

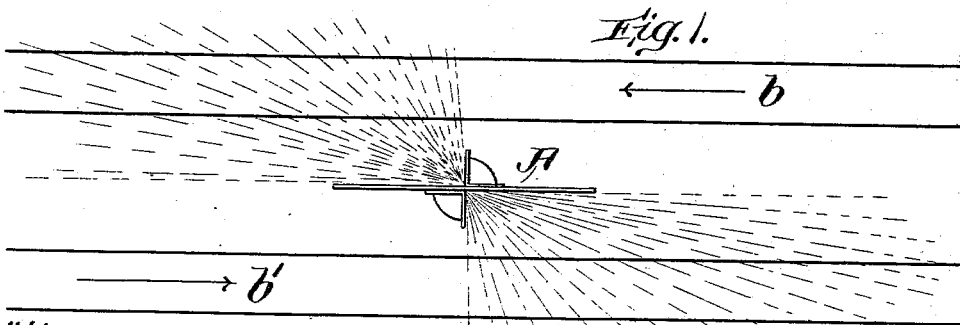
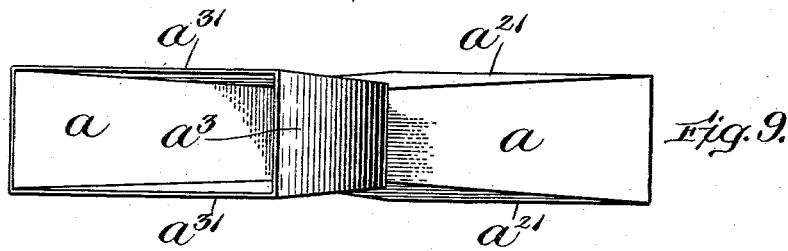
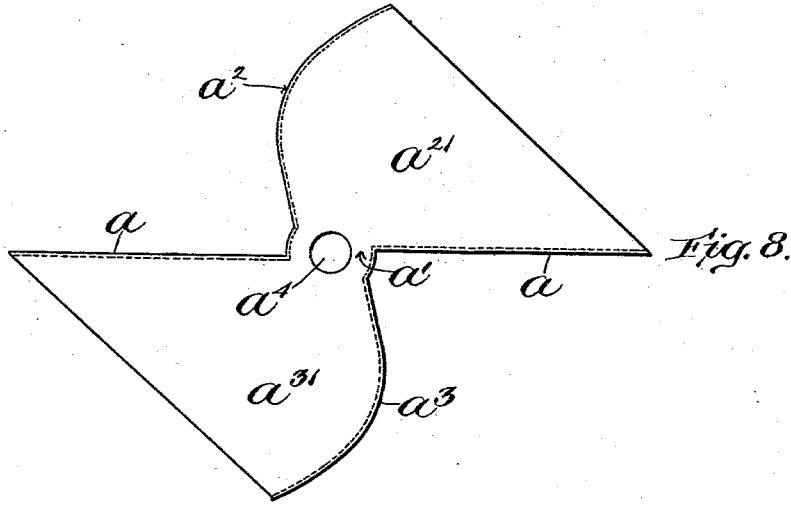
W. A. BURNHAM.

LIGHT SHIELD.

APPLICATION FILED JAN. 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

Arthur T. Raudall
Joseph T. Brennan

Inventor:

William A. Burnham
by Roberts + Nuttall
Attorneys.

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2 SHEETS—SHEET 2.

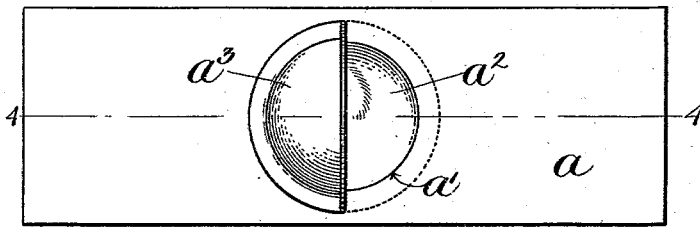


Fig. 2.

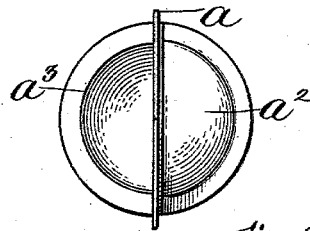


Fig. 3.

