H. KUŽEL.

METAL FILAMENT ELECTRIC GLOW LAMP.

APPLICATION FILED NOV. 24, 1908.

912,247. Patented Feb. 9, 1909.

Fig. 1.

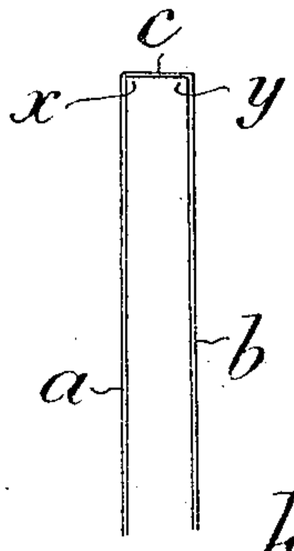


Fig. 2.

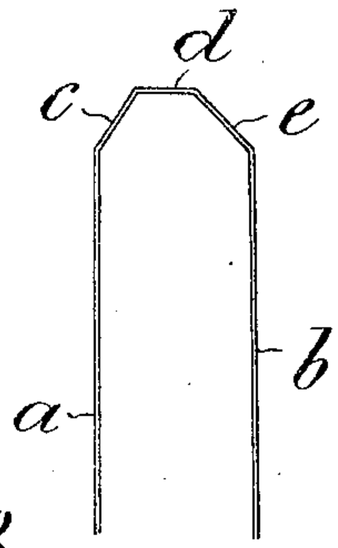
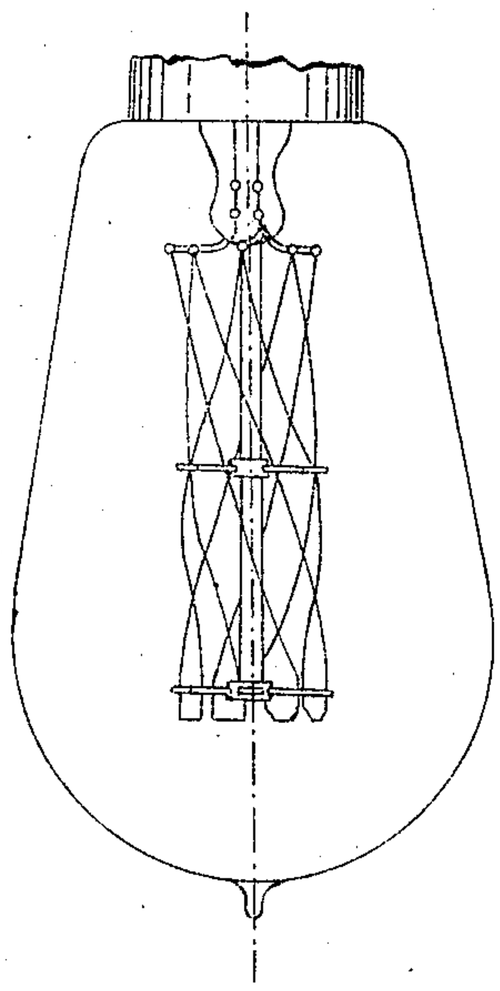


Fig. 3.



WITNESSES

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METAL-FILAMENT ELECTRIC GLOW-LAMP.

No. 912,247. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed November 24, 1908. Serial No. 464,323.

To all whom it may concern:

Be it known that I, HANS KUŽEL, a subject of the Emperor of Germany, and a resident of Villa Sirius, Baden, near Vienna, Empire of Austria-Hungary, chemist, have invented certain new and useful Improvements in Metal-Filament Electric Glow-Lamps, of which the following is a full, clear, and exact description.

Metal filament electric glow lamps are already known in which contact between the filaments is prevented by a sort of positive control of the distortions occurring in using the lamp. In the lamps heretofore known for obtaining the said result the filaments are for instance not so held by holding devices as to be freely movable but by the holding devices they were compelled to occupy a certain straight or bent position. In manufacturing such lamps it was observed that some filament legs showed a curvature differing from that of the others and were under an uncommon deflecting strain even before throwing the lamp into circuit. Also they proved to be under a tension which was so near the limit of elasticity that these legs broke like an over loaded steel spring when for instance the lamp was laid down somewhat indelicately. The breaking of the filaments also happened very frequently without any perceptible outer cause. The said inconvenience occurred more particularly when the filaments were used in a helically wound state. The experiments made with respect to these conditions led to the result that the cause of the said occurrences was found to be in the ununiform curvature of the bight of the filaments. Also it was found that the above mentioned detrimental excess of tension is readily avoided by imparting to the bight of the filament a straight or slightly curved almost straight outline having corners, which outline can be obtained uniformly under any conditions.

The simplest case of carrying into effect the present invention is represented by the connection of the two legs of the filament by a straight part at right angles. Such a filament is shown in Figure 1; *a* and *b* are the legs, *c* is the straight connection replacing the bight heretofore in use. At *x* and *y* there are the right angles. Instead of the right angles there may be at *x* and *y* an acute and an obtuse angle. Also the sum of the angles *x* and *y* may be more or less than 180°. Also the bight of the filament having a straight or slightly curved outline may be given any polygonal and if desired also unsymmetrical shape selected to suit the conditions of tension. Such a filament is shown in Fig. 2; *a* and *b* are the legs of the filament; *c*, *d*, *e* form the outline of the bight.

In Fig. 3 a lamp in accordance with the present invention is shown. The left hand side of the lower portion of the lamp shows two filaments according to Fig. 1; the right hand side shows two filaments according to Fig. 2.

Claim.

In a metal filament electric glow lamp, the combination of filaments and means for supporting them in the bulb each of said filaments comprising two legs and a bight portion connecting the same, the outlines of such bight portions consisting of substantially straight lines, meeting at angles, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

HANS KUŽEL.

Witnesses:

ROBERT W. HEINGARTNER,

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