R. W. EBELING.

SPOT LIGHT.

APPLICATION FILED JAN. 22, 1916.

1,192,876.

Patented Aug. 1, 1916.

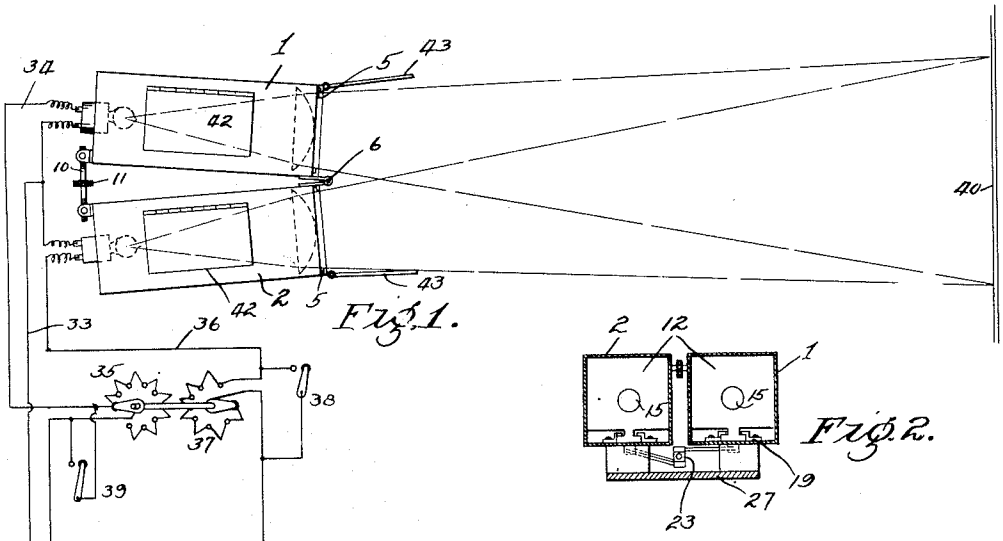


Fig. 1.

Fig. 2.

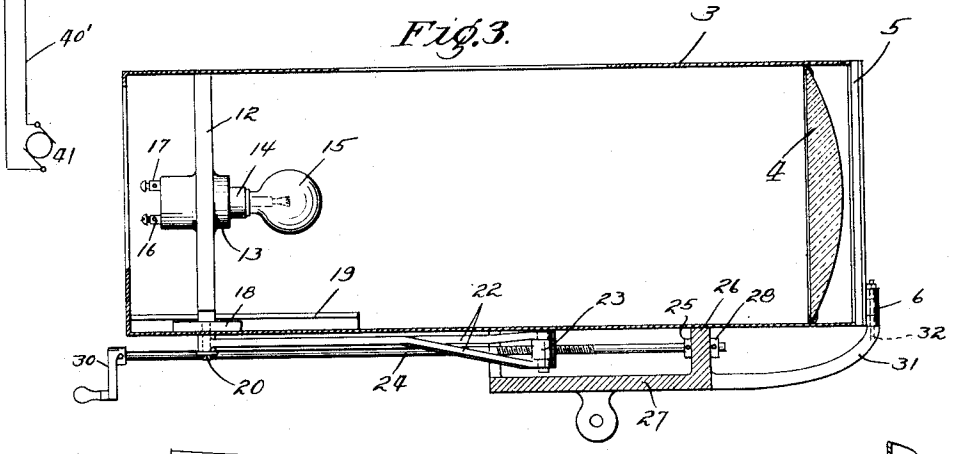


Fig. 3.

