W. R. PORTER.

SPOTLIGHT PROJECTOR.

APPLICATION FILED APR. 15, 1919.

1,408,222.

Patented Feb. 28, 1922.

FIG. 1.

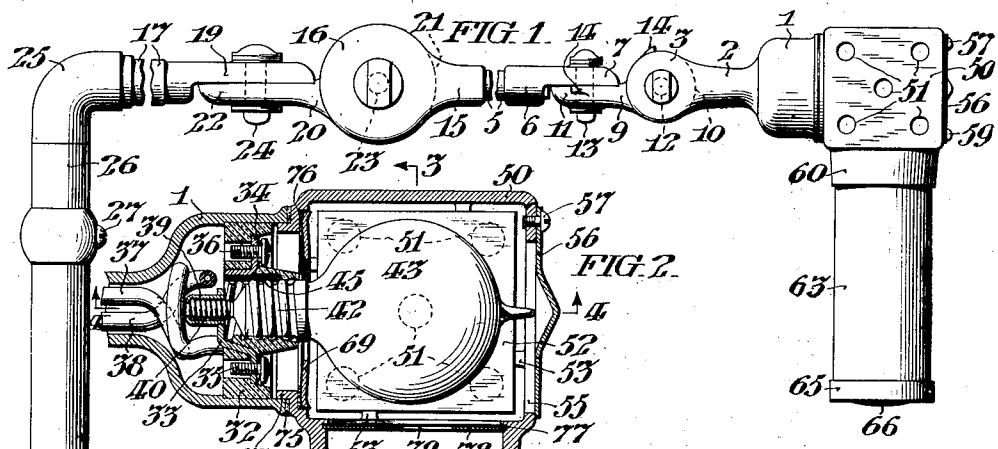


FIG. 2.

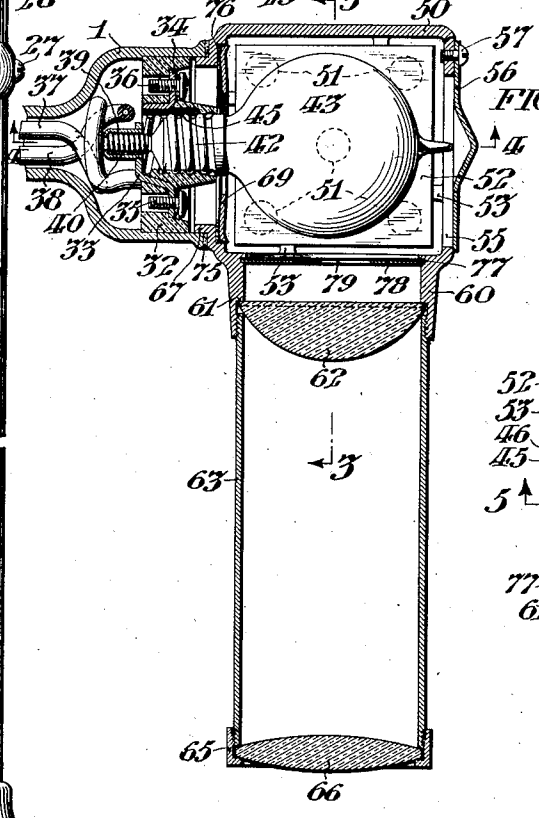


FIG. 3.

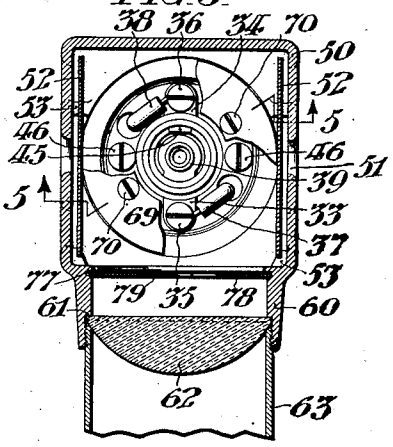


FIG. 4.

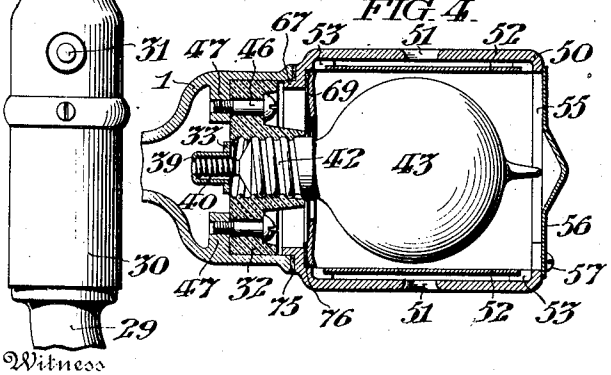
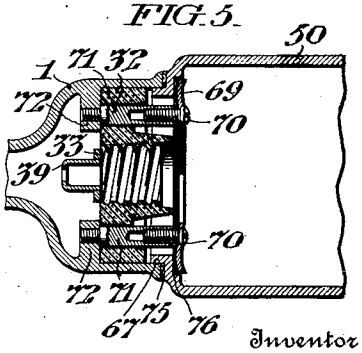


FIG. 5.



