

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

A Tungsten Halogen Lamp

We, BRITISH LIGHTING INDUSTRIES LIMITED, a British Company, of Thorn House, Upper Saint Martin's Lane, London, W.C.2, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to tungsten halogen lamps.

In the past tungsten halogen lamps have normally been double-ended, having a linear tubular lamp envelope with a central single coil filament and a terminal at each end. When the length of the lamps has been long compared with their diameter (for example, more than 3 inches long for a 10 mm. diameter envelope) they have only operated satisfactorily in a near - horizontal position in which the halogen is carried as far as the highest part of the envelope by convection.

Thus, lamps for use at mains voltage (110 volts and above) have been restricted to use in a near horizontal position because of their length. To overcome this difficulty single-ended tungsten halogen lamps having a coiled-coil filament within a bulb are known. The filament is supported either by a quartz bridge formation or a tungsten wire held in the exhaust tube tip-off. Either construction is delicate and highly susceptible to mechanical shocks and arcing due to the small gap between the legs of the filament where they enter the pinch. The arc path between the filament ends and lead-ins is about 5 mm. so as to be accommodated in a restricted pinch, which is limited by the bulb diameter. A filling of nitrogen gas is then necessary when used at mains voltage to lower the arcing potential. The nitrogen filling causes a reduction in thermal efficiency.

According to the present invention there

is provided a tungsten halogen lamp having a tubular lamp envelope surrounding a central single-coil filament, leads for which extend through the ends of the envelope, the envelope ends being brought towards each other and attached to a common base.

A lamp of this kind for operation at mains voltage can be constructed with dimensions such that it will operate satisfactorily in any position, the halogen in the filling being distributed to all parts of the envelope. The conventional supports can be used for the filament, giving a robust construction, and the risk of arcing between the filament legs is eliminated, enabling an argon filling to be used.

The invention will now be described in more detail with the aid of an example illustrated in the accompanying drawing, in which:—

Fig. 1 is a front view and Fig. 2 is a side view of a lamp in accordance with the invention, the cap in each case being shown in section.

The lamp has a U-shaped quartz envelope 1 formed by bringing together the ends of a straight envelope to form a loop. The envelope 1 is filled with argon and traces of a halogen, preferably iodine. A single-coil tungsten filament 2 is supported centrally along the axis of the envelope 1 by tungsten spirals 3 resting at intervals on the inner periphery of the envelope. The lamp has a ceramic base or cap 4 into which the presses 5 at both ends of the lamp envelope are cemented by cement 11. A cap 4 is of open channel formation and the presses extend into the channel to the extent of about half its depth and rest on end walls 4'.

The ends of the filament 2 extend into the presses 5 and in conventional manner are connected to lead wires 6 by molybdenum

[Price 4s. 6d.]

foil seals 7 which make a vacuum-tight seal. One of the lead wires 6 is connected by a wire 12 to one of two pins 8 while the other lead wire 6 is connected by way of a fuse 5 9 to the other pin 8.

The cap 4 can be made out of any electrically-insulating material which can withstand high temperatures. The pins 8 can be replaced by any other form of connection 10 such as a screw cap.

The lamp envelope 1 of the embodiment has a diameter of 8 mm. The length of the envelope from the end of the cap 4 nearer the envelope to its exhaust tip 10, is 42 mm, 15 and its external width, between the outer peripheries of the two legs, is 33 mm. The lamp has a rating of 500 watts at 240 volts.

It has been found that the lamp operates satisfactorily in any position.

20 WHAT WE CLAIM IS:—

1. A tungsten halogen lamp having a tubu-

lar lamp envelope surround a central single-coil filament, leads for which extend through the ends of the envelope, the envelope ends being brought towards each other and attached to a common base. 25

2. A lamp as claimed in claim 1 in which the envelope is U-shaped.

3. A lamp as claimed in claim 1 or 2 in which the ends of the lamp envelope are cemented in a channel-shaped base. 30

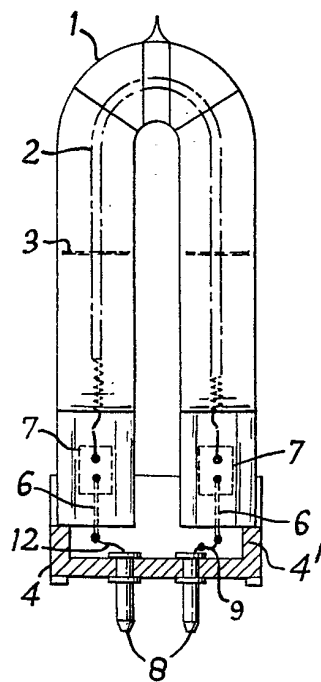
4. A lamp as claimed in claim 1, 2 or 3, in which the base has terminal pins to which the ends of the lamp filament are electrically connected. 35

5. A tungsten halogen lamp substantially as described with reference to the accompanying drawing.

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Fig. 1.*Fig. 2.*