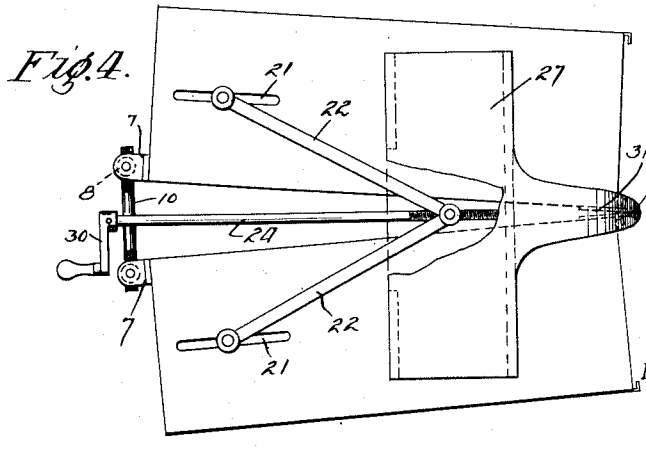


Fig. 4.

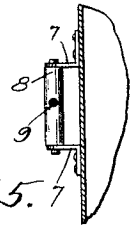


Fig. 5.

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SPOT-LIGHT.

1,192,876. Specification of Letters Patent. Patented Aug. 1, 1916.

Application filed January 22, 1916. Serial No. 73,583.

To all whom it may concern:

Be it known that I, ROBERT W. EBELING, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Spot-Lights, of which the following is a specification.

This invention relates to improvements in spot lights for theatrical use and more particularly to a device by which two or more colors may be blended as they are thrown onto the stage or screen.

The principal object of my invention is to provide a device whereby a greater variety of shades and colors may be produced by the use of a comparatively few color screens.

Another object of my invention is to provide a mechanism associated with the projecting devices by which when the angle between the several projecting members is changed the length between the light and lens is changed in a corresponding degree thereby keeping the spot of light on the stage or screen approximately the same size.

With these and other objects in view my invention consists in the novel construction, combination and arrangement of parts as herein illustrated and more specifically pointed out in the appended claims.

Reference being had to the accompanying drawing forming a part of this specification, Figure 1 is a view in plan showing my improved projector and diagrammatic view of the circuit in connection therewith. Fig. 2 is a view in transverse section through the projectors and their supporting base. Fig. 3 is an enlarged longitudinal sectional view through one of the projectors. Fig. 4 is a bottom plan view showing the manner in which the light source is moved to correspond with the change in angle between the several projecting members. Fig. 5 is a fragmentary view showing the mounting of the means by which the angle between the projectors is adjusted.

In the construction here illustrated, I provide two projectors as 1 and 2, both of which are similar in construction and the corresponding parts of each are denoted by the same numerals. Each of these projectors comprises the casing 3, provided at one end with the lens 4 and grooves 5, in which the color screens are adapted to slide. These projectors are hinged together adjacent their forward ends as shown at 6, and on the rear ends are provided with ears 7 between which is pivotally mounted a bar 8, this bar is provided with an opening 9, which on one of the projectors has right hand threads and on the opposite projector has left hand threads, and in engagement therewith is a right and left hand threaded screw 10 having a knurled wheel 11 in the center thereof. Thus when this wheel is turned the two projectors are simultaneously drawn together or moved apart at their rear ends.

Adjacent the back portion of the casing is provided a plate 12, having a boss 13, wherein is mounted a lamp socket 14, containing an incandescent lamp, preferably of spherical form and having the light emitting source formed in a small contact coil in the center of the bulb. Terminals 16 and 17 are provided in the rear of the boss 13, to which the supply wires are connected. The plate 12 on the bottom is provided with an extension base 18 slidable between the guide bars 19, these bars having flanges which extend over the top of the guide plate, thereby preventing a tilting action when the same is moved longitudinally.