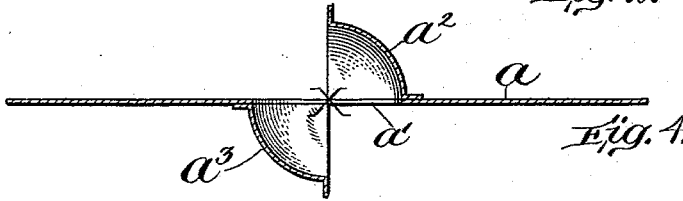


Fig. 4.

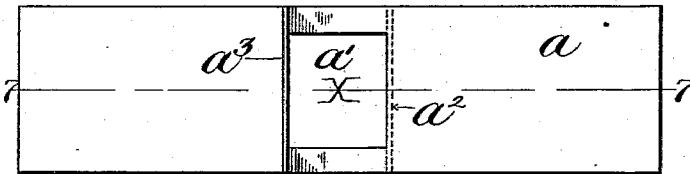


Fig. 5.

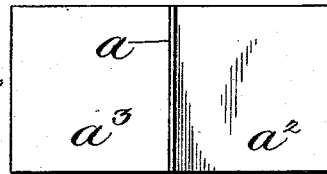


Fig. 6.

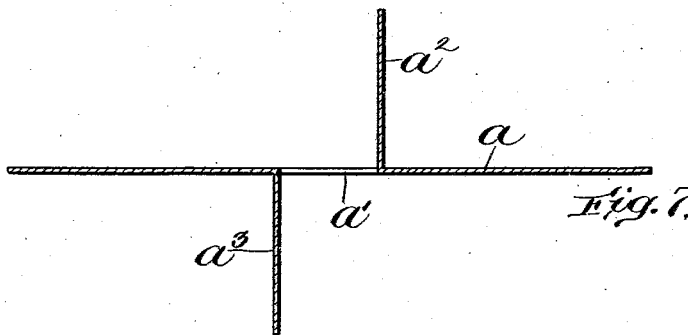


Fig. 7.

Witnesses:

Arthur T. Randall
Joseph T. Brennan

Inventor:

William A. Burnham
by Roberts & Nictell
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM A. BURNHAM, OF LINCOLN, MASSACHUSETTS.

LIGHT-SHIELD.

SPECIFICATION forming part of Letters Patent No. 743,687, dated November 10, 1903.

Application filed January 29, 1903. Serial No. 141,001. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. BURNHAM, a citizen of the United States, and a resident of Lincoln, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Light-Shields, of which the following is a specification.

My invention relates to shields or screens for lights, and particularly to shields for railway-tunnel lights or other roadway or railway lights.

The object of my invention is to provide a shield or screen for a single source of light to be located in the middle of a roadway over which there is normally travel in one direction on one side of the roadway and in the opposite direction on the other side of the roadway—as, for example, on a double-track railway—which will shield the light from the approach from either direction, but will permit the light to be shed upon both sides of the roadway in the directions of the normal travel on the two sides of the way.

Inasmuch as my invention finds its most characteristic expression and will probably find its most general utility in light-shields adapted to be used in two-track-railway tunnels, I will describe my improved shield and its mode of operation in connection with such use. I desire it clearly understood, however, that my invention is not limited to such use, but is adaptable to the lighting of any road over which there is travel in both directions.

In two-track-railway tunnels it is especially desirable that the lights shall not be exposed to the eyes of engineers or train-operators approaching and passing the lights in either direction; but at the same time in order to illuminate the roadway the lights must of course be partly unshielded, so as to shed their rays in the direction of travel. The usual method of lighting tunnels is to place lights at intervals throughout the length of the way either at the sides of the way or in the middle of the way between the two lines of travel. In the former arrangement the lights have been either not shielded at all; in which case persons passing along the way are more or less blinded by the rays from the lights, or if shielded the shields have been ordinary reflectors or screens adapted to shield

the approach only on that side of the road on which the lights are located and to shed the rays along the track in the direction of travel on that side, leaving the full glare of the lights exposed to the approach on the opposite side of the way. In the latter arrangement—that is, where the lights have been placed between the lines of travel—I am not aware that heretofore there has been any provision for shielding the lights.

To secure the advantages of the economy of having only a single series of lights along the middle of the way adapted to light both sides instead of two rows along the sides of the way and to perfectly shield the light from the approach from both directions in the normal direction of travel, and so overcome the objections above pointed out, and at the same time to illuminate the roadway suitably for travel on either side in its respective normal direction of travel, are the purposes of my invention. To these ends I have devised a shield or screen for a light comprising a partition, a light-holding window or opening in the partition, a screen or wing at one side of the window projecting from one side of the partition, and a corresponding screen or wing projecting from the opposite side of the partition at the opposite side of the window.

