Dec. 5, 1933. H. H. WRIGHT 1,937,538

TUBE

Filed Oct. 31, 1931

Fig. 1.

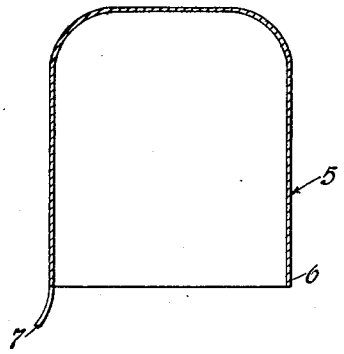


Fig. 2.

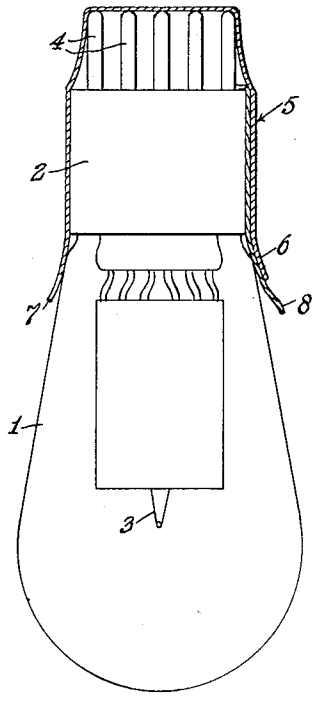
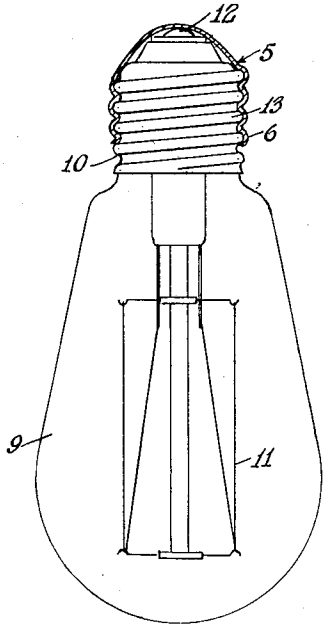


Fig. 3.



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TUBE

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Application October 31, 1931. Serial No. 572,266

1 Claim. (Cl. 250—27.5)

This invention relates to tubes, such as incandescent lamps, radio tubes, vacuum tubes and the like, and particularly to providing such articles with temporary protective coverings.

In the sale of tubes, such as incandescent lamps, radio tubes and the like, it is the customary practice to test the article prior to its sale. Usually the test is performed in the presence of the prospective purchaser in order to assure him of securing a perfect article. Many unscrupulous dealers quite frequently return to the manufacturer used or "burned out" tubes as defective ones. Again, many unscrupulous dealers sell used tubes as new ones with the result that the purchaser receives a tube which burns out considerably before its guaranteed life. As a consequence, the user complains to the manufacturer and demands replacement. It is apparent that these practices not only are expensive to the manufacturer but also tend to destroy the good will built up by it.

I have found that the above-mentioned practices may be overcome by applying on the base of the tube a temporary protective covering consisting of a cap of regenerated cellulose which intimately and snugly grips the base and covers the contact elements.

It is therefore an object of this invention to provide tubes, such as incandescent lamps, radio tubes and the like, with protective coverings disposed on the base thereof and completely covering the contact elements.

Other objects of the invention will become apparent from the following description, appended claim and accompanying drawing forming a part of this specification and in which:

Figure 1 illustrates a vertical section of a regenerated cellulose cap prior to its disposition on the tube;

Figure 2 is a side elevation, partly in section, showing the cap in position on a radio tube; and

Figure 3 illustrates the side elevation of an electric light lamp, partly in section, illustrating the protective cap applied thereto.

Referring to the drawing wherein like reference numerals designate like parts, and particularly to Figure 2, the reference numeral 1 designates a bulb of an ordinary radio tube mounted on a base 2 on which the usual filament 3 with its appurtenant cooperative parts, such as grids and the like, are secured. Disposed on the exterior end of the base 2 are a plurality of electric contact elements, such as prongs 4, by means of which the tube is inserted in the electrical circuit of the apparatus in which it is to be used.

As previously stated, one of the essential features of this invention is to provide the tube with a protective covering which will insure the purchaser of receiving a new tube and also to prevent the dealers from returning used tubes as defective ones to the manufacturer for replacement. With this in view there is disposed on the base 2 a cap 5 which intimately and tenaciously adheres to those portions of the tube which it engages.

The cap 5 may be formed of any material which, for reasons which will become apparent, shrinks upon conversion from the wet to the dry state. As several examples of materials which possess this property may be mentioned regenerated cellulose, cellulose acetate and gelatin. These caps are usually produced by molding and are maintained in the wet state until used. For example, when the cap is to be made of regenerated cellulose it may be produced by molding a cellulosic solution, such as viscose, on a suitable mold. One procedure may comprise coating a mandrel, as by immersing it in a viscose solution. The coated mandrel is then subjected to a coagulating and regenerating bath, whereby the cellulose is regenerated from the viscose solution. The regenerated cellulose cap may, if desired, then be subjected to the desulphuring, bleaching and washing steps, after which they are disposed in water and kept there until used.