Witness

William J. Russell

Inventor

Will R. Porter,

By Clifton C. Gallowell

Attorney

UNITED STATES PATENT OFFICE.

WILL R. PORTER, OF PRINCE BAY, NEW YORK, ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

SPOTLIGHT PROJECTOR.

1,408,222. Specification of Letters Patent. Patented Feb. 28, 1922.

Application filed April 15, 1919. Serial No. 290,280.

To all whom it may concern:

Be it known that I, WILL R. PORTER, a citizen of the United States, and a resident of Prince Bay, in the county of Richmond, State of New York, have invented certain new and useful Improvements in Spotlight Projectors, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates particularly to light projectors that are adapted for use by professional operators, and is especially directed to that class of such devices that are designed to project an intensified pencil ray, and to localize the illumination upon a region to be inspected or operated upon.

The principal objects of my invention are to provide a spot-light projector with a supporting bracket so jointed that the axis of its lamp may be moved into variable angular positions, and to provide said projector with a lens mounting arranged to rotate about the axis of said lamp so as to project intensified rays in any desired direction.

Other objects of my invention are to provide a spot-light projector with a lamp housing having means for affording a free circulation of air therein, and means permitting easy access to the lamp and interior of said housing, for convenient adjustment of the parts therein disposed.

Specifically stated, the form of my invention as hereinafter described, comprehends a spot-light projector having a universally jointed bracket embodying concealed current-conveying cords leading to the lamp, and a lens mounting rotatable about the axis of said lamp, and so disposed that the axis of the lenses intersects the axis of the lamp at approximately the center of illumination of said lamp, and may be adjusted to radiate therefrom in any desired direction.

My invention also includes all of the various novel features of construction and arrangement as hereinafter more definitely specified.

In the accompanying drawings, Figure 1 is a side elevational view of the light projector and its supporting jointed bracket; Fig. 2 is a central longitudinal sectional view of said light projector taken along the axis of the lamp; Fig. 3 is a fragmentary sectional view of said lamp projector taken in a plane transverse to the axis of the lamp, on the line 3—3 in said Fig. 2; Fig. 4 is a longitudinal sectional view taken on the line 4—4 in Fig. 2; and Fig. 5 is a longitudinal staggered sectional view taken on the line 5—5 in Fig. 3.

In said figures, the lamp mounting 1 has the hollow extension 2 terminating in a hollow disk 3, which is connected to the hollow arm 5, having an outer hinge member 6, providing a hollow disk 7, hingedly connected with the disk 3 by the link 9 having similar hollow disks 10 and 11 disposed in relatively normal planes and respectively registering with the disks 3 and 7 and connected by the bolts 12 and 13 to relatively oscillate, being limited however by the stop lugs 14.

The inner end of the arm 5 is provided with a hinge member 15 having the hollow disk 16, connected with the hollow crane 17 having the hinge member comprising the hollow disk 19, by the link 20 having the respective hollow disks 21 and 22 disposed in relatively normal planes, and registering with the respective disks 16 and 19 and connected therewith for relative oscillation by the bolts 23 and 24.

The crane arm 17 is provided on its inner end with the elbow 25 swivelly mounted on the standard 26, which is provided with the set screw 27 arranged to limit the rotation of the elbow and the parts carried thereby to substantially a revolution of the same.

The standard 26 is removably mounted on the bracket arm 29 by the slip-joint connection comprising the sleeve 30, forming a switch housing within which a suitably constructed switch may be disposed, and actuated by the switch button 31 to control the lamp.

The lamp mounting 1 is provided with the lamp socket 32 preferably formed of ceramic meterial, and provided with the terminal bars 33 and 34, respectively having binding screws 35 and 36, to which the electric leads 37 and 38 are connected. Said leads 37 and 38 lead to the lamp actuating switch in the sleeve 30, through the arm 2, link 9, arm 5, link 20, crane arm 17, elbow 25 and standard 26.

The terminal bar 33 is provided with a spring casing 39 forming a pocket for the spring 40, which bears against the central

terminal contact of the screw plug 42 of the lamp 43; and the terminal bar 34 is provided with the contact spring 45, arranged to bear against the side of the screw plug 42 of said lamp, as best shown in Fig. 2.

As best shown in Fig. 4, the lamp socket 32 is retained in the lamp mounting 1 by the screws 46 which are in threaded engagement with suitably provided lugs 47, which extend radially inward from diametrically opposite walls of said lamp mounting.

