J. J. HARMER.

ARC LIGHT.

APPLICATION FILED JAN. 7, 1920.

1,392,497. **Patented Oct. 4, 1921.**

Fig. 1.

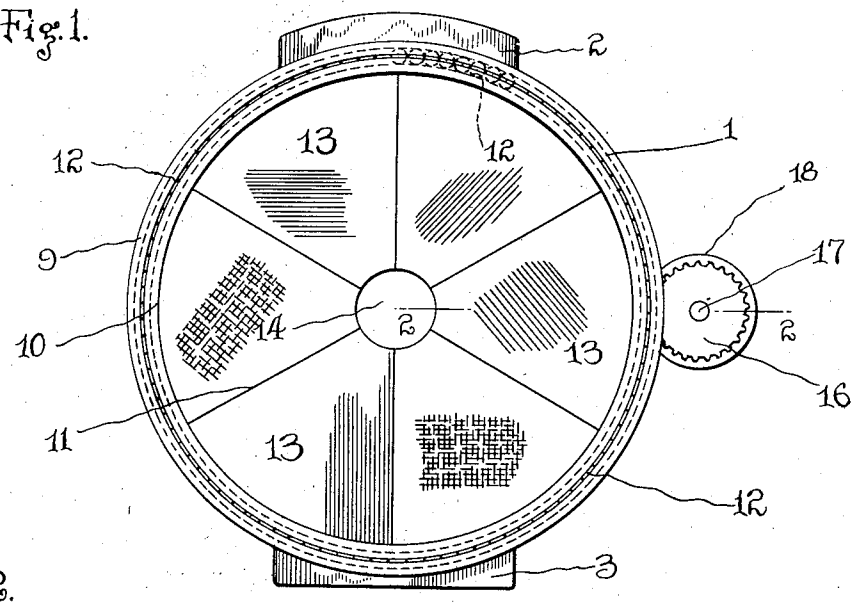


Fig. 2.

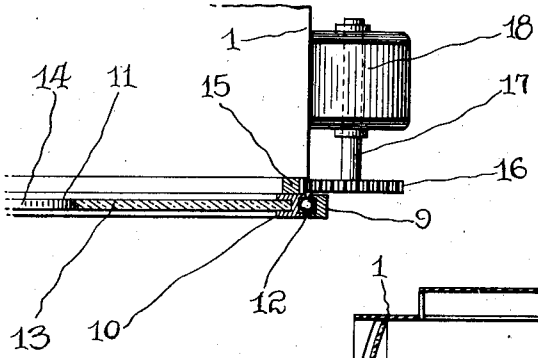
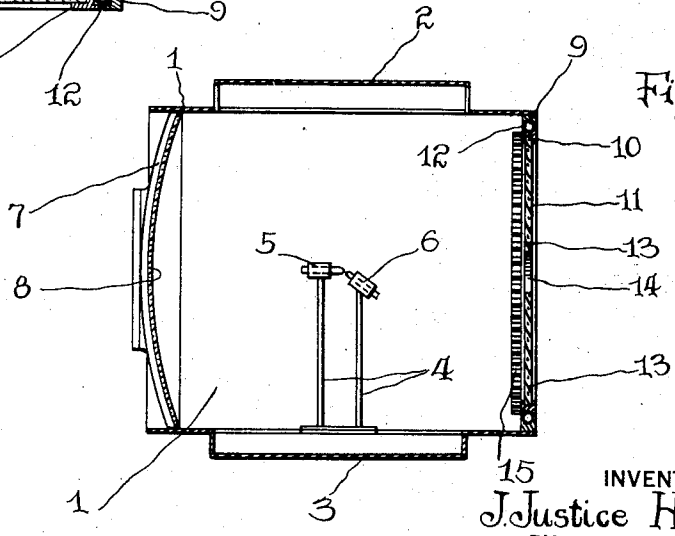


Fig. 3.



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ARC-LIGHT.

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Application filed January 7, 1920. Serial No. 349,941.

To all whom it may concern:

Be it known that I, JOSEPH JUSTICE HARMER, a citizen of the United States, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Arc-Lights, of which the following is a specification.

The invention relates to improvements in arc lights with features having particular utility for functioning in connection with lighting in photographic work and stage illumination.

Heretofore lights have been used employing means for centralizing the rays or beams upon objects and it has been found difficult to direct the light to keep the object within the shaft of the spot rays, and it is the object of this invention to overcome these and numerous other defects in arc lighting for photogravure.

One object of the invention is the providing of an arc light provided with adjustable electrodes associated with a parabolical reflector disk for intensifying the light rays, and a rotary lens comprised of sectionalized series of colored glass plates converging at or near their centers into an aperture of any size through which the white spot rays are projected and directed upon a predetermined object.

