

Dec. 1, 1931.

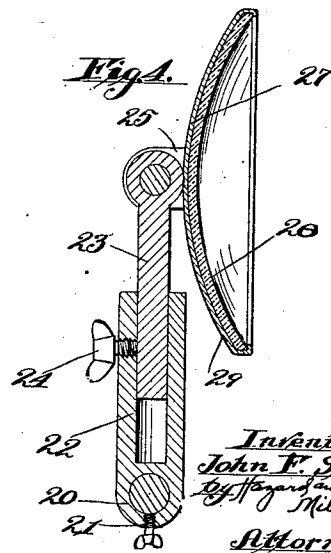
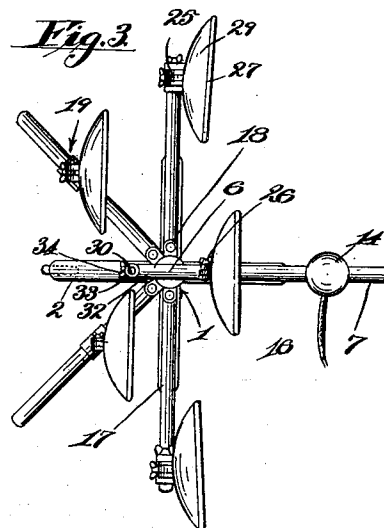
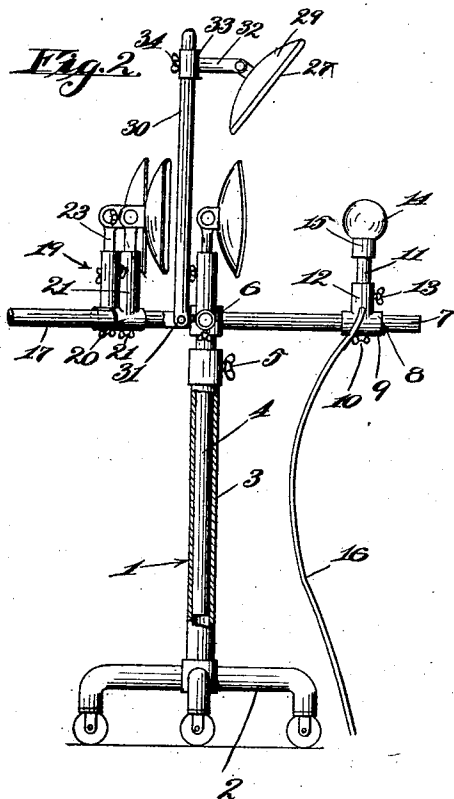
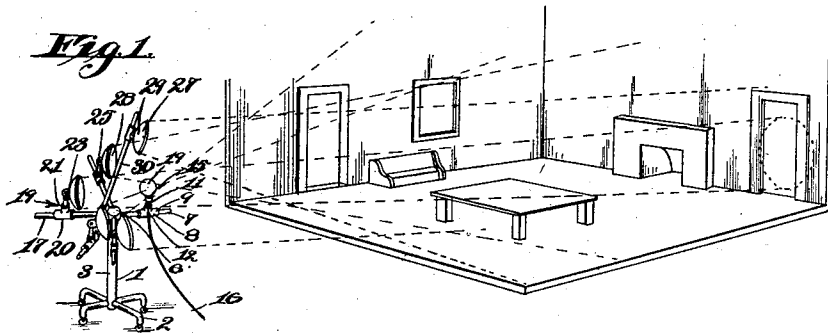
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1,834,428

ILLUMINATING DEVICE

Filed Jan. 18, 1927

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 5.

