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2,114,523

FUSE MOUNTING

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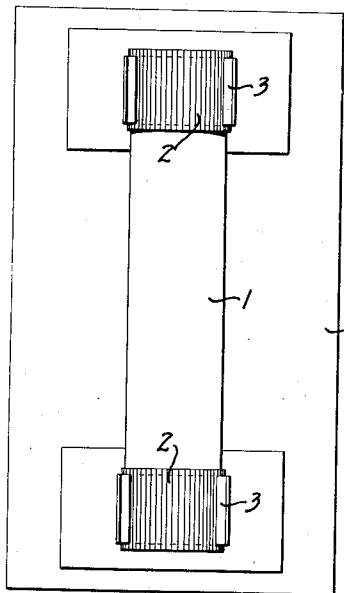


Fig. 1

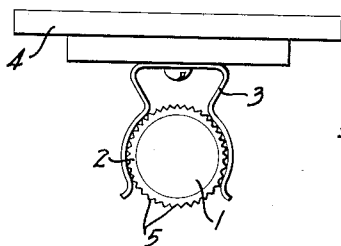


Fig. 2

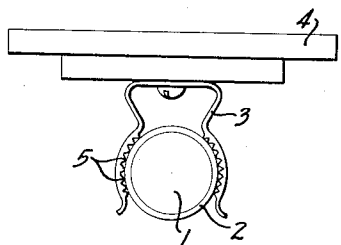


Fig. 3



Fig. 5

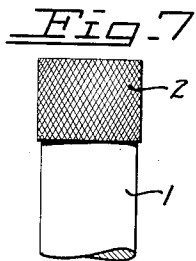


Fig. 7

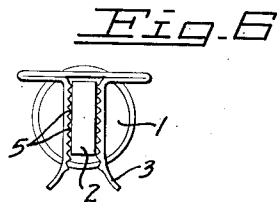


Fig. 6

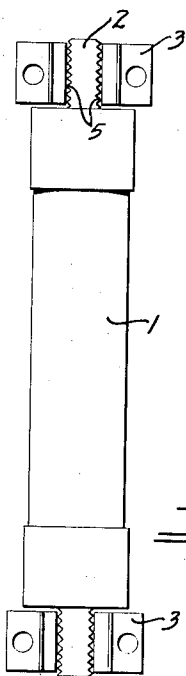


Fig. 4

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FUSE MOUNTING

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Application January 23, 1936, Serial No. 60,459

4 Claims. (Cl. 200—134)

My invention relates to electric fuses, and particularly to a contact forming means for effecting electrical contact of a fuse terminal with a receptacle upon which the fuse is mounted.

It is among the objects of my invention to provide a fuse and fuse mounting block having contact areas formed to obtain effective electrical connection of the fuse with the mounting block contact.

Another object of my invention is to provide a fuse terminal and mounting therefor arranged to insure positive line contact therebetween.

Another object of my invention is to avoid sparking and reduce current losses between a fuse and its mounting.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of my invention. It is to be understood that I do not limit myself to this disclosure of species of my invention, as I may adopt variant embodiments thereof within the scope of the claims.

Referring to the drawing:

Figure 1 is a front elevation of a fuse and mounting block embodying my invention.

Figure 2 is a plan view of the fuse and mounting block of Figure 1.

Figure 3 is a similar plan view illustrating a modified embodiment of the invention.

Figure 4 is a front elevation showing my invention embodied in a fuse of the blade type.

Figures 5 and 6 are plan views illustrating modifications of the blade type fuse mounting.

Figure 7 illustrates a further modification of the contact forming area of the fuse terminal.

In the construction of fuse terminals and mounting receptacles therefor, it has been common practice to form the contacting members with smooth surfaces through which electrical connection is formed. In the ordinary forming of such parts, slight unevennesses of the contact surfaces are inevitable unless the parts are subjected to accurate machining processes, the cost of which is prohibitive in a device of this character. Such unevenness of the surfaces causes the parts to contact only at the highest points. As a result, electrical connection is usually formed only at two or three high points of very small area.

The small area of contact results in poor conductance and objectionable current losses, and very frequently causes a sparking between the contacts which is destructive to the contact members and creates a serious fire hazard. Even in the case of contact members initially formed

without objectionable unevenness, the subsequent distortion of one of the parts, or the presence of particles of dirt, grease, oxidized metal, or other foreign materials, may easily cause similar conditions of point contact, poor conductivity, and sparking. My present invention is particularly intended to overcome these difficulties.

