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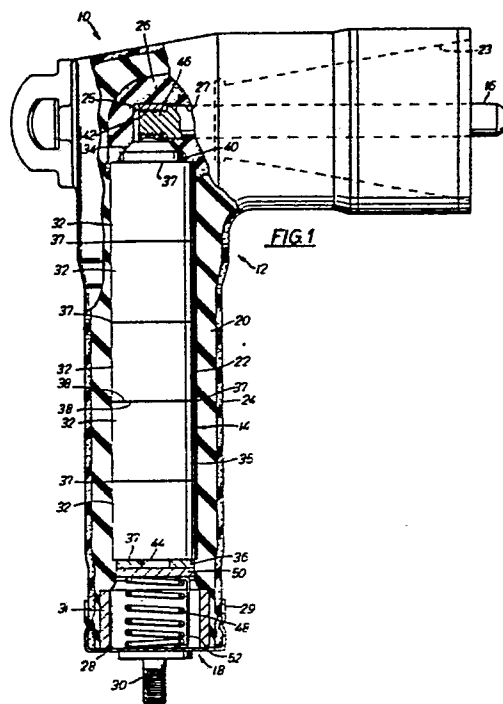
54 An arrester block assembly and a gapless arrester including same.

57 An arrester block assembly comprises a plurality of arrester blocks (32) each having conductive surfaces (38) on opposite ends of the block. The blocks (32) are arranged with adjacent surfaces in abutting engagement, and electrically conductive adhesive (37) connects the adjacent surfaces to provide a strong physical bond and low resistance electrical connection between the blocks. The adhesive is also provided to connect a spacer plate (36) and a connector (34) at opposite ends of the assembly.

The adhesive may be an electrically conductive silver epoxy cement which may be cured if desired. The assembly may be received within a bore (22) of a gapless arrester for connection to an electrically conductive probe (16).

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TITLE: AN ARRESTER BLOCK ASSEMBLY AND A GAPLESS
ARRESTER INCLUDING SAME

This invention relates to arrester block assemblies and gapless arresters including same.

In the Specification of our European Patent Application No. 79301507.4 (Publication No. 0008181)
5 a number of arrester blocks are described as being located within a resilient insulating housing. Corona and high resistance contacts between arrester blocks are eliminated by using the resiliency of the housing to compress the blocks. It is well known that corona has a deleterious
10 effect upon the insulation and can cause eventual failure of the insulation if it is not eliminated. However, even if the blocks are securely held in position within the arrester assembly, movement can occur between blocks because of the resiliency of the housing, thus affecting
15 the electrical contact and producing voids at the exterior edges of the blocks.

According to the invention there is provided an arrester block assembly, said assembly comprising a plurality of components and an arrester block, the block
20 having a conductive surface on opposite ends of the block, each component having a conductive surface in abutting engagement with a respective conductive surface of the block and characterized by an electrically conductive adhesive means connecting said adjacent surfaces.

In one embodiment, each component is an arrester block.

In another embodiment, one said component is a spacer plate and another said component is a connector.

- 5 An arrester block assembly according to a preferred embodiment of the present invention provides for low resistance contact between arrester blocks with a resulting minimization of corona and a strong physical bond between the arrester blocks of the assembly.
- 10 This has been accomplished by applying a conductive cement across the entire conductive face of each block. The blocks are then placed in abutting relation with the conductive surfaces adjacent to each other. The conductive cement is then cured to create a strong
- 15 physical bond and a low resistance electrical connection between the arrester blocks. After curing the cement, the arrester block assembly is placed in the arrester housing.

 An embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:-

 Figure 1 is a side view of a gapless elbow arrester partially broken away to show the arrester block assembly.

25 Figure 2 is a side view of the arrester block assembly.

 Figure 3 is a bottom view of the arrester block assembly.

 Referring to Figure 1 of the drawings, a gapless elbow arrester 10 is shown which includes a resilient housing 12 having a bore 22 for an arrester block assembly 14 and a busting receptacle 23 for a quick make probe 16. The arrester block assembly 14 is shown positioned in the housing 12 and retained therein by

35 means of a cap assembly 18.

 The housing 12 generally includes an elastomeric insulating portion 20 and an elastomeric electrically

conductive shield 24 provided on the outer surface of the insulating portion 20; an electrically conductive elastomeric insert 26 is provided at the intersection of the bore 22 with the receptacle 23. In this regard, it should be noted that the insert 26 includes a recess 25 to accommodate the arrester block assembly 14 and a bore 27 to accommodate the probe 16.

The cap assembly 18 is secured to the housing 12 at the open end of the bore 22. The cap assembly 18 includes a cap 28 having a flange 29 and a contact 30. The cap 28 is secured to the housing 12 by means of the flange 29 which encircles the outside surface of the conductive shield 24. A rigid tube 31 is placed in the end of the bore 22 to provide rigidity to the housing 12.

Referring to Figures 2 and 3 the arrester block assembly 14 shown includes a number of arrester blocks 32, a connector or contact 34 and a spacer 36. Each connector block 32 includes a conductive surface 38 at each end and is coaxial with each of the other connector blocks 32. The outer surface 35 may be provided with an insulating coating if desired.

