

SPECIFICATION

Adapter for single- or multi- phase current collector rails

The invention relates to an adapter for single-
 5 or multi-phase current collector rails equipped
 with electrical conductor rails and mounting
 channels of the kind, comprising a phase switch-
 over arrangement which can be operated from the
 outside with the adapter plugged in the collector
 10 rail, and a contact blade selector shaft and holding
 blade selector shaft each mounted for turning
 movement in an adaptor housing and also
 operable from the outside of the adapter, both
 selector shafts being controlled, by means of a
 15 blocking device, with mutual interaction of each
 other's movements, such that the contact blade
 selector shaft is operated only with a latched
 holding blade selector shaft and the latter is
 unlatched only when the contact blade selector
 20 shaft is not making contact.

An adapter of the foregoing kind is described in
 German Offenlegungsschrift 24 11 976 and is
 equipped with two selector shafts mounted
 coaxially inside one another, these being the
 25 holding blade selector shaft and the contact blade
 selector shaft. The contactless holding blade
 selector shaft has the function of latching the
 adapter in the mounting channels of the current
 collector rail. To this end the holding blades are
 30 turned into the mounting channels after the
 manner of turning bolts. The contact blade selector
 shaft carries three phase contacts and one neutral
 contact. The contact blades are supported
 resiliently and can be rotated into their contact
 35 position by a rotary movement of the selector
 shaft. A particular advantage of the known adapter
 is that the movement of the two selector shafts is
 controlled under mutual interaction, in such a way
 that the contact blade selector shaft is operated
 40 only with a latched holding blade selector shaft
 and the latter is unlatched only when the contact
 blade selector shaft is not making contact.

In addition, it is of advantage in the known
 adapter that a great number of the functional
 45 components, including the phase selector
 components, are arranged in the adapter take-up
 channel when the adapter is plugged in.

However, the foregoing adapter is considered
 to be in need of improvement insofar as the
 50 existing contact resistances make the installation
 of larger electrical power difficult. Apart from the
 transition contact neutral conductor — contact
 blade/conductor rail or phase contact
 blade/conductor rail, the known adapter contains
 55 another contact transition to the phase selector
 which again itself forms a contact point. A voltage
 drop, bothersome in itself, can arise, particularly if
 the transition contact phase — contact
 blade/phase selector and the contact point of the
 60 phase selector itself are not made properly,
 leading to the adapter heating up, particularly if
 the installed power is greater.

The invention aims at improving the adapter of
 the foregoing kind, maintaining a simple type of

65 construction, by lowering its total contact
 resistance while retaining its advantages.

To this end, the present invention consists in an
 adapter for single- or multi-phase current collector
 rails equipped with electrical conductor rails and
 70 mounting channels, comprising a phase switch-
 over arrangement which can be operated from the
 outside with the adapter plugged in the collector
 rail, and a contact blade selector shaft and holding
 blade selector shaft each mounted for turning
 75 movement in an adapter housing and also
 operable from the outside of the adapter, both
 selector shafts being controlled, by means of a
 blocking device, with mutual interaction of each
 other's movements, such that the contact blade
 80 selector shaft is operated only with a latched
 holding blade selector shaft and the latter is
 unlatched only when the contact blade selector
 shaft is not making contact, characterised in that
 the holding blade selector shaft is spaced at a
 85 distance from the contact blade selector shaft and
 carries a neutral conductor contact blade, while
 the contact blade selector shaft carries only one
 phase contact blade and, apart from being
 rotatable, can be displaced axially from the outside
 90 with plugged-in adapter, and that the blocking
 device includes a blocking element which consists
 of a slider mounted for longitudinal movement
 between the bodies of the two selector shafts
 which have a substantially circular cross-section,
 95 means being formed on each end of the slider for
 selective co-operation with the respective
 adjacent selector shaft body at a respective
 circumferential surface forming a control surface
 and at a respective latching recess.

