May 17, 1938. M. DEGHENGHI 2,117,655

SUPPORT FOR TUBULAR TUNGSTEN FILAMENT LAMPS

Filed April 28, 1934

Fig. 1.

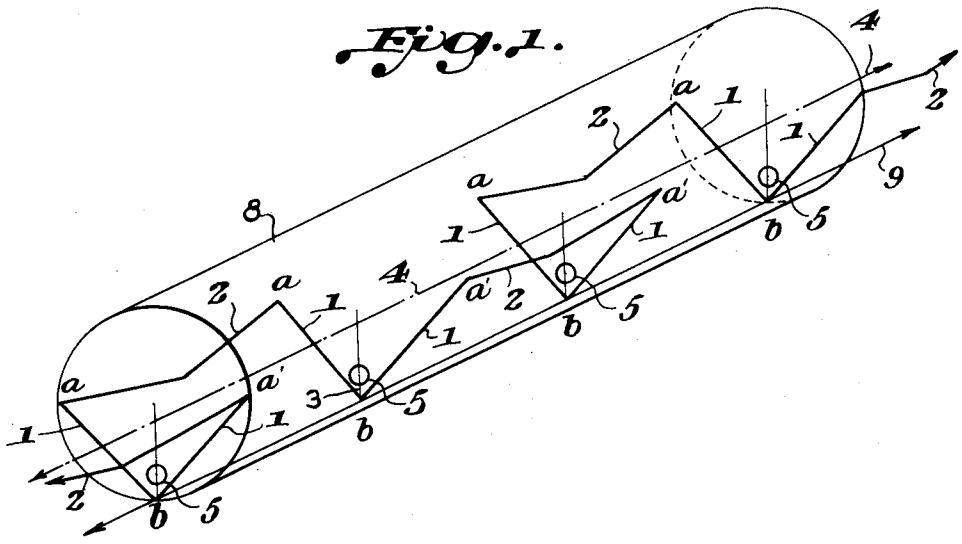
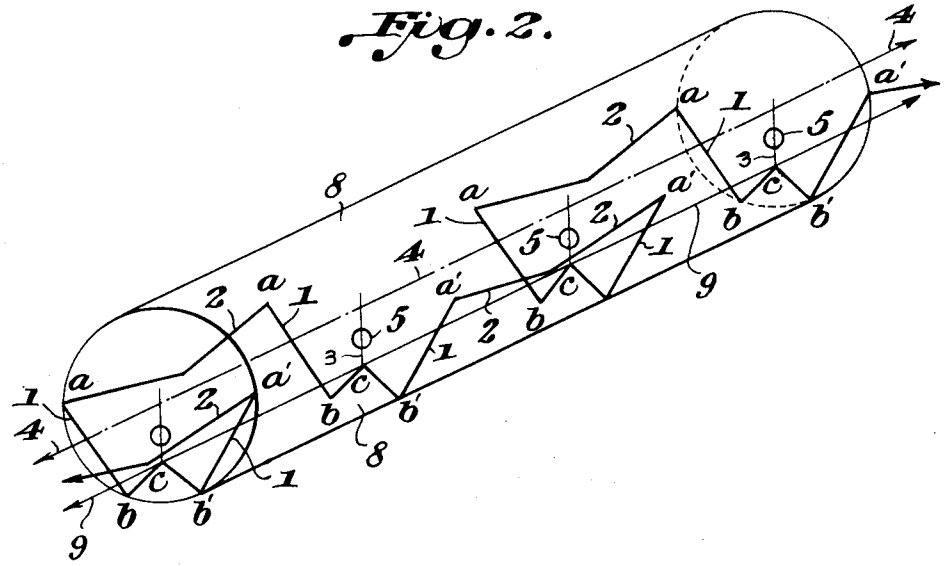


Fig. 2.



Inventor:

MILAN DEGHENGHI

Bönnelycke, Young, Emery & Thompson

By Attys.

