

Aug. 27, 1940.

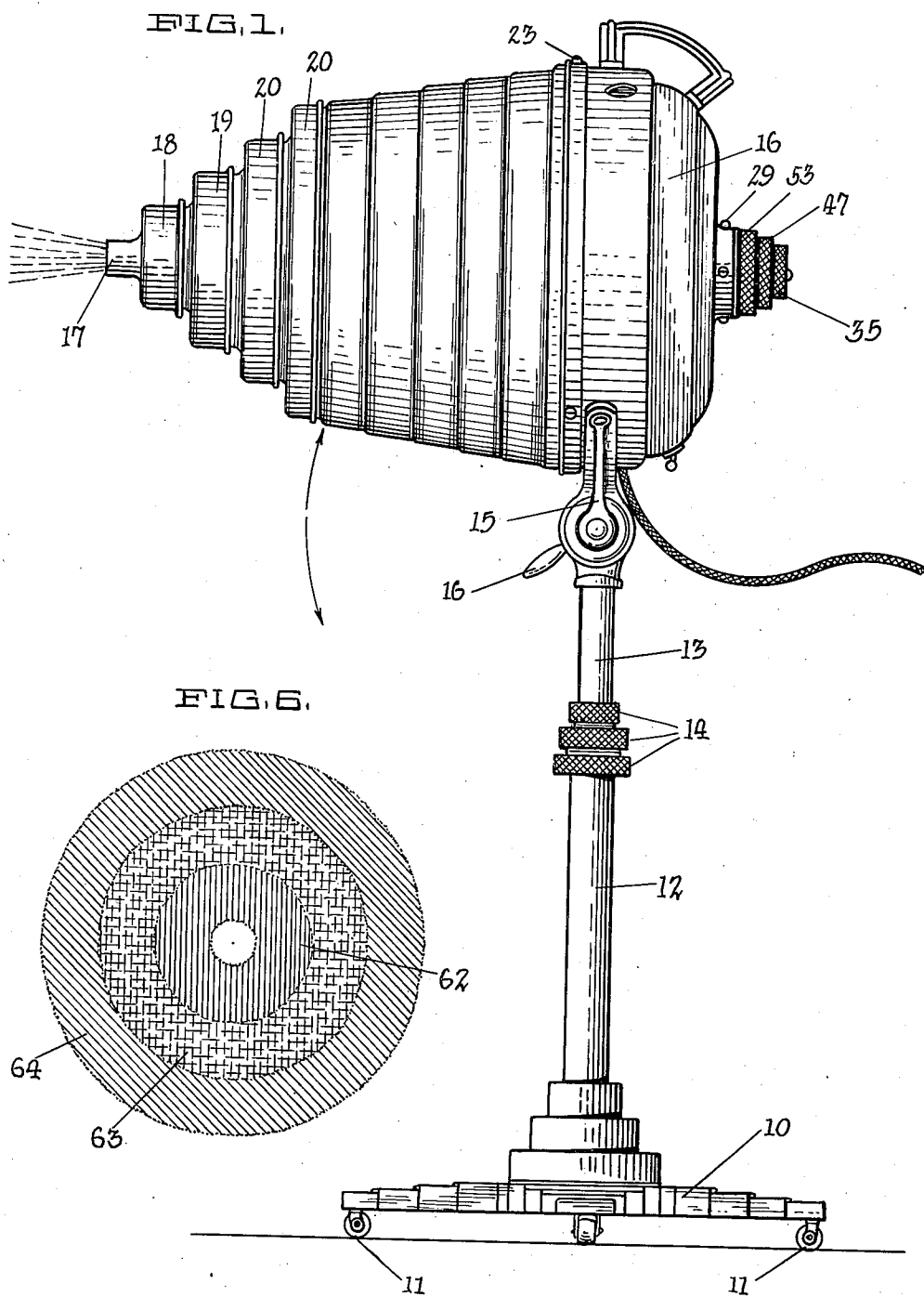
H. L. BOYNTON

2,212,975

COLOR PROJECTOR

Filed Nov. 17, 1936

4 Sheets-Sheet 1