With the arrangement of the invention, the
 contact blade selector shaft receives an additional
 degree of freedom in the form of the axial
 displaceability. This makes it possible to move the
 single phase contact along the conductor rails
 100 connected to different phases, with plugged-in
 adapter, and to rotate it outward at the required
 phase, when opposite the appropriate conductor
 rail, and in this way to bring it into contact with it.
 By arranging the neutral conductor blade on the
 holding blade selector shaft, any movement of the
 contact blade selector shaft can be restricted to
 105 operating the single phase contact blade alone, a
 prerequisite for a simple form of construction. For
 the rest, the adapter can be used optionally, with
 unchanged construction, with single-, two- or
 three-phase current collector rails and — after
 corresponding modifications — also with current
 collector rails containing more than three phases.

In the adapter according to the invention a
 120 separate phase selector is omitted since phase
 selection is done at the same time by the contact
 blade selector shaft carrying only one phase
 contact blade.

The adapter according to the invention, in
 125 contrast to the known adapter, has only the contact
 resistance in the contact blade (phase contact
 blade, neutral contact blade)/conductor rails
 region. Since these contact areas are controlled
 quite well, particularly also by applying a relatively

high contact pressure, the operational contact resistance, and thus the voltage drop, is relatively low, producing an advantageous effect by avoiding current heating to a large extent with greater electrical power losses:

However, the invention does not provide only the advantageous lowering of the total contact resistance since, at the same time, there is a mandatory requirement to retain the advantageous interrelationship in the control of the movements of the two selector shafts in the known adapter. In the arrangement of the invention, the interactive control of the two selector shafts is effected via the blocking element mounted to be movable between these two.

Further features and advantages of the invention will become apparent from the following description taken in conjunction with the accompanying drawings which illustrate diagrammatically and by way of example a preferred embodiment thereof, and in which:—

Fig. 1 shows a current collector rail in section and an adapter in elevation before being plugged into the current collector rail;

Fig. 2 shows the adapter of Fig. 1 plugged into the current rail and locked;

Fig. 3 is a side view of the adapter of Fig. 1 viewed in the direction of the arrow III;

Fig. 4 is a side view of the adapter in its locked position viewed in the direction of the arrow IV of Fig. 2, the current collector rail being omitted;

Fig. 5 is a top plan of the adapter viewed in the direction of the arrow V of Fig. 3;

Fig. 6 is an underneath plan of the adapter viewed in the direction of the arrow VI of Fig. 3;

Fig. 7 is a longitudinal section on the line VII—VII of Fig. 1, drawn on a larger scale;

Fig. 8 is a section through the contact blade selector shaft and adjacent housing components taken on the line VIII—VIII of Fig. 3, with the contact blade selector shaft in a first axial position

Fig. 9 is a view similar to Fig. 8 with the contact blade selector shaft in another axial position;

Fig. 10 is a cross-section taken on the line X—X of Fig. 7;

Fig. 11 is a section taken on the line XI—XI of Fig. 7;

Fig. 12 is a cross-section taken on the line XII—XII of Fig. 7, the selector position of the two selector shafts corresponding to Fig. 1;

Fig. 13 is a view similar to Fig. 12 but with the holding blade selector shaft latched; and

Fig. 14 is a view similar to Fig. 13 with both selector shafts latched as shown in Fig. 2.

In the drawings, the adapter is designated generally by the reference 10.

As can be seen from Figs. 1 and 2, a current collector rail 11 with an adapter take-up channel 12 is fitted with two approximately comb-like sections 13, 14 of insulating material pushed into place in such a way as to be self-locking and in which electrical conductor rails are held in a form-locking manner. Of these electrical conductor rails the neutral conductor rail is designated MP while the phase conductor rails — as usual — have the

reference letters R, S and T.

In addition, the current collector rail 11 is equipped with two diametrically opposed mounting channels 15. Below the mounting channel 15 shown on the right in Fig. 1 an earth contact conductor rail E is inserted into the profile section of the current collector rail 11.

