Aug. 13, 1957 C. BAUER 2,802,998

EXPLOSION-PROOF CONNECTOR FOR ELECTRIC LAMPS

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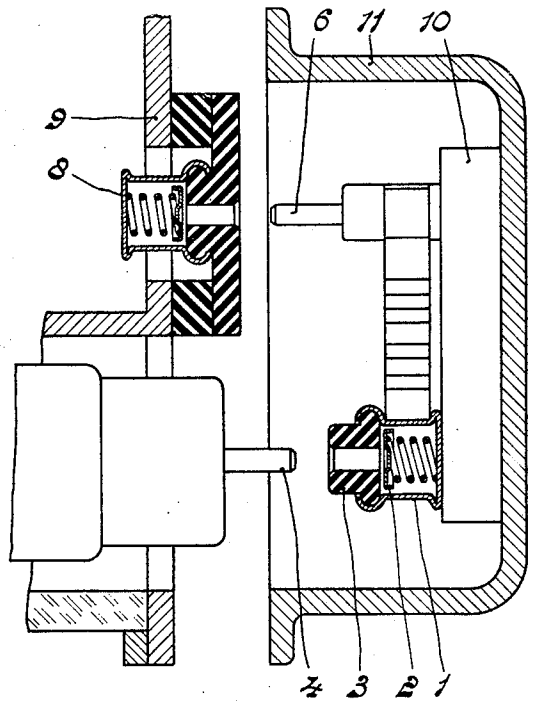


Fig. 1

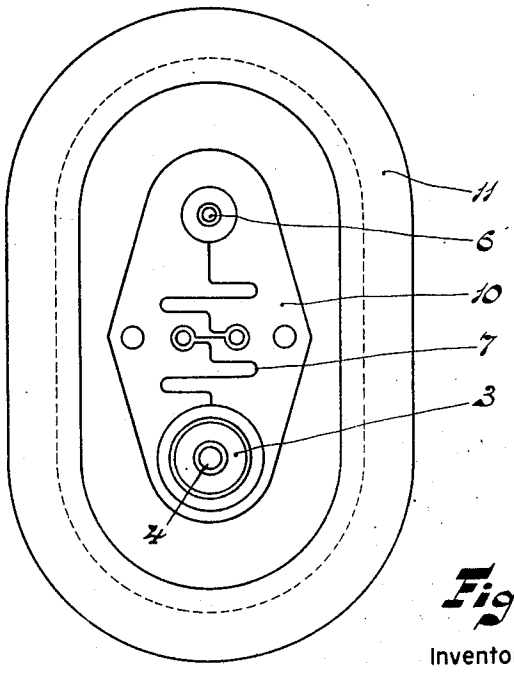


Fig. 2

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EXPLOSION-PROOF CONNECTOR FOR ELECTRIC LAMPS

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3 Claims. (Cl. 339—111)

It is known to provide lamps and more particularly luminescent lamps with plug caps, at least one pin being provided in the axial direction of the lamp or parallel to the axis of the lamp. Such caps are preferably used for lamps which are to be incorporated in fittings protected against explosion, since this manner of current supply permits the use of particularly narrow protective envelopes of glass, plastics or similar material on the fittings.

The present invention relates to an anti-explosion connector for electric lamps comprising such caps and permits of obtaining by simple means a supply of current to the lamp which is protected against explosion.

The invention is based on recognition of the fact that an electric contact may be regarded to be protected against explosion or mine-gas explosion if a contact spark can occur only in a space of sufficiently small size, the small volume of which prevents the occurrence of high explosion pressure, and if furthermore this space communicates with the atmosphere only through slit-shaped apertures having a large surface area, so that any explosion gases leaving the space have cooled down before contacting with the atmosphere to such an extent that ignition cannot there occur.

According to the invention, an anti-explosion connector for electric lamps having plug caps comprises a metal cap of small volume, preferably smaller than 2 ccm., at the inside of which a contact is resiliently arranged and on the aperture of which a sleeve of insulating material is provided in a gas-tight manner, the bore of which is matched in regard to length and diameter to the dimensions of the pin in such manner that, when the pin is introduced, a narrow and long slit occurs between the surface of the pin and the wall of the bore.

