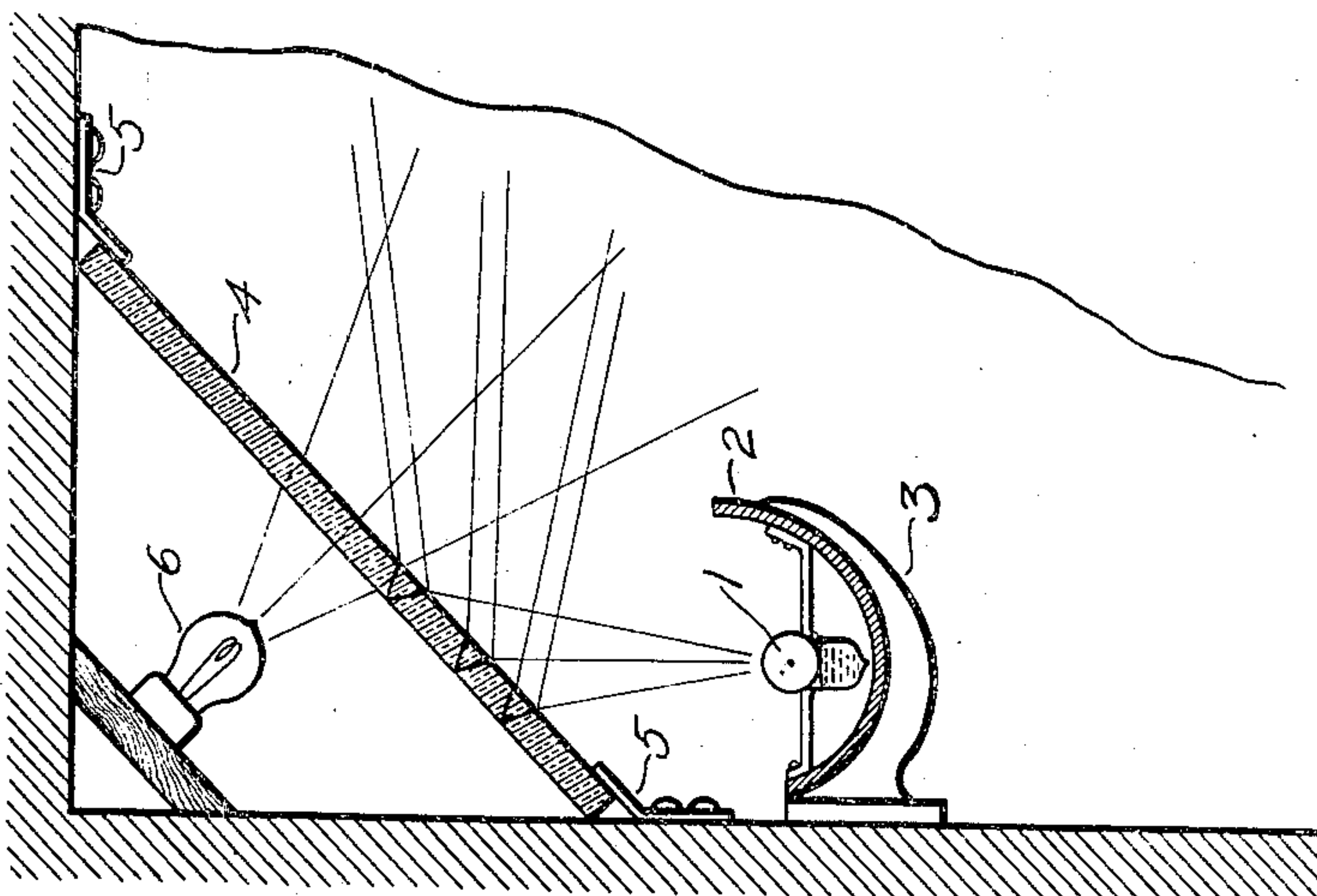
