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"DEVICE FOR HOLDING SURGE ARRESTERS"

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This invention relates to a device for holding surge arresters.

5 German OS 27 50 638 describes a device of this kind which comprises a plug-in housing made of electrically insulating material, the housing being assembled from two parts and accommodating a plurality of laterally adjacent voltage surge arresters. The surge arresters employed have a diameter of 8mm and are well-suited to have connections made thereto by means of crown
10 contacts. However, other types of surge arresters, such as 6 x 8, 8 x 8 and twin arresters which have three contact pins, are also increasingly required for the same terminal or connector blocks, and the known overvoltage arrester device is not capable of
15 accommodating these surge arresters.

It is an object of the present invention to provide a device of the above-described type which can accommodate alternative types of surge arresters, and which can be mass-produced economically to meet the
20 existing high demand.

According to the present invention, there is provided a device for holding surge arresters, comprising an electrically insulating base and a plurality of different types of holders which can be interchangeably
25 mounted on the base, each holder including an electrically insulating body which is adapted to accommodate a plurality of surge arresters arranged laterally side-by-side, and contact blades and earthing contacts provided on said body for engagement with the
30 surge arresters, the contact blades and earthing contacts in different holders being arranged differently to accommodate respective different types of surge arresters, the device also including

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5 electrical terminals which extend from the base and which are adapted to be plugged in use into a terminal or connector block in telecommunication equipment, the terminals being electrically connected to the contact blades.

The device has the economic advantage that it can utilise an existing base for the insulating housing, which is fully described in the above-mentioned German OS 27 50 638.

10 In a preferred arrangement, one type of holder is adapted to accommodate standard 6 x 8 or 8 x 8 surge arresters and includes a centrally disposed earthing contact bar and contact blades disposed on both sides of the earthing contact bar, each surge arrester in use
15 being clipped-in between the earthing contact bar and a respective one of the contact blades. Another type of holder is adapted to accommodate standard twin surge aresters having three contact pins, and the contact blades and earthing contacts are designed
20 appropriately. For example, the holder can include for each surge arrester two pairs of juxtaposed resilient contact blades, one pin on the surge arrester being received in use between the contact blades in each pair, and a pair of resilient, juxtaposed earthing
25 contact arms between which the remaining pin on the surge arrester is received in use. Desirably, the holder includes a partition wall having holes therein, the pins on the surge arresters being passed through the holes in use for engagement with the contact blades
30 and the earthing contact arms.

Conveniently, each holder can be detachably mounted on the base by means of components thereon which are snap-engaging.

Advantageously, each holder is in the form of a chambered frame structure and has compartments in which the surge arrester are respectively received in use, the compartments being defined by laterally spaced partition walls in the holder.

Preferably, fins are provided on the holders and recesses are provided on the base for an extension of creepage paths.

Each holder can have a shoulder on its underside to support the contact blades.

The invention will now be further described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a schematic plan view of a device for holding surge arresters according to the present invention;

Figure 2 is a transverse cross-section through the device, showing one form of holder mounted on a base thereof;

Figure 2a is a longitudinal cross-section through one end of the device shown in Figure 2; and Figures 3 and 3a are similar views to Figures 2 and 2a, but showing the device with a different form of holder mounted on the base.

The device shown in the drawings is designated generally by the reference numeral 1, and is intended for use with terminal or connector blocks in telecommunications equipment. The device 1 comprises an electrically insulating base 1a on which can be interchangeably mounted two different types of holder 1b, as shown in Figures 2 and 3 respectively. The base



1a is essentially similar to that described in the above-mentioned German OS 27 50 638. In general terms, each holder 1b includes an electrically insulating body which is adapted to accommodate a plurality of voltage surge arresters 4a (Figure 3) or 4b (Figure 2) laterally side-by-side, and contact blades and earthing contacts provided on the aforesaid body for engagement with the surge arresters. The body also supports electrical terminals 2a, 2a' (Figure 3) or 2b, 2b' (Figure 2) which pass through respective apertures in the base 1a, these terminals being electrically connected to the contact blades: in the illustrated constructions, the terminals and the respective contact blades are formed integrally with each other. The terminals, along with guides depending from the base 1a, enable the device 1 to be plugged into the aforesaid terminal or connector block of the telecommunications equipment.