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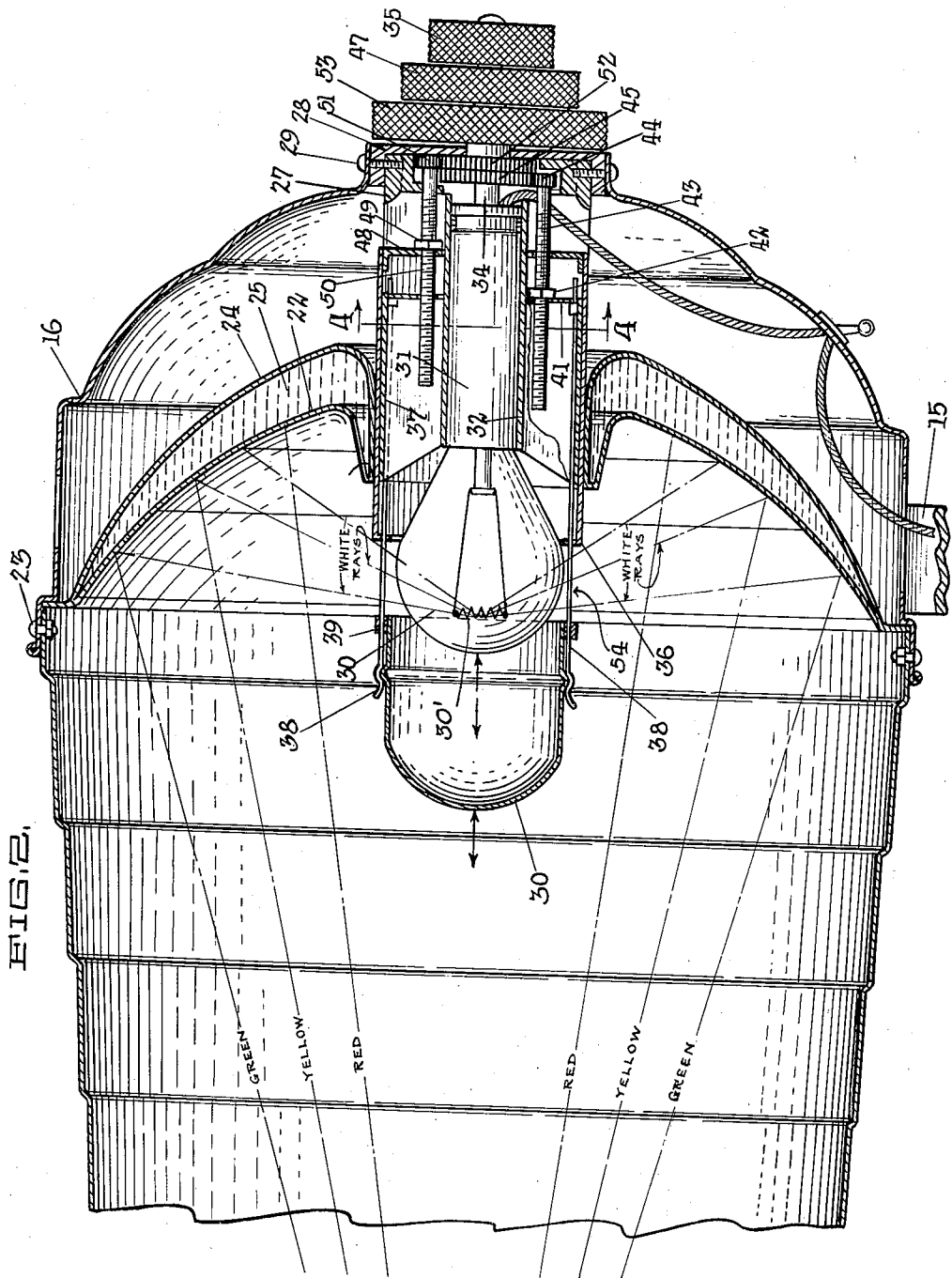
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4 Sheets-Sheet 3

FIG. 4.

