Dec. 6, 1932. A. GROT 1,890,053

PHOTOGRAPHIC STAGE SETTING

Filed June 29, 1931 2 Sheets-Sheet 1

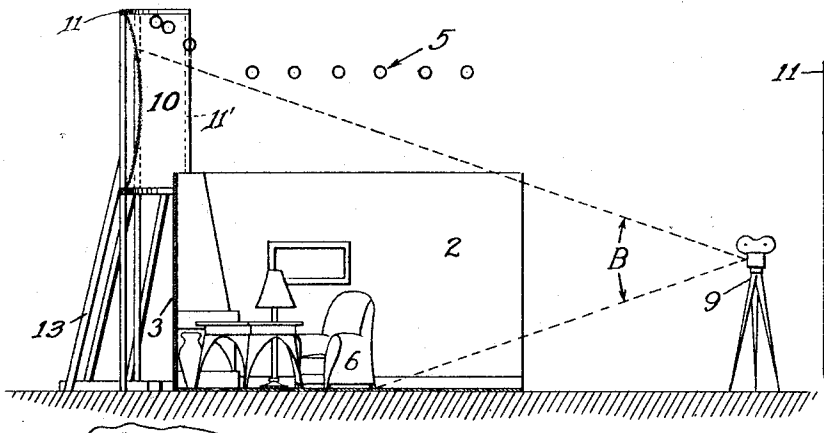


Fig. 1

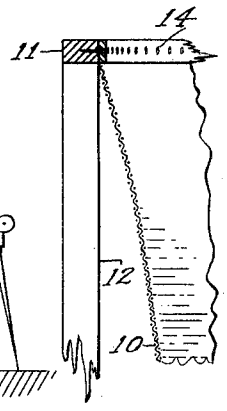


Fig. 2

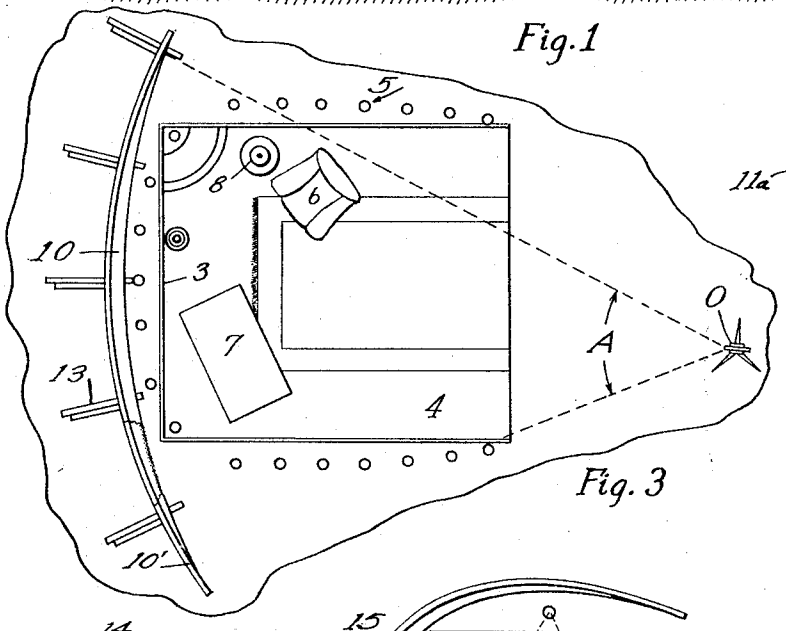


Fig. 3

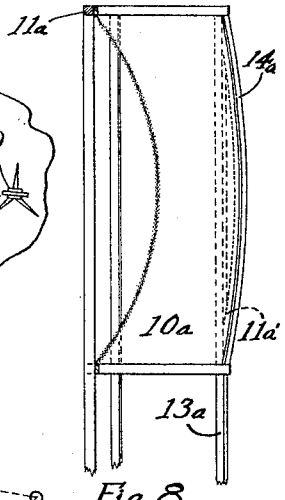


