

This invention relates to socket outlets and connectors of the kind comprising a moulded body of electrically insulating material in which two or more socket contacts are embedded with their axes

5 substantially parallel to one another, all such socket outlets and connectors hereinafter, for convenience, being included in the generic term "socket coupling".

It is common practice for the moulded body of a socket coupling to have an elongate keyway which extends
10 substantially parallel to the socket contacts along a surface of a longitudinally extending, circumferentially continuous recess of annular cross-section surrounding the socket contacts and which, when a plug coupling having two or more pin contacts is detachably connected
15 to the socket coupling, is engaged by an elongate key extending along a surface of a longitudinally extending, circumferentially continuous shroud surrounding the pin contacts of the plug coupling. The inter-engaging key and keyway ensure that each pin contact of the plug
20 coupling can only be electrically connected to the correct socket contact of the socket coupling.

Where the moulded body of the socket coupling is of a resilient electrically insulating material, we have found that in some circumstances there is a substantial
25 risk that a plug coupling which has plug contacts corresponding in number to the socket contacts of a

socket coupling and a key corresponding to the keyway of the socket coupling but which is of a voltage rating different from that of the socket coupling, can be forced by a user into electrical connection with the socket coupling because the resilience of the material of the moulded body of the socket coupling will allow sufficient lateral displacement of the keyway and/or socket contacts relative to one another to permit the pin contacts to be electrically connected to the socket contacts. As a result injury to the user and/or damage to an appliance may occur.

It is an object of the present invention to provide an improved socket coupling in which this risk is substantially reduced.

According to the invention, the improved socket coupling comprises a moulded body of resilient electrically insulating material in which at least two socket contacts are embedded with their axes substantially parallel to one another and in which an elongate keyway extends substantially parallel to the socket contacts along a surface of a longitudinally extending circumferentially continuous recess of annular cross-section surrounding the socket contacts, wherein a collar of substantially rigid electrically insulating material is embedded in the moulded body and surrounds the socket contacts, the collar having in its

circumferential wall an elongate keyway which is in substantial alignment with, and is of substantially the same transverse cross-sectional shape and size as, the keyway in the moulded body.

5 In the event that a user, trying to connect to the socket coupling a plug which has plug contacts corresponding in number to the socket contacts of the socket coupling and is of a voltage rating different from that of the socket coupling, introduces the key of
10 the plug coupling into the keyway in the moulded body and effects lateral displacement of the keyway within the moulded body in an attempt to align the pin contacts of the plug coupling with the socket contacts, the keyway in the moulded body will no longer be in
15 alignment with the keyway in the collar and the end face of the collar will prevent further introduction of the key and hence of the plug coupling.

Where a socket coupling has an earth socket contact, usually the keyway in the moulded body of the
20 socket coupling is arranged alongside the earth socket contact and the earth socket contact is nearer that face of the socket coupling against which a face of an electric plug coupling will abut than the other socket contacts of the socket coupling and, in this case, the
25 collar will be so positioned in the moulded body of the socket coupling that, although a user may be able to

introduce the leading ends of the key and earth pin contact of a plug coupling into engagement with the keyway and earth socket contact of the socket coupling, if he effects lateral displacement of the keyway and earth socket contact in an attempt to align the other pin and socket contacts, the end face of the collar will prevent further insertion of the key, and hence of the plug coupling, into the socket coupling before electrical connection can be made between the other pin and socket contacts.

Preferably, the collar surrounds the annular recess in the moulded body of the socket coupling and forms a part of the outer circumferential surface of the annular recess.

15 Preferably, also, the collar has an end wall integral with the collar and remote from the end face of the moulded body against which a face of a plug coupling will abut, which end wall is apertured for passage of the socket contacts therethrough.

20 The invention is further illustrated by a description, by way of example, of a preferred socket coupling with reference to the accompanying drawings, in which:-

Figure 1 is an end view of the preferred socket coupling; and

Figure 2 is a sectional side view on the line II-II of the socket coupling shown in Figure 1.

Referring to the drawings, the socket coupling 1 comprises a moulded body 2 of resilient insulating material, two line socket contacts 3, and an earth socket contact 4. An elongate keyway 5 extends substantially parallel to the socket contacts 3, 4 along a surface of a longitudinally extending circumferentially continuous recess 6 of annular cross-section surrounding the socket contacts. A surrounding collar 7 of substantially rigid electrically insulating plastics material is embedded in the moulded body 2 and surrounds the socket contacts 3, 4 forming a part of the outer circumferential surface of the recess 6. The collar 7 has in its circumferential wall an elongate keyway 8 which aligns with the keyway 5 in the moulded body 2, and an integral end wall 9 which is apertured for passage of the socket contacts 3, 4.

CLAIMS:

1. A socket coupling comprising a moulded body of resilient electrically insulating material in which at least two socket contacts are embedded with their axes substantially parallel to one another and in which an elongate keyway extends substantially parallel to the socket contacts along a surface of a longitudinally extending circumferentially continuous recess of annular cross-section surrounding the socket contacts, wherein a collar of substantially rigid electrically insulating material is embedded in the moulded body and surrounds the socket contacts, the collar having in its circumferential wall an elongate keyway which is in substantial alignment with, and is of substantially the same transverse cross-sectional shape and size as, the keyway in the moulded body.

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2. A socket coupling as claimed in Claim 1, wherein the collar surrounds the annular recess in the moulded body of the socket coupling and forms a part of the outer circumferential surface of the annular recess.

20 3. A socket coupling as claimed in Claim 1 or 2, wherein the collar has an end wall integral with the collar and remote from the end face of the moulded body against which a face of a plug coupling will abut, which end wall is apertured for passage of the socket contacts therethrough.

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4. A socket coupling substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