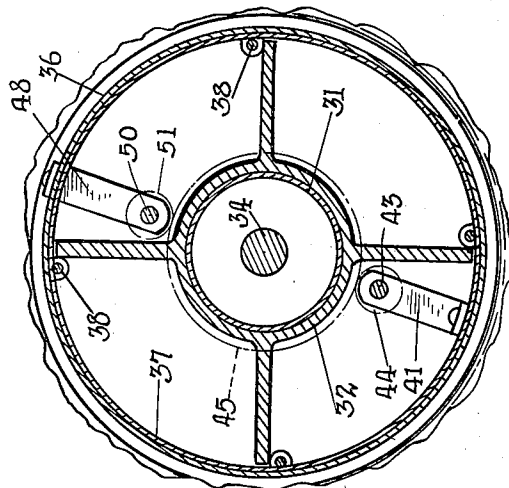
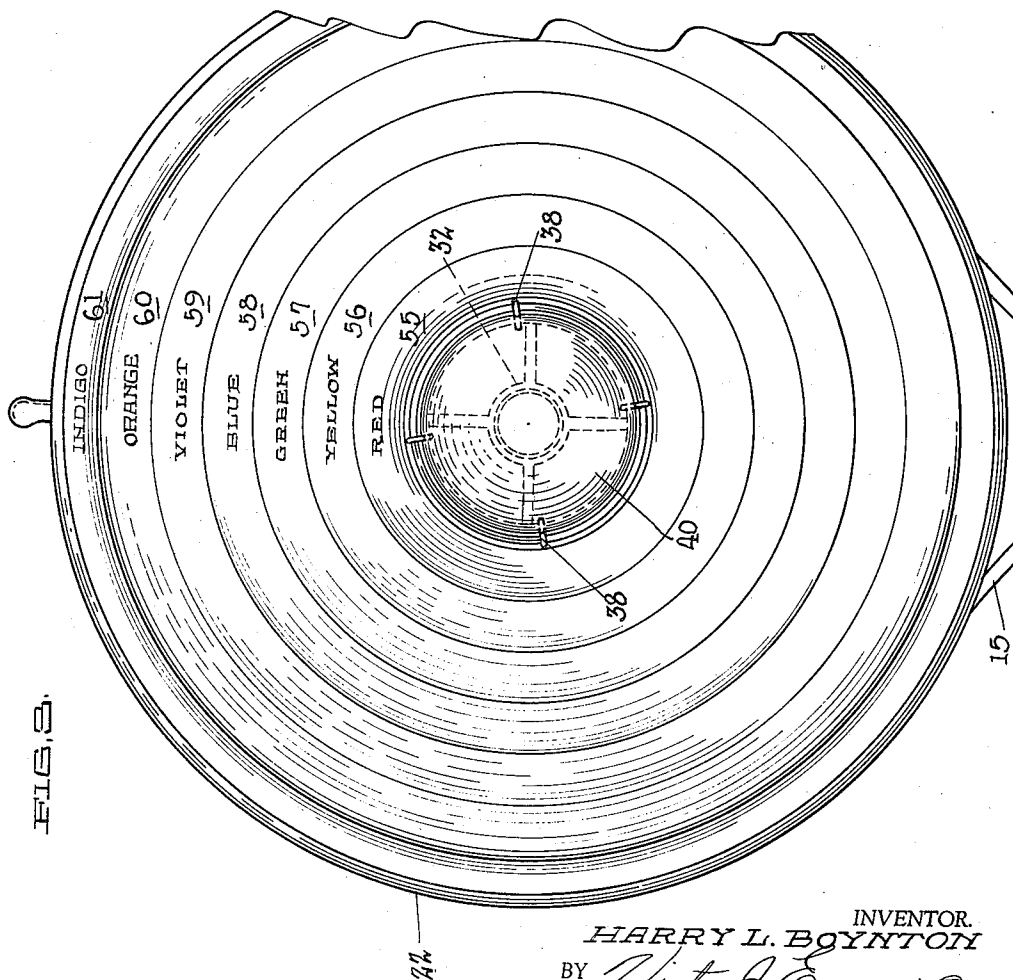


FIG. 3.