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SUPPORT FOR TUBULAR TUNGSTEN FILAMENT LAMPS

Milan Deghenghi, Vienna, Austria

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9 Claims. (Cl. 176—39)

The filament supports for tubular tungsten filament lamps of varied shape in my British Patent No. 377,394 have one disadvantage in that they comprise portions contacting over a large part of the total circumference with the inner wall of the lighting tube which thus form sharp shadows in the illuminated tube. The filament support in accordance with the present invention is practically shadowless and can be introduced readily into any form of tube.

According to the invention the support for the filaments of variably formed tubular tungsten filament lamps which constitutes a modification of the support described and claimed in my British Patent No. 377,394 consists of a continuous resilient wire of high melting point shaped so as to form a plurality of portions of substantially rectilinear form arranged non-colinearly in each of a number of planes substantially perpendicular to the axis of the envelope, the portions in each of the said planes constituting resilient formations or supporting members abutting against the wall of the tube at three or more points constituted by the angular junction of the rectilinear portions, the formations or supporting members in each of the said planes being united by portions of the single or multi-strand wire comprising at least two non-colinear substantially rectilinear sections.

In the drawing two embodiments of a filament support constructed according to the invention are shown.

In Fig. 1, the V-shaped portion 1 of the support, which constitutes a supporting member, is perpendicular to the axis of the tube 8. This portion 1 is continuous with the part 2. The wire portions 1 and 2 are so shaped that they form the points *a*, *a'*, and *b*, by which they are supported against the inner wall of the glass tube 8. It will be noted that the portions 2 are bent midway between points *a* so that these portions do not lie against the wall of the tube, but are spaced therefrom between the points *a* in order that no appreciable shadows are cast by said portions. The portion 1 carries the stems 3 for the lighting filament 4 which is insulated by the glass drops 5. The points *b* can be united by a thin wire 9 in order that the relative position thereof remains unaltered during drawing of the support into the tube 8.

The embodiment according to Fig. 2 of the drawing shows a small modification of the portion 1 which is W-shaped and forms the angles *a*, *a'*, *b*, *b'*, and *c*. With this form of multiple bending the extent of springiness of the portion 1 is increased.

The wire 3 is attached to the portions 1 either by twisting or by electrical welding.

I claim:—

1. A support for the filament of a tubular tungsten filament lamp having an envelope tube comprising a continuous resilient metal wire of high melting point, said wire being bent to form a number of rectilinear portions arranged non-colinearly and at an angle to the axis of the tube, certain of said portions lying in planes substantially perpendicular to the axis of the tube and intersecting said axis at spaced points and certain other of said portions uniting the first mentioned portions in such manner that the support is spaced away from the wall of the tube and contacts with the wall only at the angular junction points of said rectilinear portions.

2. A support for the filament of a tubular tungsten filament lamp having an envelope tube, comprising a continuous resilient metal wire of high melting point, said wire being bent to form a number of rectilinear portions arranged non-colinearly and at an angle to the axis of the tube, certain of said portions lying in planes substantially perpendicular to the axis of the tube and intersecting said axis at spaced points and certain other of said portions uniting the first mentioned portions in such manner that the support is spaced away from the wall of the tube and contacts with the wall only at the angular junction points of said rectilinear portions, and stems rigidly supported by said wire, said stems carrying the filament of the lamp spaced from the wall of the tube and in insulated manner.

3. A support for the filament of a tubular tungsten filament lamp of unlimited length having an envelope tube, comprising a length of wire bent into the form of a plurality of laterally spaced interconnected supporting members, said members having angular bends with their points in engagement with the inner surface of the tube to maintain the support in position and all other portions of said wire being spaced from said tube wall.

4. A support for the filament of a tubular tungsten filament lamp of unlimited length having an envelope tube, comprising a plurality of axially spaced V-shaped wire members lying in planes perpendicular to the axis of the tube with the apices of the V-shaped members and the extremities of the two arms of the V-shaped members engaging the wall of the tube by point contacts to space the intermediate portions of said arms

away from the tube wall, a connecting wire extending between the extremity of one arm of a V-shaped member and the extremity of one arm of an adjacent V-shaped member to maintain the V-shaped members axially spaced throughout the tube, said connecting wires being bent between their extremities inwardly of said tube away from the wall thereof, and means carried by said V-shaped members for supporting the filament within the tube.

