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END CAP FOR GASEOUS DISCHARGE LAMPS

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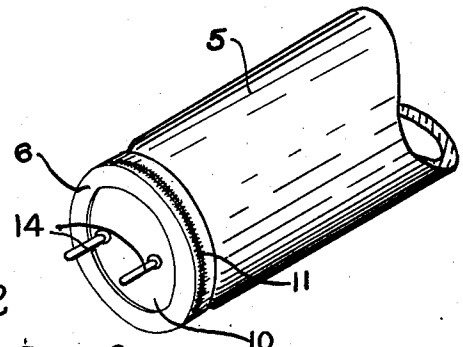


Fig. 1

Fig. 2

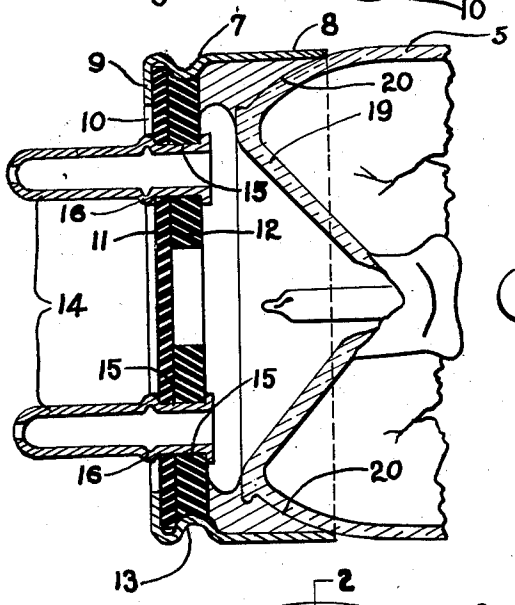
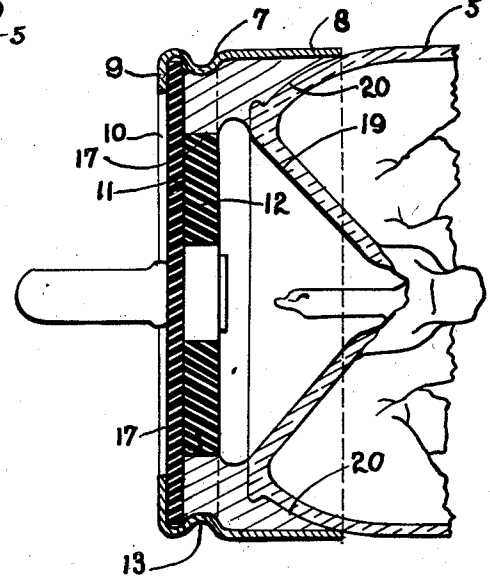


Fig. 3



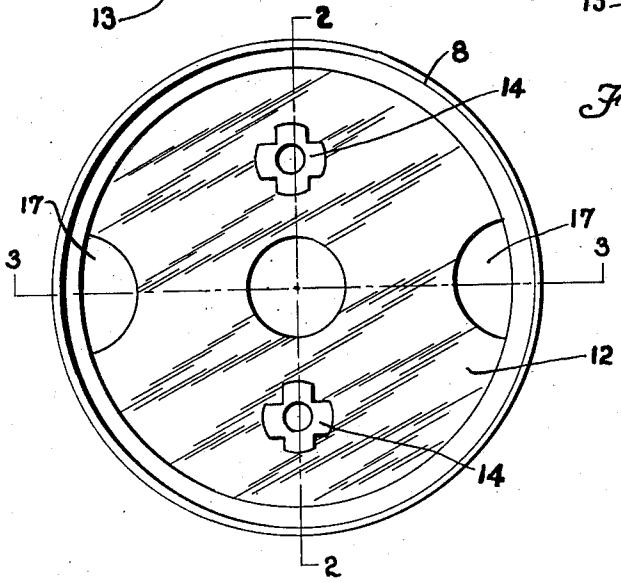


Fig. 4

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END CAP FOR GASEOUS DISCHARGE LAMPS

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2 Claims. (Cl. 176—32)

This invention relates to end caps for gaseous electric discharge lamps and more particularly to a means for rigidly uniting the caps and the lamps.

It has been found that cements which are suitable in all other respects do not effectively adhere to certain metal coatings employed to protect ferrous metals from corrosion. An example of such a coating is a zinc plating upon sheet steel. When this coated metal is used as a substitute for brass for example, it has been difficult to obtain a firm union between the lamp end and the cap.

The present invention supplies means for correcting the weakness in such a union. Briefly stated, the invention lies in providing means to supplement the holding power of the cement by providing a novel construction which mechanically interlocks the cement with the end cap assembly thus adding the shear strength of a substantial portion of the cement to the strength of the union.