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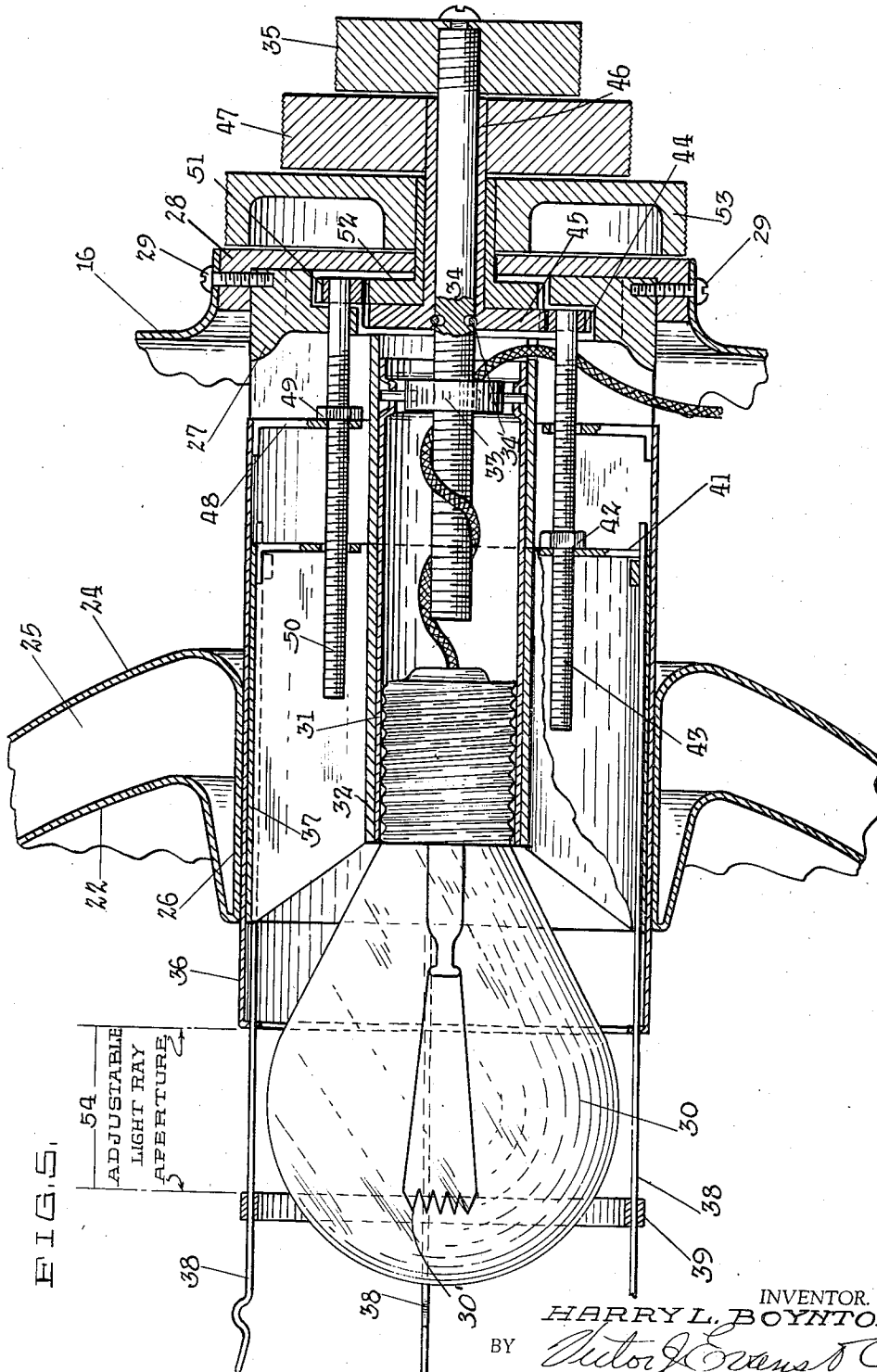
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,212,975