Means are provided for physically connecting the connector blocks to provide a strong one piece structure. Such means is in the form of a conductive cement 37 provided between the conductive surfaces of the arrester blocks.

In this embodiment, the connecting means consists of a two component silver filled epoxy cement having a smooth thixotropic paste consistency purchased from Amicon, Polymer Products Division, United States of America, and sold under the name Amicon System CT-2523. The two components include a resin CT-2523A and a hardner CT-2523B which are mixed in a 1 to 1 ratio to form a very soft paste. The paste is applied to the entire surface 38 of each of the blocks 32 which are to be joined. The blocks 32 are then placed in abutting relation; conductive

surface to conductive surface. The cement is then cured at 100°C for 90 minutes.

5 The cement 37 can also be used to secure the contact 34 and the spacer 36 to the ends of the assembled arrester blocks. In this embodiment, the contact 34 includes a wide angular base 40 and a threaded aperture 42. The base 40 is coated with the cement and the end of the adjacent block 32 is coated with the cement. The parts are assembled and cured as described above.

10 The spacer 36 includes means for aligning the arrester block assembly 14 in the housing. Such means is in the form of a groove or slot 44 provided in the spacer 36. The slot 44 is aligned in a parallel relation to the threaded aperture 42 in the contact 34. When the
15 assembly is positioned in the bore of the arrester housing, the assembly can be rotated to align the slot with the axis of the probe 16 so that the probe 16 can be threaded into the threaded bore 42.

The arrester block assembly 14 is inserted into
20 the bore 22 until the contact 34 is seated in the recess 25 in the insert 26. A screwdriver (not shown) is then inserted into the slot 44 to rotate the assembly to align the threaded aperture 42 with the bore 27 in the insert 26. The probe 16 is provided with a threaded extension 46
25 which is screwed into the threaded bore 42.

Although the slot 44 in the spacer 36 is shown and described in a parallel relation to the threaded bore 42, it can be located at other angles so long as the location of the threaded bore with respect to the
30 slot 44 is known. In this regard, if the slot 44 is located in a perpendicular relation to the bore 42, obviously the slot 44 could be turned to a perpendicular relation to the probe axis to align the bore 42 with the probe 16.

35 Means is provided for biasing the arrester block assembly 14 into engagement with the insert 26. Such means is in the form of a spring 48 positioned between

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the cap assembly 18 and the spacer 36. Additional
spacers 50 can be provided at the end of the arrester
block assembly if required. A shunt 52 is provided as
a means for electrically connecting the arrester block
5 assembly 14 to the cap 28.

CLAIMS:

1. An arrester block assembly, said assembly comprising a plurality of components (32 or 34 and 36) and an arrester block (32), the block having a conductive surface on opposite ends of the block, each component having a conductive surface in abutting engagement with a respective conductive surface of the block (32) and characterized by an electrically conductive adhesive means (37) connecting said adjacent surfaces.
2. An arrester block assembly according to Claim 1, characterized in that each component is an arrester block (32).
3. An arrester block assembly according to Claim 1, characterized in that one said component is a spacer plate (36) and another said component is a connector (34).
4. An arrester block assembly according to Claim 2, characterized in that said arrester blocks (32) are coaxial with each other.
5. An arrester block assembly according to Claim 2 or Claim 4, characterized in that said blocks (32) include a connector (34) at one end and a spacer plate (36) at the other end.
6. An arrester block assembly according to Claim 3, or Claim 4, or Claim 5, characterized in that said plate (36) has locating means such as a slot (44) for aligning said arrester block assembly within said arrester.
7. An arrester block assembly according to Claim 6, characterized in that said connector (34) includes a threaded aperture (42) and said locating means (44) in said spacer plate (36) is arranged in a predetermined

relation to the threaded aperture (42) whereby the assembly can be aligned in a desired position in the arrester.

8. An arrester block assembly according to any preceding Claim, characterized in that said adhesive means (37) comprises a cement.

9. An arrester block assembly according to Claim 8, characterized in that the cement is cured after application to produce said strong physical bond.