Plate 12 is provided with a pin 20, which extends through a slot 21 in the bottom of the casing and there connected to a link 22, this link being pivotally mounted on studs formed on block 23. The latter is provided with a threaded opening extending therethrough at right angles to the axis of the studs, in which is engaged a screw threaded rod 24. This rod is provided on the one end with a collar 25, which abuts against a lug 26 formed in the supporting member 27. A nut or collar 28 is provided on the opposite side of this lug, thereby holding the rod 24 stationary in relation to the base. The opposite end of the rod is provided with an operating handle 30, whereby when the latter is turned the block 23 is moved longitudinally, which in turn simultaneously moves the plate 12 of each projector, thereby keeping the lamps of both in uniform distance from the lens. The base 27 is provided with a forwardly extending portion 31 having a pin 32, on which hinged parts 6 are pivotally mounted.

One of the terminals of each of the lamps is connected to a conductor 33 leading to one side of the source of current, while the other terminal of one lamp is connected by conductor 34 to the rheostat or dimmer 35, while

the opposite terminal of the other lamp is connected by the conductor 36 to the rheostat or dimmer 37. The dimmers in turn being connected by conductor 40' with the opposite side of the source of current. I prefer to mount these dimmers on a single shaft and have the winding so disposed that when the resistance of one plate is increased that of the other is decreased.

38 and 39 denote switches adapted to short circuit the dimmers rendering the same inoperative, if so desired.

The operation of the device is as follows:—The knurl wheel 11 is rotated until the spot of light from both projectors coincide on the screen 40. Handle 30 is then rotated to move the lamps forward or backward correspondingly, increasing or decreasing the size of the spot of light desired. The color screens are then introduced into the guideways 5, as, for instance, yellow and blue, which will show green upon the screen. Now, if it is desired to show the change from green to blue, the handle operating the rheostat is turned so as to gradually dim the lamps supplying the yellow screen and correspondingly brighten that which controls the blue screen. Then when the lamp controlling the yellow has been dimmed to the desired point the latter may be removed and another color substituted therefor when the reversed action of the dimmer takes place and another color is thrown onto the screen. Not only are the several colors and the intermediate combination shown on the screen, but all shades between the two colors are in this manner shown, and by use of screens having fanciful design and color combination any number of new and novel effects may be produced.

Whenever the projectors are drawn together at the rear ends due to the fact that it is desired to make the spots of light coincide at a point farther back from the stage, a corresponding increase in the size of the spot would take place but for the arrangement of the links 22. These links not only serve to simultaneously move the light when the handle 30 is rotated, but when the projectors are moved together due to the shorter radius between the block 23 and the pin 6, backward movement of the lamps will take place, which in turn will correspondingly reduce the size of the spot approximately before such change in the angle takes place.

I claim as new and wish to cover by Letters Patent:

1. A spot light apparatus comprising a pair of projectors pivotally connected to each other adjacent their forward ends, and each having a light source and concentrating lens, means for varying the angle between said projectors, and means for automatically varying the focal distance between the light source and lens inversely to the angle between the projectors.

2. A spot light apparatus comprising a pair of projectors arranged at an angle to each other, means for varying the angle between said projectors, and simultaneously varying the focal length of said projectors.

3. A spot light apparatus comprising a pair of projectors arranged at an angle to each other, and each provided with a source of light and concentrating lens, means for varying the angle between said projectors and simultaneously varying the distance between the sources of light, and the concentrating lens.

4. A spot light apparatus comprising a pair of projectors mounted at an angle to each other, a source of light in each of said projectors, a source of electric current, electrical conductors from said source of current to said source of light, variable resistance in the conductors to each light source adapted to increase the current in one circuit and simultaneously decrease the current in the other circuit.

5. A spot light apparatus, comprising a pair of projectors, an electric lamp and lens mounted in each of said projectors, a base, a forwardly extending arm on said base, a pin in said arm, hinge members attached to the forward adjacent corners of said projectors, said hinge members being pivotally mounted on said pin, a lamp support slidably mounted in each of said projectors, pins extending from said supports through the casing of said projectors, links extending from said pins to an adjusting block, means for adjusting the angle between said projectors, and screw means for moving said adjusting block.

In testimony whereof I affix my signature.

ROBERT W. EBELING.