The current collector rail 11 consists of an extruded alloy section while the electrical conductors MP, R, S and T and the earth contact conductor rail E are manufactured from flat copper section.

The adapter 10 comprises an adapter housing 18 formed of two shells 16, 17, providing an outer part 19 and a plug-in part 20.

As can be seen from Fig. 1, the adapter 10 is plugged into the take-up channel 12, plug-in part 20 first, and is latched there, as shown in Fig. 2. This happens purely mechanically by operating a lever 21, passing through the adapter housing 18 in a slot 22 and turntable through a circumferentially angle of about 90°. The lever is turned from the unlatched position shown in Fig. 1 into its latched position (Fig. 2). This is because the lever 21 turns a holding blade selector shaft A described in more detail in the following. If the selector shaft A is turned out of its neutral position according to Fig. 1 into the latching position according to Fig. 2, the holding blades 24 emerge from slots 23 on both sides of the adapter housing 18 and lock the adapter 10 into the holding channels 15. Activating the turning lever 21 also swings out a neutral conductor contact blade MPk. The neutral conductor contact blade MPk presses against the neutral conductor rail MP.

After the lever 21 has been operated according to Fig. 2 (and the neutral conductor contact blade MPk has been swung out simultaneously) the phase contact blade P can be swung out. As can be seen from Fig. 2, the phase conductor blade P presses against the phase conductor rail R. The phase contact blade P is mounted to be driven in rotation on a contact blade selector shaft B, to be later more fully described. The blade P may alternatively contact the phase conductor rails S and T. These two alternative positions of the phase contact blade P are shown in dashed lines in Fig. 2.

The earth contact Ek, provided as system earth, is a spring contact which wipes along the earth contact conductor rail E in a leading position if the adapter is plugged in in plug-in direction x. So that the adapter 10 can be inserted non-interchangeably only in one position it has on one side a polarizing rib 25, engaging a polarizing slot 26 as can be seen from the Figs. 1 and 2 in conjunction with each other.

Figs. 3—6 show further views of the adapter 10.

Mounting screws 27 fix the two shells 16, 17 to each other and a mounting screw 28 is used for mounting a holding fixture, not shown, for example a lamp holding fixture.

Further details of the adapter can be seen from Figs. 7—14.

As shown in Fig. 7, the holding blade selector shaft A is supported for rotation in the housing shell 16. Fig. 7 also shows clearly the holding blades 24 in their neutral position and a slot 23 associated with a holding blade.

The holding blade selector shaft A is connected as a hollow body which accommodates the connecting parts for the neutral conductor contact blade MPk in its interior. The neutral conductor contact blade MPk is terminated in a connection terminal 29 to which, for example, a connecting wire leading to a lamp is clipped. A similar connection terminal 34 is provided for the earth contact Ek. The neutral conductor contact blade MPk can be sprung inward against the restoring force of a bow spring 30 snapped into place in the interior space of the holding blade selector shaft A. In an essentially similar way the phase contact blade P, too, mounted in the interior space of the contact blade selector shaft B, can be sprung inward against the restoring force of a bow spring 30. Fig. 7 clearly shows the slots 31, 32 through which the neutral conductor blade MPk and the phase contact blade P can respectively be swung outward through the walls of the adapter housing 18 when the selector shaft A and the selector shaft B, respectively, are being turned.

The phase contact blade P, too, is terminated in a connection terminal 33 to which, for example, a connecting wire leading outward to a lamp can be clipped.

While the holding blade selector shaft A is operable by means of the lever 21 which can be turned through a circumferential angle of 90°, the contact blade selector shaft B is turned by means of an operating button 35 which is coupled for rotational drive by means of two axial slots 36 provided in the contact blade selector shaft B.