The lamp 43 is provided with a ventilated housing 50 having in its side walls, vent apertures 51 which are covered by baffle plates 52 suitably spaced from the vented side walls by lugs 53, to which said plates may be secured in any suitable manner. The obvious purpose of said plates is to prevent light from passing through said vents, and yet afford free circulation of air through said vents to reduce the temperature within the housing 50.

Said housing 50 has the opening 55 normally closed by the shutter 56, which is arranged to be swung about the shank of the screw 57 disposed at one corner of said opening, as conveniently shown by the staggered section in Fig. 2, to afford access to the chamber within said housing. Said shutter may be rigidly held in closed position by the set screw 59, preferably disposed at the corner of the opening diagonally opposite to the screw 57.

Said housing 50 is also provided with a circular opening surrounded by a flange 60, which provides a seat 61 for the lens 62 held therein by the lens mounting comprising the cylindrical light director 63, which is in threaded engagement with said flange at one end, and which is provided at its free end with an annular collar 65 threaded therewith and arranged to retain the lens 66 suitably spaced from the lens 62, with which it cooperates to project a pencil ray of light from the lamp 43.

The housing 50 has the flange or hub 67 fitted within the lamp mounting 1, and is rotatably connected with said lamp mounting by the annular spring retainer 69, which, as best shown in Fig. 5, is adjustably retained by the adjusting screws 70, engaged in threaded relation with the posts 71 which extend through the lamp socket 32, from the lugs 72 within the lamp mounting 1. Annular friction washers 75 and 76 formed of any suitable material are respectively disposed between the opposed surfaces of the lamp mounting 1 and housing 50, and between the opposed surfaces of the housing 50 and spring retainer 69.

The flange 60 is provided in its inner wall with the groove 77, in which is fitted the peripheral edge of the diaphragm 78, having the central aperture 79 disposed in axial relation with the lenses 62 and 66. Said diaphragm is formed of a material sufficiently flexible that it may be conveniently forced into the groove and retained in position by the walls of said groove.

It will be obvious that by reason of the jointed support for the lamp 43, which may be swung about the axes of the standard 26, bolts 24, 23, 13 and 12, the axis of said lamp may be disposed in almost any angular position, and by reason of the rotatability of the housing 50 and the lens mounting carried thereby, a pencil ray of light from the lamp 43 may be projected in any desired direction.

I do not desire to limit my invention to the precise details of construction and arrangement herein specified, as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined in the appended claims.

Having thus described my invention, I claim:—

1. A spot-light projector having a lamp, and a universally jointed support for said lamp adjustable to dispose the axis of the lamp in different angular positions, a closed ventilated housing for said lamp rotatable about said axis, and carrying lenses with their axis intersecting the axis of said lamp, and imperforate baffle plates within said housing, spaced from the walls thereof and affording an air space surrounding said plates.

2. A spot-light projector having a lamp mounting arranged to hold a lamp, a housing for said lamp carried by said lamp mounting and arranged to rotate with respect thereto, and having an opening for directing light rays from said lamp, and an adjustable retainer comprising a spring plate arranged to frictionally engage said housing with said lamp mounting.

3. A spot-light projector having a lamp mounting arranged to hold a lamp, a housing for said lamp rotatably carried by said lamp mounting, and having an opening for directing light rays from said lamp, a light director extending from said housing, and an adjustable retainer comprising a bulged plate arranged to frictionally engage said housing with said lamp mounting.

4. A spot-light projector having a lamp mounting arranged to hold a lamp, a housing for said lamp rotatably carried by said lamp mounting, and having an opening for directing light rays from said lamp, a light ray director extending from said housing, lenses carried by said light ray director, and an adjustable retainer comprising a bulged annular plate arranged to frictionally engage said housing with said lamp mounting.

5. A spot-light projector having a lamp mounting arranged to hold a lamp, a hous-

ing having perforated walls enclosing said lamp and rotatably attached to said lamp mounting, and having an opening for directing light rays from said lamp, and a plurality of baffle plates having free edges affording air spaces, disposed in said housing in spaced relation to said perforated walls, and affording a free circulation of air to the lamp within said housing.

6. A spot-light projector having a lamp mounting arranged to hold a lamp, a housing for said lamp carried by said lamp mounting, and arranged to relatively rotate with respect thereto, and having an opening for directing light rays from said lamp, and an opening affording access to the lamp and parts therein, a shutter pivoted at one corner to slidably oscillate on the open wall of said housing to open and close said latter opening, and means arranged to secure it in its closed position.

In testimony whereof, I have hereunto set my hand and seal the day and date first above written.

WILL R. PORTER. [L. S.]

Witnesses:
WILLIAM H. DAVID,
ALBERT A. POND, Jr.