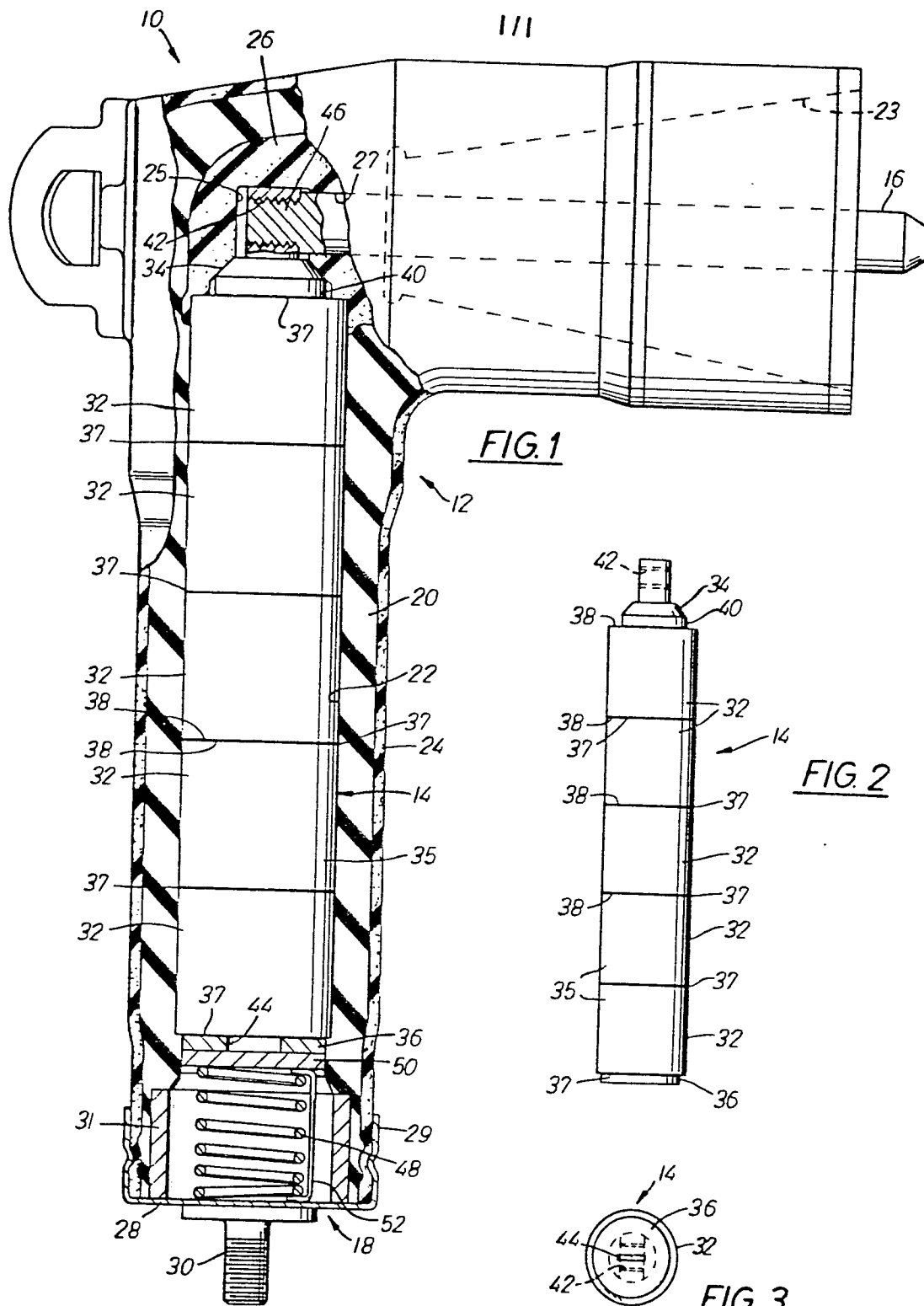
10. An arrester block assembly according to Claim 8 or Claim 9, characterized in that the cement is a silver epoxy cement.

11. A gapless arrester having a resilient insulating housing (12), a housing (12) including a bore (22) and a bushing receptacle (23) for an electrically conductive probe (16), characterized by an arrester assembly according to any one of Claims 1 to 10 positioned in the bore (22) and adapted to be connected to the probe (16).

12. A gapless arrester according to Claim 11, characterized in that the housing (12) is of elastomeric material.

13. A gapless arrester according to Claim 11 or Claim 12, characterized in that the bore (22) extends in a direction which is perpendicular to the longitudinal direction of the probe (16) when the probe is received in the bushing receptacle (23).

14. A gapless arrester according to any one of Claims 11 to 13, characterized in that the bore (22) is at one end of the housing (12) and the bushing receptacle (23) is at the other end of the housing (12).





European Patent
Office

EUROPEAN SEARCH REPORT

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Application number

EP 80 30 4572

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
E, D	EP - A - 0 008 181 (RTE) * Page 6, paragraph 2; figures; claims * --- US - A - 4 161 012 (JOSLYN MFG. AND SUPPLY) * Claims; figures * ---	1-6, 10-14 1-4, 11-13	H 01 C 7/12 1/144 H 01 T 1/00 H 01 R 13/53
P	EP - A - 0 020 010 (RTE) * Claims; figures * ---	1, 2, 4	
	DE - A - 2 658 302 (K.K. SUWA SEIKOSHA, JAPAN) * Page 4, last paragraph to page 5, first paragraph * ---	8, 9	
P	GB - A - 2 028 828 (WESTERN ELECTRIC) * Page 1, line 18 to page 2, line 17; claims * -----	8-10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.)
			H 01 C 7/12 7/10 1/14 1/144 H 01 T 1/00 1/16 H 01 R 13/53 H 01 L 23/48 21/60
			CATEGORY OF CITED DOCUMENTS
			X particularly relevant A technological background O non-written disclosure P intermediate document T theory or principle underlying the invention E conflicting application D document cited in the application L citation for other reasons
			& member of the same patent family corresponding document
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	15-05-1981	GORUN	