COLOR PROJECTOR

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Application November 17, 1936, Serial No. 111,289

3 Claims. (Cl. 240—1)

The present invention relates broadly to an apparatus for projecting light color beams of various frequencies from a reflector and through mechanical means to concentrate these light color beams at a given point and the same may be used in the therapeutic treatment of the human body.

The primary object of the invention is to provide a mechanical apparatus of the class described which is principled upon the theory of the creation, concentration, and penetration of radiant color beams for the purpose of their curative values in treating various diseases.

Another object of the invention is to produce a mechanical apparatus capable of setting in motion various radiant color beams from a reflector by means of an illuminant with adjustments capable of varying the intensity of said color beams at any desired focal point.

Other objects and advantages of the invention will be apparent from the subjoined specification.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts,

Fig. 1 is a side elevation of the device as it would appear in actual use;

Fig. 2 is an enlarged section of the casing thereof, showing the illuminant in relative position to the color reflector and the adjusting mechanism for varying the relative position of the illuminant;

Fig. 3 is a face view of the reflector and the illuminant and illustrates various color concentric rings thereon;

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 2 and further illustrating the adjusting means of the illuminant and the illuminant cap;

Fig. 5 is an enlarged section of the illuminant and illuminant cap adjusting means and corresponds to the section in Fig. 2; and

Fig. 6 is a view illustrating the relative positioning of the color rings as they appear at the focal point, the primary colors only being shown.

In order to set in motion and project all the colors of the reflector, the mechanical adjusting features are opened to allow the illuminant to contact the full reflector.

If individual color beams from the reflector are desired, the mechanical adjustments are closed, causing a narrow beam of light from the illuminant to contact the reflector at the point of color desired; and this individual color is brought into concentration at the required distance by means of the focal adjusting mechanism.

In producing a condensed spot of all the colors of the reflector, there is no distinctive color visible at the point of concentration, but this spot contains all the frequencies of the colors produced by the reflector.

One form of the improved device is disclosed in Fig. 1 and shows a portable machine mounted upon a base 10 having suitable casters 11 so that the apparatus may be conveniently moved from place to place. This base is provided with a standard 12 and an adjustable section 13, the two being locked in position by means of nuts 14 so that these sections may be quickly and easily disassembled; and the section 13 in turn carries an adjustable forked element 15 having an adjustable handle 16 capable of locking the forked element 15 in any desired position. The forked element is secured to a suitable housing 16 in which is mounted the electro-mechanical means for producing the colored rays, as hereinafter more fully set forth, said housing being gradually tapered toward its forward end and being provided at this end with an aperture cap 17 and various graduated aperture caps 18, 19, 20, and 21.

Referring now to Figs. 2, 3, 4, and 5, it will be observed that the housing 16 is fitted with an illuminant and a color reflector 22, held in place by means of screws 23 mounted through said casing, said reflector embodying a backing 24, providing an air or a water space 25 between the reflector and said backing, said reflector embodying a central hub member 26 through which a supporting member 27 is mounted. This support is held in rigid position with the housing 16 by means of a cap member 28 held in place by means of screws 29.

The illuminant 30 is carried in a movable tube 31 mounted for sliding movement within a fixed webbed guide tube 32, which is carried at its rear end by the main supporting member 27. (See Fig. 5.) The illuminant 30 may be of any well known form of electric light bulb having a filament 30' arranged therein. The tube 31, carrying the illuminant, is adjusted within the tube 32 by means of a swivelled nut 33 carried by a threaded stem 34 and a hand wheel 35, fixedly mounted on the outer end of this stem. On the inside of the gear 45 is a slip ring 34', carried by the stem 34, whereby the stem is held against outward movement when drawing the electric light inwardly by the turning of the stem.

