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ADOLPH LINNEBACH, OF DRESDEN, GERMANY, ASSIGNOR TO JOHN H. KLIEGL AND ANTON T. KLIEGL, COPARTNERS, DOING BUSINESS AS UNIVERSAL ELECTRIC STAGE LIGHTING COMPANY, OF NEW YORK, N. Y.

METHOD OF AND APPARATUS FOR PROJECTING IMAGES.

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This invention relates to a method of and apparatus for forming backgrounds for use in theatres or other amusement houses and has for one of its more important objects to provide an improved method and apparatus whereby artistic and pleasing background effects may be obtained.

Another object is to provide a method and apparatus in which an undistorted image of an object is displayed upon a screen without the use of any lenses.

A further object is to provide a method and apparatus of the type referred to above in which the source of light may be placed comparatively close to the screen and yet produce artistic, undistorted images. Other objects and advantages will appear as the invention is hereinafter disclosed.

Referring to the drawings which illustrate what I now consider a preferred form of apparatus for carrying the method into practice:

Fig. 1 is a diagrammatic plan view illustrating the invention employed in connection with the stage of a theatre.

Fig. 2 is a front elevation of an object or slide employed.

Fig. 3 is an elevation, partly in section of one form of lamp housing and object holder.

Fig. 4 is a section on the line 4—4 of Fig. 3.

It has been proposed to project images upon a screen to produce a background effect. If a stereopticon or other projector comprising lenses be employed for this purpose, such projector must be placed at a distance from the screen practically equal to or greater than the greater dimension of the projected image and in no case could such distance be less than that which would cause a field of projection greater than 60°, lest the image appear distorted and otherwise objectionable. I have devised a method and means whereby the apparatus employed may be located within a comparatively short distance from the screen and yet produce highly artistic, clear and undistorted images of an object upon a screen. And I achieve this result by virtue of extremely simple apparatus, as will hereinafter appear.

As shown in Fig. 1, my invention embodies a high intensity source of light 10, an object 11 and a screen 12. The source of light may assume the form of an arc lamp of suitable intensity or a high intensity incandescent lamp such as those now commonly employed in connection with stereopticons and other projectors. The object 11 consists of a pane or sheet of glass or other suitable transparent or translucent material upon which a scene or other representation is depicted; by means of opaque pigments or other materials, or translucent pigments or dyes or other materials of a suitable color or colors, or a combination of any of these. Such an object is shown in Fig. 2, the glass 11 being preferably provided with a frame 13 of wood or other suitable material for a purpose which will presently appear. The screen 12 is preferably of such material as will permit the images projected thereon to the visible from the side of the screen opposite that upon which the apparatus 10, 11 is located, yet conceal the last mentioned apparatus from the audience. An example of such material is varnished linen.

In Fig. 1 I have indicated the stage of a theatre, comprising the apron 14, wings 15 and the screen 12 here employed as a back drop. Assuming that the screen shown is about thirty feet wide, the total available depth between the apparatus 10, 11 and the apron 14 would be about forty-five feet, these being the relative proportions of the ordinary stage. Now, if projecting apparatus were located on the front or audience side of the screen 12, the actors in action upon the stage and in front of the screen would cast shadows upon the latter and spoil the whole background effect. On the other hand any attempt to employ a projector, embodying lenses, behind the screen 12 would mean that the screen 12 would have to be moved forwardly at least as far as the position shown in dotted lines at 12′, lest distortion of the projected image or images result. Under these conditions the available stage-depth between the apron 14 and screen would be insufficient for the action to proceed satisfactorily. And this though specially designed lenses be employed in the projector.

By virtue of my invention the apparatus