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Feb. 19, 1935. L. T. JONES 1,991,681

LAMP SLIT AND METHOD OF MAKING SAME

Filed Jan. 16, 1932

Fig. 1.

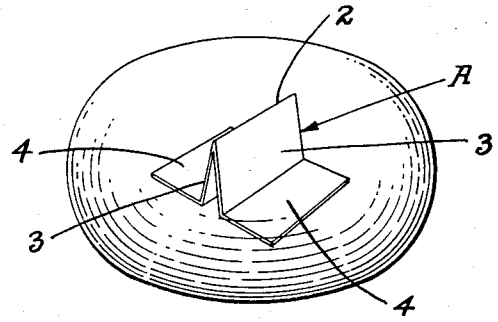


Fig. 2

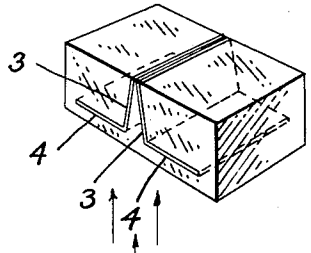


Fig. 3

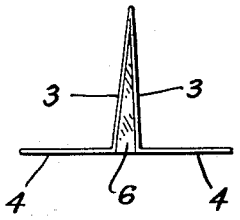


Fig. 4.

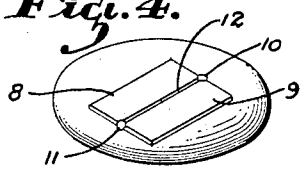


Fig. 5.



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1,991,681

LAMP SLIT AND METHOD OF MAKING SAME

Lloyd T. Jones, Berkeley, Calif.

Application January 16, 1932, Serial No. 586,989

5 Claims. (Cl. 88—24)

This invention relates to photographic sound recording apparatus of the type which produces a variable density sound track and especially that type which employs a light source whose intensity is varied in accordance with the impressed sound wave currents and then projected on a film through a slit of fixed width.

The lamp window or slit used in conjunction with apparatus of the above character may be constructed by different methods, probably the most successful type being the quartz slit which is maintained in contact with the film. It consists of a quartz base upon which is placed a silver coating. This coating is engraved to produce a slit of the desired width and length, usually 0.001 by 0.100, and it is then covered with a quartz glass the thickness of which is one mill at a point opposite the slit. This type of lamp slit is fairly satisfactory but the main objection is the one mill spacing formed between the slit and the film by the interposed quartz glass. If the film could be held in direct contact with the slit, it is evident that when an exposure is made the line produced on the film will have the same dimensions as the slit. On the other hand, if the film is spaced from the slit as by the interposed quartz glass, the exposed portion on the film will be enlarged hence causing loss in sharpness and definition.

Attempts have been made to maintain the film in direct contact with the slit but such attempts have not been successful as particles of dust, lint, film emulsion, etc., soon fills or partially clogs the slit.

The present invention relates to a method of constructing lamp slits and the product obtained; the object of the invention being that of generally improving and simplifying the construction and operation of lamp slits of the character described, and particularly to provide a lamp slit constructed of metal and having a slit formed therein which is filled with a transparent medium such as glass or the like.

The method employed and the product obtained is shown by way of illustration in the accompanying drawing, in which—

Fig. 1 is a perspective view showing a method of embedding the metal in glass.

Fig. 2 is a perspective view showing the completed product.

Fig. 3 is an end view showing a modified form of the structure.

Fig. 4 is a perspective view showing another modification of the invention.

Fig. 5 is a cross section of the completed article obtained from the modification shown in Fig. 4.

Referring to the drawing in detail, A indicates a piece of thin metal, such as copper or the like, bent upon itself to form an apex portion 2, a pair of side members 3, and base sections 4. The side members 3 should form an acute angle with relation to each other so as to form a slit or aperture of gradually increasing width when the apex is ground away, as will hereinafter be described.

The metal, when bent as described, is dipped and completely embedded in molten glass, care being taken that the space between the side members 3, or in other words the acute angular space, is completely filled with glass. The glass is then cooled and the metal is found in the center of an enclosing chunk or bead of glass which is next subjected to grinding. During grinding, it is given a block-shaped form, such as shown in Fig. 2, and during the final stages of grinding the apex portion of the metal becomes exposed and is ground through. A slit is thus formed and when a width of 0.001 is reached the grinding is completed.

It is evident that the extent of grinding may be adjusted to produce a slit of any desired width and that the width is readily controlled. If light from the film lamp enters through the bottom of the block, as indicated by the arrows in Fig. 2, the copper will intercept all light except that which projects through the narrow slit. This slit is filled with glass since the copper adheres firmly to the glass and as such leaves no opportunity for the accumulation of dust, lint, etc.

In actual practice it is not absolutely essential to completely enclose the metal in glass. For instance, substantially the same result may be obtained, as shown in Fig. 3, by merely filling the space 6 with molten glass and then grinding away the apex portion until a slit of desired width is obtained.

In Figs. 4 and 5 another modification is illustrated. In this instance, two plates of metal, such as indicated at 8 and 9, are laid edge to edge and in contact with each other, the plates being placed in a common plane. The adjoining ends of the plates are then welded as indicated at 10 and 11 and, when the weld is cooled and set, each welded portion is peened and during the peening operation the plates are gradually separated. When a slot or spacing of, for instance one thousandth of an inch, is obtained, the peening operation is stopped. The joined plates are then embedded in a bead of glass,

as described in connection with Fig. 1, to completely fill the slot 12 formed between the plates and to completely enclose the plates. The bead of glass is ground as shown in Fig. 5, that is, one face is ground until the surface of the plates are exposed and the ends and bottom portion may then be ground as desired.

While certain features of the present invention are more or less specifically described, I wish it understood that various changes may be resorted to within the scope of the appended claims. Similarly, that the materials and finish of the several parts employed may be such as the manufacturer may decide, or varying conditions or uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A method of forming a lamp slit which consists in bending a piece of metal to form a pair of side members disposed on an acute angle with relation to each other, said metal when bent forming an open base portion and an apex, filling the space between the side members with a transparent material, and then grinding away the apex portion of the metal to form a slit for the emission of light rays.

2. A method of forming a lamp slit which consists in bending a piece of metal to form a pair of side members disposed on an acute angle with relation to each other, said metal when bent forming an open base portion and an apex, filling the space between the side members with molten glass, cooling the metal and the glass and then grinding away the apex portion of the metal to expose the glass and to form a slit-like opening for the emission of light rays.

3. A method of forming a lamp slit which consists in bending a piece of metal to form a pair of side members disposed on an acute angle with relation to each other, said metal when bent forming an open base portion and an apex, completely embedding the metal in molten glass, cooling the glass and embedded metal, grinding the glass to form a block, and finally grinding away the surface containing the apex portion of the metal to a point where the metal is cut through and a light emitting slit is formed therein.

4. A lamp slit comprising a block of transparent material, and a pair of opaque members embedded in the transparent material, said members being disposed on an acute angle with relation to each other and separated to form a light emitting slit.

5. A lamp slit comprising a block of glass, and a pair of metal plates embedded in the glass, said plates being disposed on an acute angle with relation to each other and separated to form a light emitting slit.

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