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Octrooibureau Vriesendorp & Gaade Dr.
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NL-2501 AW 's-Gravenhage (NL)(54) **Fuse including a plate spring signal and a signal plate.**

(57) Cartridge fuse for low voltage and high power with an insulating, socket-shaped cartridge body, which is closed at the heads by the closed fastening plates of the contact blades, provided with a cylindrical blind hole for accommodating a signal device, said blind hole being disposed in a lateral face of the socket, a signal device and a signal wire which operates the signal device through a hole in the bottom of the blind hole, characterized in that the signal device is a leaf spring signal plate with a square fastening part and a circular signal part, the square fastening part having a diagonal dimension which is somewhat larger than the inner diameter of the blind hole, and the circular signal part fitting loosely in the blind hole, and in that the square fastening part and the circular signal part are connected to one another by a reduced connecting part which is flanged out of the plane of the plate over a 90° angle, the circular signal part being provided with means for fastening the signal wire. Leaf spring signal plate for such a cartridge fuse.

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The invention concerns a cartridge fuse for low voltage and high power with an insulating, socket-shaped cartridge body, which is closed at the heads by the closed fastening plates of the contact blades, provided with a cylindrical blind hole for accommodating a signal device, said blind hole being disposed in a lateral face of the socket, a signal device and a signal wire which operates the signal device through a hole in the bottom of the blind hole.

A similar cartridge fuse is known from FR-A-1465397 (see fig. 7 in particular), which has a button-shaped signal means which is kept in the blind hole by the signal wire, thereby opposing the action of a coil spring. On receiving a signal, the button leaps out of the blind hole, as does the spring, unless measures have been taken to secure both the button and the spring in the blind hole. All this requires the manufacture of at least two small parts, the button and the spring, as well as an accordingly laborious assembly thereof.

EP-B-0044997 describes a cartridge fuse for low voltage and high power with a one piece leaf spring signal device which is mounted on a fastening plate of a contact blade by means of rivets, said fastening plate being provided with an opening for the signal wire, the leaf spring signal device being kept folded by the signal wire. The signal is generated when the folded clear end of the leaf spring is released.

The aim of the invention is to provide a one piece leaf spring signal device, to be positioned and secured in a blind hole which has been disposed laterally in the cartridge body.

The set aim is realised by a cartridge fuse for low voltage and high power with an insulating socket-shaped cartridge body which is closed at the heads by the closed fastening plates of the contact blades, provided with a cylindrical blind hole for accommodating a signal device, said blind hole being disposed in a lateral face of the socket, a signal device and a signal wire which operates the signal device through a hole in the bottom of the blind hole, characterized in that the signal device is a leaf spring signal plate with a square fastening part and a circular signal part, the square fastening part having a diagonal dimension which is somewhat larger than the inner diameter of the blind hole, and the circular signal part fitting loosely in the blind hole, and in that the square fastening part and the circular signal part are connected to one another by a reduced connecting part which is flanged out of the plane of the plate over a 90° angle, the circular signal part being provided with means for fastening the signal wire.

In a preferred embodiment, the reduced connecting part of the leaf spring signal part consists of two pliable strips.

The single figure shows a preferred embodiment of a leaf spring signal plate 10 according to the invention. The plate is constructed in one piece and consists of a square fastening part 11 and a circular signal part 12, which are connected by two strips 13 and 14, respectively. The diagonal dimension of the fastening part has been chosen so as to ensure that the pointed corners are bent as the fastening part is pushed into the blind hole, whilst closely engaging the inner wall of the blind hole, which prevents the fastening part from being released from the blind hole. An opening 15 has been provided in the square fastening part, allowing for passage of the signal wire. In one side 16 of the square fastening part two strips 13 and 14 respectively remain which connect to the square fastening part, just within the side 16.

The circular signal part 12 has a flat side on the side of the square fastening part, in which the strips 13 and 14 of the fastening part have been cut. Cutting the strips in the fastening part and the signal part, respectively, allows for flanging of the strips over a 90° angle while also determining a suitable position of the signal part over the plane of the fastening part.