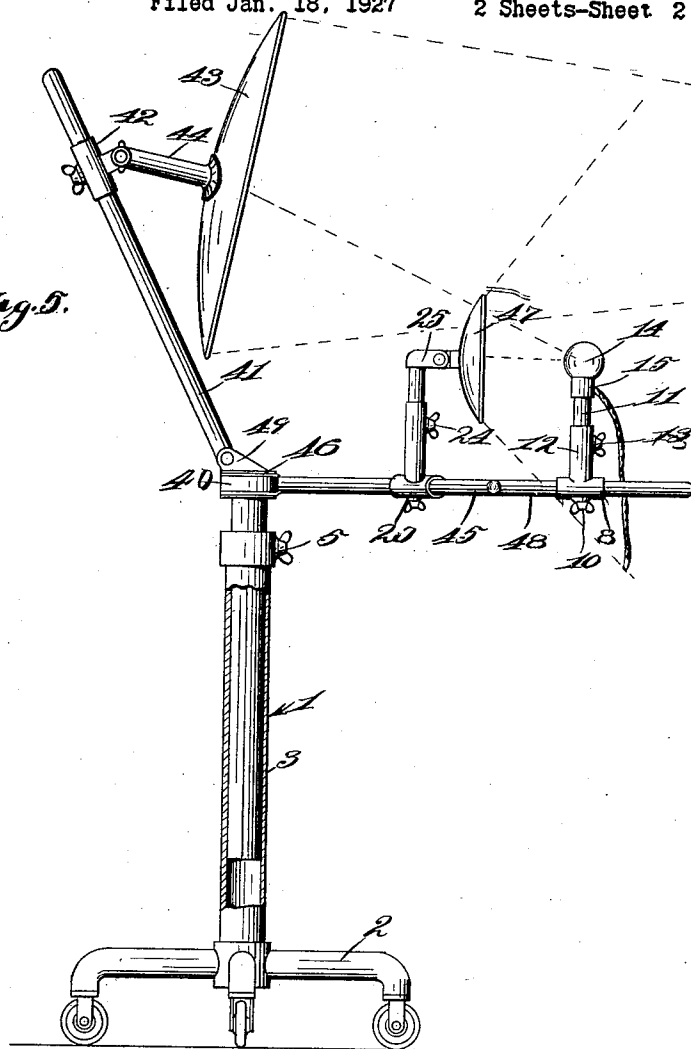
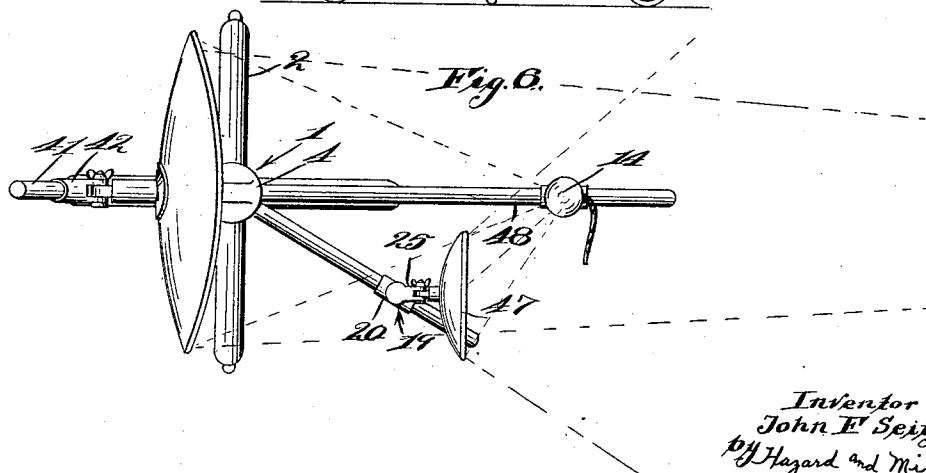


Fig. 6.



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UNITED STATES PATENT OFFICE

JOHN E. SEITZ, OF HOLLYWOOD, CALIFORNIA

ILLUMINATING DEVICE

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My invention is an illuminating device and method of lighting particularly adapted for use in photography and the moving picture art.

The illumination of scenes, settings and people, in photography, and particularly motion pictures, is at present expensive, wasteful and not entirely satisfactory.