The two holders 1b are designed for different types of voltage surge arresters. More specifically, the holder shown in Figures 2 and 2a is adapted to receive standard 6 x 8 and 8 x 8 surge arresters as indicated by chain-dotted lines 4b while the holder shown in Figures 3 and 3a is adapted to receive standard twin arresters as indicated by chain dotted lines at 4a, these latter arresters having three contact pins 5a. In both cases, the holder 1b is detachably mounted on the base 1a by means of components 7 thereon which are snap-engaging.

The holder shown in Figure 2 and 2b includes an earthing contact bar 3b which extends longitudinally down its centre and resilient contact blades 2b, 2b' disposed on either side of the bar 3b. Each surge arrester 4b can be clipped-in between the respective

one of the contact blades and the earthing contact bar, the contact blades being flexed outwardly by this action (as indicated by chain-dotted lines in Figure 2) so that the arresters are held in place securely whilst being easily replaceable. It will be manifest that the surge arresters 4b are arranged in a double row on either side of the earthing contact bar 3b.

The holder shown in Figures 3 and 3a includes, for each twin arrester 4a, two pairs of juxtaposed, resilient contact blades 2a' and an earthing contact clip 3a having a pair of resilient and juxtaposed arms 3a'. Two of the contact pins 5a on the surge arrester are slotted between the contact blades in each pair, while the remaining (middle) contact pin is slotted between the arms of the earthing contact clip, this action causing the respective blades and arms to flex outwardly. The holder also includes a horizontal partition wall having holes 6a therein through which the contact pins 5a of the surge arresters are passed for engagement with the contact blades and the earthing contact clip.

Both of the illustrated holders 1b are designed in the form of a chambered, grid-like frame which is open at its top and bottom, the surge arresters 4a, 4b being received in respective compartments defined by laterally spaced partition walls 8 which are parallel to end walls 9 of the housing 1. Clearances or recesses 11 in the base 1a and fins 12 on the holder 1b are provided for an extension of creepage paths.

Longitudinally extending shoulders 10 are provided integrally on the underside of each holder 1b for supporting the contact blades. A guide 13 for the earthing contact 3a, 3b is provided on the end wall 9.



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- 7 -

CLAIMS:

1. A device for holding surge arresters, comprising an electrically insulating base and a plurality of different types of holders which can be interchangeably
5 mounted on the base, each holder including an electrically insulating body which is adapted to accommodate a plurality of surge arresters arranged laterally side-by-side, and contact blades and earthing contacts provided on said body for engagement with the
10 surge arresters, the contact blades and earthing contacts in different holders being arranged differently to accommodate respective different types of surge arresters, the device also including electrical terminals which extend from the base and
15 which are adapted to be plugged in use into a terminal or connector block in telecommunication equipment, the terminals being electrically connected to the contact blades.
2. A device as claimed in claim 1, wherein one of
20 the holders is adapted to accommodate standard 6 x 8 or 8 x 8 surge arresters and includes a centrally disposed earthing contact bar and contact blades disposed on both sides of the earthing contact bar, each surge arrester in use being clipped-in between the earthing
25 contact bar and a respective one of the contact blades.
3. A device as claimed in claim 1, wherein one of the holders is adapted to accommodate standard twin surge arresters having three contact pins.



4. A device as claimed in claim 3, wherein said one of the holders includes for each surge arrester two pairs of juxtaposed resilient contact blades, one pin on the surge arrester being received in use between the contact blades in each pair, and a pair of resilient, juxtaposed earthing contact arms between which the remaining pin on the surge arrester is received in use.

5. A device as claimed in claim 4, wherein the holder includes a partition wall having holes therein, the pins on the surge arresters being passed through the holes in use for engagement with the contact blades and the earthing contact arms.

6. A device as claimed in any preceding claim, wherein each holder can be detachably mounted on the base by means of components thereon which are snap-engaging.

7. A device as claimed in any preceding claim, wherein each holder is in the form of a chambered frame structure and has compartments in which the surge arresters are respectively received in use, the compartments being defined by laterally spaced partition walls in the holder.

8. A device as claimed in any preceding claim, wherein fins are provided on the holders and recesses are provided on the base for an extension of creepage paths.

9. A device as claimed in any preceding claim, wherein each holder has a shoulder on its underside to support the contact blades.



- 9 -

10. A device for holding surge arresters substantially as hereinbefore described with reference to the accompanying drawings.

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