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Heyerdahl

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[54] **FUSE PLUG FOR ELECTRICAL INSTALLATIONS**

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May 21, 1971 Norway 1911/71

[52] **U.S. Cl.** **337/268,** 337/251, 337/413

[51] **Int. Cl.** **H01h 85/16**

[58] **Field of Search** 337/159, 173, 180, 337/201, 218, 251, 268, 407, 413

[56] **References Cited**

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Assistant Examiner—F. E. Bell
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[57] **ABSTRACT**

A fuse plug for electrical installations, one contact member of which is formed as two cylindrical, concentric metal sleeves slidably one upon the other against a spring between the sleeves. The sleeves are lockable together in tensioned condition and a release member axially slidable in the sleeves is pushed into the sleeves when disposing the fuse plug into a holder for the fuse plug, and thereby releases instantaneously the spring force, so that the outer sleeve makes a resilient contact with the corresponding contact member in the holder.

3 Claims, 2 Drawing Figures

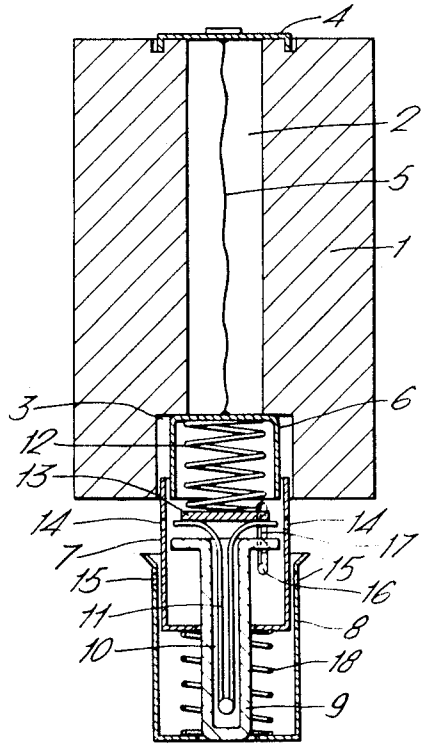

FIG. 1.

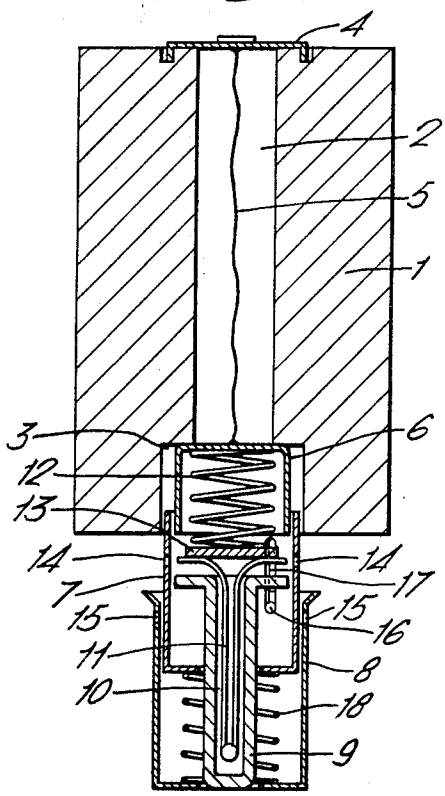
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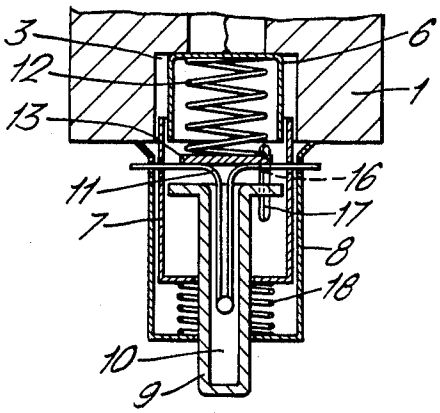
FIG. 2.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FUSE PLUG FOR ELECTRICAL INSTALLATIONS

The invention relates to a fuse plug for electrical installations, with resilient contact between the contact members of the fuse plug and corresponding contact members in a holder for the fuse plug, the said fuse plug comprising a body of insulating material which supports two contact members and a disconnecting means therebetween for overloading.

A fuse plug of this type is known from German Pat. No. 884,672; this has a disadvantage, however, that while screwing the fuse plug into the holder, a spark is generated due to the fact that the contact surfaces are not in plane parallel, the said spark causing burn damage and oxidization of the contact surfaces, which in turn leads to increased transfer resistance and undesirable heating.

The object of the invention is therefore to provide a fuse plug of the type described introductorily, whereby the said disadvantage is eliminated or reduced to a substantial degree, in that the spring effect is automatically released and brings the contact surfaces together instantaneously.