Fig. 8

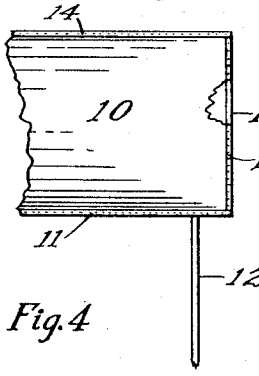


Fig. 4

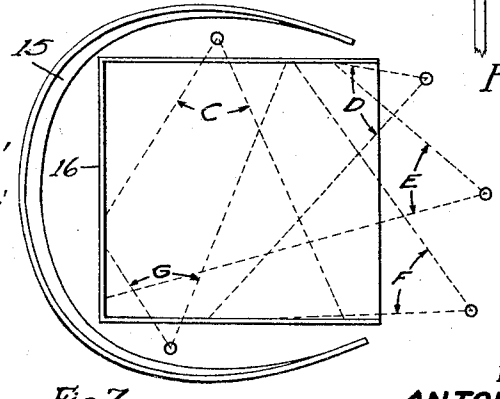


Fig. 7

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PHOTOGRAPHIC STAGE SETTING

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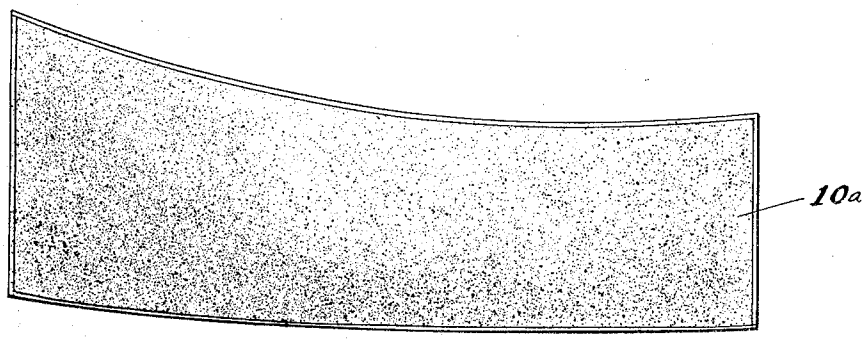