To a great extent arc lights of great intensity are employed. These are not wholly satisfactory as they require the constant attention of skilled electricians to service the transmission lines, lamps, and other special equipment required to operate arc lamps. Furthermore to secure the proper resistance to make the arc, resistance grids are employed which consume from thirty to forty percent of the current passing through them. In the use of incandescent lamps, these resistance grids are unnecessary.

Several attempts have been made to use incandescent lamps of high wattage in the taking of motion pictures, some lamps of ten kilowatts having been constructed; but these high powered incandescent lamps are very expensive and their efficient life is very short. Furthermore these extremely large incandescent lamps radiate a very objectionable amount of heat.

I propose to construct an illuminating device for the taking of photographs or motion pictures for professional or amateur use that is at once efficient, economical and so simple that anyone can operate it.

I propose to construct an illuminating device comprising an incandescent lamp and one or more concave special reflectors of the desired proportions and focal length, mounted on a suitable stand, the reflectors being adjustable to any position desired to either focus or spot the light or to diffuse it over a large area, one reflector being positioned to give a spot light while the other is positioned to give a flood light.

A serious objection to the present lamps employed in still and motion picture photography is that the reflector and lamp are set together as a unit, the reflector being in a fixed position behind the lamp, so that some image of either the filament or arc is thrown

on the scene being photographed, causing a shadow or dark spot, excepting in the case of spot lights using a lens which in some positions of focusing throws an image.

One of the objects of my invention is to so arrange the reflector or reflectors in such relation to the lamp that no shadow or image of the lamp or filament will be thrown on the scene or people, also that a relatively large proportion of the light radiated from the lamp may be effectively utilized.

My invention also comprises a method of illumination for photographic purposes utilizing incandescent lamps. I prefer incandescent lamps, as the light from same has different photographic qualities from arc lights or any other source, and may be more readily controlled. Thus, using an incandescent lamp as a source of light, I reflect the light by one or more reflectors on the scene or act to be photographed, in such manner that none of the reflected light passes through the lamp, and hence there is no image or shadow of the lamp formed on the scene or act.

With my method, by use of a single incandescent lamp, reflecting the light therefrom so that the scene may be illuminated by a flood light and also, distinct therefrom, particular parts of the scene or act may be illuminated by a spotlight, and in these reflected lights none of the reflection passes through the lamp.

This illuminating device through the elimination of the special equipment heretofore required for motion picture illumination, removing the necessity of employing skilled electricians to operate and maintain the lamps, greatly reduces illuminating costs and at the same time is so simple as to be easily employed not only in studio work by professional photographers but can also be employed for taking scenes in the home by amateurs. In fact, one of the objects of the present invention is to supply an effective instrument of illumination for taking motion pictures without the need for special apparatus, cables, etc. With this invention, ordinary house wiring is quite ample to supply whatever current is needed.

My invention will be more readily understood from the following description and drawings, in which:

Figure 1 is a perspective view of one of my illuminating devices showing the illumination of a conventional scene.

Figure 2 is a side elevation of such an illuminating device.

Figure 3 is a plan view.

Figure 4 is a detail, in vertical section through an adjustable support, showing the manner of mounting the reflectors.

Figure 5 is an elevation of a modified form of illuminating device in which I use what may be termed a spot light reflector and a flood light reflector, to be used either one at a time or both together.

Figure 6 is a plan of Fig. 5.

Referring to the drawings, a suitable stand 1 is arranged with a base 2, this preferably having castor wheels so that it may be readily moved in any direction. The stand has a tubular standard 3 in which a post 4 is adjustably or telescopically mounted, this being held at various elevations by means of the clamp screw 5. At the top of the post or in any suitable position on the post a head 6 is secured and this head has a lamp arm 7, either rigidly secured or adjustably attached thereto. A lamp holder 8 has a sleeve 9 slidably mounted on the arm 7 with a clamp screw 10 to secure it in any adjusted position. The holder also has a stem 11 which is adjustable in the fitting 12, giving a telescopic connection, there being a clamp screw 13 to hold the stem and fitting in the relatively desired position. The lamp 14 is secured in a suitable socket 15 in the ordinary manner. The lamp cable 16 is suitably connected with the socket and leads to any desired source of power.

