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ILLUMINATING DEVICE FOR ENLARGING OR PROJECTING APPARATUS

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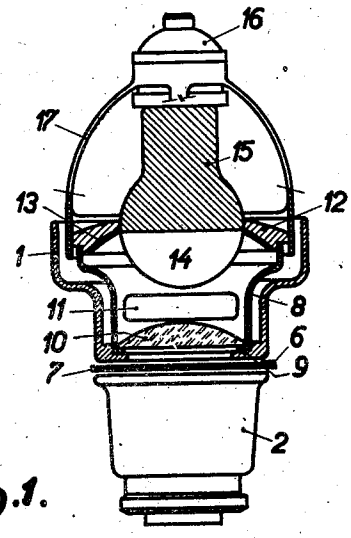


Fig. 1.

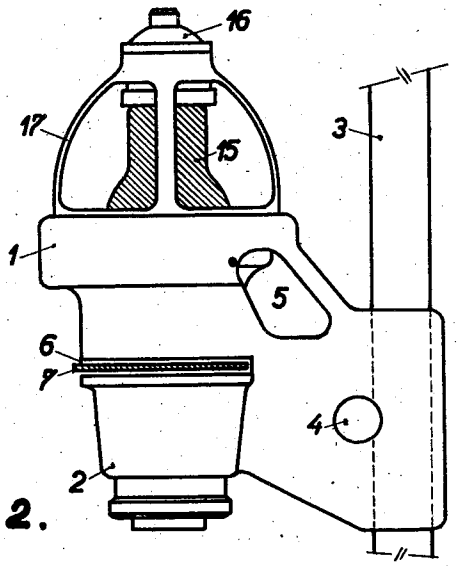


Fig. 2.

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ILLUMINATING DEVICE FOR ENLARGING OR PROJECTING APPARATUS

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3 Claims. (Cl. 88—24)

The present invention relates to a device for the direct electrical illumination of photographs or negatives for the purpose of permitting their reproduction in enlarging or projecting apparatus.

Such devices have hitherto consisted of a source of illumination arranged in a special chamber which had to be cooled to a substantial extent and consequently this entailed the use of apparatus of relatively large external dimensions. This increase in the dimensions of the illuminating chamber has been disadvantageous especially in the case of enlarging apparatus of the smaller type.

Such drawbacks and disadvantages are avoided by the illuminating device according to the present invention which comprises a casing including an illuminating chamber, means associated with said chamber for permitting uniform illumination, and an incandescent electric lamp having the bulb thereof engaging partly in said chamber and having the remaining part of said bulb exposed to cooling air.

That part of the electric lamp bulb which does not enter the said chamber may be provided with coating means to prevent the entrance of extraneous light rays which might act upon the sensitive photographic emulsion.

In order that the present invention may be clearly understood and readily carried into effect the same will now be described more fully, by way of example, with reference to the accompanying drawing, in which:

Figure 1 is a sectional elevation of a device according to the present invention and

Figure 2 is an elevation taken at right angles to Figure 1 showing the device associated with enlarging apparatus suspended on a known stand.

Referring to the drawing, 1 denotes the casing of the illuminating device which is connected with an objective part 2 in such a manner that it forms therewith a single unit which is displaceably mounted on a guide 3 on which it is fixed in any desired position as by means of a set screw 4. The casing 1 is provided with openings 5 for the admission of cooling air and with an opening 6 for the insertion of a negative 7. Within the casing 1 is provided a holder 8 having a flange 9 for fixing a condensing lens 10 and also having one or more ventilating openings 11. On the top edge of the holder 8 there is mounted a socket 12 which is made of a material of low conductivity. The inner surface of the socket, which, with the holder 8, encloses the illuminating space, is concave and is advantageously provided with a reflecting coating 13.

The socket 12 is provided with a circular opening through which the lower part 14 of the glass bulb of the incandescent electric lamp passes. The upper part 15 of the bulb is provided, above the socket and therefore outside the illuminating space, with a coloured—e. g., opal dark red—or other coating which does not allow extraneous light rays to pass through from the exterior of the apparatus, so that such rays cannot act upon the sensitive photographic emulsion. The said coating may comprise, alternatively, a metal casing provided with ribs on the external surface thereof for the purpose of better cooling and the like. The incandescent lamp is screwed into the customary socket 16 which is secured in a member 17 surrounding the upper part of the lamp and having side openings for the free admission of cooling air, the said member being applied to the socket 12, or, if desired, fixed to the casing 1.

By means of the present invention, the upper part of the incandescent electric lamp, which becomes heated to a greater extent and the light rays of which are utilised to a comparatively smaller extent than in the case of the apparatus hitherto employed, is cooled more completely than hitherto. In addition, there is obtained a compact construction which permits ready access to all the component parts.

What I claim is:

1. A device for direct illumination in connection with a condensing lens housing of an enlarging or projecting apparatus, comprising a casing including an illuminating chamber, means associated with said chamber for permitting uniform illumination, an incandescent electric lamp having the bulb thereof engaging partly in said housing for transmitting only the direct rays to said condensing lens and having the remaining part of said bulb exposed to cooling air, and having a light filtered coating means on said remaining part of said bulb transparent to light rays inactive for photographic sensitive emulsions.

2. A device for direct illumination in connection with the condensing lens housing of an enlarging or projecting apparatus, comprising a casing including an illuminating chamber, means associated with said chamber for permitting uniform illumination, a socket at one end of said chamber having a concave surface at the inner side thereof, an incandescent electric lamp having the bulb thereof engaging partly in said

housing for transmitting only the direct rays to said condensing lens and having the remaining part of said bulb exposed to cooling air and having a light filtered coating means on said remaining part of said bulb transparent to light rays inactive for photographic sensitive emulsions.

3. A device for direct illumination in connection with the condensing lens housing of an enlarging or projecting apparatus, comprising a casing including an illuminating chamber, means associated with said chamber for permitting uniform illumination, a socket at one end of said chamber having a concave surface at the inner side thereof, said concave surface having a reflecting surface, an incandescent electric lamp having the bulb thereof engaging partly in said housing for transmitting only the direct rays to said condensing lens and having the remaining part of said bulb exposed to cooling air and having a light filtered coating means on said remaining part of said bulb transparent to light rays inactive for photographic sensitive emulsions.

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