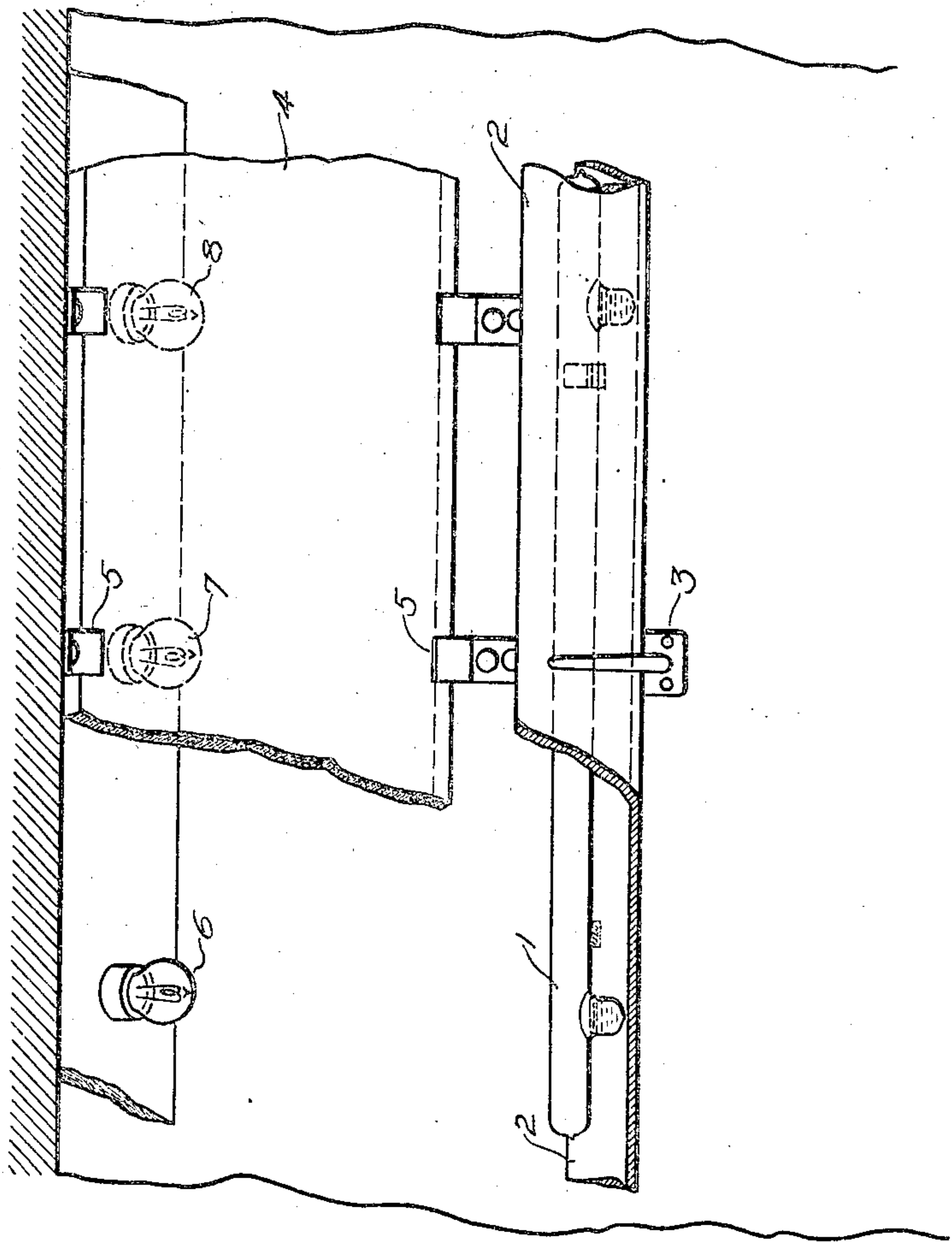