Fig. 7 also shows particularly clearly that the holding blade selector shaft A is spaced away from the contact blade selector shaft B. The contact blade selector shaft B can be adjusted axially against the force of a compression spring 37 by means of the activating button 35 which, in turn, is held constantly against the adapter housing 18 by a compression spring 38. If, therefore, the contact blade selector shaft B is to be displaced from an upper to a lower axial position the button 35 is pulled downward, in most cases after a rotary movement. As soon as the contact blade selector shaft B is stopped in its axial position the button 35 can spring back into its starting position resting against the housing under the action of the compression spring 38 so that the adapter 10 presents an essentially unchanged appearance regardless of the axial setting of the contact blade selector shaft B.

Adjacent to the contact blade selector shaft B passage holes or slots 32 are provided in the housing 18 (see Figs. 3 and 4), offset corresponding to the axial direction of the selector shaft B to match the axial spacing between the electrical conductor rails — for example S and T. For the passage of the neutral conductor contact blade MPk a slot or passage hole 31 is provided

only on one side of the adapter housing 18. This prevents the neutral conductor contact blade MPk accidentally contacting the phase conductor rail T.

For its retention in a certain axial phase or adjustment position the contact blade selector shaft B is equipped with a retention pawl 39 engaging optionally the hollow guiding spaces 40, 40a formed by the adapter housing 18 and provided with stop surfaces. This can be seen particularly clearly from Figs. 7—10. In its upper axial setting the retention pawl 39 engages the hollow guiding space 40 so that the phase contact blade P connected fixed in rotation with the contact blade selector shaft B can contact optionally the phase conductor rail R or the phase conductor rail S through the slots 32 located opposite them in this case (see also Figs. 2 and 8). During this, the contact blade selector shaft B is automatically held at its uppermost axial setting under the action of the compression spring 37. If now the contact blade selector shaft B is to be shifted from the uppermost axial setting to the lower axial setting so that the phase contact blade can contact the phase conductor rail T (through the lower slot 32), the button 35 is first turned in such a way that the retention pawl 39 is placed into its position shown in Fig. 10. This is because the retention pawl 39 in its position shown according to Fig. 10 does not offer any resistance to an axial shift since the locking wings 50 and 51 of the retention pawl do not engage the hollow guiding spaces 40 and 40a. The contact blade selector shaft B can then be pulled downward by means of the button 35 which produces a 90° turn leading to the phase contact blade P coming into contact with the phase conductor rail T, while the retention pawl 39 engages the hollow guiding space 40a with its locking wing 50. In this position the compression spring 37 is compressed. The phase contact blade P cannot be incorrectly operated in the lowermost axial setting because the housing shell 16 has no passage hole or slot 32 on its side facing the neutral conductor rail MP. Furthermore, a setting diagram is printed onto the bottom of the adapter (Fig. 6), similar to the H-type gear shift diagrams in motor cars. This also makes it possible to recognise from the axial position of the inner button 52, holding the compression spring, if the contact blade P is in the upper phase position — R or S — or in the lower phase position T (see Figs. 8 and 9).

Figs. 7 and 12—14 also show clearly that the two selector shafts A, B are controlled reciprocally by a blocking element G which can be moved between them. As can be seen from Figs. 12—14, the cross-section of the selector shafts A, B in each case is substantially circular at the level of the blocking element G. The circle surface area of the selector shafts A, B in each case forms control surfaces F_a and F_b . The blocking element G in the form of a slider is supported radially with respect to the two selector shafts A, B movable along its own longitudinal axis on the surfaces of the inside walls of plug-in part 20. The appropriate lateral and vertical support of the blocking element G on

the inner surfaces of the housing can be seen clearly from Fig. 11.