From the signal part 12 a lip 18 has been cut as a fastening means for the signal wire, said lip being flanged over an angle of, for instance, 30°.

Claims

1. Cartridge fuse for low voltage and high power with an insulating, socket-shaped cartridge body, which is closed at the heads by the closed fastening plates of the contact blades, provided with a cylindrical blind hole for accommodating a signal device, said blind hole being disposed in a lateral face of the socket, a signal device (10) and a signal wire which operates the signal device (10) through a hole in the bottom of the blind hole, **characterized in that** the signal device (10) is a leaf spring signal plate (10) with a square fastening part (11) and a circular signal part (12), the square fastening part (11) having a diagonal dimension which is somewhat larger than the inner diameter of the blind hole, and the circular signal part (12) fitting loosely in the blind hole, and in that the square fastening part (11) and the circular signal part (12) are connected to one another by a reduced connecting part (13, 14) which is flanged out of the plane of the plate over a 90° angle, the circular signal part (12) being provided with means (18) for fastening the signal wire.
2. Cartridge fuse according to claim 1, **characterized in that** the reduced connecting part

of the leaf spring signal plate consists of two pliable strips (13, 14).

3. Cartridge fuse according to claim 1 or 2, **characterized in that** an opening (15) is provided in the fastening part (11) of the leaf spring signal plate (10), allowing for passage of the signal wire. 5

4. Cartridge fuse according to claim 1, 2 or 3, **characterized in that** a lip (18) is punched in the signal part (12) and the leaf spring signal plate (10), said lip being flanged out of the plane of the plate (10). 10

5. Leaf spring signal plate (10) with a square fastening part (11) and a circular signal part (12), the square fastening part (11) having a diagonal dimension which is somewhat larger than the inner diameter of the blind hole and the circular part fitting loosely in the blind hole, and in that the square fastening part (11) and the circular signal part (12) are connected to one another by a reduced connecting part (13, 14) which is flanged in the plane of the plate over a 90° angle, the circular signal part (12) being provided with means (18) for fastening the signal wire. 15
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6. Leaf spring signal plate (10) according to claim 5, wherein the reduced connecting part consists of two tube strips (13, 14). 30

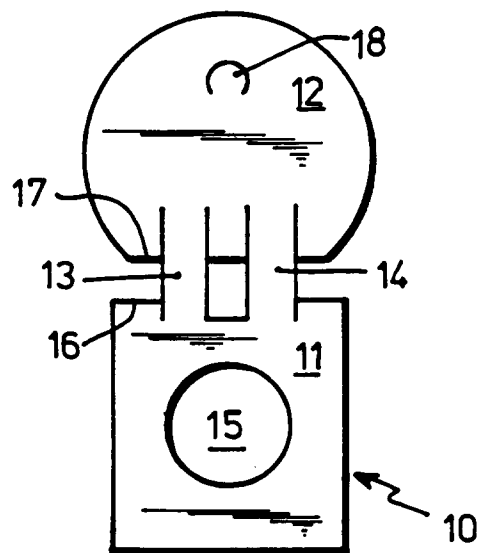
7. Leaf spring signal plate (10) according to claim 5 or 6, wherein an opening (15) is provided in the fastening part (11), allowing for passage of the signal wire. 35

8. Leaf spring signal plate (10) according to claim 5, wherein a lip (18) is punched in the signal part (12) said lip being flanged out of the plane of the plate (10) and is able to serve as a fastening means for a signal wire. 40

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EUROPEAN SEARCH REPORT

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EP 92 20 3055

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	DE-A-2 416 025 (NEDERLANDSE WEBER MAATSCHAPPIJ BV.) * page 3, paragraph 2; figures 1,2 * ---	1	H01H85/30
D,Y	EP-A-0 044 997 (SIEMENS AG.) * page 3, line 19 - page 4 * ---	1	
A	US-A-1 970 007 (J.M. JAMES) ---		
A	DE-U-9 006 337 (SIEMENS AG.) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			H01H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05 JANUARY 1993	Examiner OVERDIJK J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			