Sept. 23, 1924. 1,509,609

E. PFIFFNER

HIGH TENSION FUSE

Filed May 13, 1924

Fig. 1.

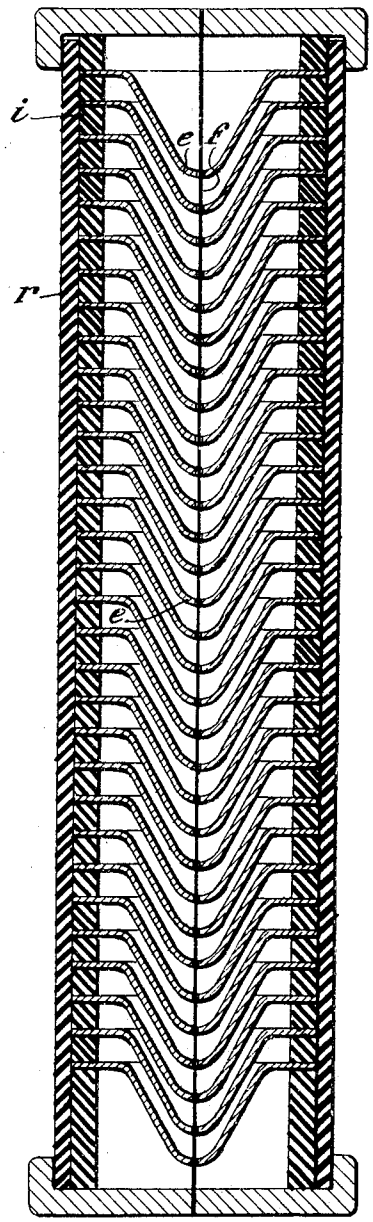


Fig. 2.

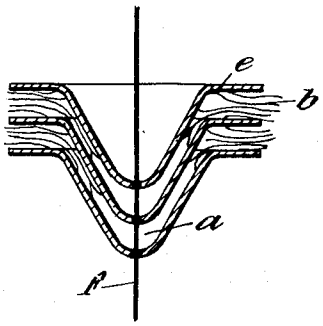
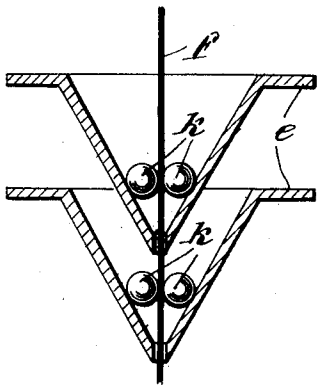


Fig. 3.



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UNITED STATES PATENT OFFICE.

EMIL PFIFFNER, OF BUDAPEST, HUNGARY.

HIGH-TENSION FUSE.

Application filed May 13, 1924. Serial No. 713,107.

To all whom it may concern:

Be it known that I, EMIL PFIFFNER, a citizen of the Republic of Switzerland, residing at Budapest, Hungary, have invented certain new and useful Improvements in High-Tension Fuses, of which the following is a specification.

High-tension wire fuses of a small cross-sectional area, which are under the influence of a high potential, are the cause of trouble in that owing to the influence of the electric field alterations take place on the surface of the fuse-wire which are displayed in the form of oxidations and corrosions and cause a premature and groundless blowing of the fuse.

It is known to arrange in the fuse multiple spark-gaps in order to improve the extinguishing or quenching effect.

The essential feature of the high-tension fuse according to the present invention consists in that the sparking gaps composed of a plurality of nesting electrodes, which are electrically connected with the fuse-wire, and are of such a shape that a plane perpendicular to the fuse-wire intersects more than one of the electrodes.

Several modes of carrying out the present invention are illustrated by way of example on the accompanying sheet of drawings in which—

Fig. 1 shows a fuse in longitudinal section.

Fig. 2 illustrates the formation of the electric field in the inner space and at the periphery.

Fig. 3 shows a modification.

f designates the fuse-wire and *e* the electrodes which are held apart in the insulating tube *r* by means of insulating rings *i*. The electrodes *e* are under the influence of the same electric potential, as they are electrically connected by means of the fuse-wire *f*. Practically all the electric lines of force pass out from the outer periphery of the electrodes *e*, while the inner space *a* is protected practically entirely by the electrodes *e* and is not under the influence of the field, so that the fuse-wire is protected.

Generally it is sufficient, that the electrodes are of such a shape, that a plane perpendicular to the fuse-wire intersects more than one of the electrodes. In case this principle is adhered to, the formation of the electrodes of the multiple sparking-gap is immaterial otherwise, and the cross-sections in Figs. 1 and 2 are illustrated by way of example only.

In the modification shown in Fig. 3, the fuse-wire *f* passes loosely through the electrodes and the electric connection is established by conductors *k* (balls), which are loosely disposed in the electrodes, the contact being established by the pressure owing to the weight of these balls.

I claim:—

1. A high-tension fuse comprising a combination a fuse-wire and a multiple spark-gap which is electrically connected with the fuse-wire, the said multiple spark-gap consisting of a plurality of nestingly arranged electrodes insulated from one another and shaped to shield the fuse-wire and also shaped so that a plane perpendicular to the fuse-wire intersects more than one of the electrodes.

2. A high-tension fuse comprising in combination a fuse-wire, a multiple spark-gap consisting of a plurality of nestingly arranged downwardly tapered hollow electrodes each of which is provided with a hole through which the fuse wire loosely passes, the said electrodes being insulated from one another and shaped to shield the fuse-wire and also shaped so that a plane perpendicular to the fuse-wire intersects more than one of the electrodes, and heavy conductors disposed within the cavity of each electrode which owing to their weight rest against the fuse-wire in order to establish electric connection between the latter and the inner wall of the electrode.

In testimony whereof I hereunto affix my signature.

EMIL PFIFFNER.