F. BRUEGGEMAN.

LIGHTING FIXTURE.

APPLICATION FILED JAN. 28, 1918.

1,270,261.

Patented June 25, 1918.

Fig. 1.

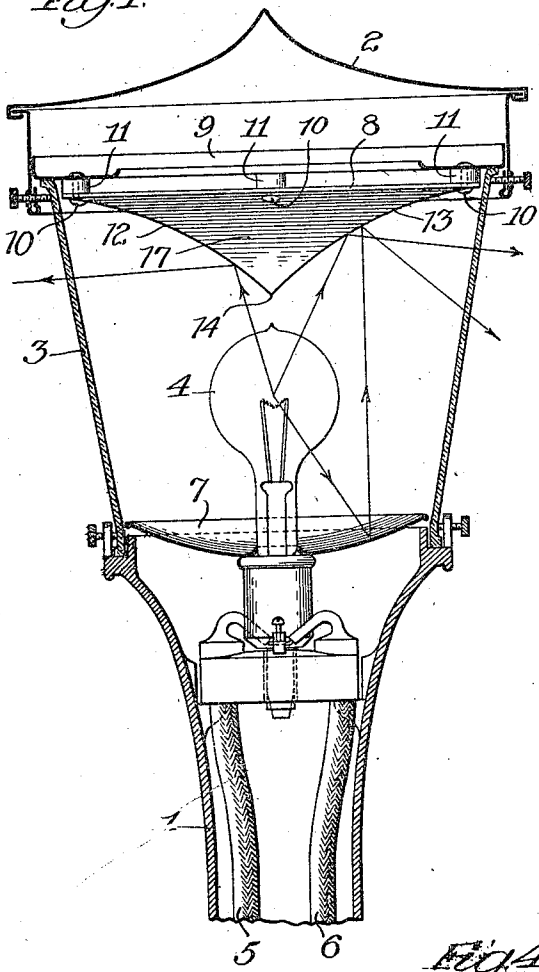


Fig. 2.

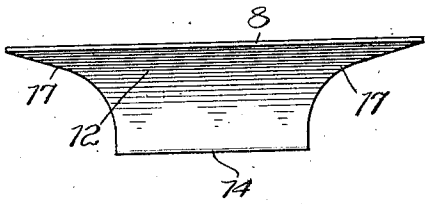


Fig. 3.

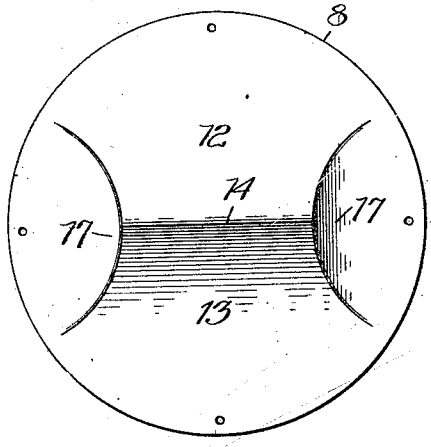
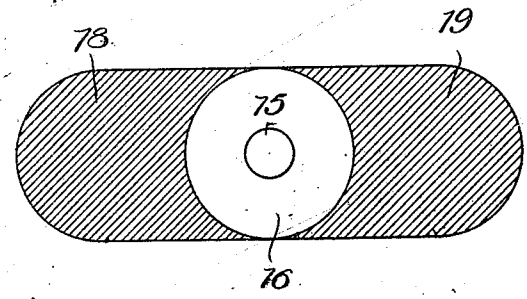


Fig. 4.



Witnesses:

Marvin P. Kahl

Inventor:

Frank Brueggeman.

By David L. Fletcher.

Atty.

UNITED STATES PATENT OFFICE.

FRANK BRUEGGEMAN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO WILLIAM I. BELL, OF CHICAGO, ILLINOIS.

LIGHTING-FIXTURE.

1,270,261. Specification of Letters Patent. Patented June 25, 1918.

Application filed January 28, 1918. Serial No. 214,167.

To all whom it may concern:

Be it known that I, FRANK BRUEGGEMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lighting-Fixtures, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding numerals of reference in the different figures indicate like parts.