It is apparent that the cap may be transparent or opaque as well as colored. When an opaque cap is desired, the finished cap may be appropriately treated or the result may be achieved by introducing in the molding solution an opacity-inducing agent. It is of course understood that by opaquing the cap with colored pigments or other coloring agents the cap will also be colored. When the cap is to be transparent and colored, the cap may be dyed or a dyestuff of the desired color incorporated in the solution to be molded.

The cap in the wet condition is usually oversize, with the result that it can very easily and expeditiously be applied in position. After the proper disposition of the cap, it is permitted to dry or is subjected to a drying treatment, during which the cap, by virtue of its properties above mentioned, shrinks to a considerable extent with the consequence that it intimately and snugly grips the base 2 and completely covers the prongs 4. The length of the skirt 6 of the cap 5 may vary within wide limits. It may be of such length that it completely covers the base 2 and/or also extends on to the bulb 1. On the

other hand, the skirt 6 of the cap 5 may be of such a length that it merely extends over a portion of the base 2.

The cap may also be provided with any identifying or advertising indicia, such as the name of the manufacturer, patent numbers, tradenames, or the like. In the event that a transparent cap is used, any indicia on the base will be visible.

A radio tube provided with the protective cap as above described is packed in the usual cartons and so distributed to the various dealers. When a prospective customer desires to buy the tube, the retailer removes it from the box and in view of the customer punctures the cap so that the prongs extend thereover, in which condition the tube is tested. This procedure assures the purchaser receiving a factory-new tube. It also prevents unscrupulous dealers from returning to the manufacturer used tubes as defective ones.

The user or service man, prior to inserting the tube in the circuit, removes the cap from the tube by the simple operation of manually stripping it therefrom with or without the aid of any suitable implement, such as a pocket knife. To facilitate the manual stripping operation and eliminate the use of auxiliary devices, the cap may be provided with a tab 7 which may be gripped and pulled upwardly, with the result that the cap is easily removed. Likewise, the removal operation may be more conveniently performed by utilizing a rip string 8 in combination with the cap.

Figure 3 discloses the application of the principles of this invention employed in connection with incandescent lamp bulbs. Referring to Figure 3, the reference numeral 9 designates the ordinary incandescent lamp bulb mounted on a base 10 which carries the filament 11 on one end thereof. On the opposite end, the base 10 is provided with the usual contact member 12. As in the case of the radio tube, the cap 5, while in the wet condition, is disposed on the base, so that it completely covers the exposed end of the base 10 and hence also the contact element 12. In this modification, the skirt 6 of the cap 5 is preferably made of such a length that it merely extends over a portion of the base 10. As explained above, upon drying, the cap shrinks and intimately contacts and tenaciously adheres to the portions of the base with which it contacts. It also conforms to the outline of the threads 13 of the base and does not interfere with its being screwed into the testing socket. As in the previous specific exemplification of the invention, the cap may be transparent, opaque, colored, or decorated in any appropriate manner.

The skirt 6 of the cap 5 is made to extend over a portion of the base 10 so that some of the threads 13 will be exposed and may be capable of being used as one of the contacts of the circuit.

In use as in the case of the radio tube, the cap may be punctured so that the contact element 12 is exposed. When this procedure is employed, the usual testing socket may be used. If desired, however, an improvised testing socket may be utilized. Such a socket could, for example, comprise a contact element adapted to cooperate with the element 12 and which, when the bulb is being positioned in place, would rupture the cap and therefore permit its contact with the element 12. Such a testing socket could have its other contact disposed so that it would engage the uncovered threads 13.

The cap is sufficiently rugged and tough to permit the usual handling of the tube. No additional precautions are necessary by its use.

It is apparent that the instant invention is both beneficial and advantageous to the purchasing public and to the manufacturer. It assures the purchaser of receiving a factory-new tube. It also prevents unscrupulous dealers from returning to the manufacturer used tubes as defective ones.

Since it is obvious that various modifications may be made in the above description without departing from the nature or spirit thereof, this invention is not restricted thereto except as defined in the appended claim.

I claim:

In combination with a tube having contact prongs on the base thereof whereby the tube may be disposed in an electrical circuit and the filament and appurtenant elements within the tube energized, a temporary protective cap formed of a material of the class which comprises gelatine, cellulose acetate and regenerated cellulose, said cap being shrunk in position on said base, the skirt of said cap intimately gripping and conforming to the shape of at least a portion of the peripheral surface of said base to securely position said cap, and the top of said cap extending over and covering the free extremities of all the contact prongs and engaging the ends of said prongs to prevent normal actual use of said tube.

HENRY H. WRIGHT.