In terms of broad inclusion, the fuse and fuse mounting of my invention comprises a fuse terminal, and a mounting receptacle therefor, one of which is provided with a contact forming surface or surfaces serrated to provide a plurality of regular ridges for engaging the other. The ridges are arranged to obtain a line contact along a plurality of lines for insuring an effective electrical connection of the fuse with its mounting receptacle over an area sufficiently great to avoid sparking and objectionable current losses. The fuse terminal may be of either the ferrule or the blade type; and the serrations may be applied to the fuse terminal or to the receptacle, and may be of any desired form.

In terms of greater detail, and referring particularly to the embodiments disclosed in the drawing, the device of my invention comprises a fuse 1 provided with suitable terminals 2 which may be of the ferrule type shown in Figures 1 to 3, inclusive, or of the blade type illustrated in Figures 4, 5 and 6.

The terminals are arranged to be received and engaged by a contact member or receptacle 3 mounted in any suitable manner upon a fuse block 4. The members 3 are of a shape corresponding to the type of fuse terminal 2; and are arranged to be sprung apart slightly by the fuse terminal when the fuse is inserted therein in the ordinary manner.

The fuse terminals 2, or if desired, the contact members 3, are knurled or serrated to form a plurality of ridges 5 extending across the contact forming area. Preferably the serrations are formed on the fuse terminal. The serrations are best formed by drawing the terminal member through a die to form a number of parallel ridges extending without interruption across the entire surface of the contact area. If desired, the serrations may be formed by a knurling roller, or other suitable knurling means.

In the case of a ferrule type fuse, the serrations are preferably formed parallel to the axis of the fuse. In a blade type terminal, the serrations may be formed longitudinally or transversely of the blade, or at a selected angle. If desired, the serrations may be in the form of a knurl comprising a succession of rows of points

arranged in any desired pattern, such for example as that illustrated in Figure 7 of the drawing.

Instead of knurling the fuse terminal members 2, the inner contact forming surface of the contact members 3 may be similarly knurled or serrated, as illustrated in Figures 3 and 6.

The fuse terminals are inserted into engagement with the receptacles or contact members 3 of a fuse block in the ordinary manner. The serrations 5 provide a succession of relatively sharp outwardly projecting ridges which engage the adjacent contact members 3 along lines of contact. Where the contact members of the fuse mounting block are accurately shaped to conform to the size and shape of the fuse terminals, the contact members 3 will seat against a comparatively large number of the serrations, and electrical connection will be formed through each of such serrations. This insures an effective electrical conductance and avoids sparking and current losses at the contacting surfaces.

In case the terminal members 3 do not conform accurately to the size and shape of the fuse terminals 2, the serrations will none the less cause a line contact between the terminals and the receptacles. Thus, the fuse will assume a stable seat in which at least three of the ridges of each terminal will engage the adjacent contact member. This is due to the fact that if the fuse terminal is inserted in such a manner that only one rib on each side engages the adjacent contact member an unstable condition will exist, and the terminal will tip one way or the other until a third rib seats against the adjacent contact to provide a stable base. The three lines of contact thus obtained insures an adequate conductance

of electricity from one contact member to the other; and avoids sparking and current losses such as occur at a point contact such as commonly obtained by the ordinary smooth surface contact members.

I claim:

1. A fuse having a contact surface, a fuse mounting having a contact surface for engaging the fuse contact surface, and knurled areas substantially covering one of the contact surfaces providing a succession of longitudinally extending serrations the peaks only of which engage the opposing contact surface for forming electrical connection with an unknurled area upon the opposing contact surface.

2. A fuse having a contact surface, a fuse mounting having a contact surface for engaging the fuse contact surface, and axially disposed ribs on substantially the entire area of one of the contact surfaces, the peaks only of the ribs engaging a smooth area upon the opposing surface for forming electrical connection with the opposing surface.

3. A fuse having a terminal, a receptacle for engaging the terminal, and a succession of closely spaced serrations extending longitudinally of the terminal over substantially the entire area of possible contact of the terminal with the receptacle, the serrations engaging the opposing surface at their peaks only for forming line contact therewith.

4. A fuse having a ferrule, a receptacle for engaging the ferrule, and a plurality of serrations substantially uniformly spaced around the periphery of the ferrule for forming line contact with the receptacle.

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