A series of horizontal arms 17 are connected by means of vertical pivots 18 to the head 6 so that these arms may be swung into different radial positions in reference to the standard. Each of the arms has one or more reflector holders 19 secured thereon, each of these holders preferably having a sleeve section 20 which may be clamped to the arm by means of a clamp screw 21. The holders have a socket portion 22 in which a rod 23 may slide, this rod being clamped by a clamp screw 24. A short bracket 25 is pivotally connected to the upper end of each rod 23 to swivel at right angles to the rod, the bracket being clamped by a lock nut 26 or the equivalent. Each of the brackets has a reflector 27 attached thereto, the reflectors illustrated being of spherical construction, having a mirrored glass 28 with a metal backing 29.

It is also desirable to have one or more vertical arms 30 mounted on the head 6 by horizontal pivots 31 so that these arms may be swung upwardly into a vertical direction and clamped by clamping nuts on the pivots 31. An adjustable bracket 32 is secured on each

of the vertical arms, this having a tubular section 33 with a clamp screw 34 and reflectors, similar to those above described and as illustrated in Fig. 4, are pivotally connected to the brackets 32 and clampable in the manner above described.

The manner of adjusting and using my illuminating device for photographic purposes is substantially as follows:

The stand may be located in any suitable position in reference to the set to be illuminated and in proper relation to the camera. The light is lit and the various horizontal and vertical arms are adjusted in relation to the light, the reflectors also being adjusted to project the light in any manner desired. Care can be exercised so that none of the reflectors will project light through the lamp itself onto the set, thus usually there would be no reflector immediately behind the lamp unless this reflector projected the light in such a direction that it would not pass through the lamp bulb. It will be seen from the perspective view of Fig. 1 that the light may readily be diffused to illuminate the whole set and it is also obvious that by proper adjustment of the reflectors the light may be concentrated on any portion of the set or on any particular actor who may be in the scene. It is to be understood that one or more of the illuminating devices may be utilized to obtain the proper intensity of light for photographic purposes. It is understood that particularly in taking motion pictures that a high degree of light intensity is required to take proper photographs on account of the shortness of the exposure.

In the construction illustrated in Figs. 5 and 6, the telescopic stand 1 is substantially the same as that shown in Figs. 1, 2 and 3, but in this case I prefer to provide the top of the post 4 with a bracket 40 to which an arm 41 is pivotally connected and arranged to clamp in any desired position. This arm may, therefore, swing in different vertical planes. A sliding sleeve 42 is adjustably mounted on the arm and a spot light reflector 43 is pivotally connected to the sleeve, preferably by a stem 44 which may be clamped in different positions in relation to the sleeve. This reflector is preferably of relatively large size in diameter and I find a reflector of thirty-six inches (36 ins.) diameter may be satisfactorily utilized. This may be of any suitable curvature and is designed to give a spot light. It will be seen that the light reflected from the lamp 14 does not have a path through the lamp, therefore there is no shadow formed of the lamp or the filament.

The flood light arrangement is substantially as follows:

An arm 45 is preferably connected to collars 46 which may be clamped in any suitable manner and which may rotate on the top

of the post 4 and thus be positioned in any desired relation to the arm carrying the lamp. The flood light 47 is preferably mounted on the arm 45 in substantially the same manner as illustrated in Figs. 1 through 4. This flood light is preferably a curved reflector and is usually of less diameter than the spot light reflector. I find that a reflector about twelve inches (12 ins.) in diameter gives satisfactory results and when properly positioned in regard to the lamp 14 will diffuse the light over a considerable area with sufficient intensity for photographic purposes.

