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ILLUMINATING DEVICE FOR CINEMATOGRAPHIC PROJECTION APPARATUS

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Fig. 1

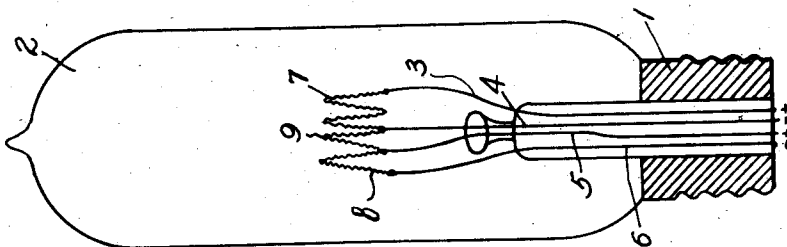
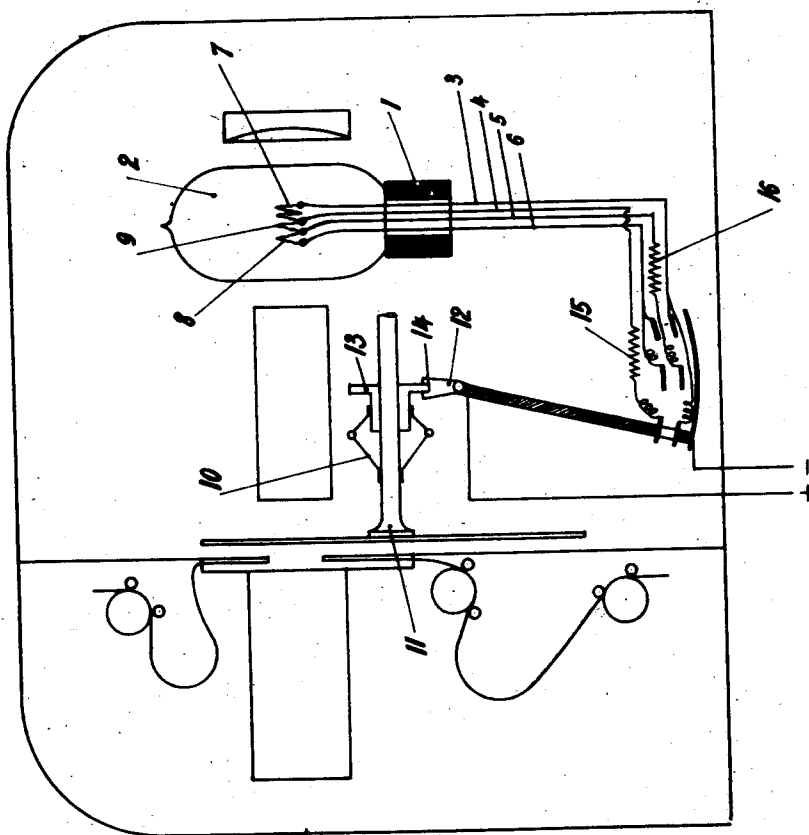


Fig. 2.



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ILLUMINATING DEVICE FOR CINEMATOGRAPHIC PROJECTION APPARATUS.

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It frequently happens that cinematograph films, and chiefly those which are used for educational purposes, are projected on the screen one view at a time, and the duration of each view may thus be considerable. But it is well known that such cases may present some danger of ignition of the film in the case of a lamp having a great luminous intensity. As on the other hand it is advantageous to be able to change over instantly from the single view projection to the usual projection, various removable devices have been proposed for reducing the brilliancy of the lamp in the case of separate views. For instance it is the general practice to interpose a transparent screen between the lamp and the film; in some cases a resistance is mounted in the circuit of the lamp. But the various arrangements employed have the drawback of occasioning a considerable consumption of current.

In my invention, the projection lamp is an incandescent lamp comprising a plurality of filaments adapted for simultaneous connection in the circuit where the maximum brilliancy is desired, or for separate connection for a reduced brilliancy. The said filaments may have the same illuminating power, or preferably each filament may have a different illuminating power.

In this manner, I am enabled to reduce the brilliancy of the lamp and consequently to diminish the heat produced by the same, according to the time of projection of the view, obtaining in all cases a consumption of current which is in strict relation to the brilliancy in actual use.

A form of construction of a two-filament lamp according to the invention is shown diagrammatically by way of example in the accompanying drawing, wherein:

Fig. 1 is a view of a two filament lamp.

Fig. 2 is a diagrammatic view of an automatic operating means for the lamp.

The base 1 of the lamp 2 is traversed by four wires 3, 4, 5, 6 whereof the wires 3 and 5 may be connected to the positive pole of the source of current and the wires 4 and 6 to the negative pole. The wires 3 and 4 are connected to a filament 7 and the wires 5 and 6 to a second filament 8. In the embodiment herein represented, the brilliancy of the filament 8 is less than that of the filament 7; these two filaments are united by a filament 9 disposed between the wires 4 and 5.

If the positive pole of the supply circuit

be connected to the wire 3 and the negative to the wire 4, the filament 7 will be solely raised to incandescence, but the low power filament 8 will on the contrary be the one in use if the poles are connected to the wires 5 and 6; but by connecting the wires 3 and 6 to the poles, the current will now pass through the filaments 7, 9 and 8 and the lamp will attain its maximum brilliancy.

The electric contact may be made either by hand or automatically in such manner that the resulting brilliancy shall be greater when the projection apparatus is working at a higher speed. In the case of automatic operation the automatic control may be based upon an arrangement depending upon centrifugal force and actuating a circuit-breaking device whereby the lamp filaments will be illuminated according to the brilliancy desired.

Such an automatic control arrangement is shown in Fig. 2 in which the centrifugal regulator 10 revolving round shaft 11 controlled by the operating shaft of the apparatus actuates a switch 12 by means of the slide 13 mounted loosely on shaft 11 and engaging with notch 14 of switch handle.

It is easy to see that when the speed of shaft 11 increases, the brilliancy of the lamp increases also as the slide 13 moving towards the left, connects first wires 3 and 4, then 5 and 6 and finally 3 and 6. The usual compensating resistances 15 and 16 are inserted in the wires and operate to keep the intensity of the current constant regardless of the resistance of the filaments through which the current is caused to flow by the successive connections corresponding to the different positions of the switch. The order of these connections is the one which as explained hereinabove, gives increasing brilliancy. Of course, the switch could be also hand-controlled to produce the same result.

What I claim is:

1. In a cinematographic apparatus the combination of an electric lamp, means for unrolling the film, an electric circuit, branch lines fed by said circuit, a plurality of filaments disposed in said lamp and inserted in said branch lines, means whereby the number of filaments used increases with the speed of unrolling of film.

2. In a cinematographic apparatus the combination of an electric lamp, means for unrolling the film, an electric circuit, branch lines fed by said circuit, a plurality of fila-

ments disposed in said lamp and inserted in said branch lines, automatic means whereby the number of filaments used increases with the speed of unrolling of film.

- 5 3. In a cinematographic apparatus the combination of an electric lamp, means for unrolling the film, an electric circuit, branch lines fed by said circuit, a plurality of fila-

ments disposed in said lamp and inserted in said branch lines, a switch controlling said 10 branch lines, a centrifugal regulator actuated by the cinematographic apparatus and controlling said switch.

In witness whereof I have hereunto set my hand.

ANDRÉ LÉON VICTOR CLEMENT DEBRIE.