W. C. FISH.  
ELECTRIC LIGHTING.  
APPLICATION FILED DEC. 8, 1904.



Witnesses:

Harold F. Locke.  
Helen Alfred

Inventor:  
Walter C. Fish.  
by Allen H. Davis  
Att'y.



# UNITED STATES PATENT OFFICE.

WALTER C. FISH, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY,  
A CORPORATION OF NEW YORK.

## ELECTRIC LIGHTING.

No. 883,944.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed December 8, 1904. Serial No. 236,046.

*To all whom it may concern:*

Be it known that I, WALTER C. FISH, a citizen of the United States, residing at Lynn, in the county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Electric Lighting, of which the following is a specification.

The light given off by mercury vapor lamps is particularly strong in blue rays but noticeably deficient in red and yellow rays, and the consequence is that when such lamps are used for purposes of illumination there is practically a total elimination of the red and yellow colors from the objects illuminated. This characteristic of the mercury vapor lamp is a source of objection to its general adoption for purposes of illumination where color values are of importance.

It is the object of the present invention to provide a means whereby light rich in red and yellow rays may be combined with the blue light from a mercury-vapor lamp or other source deficient in such rays, thereby producing a resultant beam with proper proportion of the various solar colors. To this end I project the light of the mercury vapor lamp upon a glass or other light transmitting reflector in such a way that the reflected rays mingle with light passed directly through the light-transmitting reflector from a source located on the opposite side.

Figure 1 is a sectional view showing the arrangement of the light-transmitting reflector and the two light sources; Fig. 2 is an elevation of the same with certain of the parts broken away.

The mercury arc lamp or other vapor electric lamp 1 is suitably supported and concealed by the reflector 2 which is secured by a bracket 3 to a vertical surface, as for instance the side wall of a room. A light-transmitting reflector 4 of glass or other light-transmitting material is mounted above the vapor electric lamp in position to reflect the light from the lamp and its reflector 2 to parts of the room shielded from the direct rays of the lamp. The light-transmitting reflector 4 consists preferably of opal or frosted glass, as such material assists materially in proper diffusion, reflection and combination of the light rays of the two different sources. This light-transmitting reflector may be supported in the angle between the wall and ceiling of a room by brackets or clips 5 engaging the edges thereof.

A plurality of incandescent lights 6, 7 and 8, or other sources of light capable of yielding red and yellow rays, or other rays suitable for blending with the light from vapor electric lamps, are located above the light-transmitting reflector or on the side opposite from that occupied by the vapor electric lamp. By suitably arranging the incandescent lamps a mellow diffused light is transmitted through the opal or frosted glass reflector 4 toward the center of the room, but on leaving the surface of the glass these rays from the incandescent lamps are blended with the reflected rays emanating from the mercury vapor lamp, thereby producing an efficient illumination of the room below.

While I have shown a single vapor electric lamp of tubular form, it is obvious that a plurality of these lamps might be arranged along the wall of the room, and if desired might completely encircle it, thus producing an even distribution of the light throughout the room and securing the advantage of the high light efficiency of the mercury lamp without subjecting the occupants of the room to the annoyance of unnatural color effects usually incident to illumination with mercury vapor lamps. The reflector 2 completely conceals the mercury vapor lamp from below, so that the flickering and pulsating ordinarily occurring in such lamps is not noticeable.

While this system of illumination is readily adapted for a great variety of purposes, it is believed to be of particular value in drafting rooms and other places of comparatively large area where an even distribution of the light and complete freedom from shadows is desired.

What I claim as new and desire to secure by Letters Patent of the United States is,

1. The combination, with a source of illumination yielding light deficient in some of the solar colors, of means for shielding the area to be illuminated from the direct rays from said source, means for reflecting said light on said area, and means for combining with said reflected light the light from a source capable of supplying said deficient solar colors.

2. The combination, with a vapor electric lamp, of a light-transmitting reflector therefor, and means for projecting light through said reflector to combine with the reflected light from said vapor electric lamp.



3. The combination, with an electric lamp, of a light-transmitting reflector therefor, and a source of light having a color value different from that of said electric lamp and located back of said reflector, the light rays from said source passing through said reflector and mingling with the light from said electric lamp.

4. The combination, with a vapor electric lamp, of a light-transmitting reflector located in proximity thereto and at such an angle, that light from said vapor electric lamp will be reflected by said reflector, and means for projecting light of a different color value through said reflector to combine with

the reflected light from said vapor electric lamp.

5. The combination, with a tubular electric lamp, of an opal reflector arranged substantially parallel thereto and adapted to reflect light from said tubular lamp, and means for projecting light through said reflector to combine with the reflected light from said tubular lamp.

In witness whereof I have hereunto set my hand this fifth day of December 1904.

WALTER C. FISH.

Witnesses:

ALEX. F. MACDONALD,  
JOHN A. McMANUS, Jr.