The blocking element G can be supported on both front sides each on the surface area of the adjacent selector shaft A, B forming the control surface F_a , F_b and can be latched up at a latching position 41/42 and 43/44 each. This is arranged in such a way that with the phase contact blade P and the neutral conductor contact blade MPk in contact position and simultaneously the holding blade selector shaft A in latching position (see Fig. 14), the latching position 41/42 on the selector shaft A is displaced by a circumferential angle of 90° with respect to the latching position 43/44 on the selector shaft B. The two front sides of the blocking element G are each provided with a latching nose 42, 44. Each latching nose 42, 44 works in conjunction with a latching notch 41 and 43, respectively. The outer axial length G_1 of the blocking element G between the latching noses 42, 44 (see Fig. 14) is dimensioned approximately in such a way that it is smaller by a certain amount of clearance than the clear width R_1 measured in the radial direction between the lowest part of the respective latching notch 41, 43 (Fig. 12) and the opposite control surface F_b or F_a . This achieves interdependence of the movement of the two selector shafts A, B with respect to each other.

According to Fig. 12, the latching nose 44 is in its associated latching notch 43 while the latching nose 42 is resting against the control surface F_a of the selector shaft A. This means that the contact blade selector shaft B cannot be moved before the state shown in Fig. 13 has been reached. The front of the slider G visible on the right-hand side in Figs. 7 and 12—14 is penetrated by a telescopic insert 46 constantly pressed outward by a compression spring 45 and the front 47 of which resting against the control surface F_b of the adjacent selector shaft B can be used to bridge the associated latching notch 44. This condition is shown clearly in Fig. 13. The telescopic insert 46 pressing outward under the action of the compression spring 45 pushes the whole blocking element G to the left in such a way that the latching nose 42 is in its associated latching notch 41. In contrast, the latching nose 44 is located outside of its associated latching notch 43. Thus the contact blade selector shaft B can be turned by 90° so that the condition according to Fig. 14 (or according to Fig. 12, respectively) is reached. According to Fig. 14 the holding blade selector shaft A is prevented from rotating. The selector shaft A can be moved again only when the phase contact blade P is disengaged which is the case in the representation according to Fig. 13.

Latching nose 44 and its associated latching notch 43 are essentially of trapezoidal shape while the latching nose 42 provided on the other face of the blocking element G is pointed on the outside and its associated latching notch 41 is arched in concavely. In this way the pointed latching nose 42 can slide out of the concave latching notch 41 if the holding blade selector shaft A is to be turned from its position shown in Fig. 13 into that

according to Fig. 12.

On the face 47 of the telescopic insert 46 a convexly arched sliding nose 48 is formed which engages an auxiliary notch 49, provided in accordance with the number of phases, in the contact position of the contact blade selector shaft B. When the sliding nose 48 locks into an auxiliary notch 49 (see Fig. 14) a clearly audible click sound can be heard, while a noticeable resistance must be overcome to transfer the contact blade selector shaft B from its setting according to Fig. 14 into that according to Fig. 13.

Finally, it must be noted that the latching notch 43 provided on the contact blade selector shaft is provided with an axial length matching the axial displaceability of the contact selector shaft B (Fig. 7). The restoring force of the compression spring 37 is considerably greater, for obvious reasons, than the restoring force of the compression spring 38.

CLAIMS

1. An adapter for single- or multi-phase current collector rails equipped with electrical conductor rails and mounting channels, comprising a phase switch-over arrangement which can be operated from the outside with the adapter plugged in the collector rail, and a contact blade selector shaft and holding blade selector shaft each mounted for turning movement in an adaptor housing and also operable from the outside of the adapter, both selector shafts being controlled, by means of a blocking device, with mutual inter-action of each other's movements, such that the contact blade selector shaft is operated only with a latched holding blade selector shaft and the latter is unlatched only when the contact blade selector shaft is not making contact, characterised in that the holding blade selector shaft is spaced at a distance from the contact blade selector shaft and carries a neutral conductor contact blade, while the contact blade selector shaft carries only one phase contact blade and, apart from being rotatable, can be displaced axially from the outside with plugged-in adapter, and that the blocking device includes a blocking element which consists of a slider mounted for longitudinal movement between the bodies of the two selector shafts which have a substantially circular cross-section, means being formed on each end of the slider for selective co-operation with the respective adjacent selector shaft body at a respective circumferential surface forming a control surface and at a respective latching recess.