In accordance with the invention this is achieved in that one contact member of the fuse plug is formed as two cylindrical, concentric metal sleeves slidable one upon the other, the inner sleeve being with one end rigidly connected to the insulating body, the other end of the sleeve forming engagement for one end of a spring the other end of which bears against the free end of the outer sleeve, and in that the spring is maintained in tensioned state and is releasable by means of a combined locking and releasing mechanism.

The combined locking and releasing mechanism consists preferably of a hollow casing of insulating material which is axially displaceable within the two sleeves and adapted to project through a central opening in the two sleeves, the cavity of the casing receiving the central portion of a hairpin spring the ends of which are bent away from one another and adapted to project through suitable openings in the inner respectively the outer sleeve, and to bear against a plate which is engaged by a spring supported against the insulating body.

In order to limit the reciprocal length of movement of the sleeves, the inner sleeve is provided with a slot extending parallel to the axis of the sleeve and, from the peripheral surface of the outer sleeve, a tongue is bent inwardly and engages in the slot.

An embodiment of the invention is further explained hereinbelow with reference to the drawing.

FIG. 1 shows in diagram an axial section through a fuse plug according to the invention in released condition.

FIG. 2 shows a part of the fuse plug on FIG. 1 in locked condition.

The fuse plug according to the embodiment example consists of a cylindrical, ceramic body 1 having a central opening 2 which has, at the lower end on the drawing, a portion 3 with larger diameter. In the opposite end is the body 1 provided with a contact member 4 which, by means of a fuse wire 5 is electrically connected to a casing 6 which is secured in the portion 3 in the body 1. A cylindrical metal sleeve 7 is, at the upper end thereof on the drawing, secured to the body 1 and the casing 6. On the inner sleeve 7 an outer sleeve 8 is slidably arranged with electrical slide contact and, between the bottoms of the inner and outer

sleeve, a helical spring 18 is arranged which, in working condition of the fuse plug, exerts the necessary contact pressure. A slot 17, parallel to the axis, is provided in the peripheral surface of the inner sleeve, in which slot, a tongue 16, inwardly bent from the peripheral surface of the outer sleeve, engages and restricts the movement of the outer sleeve. Centrally within the sleeves and through a central opening in the bottom of both, a hollow casing 9 of insulating material is displaceably arranged and, in the cavity at the central portion thereof, a hairpin spring 11 is arranged the ends of which are bent away from one another so that they bear against a plate 13 which is engaged by a helical spring 12 disposed in the casing 6. When the outer sleeve is pushed over the inner sleeve the free ends of the hairpin spring 11 will be forced outwardly and through the openings 14 respectively 15 in the peripheral surface of the inner respectively the outer sleeve, on engagement against the plate 13. The two sleeves are thereby locked under spring pressure as the free end of the casing 9 passes through the central opening in the bottom of the outer sleeve. In this condition, the fuse plug is screwed into its holder and the free end of the casing 9 initially prevents the outer sleeve from touching the contact member in the holder, however, on further screwing, the inner end of the casing 9, on being pressed in, will press the legs of the hairpin spring toward each other so that the free ends thereof are pulled back from the openings 14, 15 and, under pressure from the spring, the outer sleeve is brought into instantaneous contact with the contact member in the holder.

Having described my invention, I claim:

1. Fuse plug for electric installations having resilient engagement between the contact members of the fuse plug and corresponding contact members in a holder for the fuse plug, the said fuse plug comprising a body of insulating material which supports two contact members and has a disconnecting means therebetween for overloading, characterized in that one contact member of the fuse plug is formed as two cylindrical, concentric metal sleeves (7, 8), slidable one upon the other, the inner sleeve 7 being rigidly connected at one end to the insulating body (1) and forming with its other end engagement for one end of a spring (18) the other end of which bears against the free end of the outer sleeve (8), and in that the spring is held in tensioned condition and is releasable by means of a combined locking and releasing mechanism.

2. Fuse plug according to claim 1, characterized in that the combined locking and releasing mechanism consists of a hollow casing (9) of insulating material which is axially displaceable within the two sleeves (7, 8) and is adapted to project through a central opening in the two sleeves, the cavity of the said casing receiving the central portion of a hairpin spring (11) the ends of which are bent away from one another and adapted to project through suitable openings (14 respectively 15) in the inner respectively the outer sleeve, and bear against a plate (13) which is engaged by a spring (12) supported against the insulating body (1).

3. Fuse plug according to claim 2, characterized in that the inner sleeve (7) is provided with a slot (17) extending parallel to the axis thereof, and that, from the peripheral surface (8) of the outer sleeve, a tongue (16) is bent inwardly and engages in the slot.

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