The arm 48 for supporting the lamp has a collar 49 which fits on the top of the post 4 and allows the arm to swing in a circle in a horizontal plane. This arm may be clamped in any suitable manner when the arm 45 is clamped.

From the above description it will be seen that with two reflectors, one designed to give a spot light and the other to give a flood light, that I may secure satisfactory lighting for a great deal of motion picture photography and avoid the objectionable features of having shadows of the filament or images of the lamp cast on the scene being photographed.

From the above description it will be seen that I have invented a method of illumination for photographic purposes, particularly for taking motion pictures, in casting light from an incandescent filament or lamp in such a manner that no shadow or image of the filament or lamp is thrown on the set or actors being photographed, and moreover my method comprises cross focusing the different segments of light from the lamp to obtain either concentrated or diffused illumination.

One of the main features of my method of illumination is the use of the incandescent lamp and having suitable reflectors which may illuminate the general scene with a flood light and a particular portion of the scene or act with a spotlight; thus enabling the photography to be carried on without the objectionable features of arc lights or of the high-powered incandescent lamps which, as above mentioned, are of short life, very expensive, and radiate an objectionable amount of heat.

Where, in the specification and claims, I state that none of the reflected light passes through the lamp, I intend by this that none of it passes through the source of light in the lamp. On account of some incandescent lamps being made with large glass bulbs, it is immaterial if some of the reflected light passes through the glass of the bulb forming part of the lamp, and this light illuminates the set or act to be photographed without casting any image or shadow.

Various modifications of my apparatus and method of using my lighting system will be apparent.

Various changes may be made in the prin-

ciples of my invention without departing from the spirit thereof, as set forth in the description, drawings and claims.

I claim:

1. An illuminating device comprising a stand having a head to move in a horizontal plane, an arm extending from the head, a lamp holder adjustably mounted thereon, having an incandescent lamp therein, an arm pivotally connected to the head to swing in a vertical plane, means to clamp the latter arm, and a reflector having means to adjustably mount same on the said latter arm to reflect the light from the lamp.

2. An illuminating device comprising in combination a stand having telescopic members to slide in a vertical direction, a lamp arm having means connecting same to one of the said members, a lamp holder slidably and rotatably mounted on the arm, said holder having a socket with an incandescent lamp therein, a head secured to one of the said telescopic members, and a plurality of arms, some being pivotally connected to the head to swing in a horizontal plane and others to swing in a vertical plane, means to clamp the arm in an adjusted position, and reflectors adjustably mounted on the said arms, said stand, lamp holder, arms and reflector being adjustable whereby none of the light reflected passes through the lamp.

3. An illuminating device comprising in combination an adjustable stand having a lamp arm connected to the stand, having an incandescent lamp adjustably mounted thereon, a plurality of arms pivotally connected to the stand and having means to clamp the arms in an adjusted position, reflector holders having reflectors on the arms, said holders being slidable on the arms and having socket portions with rods slidable therein, said rods and sockets having clamping means, and brackets connected to the rods and secured to the reflectors, the said brackets being adjustable in reference to the rods, said stand, lamp, arms and reflector being adjustable whereby none of the light reflected passes through the lamp.

4. An illuminating device for illuminating a scene or set to be photographed comprising in combination a vertical stand, a lamp-supporting arm extending radially outwardly therefrom and having an incandescent lamp adjustably mounted thereon, a plurality of radial arms pivotally connected to the stand to swing in horizontal planes and each having a reflector adjustably mounted thereon, the said lamp and reflectors being movable to reflect light on the scene or set, whereby none of the reflected light passes through the filament of the said lamp.

5. An illuminating device for illuminating a scene or set to be photographed comprising in combination a vertical stand, a lamp-supporting arm extending radially outwardly

therefrom and having an incandescent lamp adjustably mounted thereon, a plurality of radial arms pivotally connected to the stand to swing in horizontal planes and each having a reflector adjustably mounted thereon, a vertically adjustable arm pivotally connected to the stand to swing in a vertical plane, said latter arm having a reflector adjustably mounted thereon, the said lamp and reflectors being movable to reflect light on the scene or set, whereby none of the reflected light passes through the filament of the said lamp.

