

Patent No. 1527417

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Elizabeth the Second by the Grace of God of the United Kingdom of Great Britain and Northern Ireland and of Her other Realms and Territories, Queen, Head of the Commonwealth, Defender of the Faith: To all to whom these presents shall come greeting:

WHEREAS a request for the grant of a patent has been made by

CHI WING FOK, CHI KAM FOK and CHI MAN FOK, all of Chinese Nationality trading in partnership as ON TAT BAKELITE ELECTRIC & METAL WORKS, a Company organised and existing under the laws of Hong Kong, of 15 Ko Fai Road, Long Life Industrial Building 9th Floor, Yau Tong Bay, Hong Kong,

for the sole use and advantage of an invention for

Improvements in or relating to electrical plugs:

AND WHEREAS We, being willing to encourage all inventions which may be for the public good, are graciously pleased to condescend to the request:

KNOW YE, THEREFORE, that We, of our especial grace, certain knowledge, and mere motion do by these presents, for Us, our heirs and successors, give and grant unto the person(s) above named and any successor(s), executor(s), administrator(s) and assign(s) (each and any of whom are hereinafter referred to as the patentee) our especial licence, full power, sole privilege, and authority, that the patentee or any agent or licensee of the patentees and no others, may subject to the conditions and provisions prescribed by any statute or order for the time being in force at all times hereafter during the term of years herein mentioned, make, use, exercise and vend the said invention within our United Kingdom of Great Britain and Northern Ireland, and the Isle of Man, and that the patentee shall have and enjoy the whole profit and advantage from time to time accruing by reason of the said invention during the term of sixteen years from the date hereunder written of these presents: AND to the end that the patentee may have and enjoy the sole use and exercise and the full benefit of the said invention, We do by these presents for Us, our heirs and successors, strictly command all our subjects whatsoever within our United Kingdom of Great Britain and Northern Ireland, and the Isle of Man, that they do not at any time during the continuance of the said term either directly or indirectly make use of or put in practice the said invention, nor in anywise imitate the same, without the written consent, licence or agreement of the patentee, on pain of incurring such penalties as may be justly inflicted on such offenders for their contempt of this our Royal Command, and of being answerable to this patentee according to law for damages thereby occasioned:

PROVIDED ALWAYS that these letters patent shall be revocable on any of the grounds from time to time by law prescribed as grounds for revoking letters patent granted by Us, and the same may be revoked and made void accordingly:

PROVIDED ALSO that nothing herein contained shall prevent the granting of licences in such manner and for such considerations as they may by law be granted: AND lastly, We do by these presents for Us, our heirs and successors, grant unto the patentee that these our letters patent shall be construed in the most beneficial sense for the advantage of the patentee.

IN WITNESS whereof We have caused these our letters to be made patent
as of the ninth day of May
one thousand nine hundred and seventy-seven and to be sealed.

Comptroller-General of Patents
Designs, and Trade Marks.