In order that the invention may readily be carried into effect, it will now be described in detail with reference to the accompanying drawing, in which

Fig. 1 shows in section the arrangement of the holder according to the invention in a fitting with luminescent lamps and

Fig. 2 is an elevation view of the straight portion of Fig. 1.

The anti-explosion connector according to the invention comprises a small cylindrical metal cap **1** containing a contact plate **2** which is urged with the use of a spring against a pin **4**. The metal cap is connected rigidly and hermetically with the use of flanges to a sleeve **3** of insulating material, for example ceramic material. The bore of the sleeve of insulating material is so shaped in its length and in relation of its diameter to the diameter of the pin that a narrow cylindrical slit of sufficiently large surface area exists between the pin and the sleeve, which slit ensures the necessary cooling of any explosion gases escaping from the interior of the cap. The current is supplied via a lead to be connected to the metal cap **1** by way of the contact plate **2**. A contact spark can occur only at the area at which the pin **4** contacts with contact plate **2** and hence inside the metal cap **1**.

The supply lead to the connector may in the simplest case be led as movable cables to the metal cap of the connector. The connector is then simply slipped on the pin and held in this position by a spring or other mechanical means.

However, it may alternatively be desirable that, on the one hand, the connector should also be protected against contact during manipulation and, on the other hand, the parts of the connector are safeguarded against soiling and mechanical damage. In this case the connector is connected to a contact pin **6**, parallel to its axis, by way of an electric conductor, preferably a resilient strip **7**. Said pin matches a second connector **8**, which is incorporated in a housing **9** of the fitting and which is otherwise similar in construction to the connector according to the invention already described. If, now, the connector **1**, **2**, **3**, the conductor **7** and the contact pin **6** are jointly mounted on an insulating support **10** and incorporated in a cover **11**, the assembly may be removed from the fitting whereby the desired protection against contact for the manipulation of the lamp is required. In the operating position the cover **11** provides dust-tight closure and mechanical protection.

What I claim is:

1. In an explosion-proof connector assembly for electric lamps, a contact comprising a metal cap of relatively small volume, a contact plate, means mounting said contact plate resiliently in said metal cap, a sleeve of insulating material provided with a bore and being positioned in said metal cap, a pin insertable in said contact, said pin being so dimensioned and mounted that when said pin is inserted in said bore a narrow, elongated slit-like opening occurs between a surface of said pin and a part of the wall of said bore.

2. In an explosion-proof connector assembly for electric lamps comprising a cover, a contact comprising a metal cap of relatively small volume, means mounting said cap on said cover, a contact plate, means for resiliently mounting said contact plate in said metal cap, a sleeve of insulating material positioned in said metal cap, a first pin insertable in said contact, said pin being so dimensioned and mounted that when said pin is inserted in the bore of the sleeve a narrow, elongated slit-like opening is present between a surface of said pin and a part of the wall of said bore, a housing, a second contact mounted in said housing, a second sleeve of insulating material in said contact, a second contact pin mounted in said cover and placed substantially parallel to the longitudinal axis of said first pin and insertable in said second contact, said second contact pin being so dimensioned and mounted that when said pin is inserted in the bore of said second sleeve a narrow, elongated, slit-like opening is present between the surface of said pin and a part of the wall of said bore, and a resilient conductor connecting said second contact to said second contact pin.

3. In an explosion-proof connector assembly for electric lamps comprising a cover, a contact comprising a metal cap of relatively small volume, means mounting said cap on said cover, a contact plate, means for resiliently mounting said contact plate in said metal cap, a sleeve of insulating material positioned in said metal cap, a first pin insertable in said contact, said pin being so dimensioned and mounted that when said pin is inserted in the bore of the sleeve a narrow, elongated slit-like opening is present between a surface of said pin and a part of the wall of said bore, a housing, a second contact mounted in said housing, a sleeve of insulating material in said second contact, a second contact pin in said cover insertable in said second contact, said second contact pin being so dimensioned and mounted that when said pin is inserted in the bore of said second sleeve a narrow, elon-

gated, slit-like opening is present between the surface of said pin and a part of the wall of said bore, and an insulating support in said cover, said second contact pin being mounted in substantially parallel relationship to said metal cap on said support.

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