6. An illuminating device for illuminating a scene or set to be photographed comprising in combination a vertical stand having a lamp-supporting arm extending radially therefrom, a plurality of reflector-supporting arms pivotally connected to the stand to extend outwardly therefrom in any radial direction, means to clamp each of said arms in a desired position, an incandescent lamp mounted on the lamp-supporting arm, a reflector mounted on each of the lamp-supporting arms, at least one of said reflectors having the characteristic of projecting a concentrated spotlight on the scene or set, other of the reflectors having the characteristic of projecting a diffused floodlight on the scene or set, said lamp and reflectors being positionable whereby none of the light reflected onto the scene or set passes through the filament of the lamp.

7. An illuminating device for illuminating a scene or set to be photographed comprising in combination a vertical stand, a lamp-supporting arm extending radially outwardly therefrom, a plurality of reflector-supporting arms having a pivotal connection to the stand to swing in horizontal planes, a reflector-supporting arm pivotally connected to the stand to swing in a vertical plane, an incandescent lamp mounted on the lamp-supporting arm, reflectors adjustably mounted on the reflector supporting arms, at least one of said reflectors having the characteristic of projecting a concentrated spotlight on the scene or set and other of the reflectors having the characteristic of projecting a diffused floodlight, the lamp and reflectors being positionable whereby none of the reflected light passes through the filament of the lamp.

8. An illuminating device for illuminating a scene or set to be photographed comprising a stand, means mounting an incandescent lamp thereon, a plurality of reflector-supporting arms pivotally connected to the stand to swing in horizontal planes, a reflector-supporting arm pivotally connected to the stand to swing in a vertical plane, and reflectors adjustably mounted on said arms, said reflectors and lamp being positionable whereby none of the reflected light from the reflectors passes through the filament of the lamp onto the scene or set.

9. An illuminating device comprising in combination a stand, means to support an incandescent lamp from said stand, an arm connected to the stand, said arm having an angular movement in relation thereto, and a reflector having a rectilinear adjustment on said arm, said reflector being positionable in reference to the lamp, whereby none of the reflected light passes through the filament of the lamp.

10. An illuminating device comprising in combination a supporting structure having a first arm connected thereto, an incandescent lamp having a rectilinear adjustment thereon, a second arm having an angular movement in reference to the stand, a reflector having rectilinear adjustment on said second arm, whereby none of the reflected light from reflected light passes through the filament of the lamp.

11. An illuminating device comprising in combination a stand, an incandescent lamp supported from said stand a plurality of arms having angular adjustment in different planes relative to the stand, a reflector on each of said arms having rectilinear adjustment thereon, said reflectors being positionable whereby none of the reflected light passes through the filament of the lamp.

12. An illuminating device comprising in combination a stand, a first arm connected thereto and having angular adjustment, an incandescent lamp rectilinearly adjustable from said arm, a plurality of arms pivotally connected to the stand having angular movement in a plurality of planes and a lamp rectilinearly adjustable on said latter arms whereby none of said reflected light passes through the filament of the lamp.

13. An illuminating device comprising in combination a stand, means to support an incandescent lamp from the stand, a plurality of arms having angular adjustment relative to the stand in a plurality of different planes, a reflector holder having rectilinear adjustment on each of said arms and a reflector angularly adjustable in each of said holders, whereby none of the reflected light passes through the filament of the lamp.

14. An illuminating device comprising in combination a vertical stand having a head at the top thereof, means to support an incandescent lamp filament within a glass globe from the stand, a plurality of arms pivotally connected to the head and radiating therefrom to swing in a common horizontal plane independently one of the other, and mirrors adjustably mounted on said arms to reflect the light of the incandescent filament.

In testimony whereof I have signed my name to this specification.

JOHN F. SEITZ.