PATENT SPECIFICATION

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(54) IMPROVEMENTS IN OR RELATING TO ELECTRICAL PLUGS

- (71) We, CHI WING FOK, CHI KAM FOK and CHI MAN FOK, all of Chinese Nationality trading in partnership as ON TAT BAKELITE ELECTRIC & METAL WORKS, a Company organised and existing under the laws of Hong Kong, of 15 Ko Fai Road, Long Life Industrial Building 9th Floor, Yau Tong Bay, Hong Kong, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:-
- This invention relates to electrical plugs and particularly relates to the attachment of a fuse clip to a plug pin.
- According to one aspect of the present invention there is provided a method of attaching a fuse clip to a pin of an electrical plug comprising providing a plug pin with an axially extending bore, said bore having a portion of increased radial dimension at a position spaced from one end thereof, providing a fuse clip having an attachment portion with an aperture therein, locating said attachment portion against said pin so that said aperture is in register with said bore, and forcing a rivet through said aperture into said bore from said one end so that it expands into said portion of increased dimension and thereby attaches the clip to the pin.
- According to another aspect of the present invention there is provided a combination of an electrical plug pin and a fuse clip said plug pin having an axially extending bore, said bore having a portion of increased radial dimension at a position spaced from one end thereof, said fuse clip having an attachment portion with an aperture therein, said attachment portion being so disposed that said aperture is in register with said bore, the clip and pin being attached by means of a rivet which extends through said aperture into said bore and which has been expanded to extend into said portion of increased dimension.
- The portion of increased radial dimension may be provided by a further bore which extends across the pin intersecting the one bore at right angles.
- The clip may be generally U-shaped with a substantially planar base portion in which said aperture is formed.
- The rivet may have a solid first portion and a tubular second portion, the tubular portion being arranged to expand into said portion of increased radial dimension.
- The invention will be described now by way of example only with particular reference to the accompanying drawings. In the drawings:
- Figure 1 is a side sectional elevation of a plug pin attached to a fuse clip by a method in accordance with the present invention;
- Figure 2 is a section on the line II - II of Figure 1, and
- Figure 3 is a sectional view of the elements of Figure 1 prior to attachment.
- The components to be attached by the present method are an electrical plug pin 10, usually the live pin, and a clip 11 for holding one end of a fuse conventionally used in plugs. The pin 10 comprises an elongate solid metallic body having an axial first bore 12 which extends into the pin from its head. The pin 10 has a transversely extending second through bore 14 which intersects the first bore at right angles near the closed end of the first bore.
- The clip 11 is generally U-shaped and formed from resilient material. The base of the U is planar and has a central aperture 16 the diameter of which is substantially equal to the diameter of the bore 12. The lips of the clip 11 are corrugated and adapted to receive one end of a plug fuse.
- The pin 10 and clip 11 are attached by means of a rivet 18. The rivet 18 has a solid cylindrical first part 20 with a head 21 and a

tubular second part 22.

To attach the clip 11 to the pin 10 the clip is located with its base in contact with the head of the pin so that the aperture 16 is in register with the bore 12. The rivet is then pushed, tubular part first, through the aperture 16 into the bore 12. The head of the rivet 18 is then struck firmly in a conventional manner. This causes the head of the rivet to spread out around the aperture 16 and the tubular part 22 to expand radially into the bore 14 as shown in Figure 2. The clip 11 and pin 10 are thus securely attached to each other.

15 WHAT WE CLAIM IS:-

1. A method of attaching a fuse clip to a pin of an electrical plug comprising providing a plug pin with an axially extending bore, said bore having a portion of increased radial dimension at a position spaced from one end thereof, providing a fuse clip having an attachment portion with an aperture therein, locating said attachment portion against said pin so that said aperture is in register with said bore, and forcing a rivet through said aperture into said bore from said one end so that it expands into said portion of increased dimension and thereby attaches the clip to the pin.

2. A method as claimed in claim 1, wherein the portion of increased radial dimension is provided by a further bore which extends across the pin intersecting the one bore at right angles.

3. A method as claimed in claim 1 or claim 2, wherein the clip is generally U-shaped with a substantially planar base portion in which said aperture is formed.

4. A method as claimed in any preceding claim, wherein the rivet has a solid first portion and a tubular second portion, the tubular second portion expanding into said portion of increased radial dimension.

5. A plug pin and fuse clip whenever attached by the method claimed in any preceding claim. 45

6. A combination of an electrical plug pin and a fuse clip said plug pin having an axially extending bore, said bore having a portion of increased radial dimension at a position spaced from one end thereof, said fuse clip having an attachment portion with an aperture therein, said attachment portion being so disposed that said aperture is in register with said bore, the clip and pin being attached by means of a rivet which extends through said aperture into said bore and which has been expanded to extend into said portion of increased dimension. 50

7. A combination as claimed in claim 6, wherein the portion of increased radial dimension is provided by a further bore which extends across said pin intersecting the one bore at right angles. 55

8. A combination as claimed in claim 6 or claim 7, wherein the clip is generally U-shaped with a substantially planar base portion in which said aperture is formed. 60

9. A combination as claimed in any one of claims 6 to 8, wherein the rivet has a solid first portion and a tubular second portion, the tubular portion being expanded into the portion of increased radial dimension. 65

10. A method of attaching a fuse clip to an electrical plug pin substantially as hereinbefore described. 70

11. A combination of an electrical plug pin and a fuse clip substantially as hereinbefore described with reference to and as shown in the accompanying drawings. 75

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