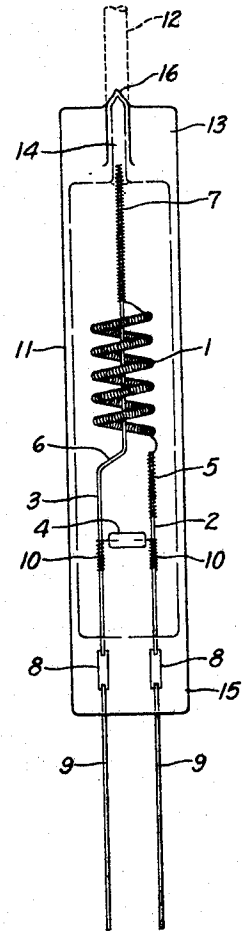
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ELECTRIC INCANDESCENT LAMP MOUNT STRUCTURE

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Inventor:
Frederick A. Mosby
by Otto Tichy
His Attorney

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ELECTRIC INCANDESCENT LAMP MOUNT STRUCTURE

Frederick A. Mosby, Cleveland, Ohio, assignor to General Electric Company, a corporation of New York

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ABSTRACT OF THE DISCLOSURE

A mount structure for a coiled-coil filament, single-ended lamp (especially of the halogen cycle type) wherein the coiled-coil is supported by a shorter lead wire connected securely to a coiled leg at the lower end of the coiled-coil, and to a longer lead wire which extends through the interior of the coiled-coil and is secured to a coiled leg at the upper end of the coiled-coil. The two lead wires are displaced longitudinally to slightly stretch the coiled-coil to avoid sagging of the turns during operation, and the relative positions of the lead wires are maintained by an insulating bridge interconnecting them.

The invention relates generally to electric incandescent lamps, and more particularly to mount structures therefor. The invention is particularly useful in lamps of the compact halogen cycle type, and especially such lamps of the single-ended type and having a coiled-coil filament extending longitudinally of the enclosing envelope or bulb.

In accordance with one object of the invention, the mount structure is such as to make it possible to prestretch the coiled-coil filament before it is sealed into the envelope.

Accordingly, the filament is supported by rigid respective short and long lead-in wires which are secured to the lower and upper ends of the filament, with the long lead-in wire extending through the interior of the coiled-coil filament. The said long lead-in wire is preferably of a refractory metal like tungsten and is of such size as to maintain its rigidity despite the current flow therethrough and despite the intense heat of the enclosing coiled-coil filament.

The drawing is an elevation of a lamp comprising the invention.

Referring to the drawing, the lamp has a mount structure including a coiled-coil tungsten filament **1**, short and long tungsten inner lead wires **2** and **3** respectively, and a bridge member comprising an insulating rod portion **4** which may be made of so-called "hard" glass of high melting point, or of fused silica or quartz.

As illustrated herein, the shorter lead wire **2** has its upper end enclosed in, and preferably welded to, a single-coiled lower leg portion **5** of the filament and which extends downward from the rim of the coiled-coil body portion **1** of the filament. The longer lead wire **3** has its lower portion parallel to the shorter lead wire **2**, and its upper portion offset at **6** to be substantially in the axis of the coiled-coil **1**, with its upper end enclosed in, and preferably welded to, an upper single-coiled leg **7** of the filament. The mount structure, and more particularly the lead-in conductors, further include intermediate seal portions **8** which are preferably extremely thin foils of molybdenum for sealing into fused silica, and outer lead wire portions **9** which may be of molybdenum.

As further illustrated by way of example, the bridge member **4** may include short coils **10** each having one end secured in one end of the bridge **4**, and each enclosing and secured to portions of respective inner lead wires **2** and **3**, preferably by welding. Before the coil portions **10** are secured to the lead wires **2** and **3**, the said lead wires are displaced longitudinally relative to one another to stretch the coiled-coil **1** sufficiently so that adjacent turns thereof do not sag and touch each other when they are at operating temperature. The stretch or tension in the coiled-coil **1** is thereafter maintained by virtue of the bridge **4**, **10** which holds the lead wires **2** and **3** in place.

The mount structure thus far described is sealed into an envelope **11** which may be of tubular fused silica or quartz glass and which has been previously tubulated by inserting an end of an exhaust tube of fused silica, indicated by dotted lines at **12**, into the end of the envelope **11** and then forming a flattened pinch seal **13** which seals that end of the envelope except for the exhaust tube **12** which is hermetically sealed in the pinch but is maintained open through the said pinch seal **13** in known manner.

The preassembled mount structure is then inserted into the envelope **11**, preferably with the upper ends of lead wire **3** and filament leg **7** extending into the cavity at **14** formed by the enclosed portion of the exhaust tube. The other (lower) end of the envelope **11** is then heated and pinch sealed at **15** to hermetically seal the foils **8** therein, with adjacent portions of inner leads **2** and **3** and outer leads **9**, **9** also embedded in the pinch seal **15**.

The envelope **11** is then exhausted and filled through exhaust tube **12** with the desired inert gas, such as nitrogen, argon krypton or xenon or mixtures thereof, and a small amount of the desired halogen such as iodine or bromine or compounds thereof, the bromine in particular being preferably introduced as a compound such as hydrogen bromide or a hydrocarbon of bromine. The envelope is then sealed off by heating and tipping off the exhaust tube **12** at a point close to the pinch seal **13**, as indicated by the sealed tip **16**.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In an electric incandescent lamp, a mount structure comprising a helically coiled-coil filament adapted to be vertically disposed and having a single-coiled upper leg extending upwardly away from the coiled-coil substantially along the axis thereof and a single-coiled lower leg extending downwardly away from the rim of the coiled-coil and parallel to its axis, a shorter lead wire having its upper end disposed within said lower filament leg and securely attached thereto, a longer lead wire having its lower portion generally parallel to said shorted lead and its upper portion offset toward the axis of the coiled-coil and extending through the interior of the coiled-coil along its axis and into the said coiled upper leg to which it is securely attached, said shorter and longer lead wires being displaced longitudinally in opposite directions so that the coiled-coil is held thereby in a stretched condition, and an insulating bridge member extending between said

shorter and longer lead wires and securely attached thereto and maintaining the relative longitudinal positions of said shorter and longer lead wires and the stretched condition of the coiled-coil.

2. A lamp as set forth in claim 1, including a tubular bulb of vitreous material enclosing said mount structure with its axis substantially coincident with the axis of said coiled-coil, a pressed seal portion at the bottom of said envelope hermetically sealing extensions of said shorter and longer lead wires, and a cavity in the closed upper end portion of said envelope into which extends the uppermost ends of said filament upper leg and the portion of longer lead wire enclosed thereby.

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RAYMOND F. HOSSFELD, Primary Examiner

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