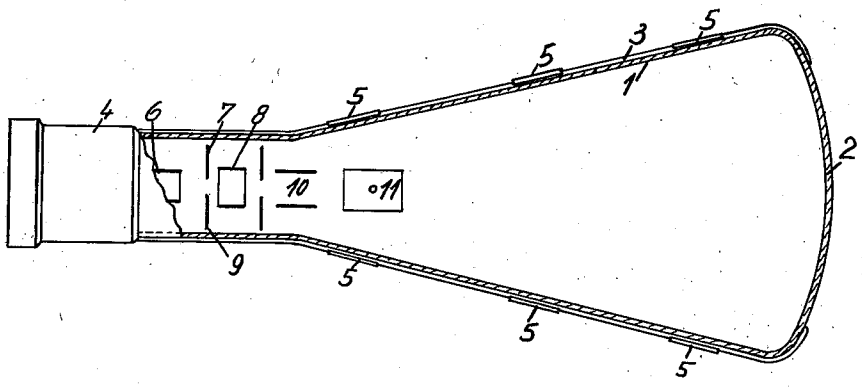
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BRAUN TUBE

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BRAUN TUBE

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2 Claims. (Cl. 250—27.5)

It is known that evacuated and more particularly large-size glass receptacles of complicated form tend towards implosion, i. e., that frequently — sometimes without any apparent cause—they collapse under the pressure of the air. The fragments of glass resulting upon the collapse are flung aimlessly in all directions, and represent, therefore, an appreciable source of danger for the user.

It has already been proposed—for other purposes—to make the entire body of the tube of metal. This form of embodiment, however, more particularly in view of the difficulties associated with the outgassing process, has not proved to be capable of use in practice.

According, therefore, to the invention—since it would not seem possible in the initial instance to preclude entirely the danger of implosion per se—the glass vessel, and more particularly the Braun tube, is embodied in such fashion that in the case of collapse the air is able to follow up rapidly only in a preferred direction, so that the fragments of glass will be flung into the interior of the tube also merely in a preferred direction, viz., in the direction of the axis of the tube. In this manner danger to the user by reason of stray fragments of glass will be safely avoided.

According to the invention, the complete glass body of the tube, with the exception of the front image window, is furnished with an envelope, which is as stable as possible and preferably fits in airtight fashion, and which may consist, for example, of strong cardboard, sheet metal, wood or the like. It is also particularly convenient to employ an envelope, which is reinforced by metal rings (wire rings and band rings as stable as possible), and which, even if the same fits closely in airtight fashion, cannot be pressed in together with the bulb of the tube. The reinforcing elements should be distributed with suitable spacing and in suitable number along the bulb. Naturally the reinforcing elements may be connected firmly with the guard member, or also—more particularly if the latter consists of a mouldable and preferably highly elastic material, such for example as rubber—fused into the same. It is of course also possible to employ as guard envelope strong woven materials.

If the guard envelope consists of metal, or a fabric containing metal, the coating in accordance with the invention will be passed to earth. In this manner the external or internal metallization of the bulb, known per se and necessary in numerous instances, will be rendered superfluous. It is convenient, particularly in the case of extremely large bulbs, to pass the guard envelope at the front to a slight extent over the image window, so that the point of connection of the image window is also covered by the guard envelope. If merely a part of the image window is utilized for producing the image (for example in the production of rectangular images on a circular image window, or in producing relatively small sizes, when a part of the image screen remains unused) this part surrounding the image window may be constructed as a mask, in such fashion that the same simultaneously screens off the unused area of the image window. In this case it is desirable to make the guard envelope of two parts, which are fitted over the tube from either side and thereupon firmly connected together. If the tube is arranged substantially in a casing, and merely projects out of the same in part, it may be sufficient to provide merely the projectory portion of the tube with a guard envelope entering to a certain extent into the container, which envelope is simultaneously constructed to constitute a mask. In this case the use of rubber caps, possibly reinforced, is particularly convenient.

In the drawing there is illustrated by way of example a form of embodiment of the tube according to the invention.

In the same 1 is the tube having the image window 2, 3 the guard envelope, and 4 the base of the tube, with which the guard envelope joins in tight fashion, being, if necessary, firmly connected therewith. Naturally it is possible to leave preferably small openings in the guard envelope at the level of those parts of the system, observation of which from the interior is essential during operations. A plurality of ring-shaped members 5 may be distributed in the longitudinal direction over the bulb and have the guard envelope firmly connected thereto. The electrode system of the Braun tube may be of any suitable type, for instance such as described and claimed in the United States patent application Ser. No. 660,117 (Radio A.-G. D. S. Loewe), filed March 9, 1933, and may comprise a Wehnelt cylinder 6, a first anode 7, an after-concentrating cylinder 8, a main anode 9, and pairs 10 and 11 of deflecting plates.

With the form of tube according to the invention it is accomplished that the fragments of glass in the case of implosion are not flung aimlessly about, but can be thrown only into the interior of the tube (as the air is able to advance with sudden impulse only at the part of the image window which is not covered by the envelope,

whilst a following-up of the air at the other sheathed parts of the bulb is able to take place only very slowly, so that impulsive entry at these points is impossible). Injury to the user is accordingly safely precluded when employing the arrangement according to the invention.

Further, it is possible to provide within the tube a vacuum switch, which upon the penetration of the air automatically deprives of current those parts of the tube which are brought to a high potential. A switch of this nature, in accordance with the invention, may be actuated with the assistance of a spring-controlled piston, which is provided in an evacuated container arranged in the tube, and which is moved into the evacuated container against the pressure of the spring by the entering air. Naturally the piston itself may also be constructed as a switch.

I claim:

1. A Braun tube for television purposes comprising an evacuated bulb consisting of glass, an electrode system mounted inside said bulb, a fluorescent screen mounted on the bottom of said bulb, several annular elements distributed in the longitudinal direction over this bulb and a guard envelope consisting of cardboard firmly connected with said annular elements, said guard envelope surrounding the whole of said bulb with the exception of the part of the bottom necessary for producing the image.

2. A Braun tube for television purposes comprising an evacuated bulb consisting of glass, an electrode system mounted inside said bulb, a fluorescent screen mounted on the bottom of said bulb, and a stable guard envelope consisting of cardboard surrounding the whole of said bulb with the exception of the part of the bottom necessary for producing the image, the front part of said envelope being constructed as a mask which covers the parts of tthe window not utilized for producing the image.

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