5. A support for the filament of a tubular tungsten filament lamp of unlimited length having an envelope tube, comprising a plurality of axially spaced V-shaped wire members lying in planes perpendicular to the axis of the tube with the apices of the V-shaped members and the extremities of the two arms of the V-shaped members engaging the wall of the tube by point contacts to space the intermediate portions of said arms away from the tube wall, a V-shaped connecting wire extending between the extremity of one arm of a V-shaped member and the extremity of one arm of an adjacent V-shaped member to maintain the V-shaped members axially spaced throughout the tube, said connecting wire being positioned with its apex spaced inwardly from the wall of the tube, and means carried by said V-shaped members for supporting the filament within the tube.

6. A support for the filament of a tubular tungsten filament lamp of unlimited length having an envelope tube, comprising a plurality of axially spaced V-shaped wire members lying in planes perpendicular to the axis of the tube with the apices of the V-shaped members and the extremities of the two arms of the V-shaped members engaging the wall of the tube by point contacts to space the intermediate portions of said arms away from the tube wall, a connecting wire extending between the extremity of one arm of a V-shaped member and the extremity of one arm of an adjacent V-shaped member to maintain the V-shaped members axially spaced throughout the tube, said connecting wires being bent between their extremities inwardly of said tube away from the wall thereof, and means carried by the apices of said V-shaped members for supporting the filament within the tube.

7. A support for the filament of a tubular tungsten filament lamp of unlimited length having an envelope tube, comprising a plurality of axially spaced V-shaped wire members lying in planes perpendicular to the axis of the tube with the apices of the V-shaped members and the extremities of the two arms of the V-shaped members engaging the wall of the tube by point contacts to space the intermediate portions of said arms away from the tube wall, a V-shaped connecting wire extending between the extremity of one arm of a V-shaped member and the extremity of one arm of an adjacent V-shaped member to maintain the V-shaped members axially spaced throughout the tube, said connecting wire being positioned with its apex spaced inwardly from the wall of the tube, and means carried by the apices of said V-shaped members for supporting the filament within the tube.

8. A support for the filament of a tubular tungsten filament lamp of unlimited length having an envelope tube, comprising a plurality of axially spaced V-shaped wire members lying in planes perpendicular to the axis of the tube with the apices of the V-shaped members and the extremities of the two arms of the V-shaped members engaging the wall of the tube by point contacts to space the intermediate portions of said arms away from the tube wall, a connecting wire extending between the extremity of one arm of a V-shaped member and the extremity of one arm of an adjacent V-shaped member to maintain the V-shaped members axially spaced throughout the tube, said connecting wires being bent between their extremities inwardly of said tube away from the wall thereof, means carried by said V-shaped members for supporting the filament within the tube, and a thin flexible wire extending through the tube parallel to the axis thereof, insulated from the filament and connecting said V-shaped members to enable said members to be pulled into the tube, said thin wire being spaced from the wall of the tube and of sufficient thinness to avoid its shadow being cast on the tube wall.

9. A support for the filament of a tubular tungsten filament lamp of unlimited length having an envelope tube, comprising a plurality of filament supporting members positioned in said tube in axially spaced relation, means carried by each member for supporting the filament, each of said members being formed of a plurality of angularly arranged wire elements positioned with the extremities of said elements in point contact with the walls of the tube to maintain the portions of said elements intermediate their extremities out of contact with the tube wall, connecting means extending between adjacent members for maintaining said members spaced axially of said tube, said connecting means having at least their portions intermediate of their extremities spaced from the wall of the tube, and a thin flexible wire extending through the tube parallel to the axis thereof, insulated from the filament and connecting said members to enable said members to be pulled into the tube, said thin wire being spaced from the wall of the tube and of sufficient thinness to avoid its shadow being cast on the tube wall.

MILAN DEGHENGHI.