The object of my invention is to provide a lamp which shall be so constructed as to enable all of the light rays to be conserved and utilized in a predetermined manner; the aim being to apply said invention more particularly to street lighting purposes, so as not only to utilize the upwardly and downwardly directed rays which are ordinarily lost, but to so utilize said rays with others as to direct them in certain predetermined zones or areas wherein they may be rendered most effective. To these ends, my invention consists in the combination of elements hereinafter more particularly described and definitely pointed out in the claims.

In the drawings,

Figure 1, represents a street lamp partly in central vertical section, in which said improvements are embodied,

Fig. 2, is an elevation in detail of the uppermost reflector,

Fig. 3, is a bottom view thereof, and

Fig. 4, is a diagram indicating the character of the light zones desired to be formed in ordinary street lighting.

Referring to the drawings, 1 indicates an ordinary street lamp-post upon which is mounted the usual lamp frame, having a metal top 2, and any well known form of glass panes 3 for protecting the light. In the examples illustrated I have shown an incandescent lamp 4, having suitable terminals 5, 6, respectively, which may be connected with any source of electric energy. In Fig. 1, it will be noted that the lamp 4 is so elevated or placed that a considerable portion of the direct lateral rays may be utilized without reflection. Supported in the frame in any approved manner, at a level below the lamp 4, is a parabolic reflector 7, formed from a suitable material, preferably glass backed in any well known way by a reflecting medium. The curve of said reflector should be such as to reflect the downwardly directed rays upwardly in substantially vertical lines as indicated by the arrow. An auxiliary reflector, generally designated by 8, is secured to a horizontally arranged sheet-metal support 9, by means of bolts 10, the reflector 8 and part 9 being separated from each other by means of spacing members 11.

The auxiliary reflector, in the example shown in Fig. 1, is made in the form of two truncated segments 12 and 13, the reflecting surfaces of each of which is parabolic. The line of juncture 14, see also Figs. 2 and 3, between said segments, is directly above and substantially in the vertical plane of the light 4, so that the greater portion of both the direct rays of said light and those reflected upwardly, from the surface of the reflector 7 upon one side of the line 14, will be reflected by the surface 12 in one direction, and those impinging upon the surface 13 will be reflected in an opposite direction. By means of this system of reflection which serves to direct a majority of the rays horizontally, or substantially so, I am enabled to so direct the rays as to form predetermined zones of light. For example, in lighting a given street, the lights located between streets may be so controlled by reflection as to throw the majority of the rays not only horizontally, but lengthwise of the street and parallel with the walks, instead of being dissipated laterally in spaces where they would be ineffective. In Fig. 4 I have illustrated this effect diagrammatically; the central ring 15, indicating the position of the lamp, the circular white space 16, the zone of maximum illumination in which both the direct and reflected rays are utilized, and the shaded zones the reflected or diffused rays. It is, of course, obvious that the direct rays, through a certain arc, would radiate in all directions throughout a circle and at varying angles to the plane of the horizon; but that the reflected rays (with a few exceptions at each end of said truncated segments which would impinge upon the end portions 17 of said reflector and be reflected

laterally) would all be directed into the shaded zones 18 and 19, so as to increase the light lengthwise of the street.

Having thus described my invention, I claim:

1. A lighting fixture of the character described comprising, in combination, a source of light, a reflector being so curved and disposed as to cause predetermined downwardly directed rays to be reflected upwardly within the range of a superimposed reflector, a superimposed reflector comprising oppositely and laterally extended parabolically curved reflecting surfaces having their juncture in an extended line in the vertical plane of said light and at substantially right angles to its axis, to receive all of said upwardly reflected rays, together with all of the upwardly inclined direct rays within the arc bounded by said superimposed reflectors and reflect them laterally, while permitting all of the direct lateral rays radiating in an arc between said upper and lower reflectors to be distributed laterally.

2. A lighting fixture for street lamps in which is combined a source of light supported from beneath, a reflector located beneath the level of said light, said reflector formed to cause downwardly directed rays within a given arc to be reflected upwardly within the range for a superimposed reflector, a superimposed reflector comprising oppositely and laterally extended parabolically curved reflecting surfaces having their juncture in a horizontal line located in the vertical plane of said light to receive all of said upwardly reflected rays, together with all of the upwardly inclined direct rays within the arc bounded by said superimposed reflectors, the space between said upper and lower reflectors being such as to permit the greater portion of the direct rays to be projected laterally.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses, this 26th day of January, 1918.

FRANK BRUEGGEMAN.

Witnesses:

DAVID H. FLETCHER,

JENNIE L. FISKE.