A light adjusting tube 36 is mounted through the hub 26 of the reflector; and this tube 36 is slidable upon and relative to an inner tube 37,

both of said tubes being adjustable upon and carried by the webs of the webbed tube 32.

Radially positioned and outwardly projecting spring fingers 38 are rigidly mounted in the tube 37 and are held at their outer ends by means of a ring 39; and these fingers snap over and retain an illuminant cap 40 adjustably in position in front of the illuminant 30, as clearly shown in Fig. 2. The tube 37, carrying these spring fingers 38, is adjusted to move the cap relative to the illuminant in the following manner:

The inner end of the tube 37 is provided with an arm 41, said arm carrying a nut 42 through which a threaded stem 43 extends. This stem extends through the supporting member 27 and is provided at its outer end with a pinion 44 which is engaged by a gear 45 having a sleeve 46, which sleeve in turn is fixed to the hand wheel 47, whereby the light adjusting cap 40 may be adjusted relative to the illuminant 30 and also to the reflector 22, said sleeve 46 being mounted upon and revoluble about the stem 34. The outer tube 36 is also adjusted relative to the illuminant 30, the tube 37, and the reflector 22 by means of a similar arm 48, nut 49, threaded stem 50, pinion 51, and gear and sleeve 52, upon which is fixedly mounted the hand wheel 53.

It is, therefore, obvious that when the hand wheel 35 is rotated, the illuminant 30, carried by the tube 34, is moved either toward or away from the reflector 22; and when the hand wheel 47 is rotated, the tube 37 is adjusted to move the cap 40 relative to the illuminant 30. Also, when the hand wheel 53 is actuated, the outer tube is adjusted relative to the cap 40, illuminant 30, and the reflector 22.

In this manner the white rays from the illuminant 30 may be adjusted in any desired manner to cause these rays to be dispersed through the aperture 54, formed between the cap 40 and the outer tube 36. This dispersion of light may be termed "a light ribbon," and this ribbon of white light will impinge upon any one or combination of the color rings, as indicated in Fig. 3, by the numerals 55, 56, 57, 58, 59, 60, and 61.

Thus, it will be seen that the focal point of the

colored light rings may be varied in several ways by either moving the entire machine toward or away from the object to be treated, or the aperture cap 17 may be removed, or any one of the caps 18, 19, 20, or 21 may be removed from the casing 16. In order to further concentrate and adjust the color rings, the various adjustments of the cap 40, tube 36, and illuminant 30 relative to the reflector 22 may be resorted to, as hereinbefore set forth.

In Fig. 6, a diagrammatic showing of the primary colors 62, 63, and 64 has been illustrated to more clearly set forth the principles of the blended color rings at their focal point.

Having thus described my invention, I claim:

1. A device of the character described, comprising a reflector having a central adjustable tube therein, a lamp in said tube, an adjustable cap at the outer end of the lamp, said reflector having a series of concentric rings of different color surrounding the tube, whereby the adjustment of the tube and cap will cause the light from the lamp to strike any portion of the reflector or the entire reflector.

2. A device of the character described, comprising a reflector having a central adjustable tube therein, a lamp adjustable in said tube, an adjustable cap at the outer end of the lamp, said reflector having a series of concentric rings of different color surrounding the tube, and independent means for adjusting the tube, the lamp and the cap, whereby the light from the lamp may be caused to strike any portion of the reflector or the entire reflector.

3. A device of the character described, comprising a reflector having a water jacket surrounding the reflecting surface, a central adjustable tube carried by the reflector, a lamp adjustable in said tube, an adjustable cap at the outer end of the lamp, said reflector having a series of different colored concentric rings surrounding the tube, separate means for adjusting the tube, the lamp and the cap, whereby the light from the lamp may be caused to strike any portion of the reflector or the entire reflector.

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