupling element (16) of the second switch mechanism (46) for the second breaker pole (45) can engage with a moving contact of an adjoining automatic circuit-breaker (11), and transfers the switching movement thereof to the second
25 breaker pole (45) via the second switch mechanism (46).

9. Electric switching device according to Claim 2, characterised in that the triggering pin (66) is integrally formed on a slider plate (80) which interacts with a triggering lever (78).

30 10. Electric switching device according to Claim 8, characterised in that the slider plate (80) has a triggering nose (83) which upon operation of the test device (44) acts on the triggering lever (78) and thereby releases the latching lever (76).

35 11. Electric switching device according to one of the preceding claims, characterised in that the first operating handle (20) is connected to the first switch mechanism (36) of the signalling breaker pole (35) and serves the manual connection thereof.



12. Electric switching device according to one of the preceding claims, characterised in that the first operating handle (20) serves for indicating the switch position of the signalling breaker pole (35).

5 13. Electric switching device according to Claim 10, characterised in that the second operating handle (21) can be connected to the manual operating element (22) of an adjoining automatic circuit-breaker (11) and serves for simultaneous connection of the switching devices
10 (11, 12).

14. Electric switching device according to one of the preceding claims, characterised in that the second operating handle (21) has a driver (94) which is longitudinally guided in the handle (90) and grips by means of
15 a latching nose (95) the axis (81) of rotation of the connecting lever (75), which axis penetrates the second operating handle (21), and thus drives into the connected position the first operating handle (20) and the first switch mechanism (36), coupled thereto, of the signalling
20 breaker pole (35).

15. Electric switching device according to Claim 13, characterised in that the longitudinally displaceable driver (94), which is guided in the second operating handle (21), is acted on radially relative to the pivoting axis (96) of the second operating handle (21) by a
25 compression spring (98).

16. Electric switching device according to one of the preceding claims, characterised in that a driver pin (67) integrally formed on the slider plate (80) displaces the
30 latching nose (95), which is integrally formed on the driver (94), and thereby releases the axis (81) of rotation of the connecting lever (75).

17. Electric switching device according to one of the preceding claims, characterised in that the driver (94)
35 is a bent punched part made from sheet metal.