2. Adapter as claimed in Claim 1, wherein adjacent to the contact blade selector shaft and in the direction of its axis, passage holes for the phase contact blade are provided in the adapter housing which are offset according to the distance between the electrical conductor rails.

3. Adapter as claimed in Claim 2, wherein the adapter housing is provided with a passage hole for the neutral conductor contact blade adjacent to the holding blade selector shaft.

4. Adapter as claimed in any of the preceding



the inner surfaces of the housing can be seen clearly from Fig. 11.

The blocking element G can be supported on both front sides each on the surface area of the adjacent selector shaft A, B forming the control surface F_a , F_b and can be latched up at a latching position 41/42 and 43/44 each. This is arranged in such a way that with the phase contact blade P and the neutral conductor contact blade MPk in contact position and simultaneously the holding blade selector shaft A in latching position (see Fig. 14), the latching position 41/42 on the selector shaft A is displaced by a circumferential angle of 90° with respect to the latching position 43/44 on the selector shaft B. The two front sides of the blocking element G are each provided with a latching nose 42, 44. Each latching nose 42, 44 works in conjunction with a latching notch 41 and 43, respectively. The outer axial length G_1 of the blocking element G between the latching noses 42, 44 (see Fig. 14) is dimensioned approximately in such a way that it is smaller by a certain amount of clearance than the clear width R_1 measured in the radial direction between the lowest part of the respective latching notch 41, 43 (Fig. 12) and the opposite control surface F_b or F_a . This achieves interdependence of the movement of the two selector shafts A, B with respect to each other.

According to Fig. 12, the latching nose 44 is in its associated latching notch 43 while the latching nose 42 is resting against the control surface F_a of the selector shaft A. This means that the contact blade selector shaft B cannot be moved before the state shown in Fig. 13 has been reached. The front of the slider G visible on the right-hand side in Figs. 7 and 12—14 is penetrated by a telescopic insert 46 constantly pressed outward by a compression spring 45 and the front 47 of which resting against the control surface F_b of the adjacent selector shaft B can be used to bridge the associated latching notch 44. This condition is shown clearly in Fig. 13. The telescopic insert 46 pressing outward under the action of the compression spring 45 pushes the whole blocking element G to the left in such a way that the latching nose 42 is in its associated latching notch 41. In contrast, the latching nose 44 is located outside of its associated latching notch 43. Thus the contact blade selector shaft B can be turned by 90° so that the condition according to Fig. 14 (or according to Fig. 12, respectively) is reached. According to Fig. 14 the holding blade selector shaft A is prevented from rotating. The selector shaft A can be moved again only when the phase contact blade P is disengaged which is the case in the representation according to Fig. 13.

Latching nose 44 and its associated latching notch 43 are essentially of trapezoidal shape while the latching nose 42 provided on the other face of the blocking element G is pointed on the outside and its associated latching notch 41 is arched in concavely. In this way the pointed latching nose 42 can slide out of the concave latching notch 41 if the holding blade selector shaft A is to be turned from its position shown in Fig. 13 into that

according to Fig. 12.

On the face 47 of the telescopic insert 46 a convexly arched sliding nose 48 is formed which engages an auxiliary notch 49, provided in accordance with the number of phases, in the contact position of the contact blade selector shaft B. When the sliding nose 48 locks into an auxiliary notch 49 (see Fig. 14) a clearly audible click sound can be heard, while a noticeable resistance must be overcome to transfer the contact blade selector shaft B from its setting according to Fig. 14 into that according to Fig. 13.

Finally, it must be noted that the latching notch 43 provided on the contact blade selector shaft is provided with an axial length matching the axial displaceability of the contact selector shaft B (Fig. 7). The restoring force of the compression spring 37 is considerably greater, for obvious reasons, than the restoring force of the compression spring 38.