Fig. 6

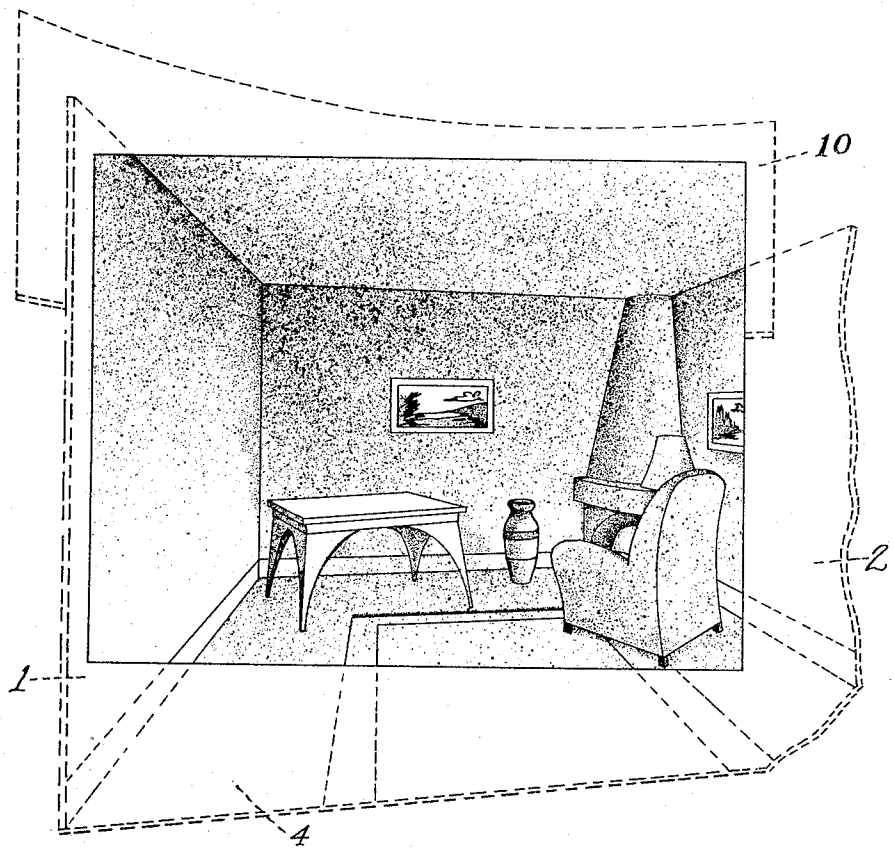


Fig. 5

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UNITED STATES PATENT OFFICE

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PHOTOGRAPHIC STAGE SETTING

Application filed June 29, 1931. Serial No. 547,559.

This invention relates to stage settings for photographic purposes and particularly to improved means for producing a ceiling illusion in motion picture sets.

The principal object of the invention is to provide an improved ceiling drop for stage sets in which the shape and disposition of the drop co-operates with the lighting system so as to produce, in the photographic register, a true and complete ceiling illusion.

A further object of the invention is to provide a ceiling illusion drop construction of such shape and such disposition as to produce the desired effect without interfering with the lighting, from above, of the stage setting as a whole.

A further object of the invention is to provide a ceiling illusion drop substantially vertically disposed rearwardly of the side and rear walls of a stage setting and having a horizontally concave and a vertically convex surface disposed toward the camera, whereby sharp or abrupt light-reflecting surfaces such as are offered by plane structures are avoided and a satisfactory illumination of the ceiling drop to produce the desired effect is possible.

When interior stage settings are used in photography, and particularly in motion picture photography, it is customary to illuminate such a setting from above, in which case it is not possible to have a ceiling over the set without seriously interfering with the illumination. It has been general practice to dispose the camera in such position and at such angle with respect to the set that the ceiling will not show in the finished picture. Numerous attempts have been made to convey the effect of a horizontal ceiling by means of vertical prolongations of the side and rear walls of the set, but it has been found to be impossible to satisfactorily illuminate such surfaces to give the desired effect.

The advantages of being able to produce a true effect of a ceiling in motion picture stage settings are manifold. A major advantage is that the camera may be placed at a low level and "shots" taken in an upward direction to produce exaggerated effects, in contrast to the effects produced in taking a picture from a high level in a downward direction. Upward "shots" of the above description were heretofore possible only under such conditions that the background structure was sufficiently "out of focus" that all detail was masked, in which case almost any type of back drop could be used without interfering with the foreground detail. With the use of a ceiling drop of the present invention, however, it is possible to take such "shots" and include the ceiling structure in a complete illusion so that the finished picture conveys the impression that the setting is actually a closed room.

The structure of the present invention may comprise, for example, in combination with a stage setting having rear and side walls, a ceiling drop disposed rearwardly of said walls with respect to the camera, and extending above the upper edge of said walls in such position as to be exposed to the field of view of the camera. The ceiling illusion drop is preferably curved forwardly toward the camera laterally each side of the center of said drop and extends laterally outside the horizontal field of the camera. The drop is preferably also provided with a forwardly disposed vertically convex surface at the center portion thereof which may decrease in convexity from said center portion to the edge portions.

The horizontal concavity of the drop provides for a lateral diffusion of any light which falls thereon by reason of the fact that the intersection of any horizontal plane with said surface is substantially a curved line at all points on the surface of said drop. The vertical convexity of the drop provides for vertical diffusion of any light which falls thereon by reason of the fact that the intersection of any vertical plane with said surface is substantially a curved line at all points thereon. The above described vertical convexity co-operates with the horizontal concavity to obtain a surface substantially free of plane reflecting surfaces and sharp surface discontinuities, whereby the drop may be illuminated without offering any harsh or abrupt reflecting surfaces or angles which would destroy the desired illusion of reality.