In the accompanying drawings, Figure 1 is a view in the nature of a diagram illustrating my invention applied to a railroad. Fig. 2 is a side elevation, and Fig. 3 an end elevation, of a shield embodying one form of my invention. Fig. 4 is a section on line 4 4 of Fig. 2. Fig. 5 is a side elevation, and Fig. 6 an end view, of a shield embodying another form of my invention. Fig. 7 is a section on line 7 7 of Fig. 5. Figs. 8 and 9 are plan and side views, respectively, of a shield embodying a third form of my invention.

My improved shield A is intended to be used with a light placed between two lines of travel, as between the two tracks of a railroad, and the preferred form of my invention is shown on enlarged scale in Figs. 2, 3, and 4. The shield A comprises in its construction a partition *a*, made with a light-holding window or opening *a'* at its middle. At one side of the window *a'* and projecting from that side of the partition *a* adjacent

the track b (see Fig. 1) is provided a screen or wing a^2 , which shields the approach on track b from the light which is placed within the window a' , as indicated as X. Projecting from the side of the partition a adjacent track b' is a corresponding screen a^3 , arranged at the opposite side of the window a' , so as to shield the approach on track b' from the light X.

The normal direction of travel over the tracks $b b'$ is in the direction indicated by the arrows in Fig. 1, where right-hand running is practiced, as is customary. It will be observed that the light X within the shield A will not be exposed to the eye from the approaches from either direction; but the screens $a^2 a^3$ of shield A will restrict the field illuminated by the light X to that portion of each of the tracks $b b'$ leading from the light. The resulting advantage is that the engineer of a train passing the light X on either track is not blinded by the light, from which his eyes are protected by the screen A, and the tracks are therefore more effectively illuminated, for it is a well-known fact that while an exposed light may light up a larger area of the track the glare of such a light shining directly in the eyes detracts from the effectiveness of the illumination of the objects to be lighted.

In Figs. 1 to 4, inclusive, the screens $a^2 a^3$ are in the form of segments of a hollow sphere, and preferably the interior of each screen and the surface of that portion of the partition a in front of each screen are polished, painted, or otherwise adapted to reflect the rays of the light, thereby increasing the power of the light.

In Figs. 5, 6, and 7 I have shown a modified form of shield, the only difference from the construction shown in Figs. 1 to 4, inclusive, being that the screens a^2 and a^3 are flat wings perpendicular to the partition a and the light-holding aperture is rectangular instead of circular.

In Figs. 8 and 9 I have shown still another form of shield, wherein each curved screen a^2 and a^3 is connected at its top and bottom edge with the partition by the walls or cheek-pieces a^{21} and a^{31} . An opening a^4 may also be provided above the window or opening a for the passage of the draft from a lamp which may be placed within the shield for the light or for the connections for an elec-

tric light, such as an incandescent lamp. When this form of shield is used, preferably the entire interior is covered with a reflecting material.

My improved light-shield in any of its forms may be made of sheet metal or other suitable material. By its use, in addition to the advantages of at all times shielding the light from the eyes of the approaching traveler and shedding it upon the roadway ahead of him, the number of lights required to light such a way as a tunnel may be reduced to one-half of those necessary as heretofore shielded and located at the sides of the way, since one light located in the middle of the way will do substantially the work of two located at either side of the way.

What I claim is—

1. A shield for lights consisting of a flat rigid partition; a light-holding window in the partition; a screen at one side of the window projecting from one side of the partition, and another screen projecting from the opposite side of the partition at the opposite side of the window.

2. A shield for lights consisting of a partition; a light-holding window in the partition; a curved screen projecting from one side of the partition at one side of the window, a curved screen projecting from the other side of the partition at the other side of the window, and walls connecting the top and bottom edges of the screens with the partition.

3. A shield for lights made up of a partition; a light-holding window in the partition; a hollow spherical screen projecting from one side of the partition at one side of the window, and a corresponding hollow spherical screen projecting from the other side of the partition at the other side of the window.

4. A shield for lights made up of a partition; a light-holding window in the partition, a hollow spherical light-reflecting screen projecting from one side of the partition at one side of the window, and a corresponding hollow spherical light-reflecting screen projecting from the other side of the partition at the other side of the window.

Signed by me at Boston, Massachusetts, this 27th day of January, 1903.

WILLIAM A. BURNHAM.

Witnesses:

AUSTIN POTTER,
ROBERT L. RAYMOND.