Another object of the invention is the providing of a rotary lens with spot light or beam aperture that may be rotated at any speed by any suitable means giving the result of a vari-colored ground (either stationary in varying colored ground or active) thusly providing a high powered lamp for photographic use such as motion picture work, wherein the light itself directs and controls the position of the object maintaining such object properly, within the strong spot rays and simultaneously projecting a multi-colored setting or ground for producing the desired enframing effect.

Another and further object of the invention is in the use of the arc light for theatrical and stage illuminating purposes since it accomplishes a greatly required need in providing a light having an animated field of vari-colored grounds and a continuously projected spot or light shaft for maintaining the proper position of the objects on which its rays are cast or projected, and also its rays and effects may be controlled either by hand or automatically.

In the following is described in connection with the accompanying drawings, one embodiment of the invention the particular features thereof being more particularly defined hereinafter in the claims.

In the drawings Figure 1 is a face elevation of the lamp illustrating the position of the sectionalized series of plates in the lens the centralized spot light aperture together with means attached to a motor for revolving at any desired speed the entire face of the apparatus. Fig. 2 is a horizontal sectional view on line 2—2 of Fig. 1 of part of the rotatable lens and means for actuating such rotation; and Fig. 3 is a longitudinal sectional view of the lamp showing the relative positions of the electrodes, reflectors and lens.

Similar numerals of reference indicate similar parts throughout the several views.

In the drawings 1 designates the cylindrical casing or housing of the lamp provided with ventilator 2 and base 3, having adjustably mounted therein supporting standards 4 arranged for juxtaposition with relation to the reflector and carrying at the upper ends thereof positive electrode 5 and negative electrode 6.

Said casing has mounted therein at its rear end a shell casing 7 having suitably fastened therein a parabolical reflector or mirror 8 for deflecting and intensifying the white rays or spot beam of light projected through the lens body.

The front edge of the cylindrical casing 1 has fastened thereto a circular channel 9 and the rim 10 of lens 11 is also grooved or channeled to receive therebetween a series of ball bearings 12, so arranged as to provide easy rotative movement of the lens structure. Rim 10 has mounted therein disks of any desired number of segmental glass plates 13 of varied colors (such as green, blue, red, violet, yellow and multi-colored for effecting a suitable ground) said plates 13 thereof converging at their centers and forming thereat an aperture 14 for the projection therethrough of the white spot light and beam and by reason of such locations of said aperture in lens 11 provide a shaft of light in which an object to be photographed is at all times held into proper radius, per-

mitting the operators of motion picture apparatus to direct his photo-projections properly and successfully, and necessarily obviate the injury or spoiling of expensive films and plates.

Rim 10 has mounted thereon a circular rack 15 the teeth of which are arranged to engage or mesh with suitable gear 16 mounted on shaft 17 of rotary motor 18 driven from any suitable source, the object of which is to provide suitable means for revolving at any desired speed, the lens assembly. Suitable hand rotating devices may be employed instead of automatic means of operation.

The structure is a simple one for the designed purposes of its utility and its general scope may be varied in many ways without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent of the United States is:

1. A device of the character described comprising a supporting casing, a light intensifying deflector mounted therein, electrodes mounted in said casing and adjustable with relation to said deflector, a rotatable lens mounted in said casing, multi-colored plates in said lens, a spot light aperture formed at the centralized juncture of said plates, and means for rotating said lens.

2. A device of the character described comprising a supporting housing, a parabolical light intensifying deflector mounted in said housing, a support carrying arc electrodes adjustable in said housing with relation to said deflector, a rotatable lens casing mounted in the front of said housing, bearings for said lens casing, a series of vari-colored lens plates mounted in said lens casing, a spot or beam light aperture formed at the central juncture of said plates in alinement with the deflected light rays of said arc, and means for rotating said lens casing to cause a vari-colored field and a projected shaft of spot light.

3. A device of the character described comprising a supporting casing, light ray deflector means mounted therein, arc light generating means associated therewith, a rotatable lens mounted in said casing, a light ray aperture formed in said lens arranged to direct a shaft of spot light upon an object and to project a field of colored light around said spot light to cause a setting for stage and theatrical illumination.

4. A device of the character described including an arc light for stage and display illumination comprising a supporting casing, a light intensifying deflector, arc light generating means, a rotatable lens mounted therein, a spot light aperture formed at the central body portion of said lens, and means arranged to rotate said lens at diverse speeds.

Signed at the city of New York in the county of New York and State of New York this 22nd day of December A. D. 1919.

J. JUSTICE HARMER.