The vertical convexity of the drop may be obtained by stretching a flexible material or fabric such as muslin over a horizontally concave drop framework and securing the same thereto at the top and bottom portions thereof, and then stretching the material laterally by applying a lateral tension on the end portions thereof so that the horizontal center line of the material is provided with a lesser concavity than the upper and lower edges thereof, obtaining a bulging of the material toward the center of curvature of the drop framework, and then securing said material at said end portions to the end frame members of the drop framework.

The above mentioned end frame members may be provided with a convex vertical curvature, if desired, so as to extend the convexity of the drop to the lateral limits thereof, in which case the material would be secured to the upper and lower horizontal drop framework members in such manner as to dispose the material smoothly therebetween, without strains or wrinkles, and then secured to the convex end frame members after having been stretched laterally a sufficient amount to produce a marked bulging of the material which would vary from a large bulge at the center portion to a lesser bulge at the end portions thereof.

It will be understood that the ceiling illusion drop of the present invention may, if desired, be formed of any suitable material such as plaster board or the like, so as to obtain the described horizontally concave and vertically convex surface curvature. The structure herein described is considered preferable, however, from the standpoint of cost and facility of construction, and description is confined to a flexible material drop construction solely for simplicity.

The accompanying drawings illustrate applications of several forms of the present invention to a motion picture staging, and referring thereto;

Fig. 1 is a sectional elevation of a stage setting provided with a ceiling illusion drop of the present invention;

Fig. 2 is a detail of a portion thereof, showing the method of mounting of the drop material on the framework;

Fig. 3 is a plan view of the staging shown in Fig. 1;

Fig. 4 is a detail thereof showing the face view of one end portion of the drop, with a portion of the drop material cut away;

Fig. 5 is a perspective front view of the set structure with that portion which is in the camera field shown in solid lines, and that portion which is outside the camera field in dotted lines;

Fig. 6 is a view of a ceiling drop of my invention in the same relative position as shown in Fig. 5, showing a typical graduation of shading thereon;

Fig. 7 is a plan view of a stage setting provided with a modified form of ceiling illusion drop of the present invention;

Fig. 8 is a sectional elevation of a modified form of the present invention provided with convex frame end-members.

Referring to Figs. 1 and 3, the stage setting may comprise side walls 1 and 2, a rear wall 3 and a floor 4, together with articles of furniture such as a chair 6, a table 7, a lamp 8 and so forth. A camera 9, established at some point such as "0", is set up so as to be in position to photograph the desired portion of the set from the desired angle. The ceiling illusion drop 10 of the present invention is set up rearwardly of the rear wall 3 and is curved forwardly after the manner shown so that the outer ends 10' extend somewhat around the rear end of the set, beyond the limits of the lateral field of the camera, represented by the angle "A". The drop 10 preferably also extends upwardly a sufficient distance so as to terminate outside the upper limit of the vertical field of the camera, said vertical field being represented by the angle "B".

The illuminating system may comprise, for example, a plurality of lamps disposed around the set in positions such as, for example, as indicated at 5, in such manner as to satisfactorily illuminate the structure to be photographed, including such portions of the ceiling illusion drop either directly or by reflection, in order to produce the desired effect or illusion of reality.

The illuminating lamps are customarily provided with reflectors so as to direct light upon the subjects to be illuminated and in general it is not necessary to directly illuminate the ceiling drop of the present invention, sufficient illumination therefor being derived by reflection from the illuminated set and subjects therein. The illumination so derived, namely, by reflection from the illuminated portions of the stage structure, is known to the art as "leak" light.

The ceiling drop of the present invention may comprise a structure such as shown in Figs. 1 to 4, and 7, in which the drop proper, of some flexible material such as muslin, is stretched over and fastened to a frame 11 having a vertical support structure 12 and a footing structure 13. The flexible material is attached to the framework in any suitable manner, as for example by means of battens 14, the drop material being first attached along the upper edge and then drawn taut downwardly and fastened along the lower edge, and the two ends are then simultaneously stretched from each end and secured to the frame end-portions 11' so as to produce a forward bulge in the material, which bulge is greatest at the center of the structure, and gradually tapers out to a flat surface at the respective ends. In this manner

the drop is given a horizontally concave and a vertically convex surface curvature.