An object of the invention is to provide a construction which will reinforce the union between the lamp end and the end cap assembly.

A further object of the invention is to provide a union between the lamp and its end cap which is partially independent of the power of adhesion between the cement used and the interengaging surfaces.

Other objects and features of the invention will more fully appear from the following description in connection with the accompanying drawing and will be particularly pointed out in the claims.

In the drawing:

Figure 1 is a perspective view of one end of a gaseous discharge lamp embodying the invention;

Figure 2 is a cross section through the end cap of the lamp taken on line 2—2, Figure 4;

Figure 3 is a cross section on line 3—3, Figure 4; and

Figure 4 is an inside view of an end cap before it is assembled to the lamp.

To present a better understanding of the invention a particular embodiment thereof will now be described. The embodiment illustrated is applied to an elongated tubular type of lamp but may be applied to other types of lamps. The lamp envelope 5 is provided with an end cap assembly 6 at both ends. The body 7 of the end cap is of metal. The metal used may be selected for economy in cost or for any other reason such as lack of availability. Heretofore, the metal selected has been that to which the capping cement will most strongly adhere. The present invention eliminates this limitation. The material selected as an example is thin sheet steel plated with zinc. This combination is strong, resists corrosion, is low in cost and moreover, the materials are readily available. On the other hand the best varieties of filling cement employed to secure the cap to the envelope 5 do not readily adhere to the zinc plating. To overcome this disadvantage the present invention supplies means for reinforcing the union between the envelope and the cap by supplementing the adhesion of the cement to the metal.

The metallic body member 7 is cup shaped having a flange 8 which embraces the end of the glass envelope and an end wall 9 from which the central portion has been removed to present an opening 10 therein. A pair of superposed wafers 11 and 12 of insulating material are received in the body member 7, the outer one of which engages the wall 9 and is rigidly secured within the body member by crimping or knurling the adjacent portion of the flange 8 into intimate engagement with the peripheral edge of the wafer 11 as at 13 thereby locking the two elements together. The wafer 12 lies over the wafer 11 and is slightly less in diameter. The teeth upset in the metal by the knurling operation indent and interlock with the peripheral edge of the wafer 12 thus increasing the bond between it and the member 7.

A pair of contact pins 14 are received in registering apertures 15 in the wafers 11 and 12. Each of the pins are provided with upset collar portions 16 engaging the wafer 11 and having their inner ends swaged or riveted into contact with the wafer 12 thus rigidly fixing the pins in position and also securing the two wafers together. The wafer 12 is thus also rigidly secured to the cap assembly through the pins 14 which pass through the wafer 11. The cap is shown as having two pins. However, any number of pins may be used depending upon the type of lamp being manufactured. The wafer 12 has formed therein a plurality of recesses or notches 17 preferably near its periphery.

As shown in Figure 3 the end extremity of the envelope is tapered inward and has fused thereto the stem assembly 19 of the lamp as is usual in this type of lamp. The main body of the cement, which is of the filler type, is forced into the chamber 20 between the flange 8 and the envelope 5 where it adheres strongly to the glass envelope. The lack of a firm adherence between

the cement and the metal body member is compensated for by the fact that some of the cement flows into the recesses 17. There is also considerable adhesive force between the cement and the wafers 11 and 12. When the cement hardens therefore, it interlocks the end cap to the main body of the cement thus preventing possible relative rotation between the end cap and the lamp envelope as well as preventing endwise looseness and possible detachment of the cap.

What I claim is:

1. An end cap construction for gaseous discharge lamps having a glass envelope, comprising a cup shaped metallic body member extending over the end portion of the envelope, a pair of superposed insulating wafers within the body member, which are rigidly anchored to the end wall of said body member, a plurality of contact pins projecting through and secured in both of said wafers, one or more recesses in the innermost wafer, a quantity of filler cement between the end portion of said envelope and the flange of said body member, said cement adhering to said envelope and extending into said recesses whereby a firm connection is established between the envelope and the end cap assembly.

2. An end cap construction for gaseous discharge lamps having a glass envelope, comprising a cupped metallic body member presenting an end wall whose central portion is removed and a flange portion embracing the end portion of the envelope, a pair of superposed insulating wafers which are rigidly anchored to the said end wall, a plurality of contact pins extending through and anchored in both of said wafers, recesses in the innermost of said wafers, a quantity of filler cement between the end portion of said envelope and the flange of said body member said cement adhering to the end of said envelope and extending into the recesses in said wafer whereby a firm connection is established between the said envelope and the end cap assembly.

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