

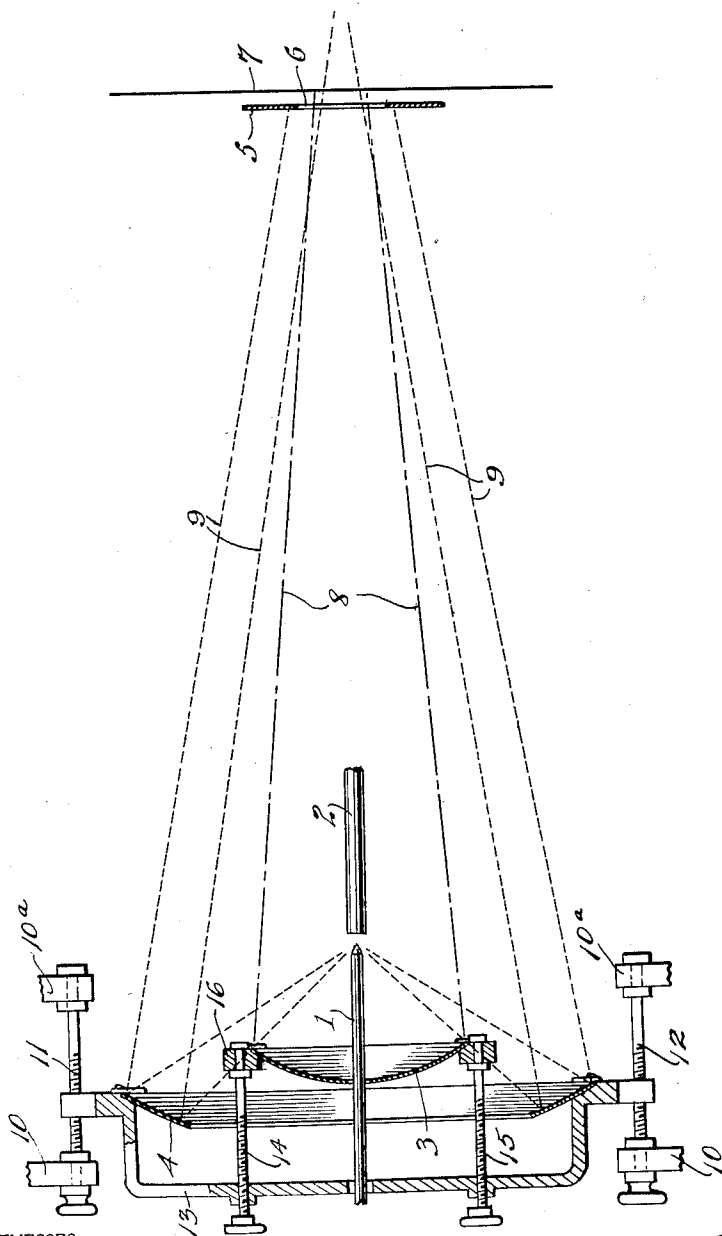
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REFLECTOR DEVICE FOR MOTION PICTURE PROJECTORS

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WITNESSES

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REFLECTOR DEVICE FOR MOTION-PICTURE PROJECTORS

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This invention relates to reflector device for motion picture projectors.

The object of the invention is to provide a reflector means which will enable the operator to simply and efficiently control the distribution of light as it is projected on the film aperture or plate whereby an intense light can be thrown on said plate and the uniformity of its distribution thereon controlled with accuracy.

The invention is illustrated in the drawing which is a diagrammatic representation of a combination of elements employed to achieve the desired results.

In actual practice where operators have been required to use a projector having only one reflector associated with the source of light, two difficulties have been encountered. One difficulty has been that if the reflector is moved to concentrate the light too strongly in the center of the film aperture the fringes of the beam adjacent the edge have been much less intense and shadowy. The other difficulty has been that when the reflector is moved to avoid this, the edge or fringe shadows and a similar shadow or dark spot is likely to appear in the center of the beam.

I have overcome these two difficulties by providing an additional reflector to be adjusted with or independent of the other reflector. In using these two reflectors I adjust the smaller central one so as to concentrate the light over it on a substantial portion of the film aperture and adjust it so that the light in this portion of the aperture is intense and uniform without any central dark spot. I then adjust the auxiliary reflector so that its light will fall on the remainder of the aperture and the adjacent surface of the plate with its beam slightly overlapping the outer edges of the beam projected from the first reflector. In this way the auxiliary beam, as we may call it, will supplement the beam over the main reflector so that the entire film aperture is filled with an intense beam of light of uniform character without any dark spots or shadows.

In the drawing is a preferred assemblage of the elements with which I achieved the desired results.

1 and 2 represent arc electrodes; 3 represents preferably the main reflector; 4 represents a larger auxiliary reflector; 5 represents the film plate having an aperture 6 in front of which film 7 is adapted to move.

The beam from the reflector 3 is represented by the dot and dash line 8 and as shown is intended to cover a substantial portion of the aperture when properly concentrated thereon. The beam from the auxiliary reflector 4 is designated by the dotted lines 9 and is intended to slightly overlap the beam 8 and to fill the remaining portion of the aperture as well as to overlap on to the plate 5. By properly adjusting this reflector it is obvious that the intensity of the light in the aperture can be maintained at its highest efficiency, actual uniformity and thus be entirely without dark spots or shadows. The light after it passes through the aperture 6 and the film 7 can be suitably controlled by any applicable mechanism or element not shown.

To permit of the separate adjustment of the reflectors 3 and 4 I provide spaced rings 10 and 10^a which are fixed on any suitable support. Extending between these rings are adjusting screws 11 and 12 on which is suitably supported a frame 13 to which the reflector 4 is fastened. Extending from the frame 13 are adjusting screws such as 14 and 15 connected to a ring 16 on which the reflector 3 is mounted. Therefore the reflector 4 can be adjusted by manipulating screws 11 and 12 and reflector 3 can be adjusted by manipulating the screws 14 and 15. It is, of course, understood that this form of adjusting means is only one of many which may be utilized, the main invention not residing in the specific form of the adjusting means but in the combination of reflectors with some means for adjusting them.

What I claim is:—

1. In combination a source of light, the light from which is adapted to be projected through an aperture, an adjustable main reflector adapted to concentrate a beam of light over a substantial portion of the center of the aperture, and an auxiliary adjustable reflector adapted for projecting a second

beam of light to fill up the remainder of the aperture with equal intensity with a beam of light of high intensity and uniformity, said auxiliary reflector comprising an arcuate annular band disposed to the rear of the main reflector and surrounding the same.

2. In combination a source of light, a film plate having an aperture therein, a main reflector consisting of a continuous circular parabolic mirror, adjustable with relation to the light source and adjustable to throw an intensified beam to fill a substantial portion of the aperture, and a second reflector adjustable with respect to the light source and the main reflector, whereby it is adapted to throw a second beam to fill up the remainder of the aperture with light of equal intensity, said second reflector including an annular curved band positioned to the rear of the main reflector.

3. In combination, a source of light, a film plate having an aperture therein, a continuous circular parabolic main reflector adjustably mounted with respect to the light source and said apertured plate whereby to throw an intensified beam of light to fill a substantial portion of the aperture, an auxiliary reflector adjustably mounted with respect to the main reflector and the apertured plate, whereby to throw a second or auxiliary beam and fill the remaining space of the aperture which surrounds the main beam and overlap the periphery of the main beam, said auxiliary reflector comprising an annular arcuate surfaced band positioned to the rear of, and surrounding the main reflector.

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