Fig. 5 illustrates the appearance of the stage setting on the photographic register when taken from the point "0", with that portion of the stage setting which is outside the camera field shown in dotted lines to indicate the position of the various parts of the structure. It will be seen that the ceiling illusion drop, provided with a graduated shading as, for example, after the manner shown at 10*a* in Fig. 6, provides a complete ceiling effect, without in the least interfering with the proper illumination of the set by the lighting system.

Fig. 7 illustrates a plan view of a stage setting provided with a ceiling illusion drop 15 of the present invention in which the drop extends substantially completely around the three walls 16 of the set so as to be included in the camera field from any one of a plurality of different camera positions or "camera angles" such as C, D, E, F, and G.

Fig. 8 illustrates a form of ceiling illusion drop of the present invention in which the framework of the drop comprises, as before, top and bottom members 11*a*, and vertical support members 13*a*, but is provided with end members such as 11*a'* (corresponding in position and structural utility to 11', Fig. 4) having a convex curvature from top to bottom. In this case, the flexible drop material 10*a*, secured top and bottom to the horizontally concave framework members 11*a* in the same manner as in the structure illustrated in Fig. 4, is provided with a vertically convex curvature at the end portions of the drop structure when stretched and secured to said convex end members in any suitable manner, as by means of battens 14*a*.

The above structure provides a ceiling illusion drop having a surface of strongly convex vertical curvature at the center portion thereof and a surface of lesser convex vertical curvature at the end portions thereof.

It is readily apparent that the improved ceiling drop of the present invention allows many new photographic effects to be obtained, and greatly increases the illusion of reality in such sets. Where previously it was considered preferable to confine the camera field to portions of the sets in which the ceiling did not appear, or at least to provide special and sometimes very costly lighting to a set in which a ceiling was absolutely essential to a certain effect, it is now possible, with the use of a structure of the present invention, to include a ceiling in the camera field with the conventional lighting systems at a greatly reduced construction cost, and attain an illusion which has never been so completely obtained with any combination of lighting and set structures.

Claims:

1. A stage setting for photographic purposes comprising a ceiling illusion drop having a horizontally concave surface disposed toward said camera.

2. A stage setting for photographic purposes comprising a ceiling illusion drop having a horizontally concave and vertically convex surface disposed toward said camera.

3. In a stage setting for photographic purposes, a construction as set forth in claim 2, said ceiling illusion drop comprising a frame structure having end members, and also having horizontal top and bottom members whose end portions are curved forwardly toward the camera, a sheet of flexible material secured to said members and having the portion thereof adjacent its horizontal center line stretched laterally so as to cause such portion to assume a surface of less horizontal concavity than the top and bottom portions, and thus provide a vertical convex curvature of the surface of said sheet.

4. A stage setting for use with a photographic camera, comprising a plurality of side wall surfaces, a ceiling drop disposed rearwardly of said wall surfaces with respect to the point of location of said camera and extending vertically and laterally outside the optical field of said camera.

5. In a stage setting for photographic purposes, a construction as set forth in claim 4, said drop having a horizontally concave surface disposed toward said camera.

6. In a stage setting for photographic purposes, a construction as set forth in claim 4, said drop having a horizontally concave and vertically convex surface disposed toward said camera.

7. In a stage setting for photographic purposes, a construction as set forth in claim 4, said drop having a horizontally concave and vertically convex surface disposed toward said camera, said convex surface being of greater convexity at the center portion of said drop than at the edge portions thereof.

8. A stage setting for photographic purposes provided with illuminating means comprising a ceiling illusion drop having a horizontally concave and vertically convex surface disposed forwardly thereof, said illuminating means and said drop being co-disposed so that little or no light from said illuminating means falls directly upon said drop, said drop being illuminated substantially by reflection from the illuminated stage setting structure.

In testimony whereof I have hereunto subscribed my name this 22nd day of June, 1931.

ANTON GROT.