CLAIMS

1. An adapter for single- or multi-phase current collector rails equipped with electrical conductor rails and mounting channels, comprising a phase-switch-over arrangement which can be operated from the outside with the adapter plugged in the collector rail, and a contact blade selector shaft and holding blade selector shaft each mounted for turning movement in an adaptor housing and also operable from the outside of the adapter, both selector shafts being controlled, by means of a blocking device, with mutual inter-action of each other's movements, such that the contact blade selector shaft is operated only with a latched holding blade selector shaft and the latter is unlatched only when the contact blade selector shaft is not making contact, characterised in that the holding blade selector shaft is spaced at a distance from the contact blade selector shaft and carries a neutral conductor contact blade, while the contact blade selector shaft carries only one phase contact blade and, apart from being rotatable, can be displaced axially from the outside with plugged-in adapter, and that the blocking device includes a blocking element which consists of a slider mounted for longitudinal movement between the bodies of the two selector shafts which have a substantially circular cross-section, means being formed on each end of the slider for selective co-operation with the respective adjacent selector shaft body at a respective circumferential surface forming a control surface and at a respective latching recess.

2. Adapter as claimed in Claim 1, wherein adjacent to the contact blade selector shaft and in the direction of its axis, passage holes for the phase contact blade are provided in the adapter housing which are offset according to the distance between the electrical conductor rails.

3. Adapter as claimed in Claim 2, wherein the adapter housing is provided with a passage hole for the neutral conductor contact blade adjacent to the holding blade selector shaft.

4. Adapter as claimed in any of the preceding



5 Claims, wherein for its retention in a certain adjustment or phase position the contact blade selector shaft is provided with a retention pawl engaging optionally hollow guiding spaces formed in the adapter housing and provided with stop surfaces.

10 5. Adapter as claimed in any of the preceding Claims, wherein the contact blade selector shaft is displaceable axially against the force of a spring.

15 6. Adapter as claimed in Claim 1, wherein in the contact position of the phase contact blade and of the neutral conductor contact blade and with the holding blade selector shaft simultaneously being in its latched position, the latching recess of the latter is displaced with respect to the latching recess of the contact blade selector shaft by a circumferential angle of 90°.

20 7. Adapter as claimed in Claim 6, wherein one end face of the slider is penetrated by a telescopic insert pressing outward under the force of a spring and the end face of which, resting against the control surface of the adjacent selector shaft body, can be used to bridge the associated latching recess.

25 8. Adapter as claimed in any of the preceding Claims, wherein a latching nose is formed on each end face of the slider, each working in conjunction with one latching recess of the adjacent selector shaft body.

30 9. Adapter as claimed in Claim 8, wherein one latching nose is of rectangular or trapezoidal

35 shape and its associated latching recess is of complementary shape, whilst the latching nose provided on the other end face of the slider is pointed or rounded on the outside and works in conjunction with a concave latching recess of the adjacent selector shaft body.

40 10. Adapter as claimed in any of Claims 7 to 9, wherein the end face of the telescopic insert forms a convexly arched sliding nose adjacent to the contact blade selector shaft for engagement with one of several auxiliary recesses in the contact selector shaft, the number of auxiliary recesses being equal to the number of phases.

45 11. Adapter as claimed in any of Claims 8 to 10, wherein the latching recess provided on the contact blade selector shaft is provided with an axial length matching the axial displaceability of the contact blade selector shaft.

50 12. Adapter as claimed in any of the preceding Claims, wherein an operating button provided on the outside of the adapter housing for the operation of the contact blade selector shaft is coupled for rotational drive and adapted to be axially displaceable, by means of at least one axial slot provided in the contact blade selector shaft, and is constantly held against the adapter housing by means of a spring.

55 13. An adapter for single- or multi-phase current collector rails, substantially as herein described with reference to and as shown in the accompanying drawings.