(No Model.)

A. B. MOORE, G. W. RUE, C. D. SMITH, F. H. ROEBUCK, J. F. MILLS & J. R. KIRK.

LIGHTING APPARATUS.

No. 502,573. Patented Aug. 1, 1893.

Fig 1

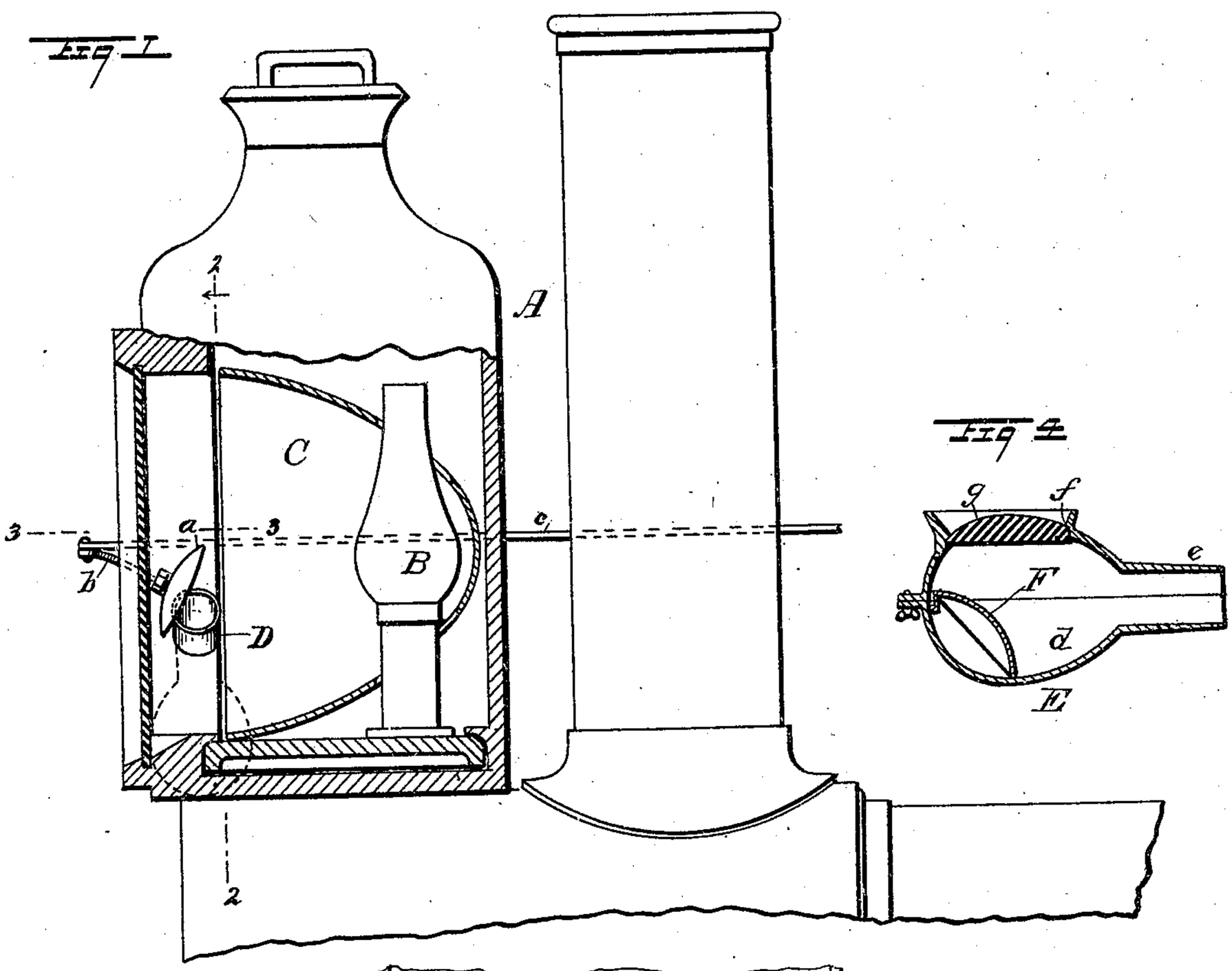


Fig 4

Fig 2

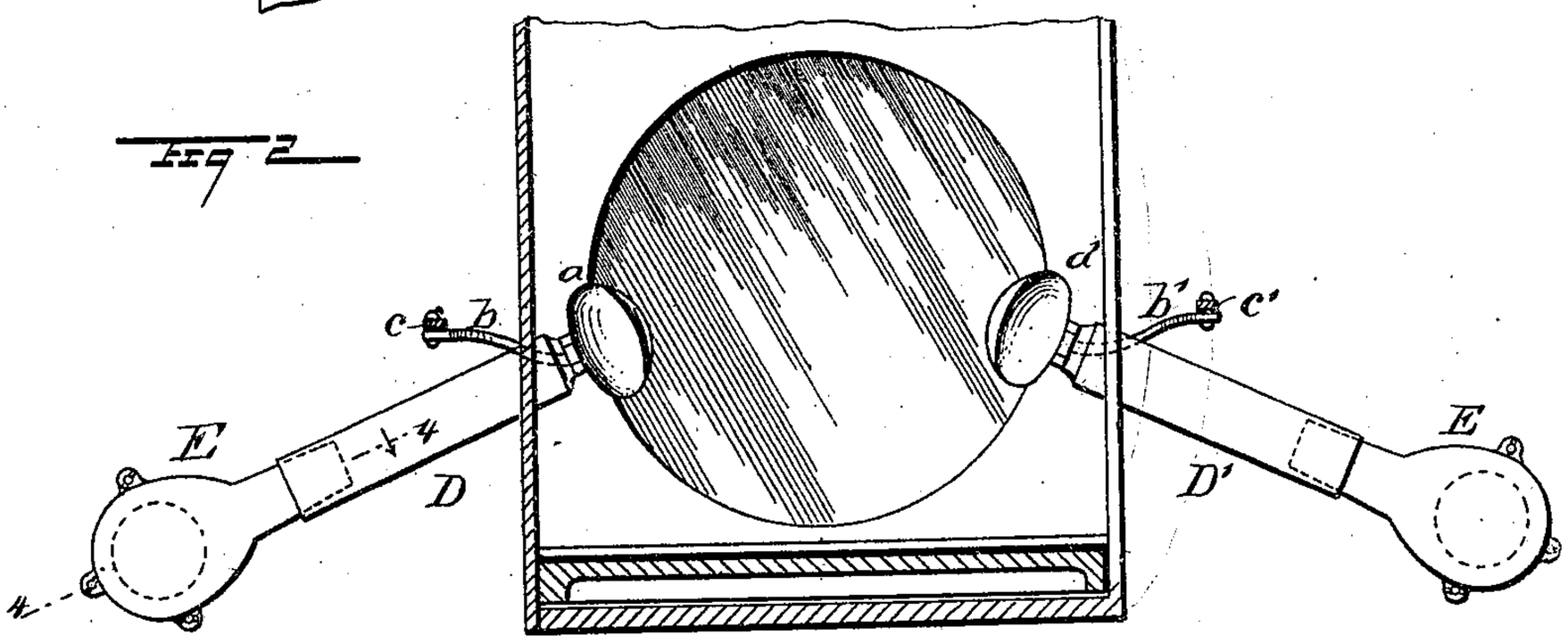
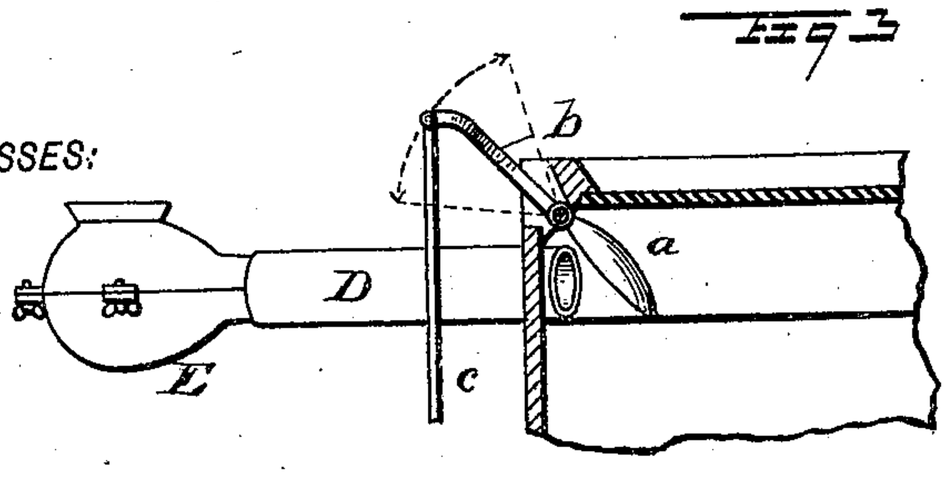


Fig 3



WITNESSES:

H. M. Walker

C. Sedgwick

INVENTORS

A. B. Moore

G. W. Rue

C. D. Smith

F. H. Roebuck

J. F. Mills

BY J. R. Kirk

Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ARTHUR B. MOORE, GEORGE W. RUE, CORAL D. SMITH, FRANK H. ROEBUCK, JOHN F. MILLS, AND JOHN R. KIRK, OF EAST LAS VEGAS, TERRITORY OF NEW MEXICO.

LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 502,573, dated August 1, 1893.

Application filed January 12, 1893. Serial No. 458,155. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR B. MOORE, GEORGE W. RUE, CORAL D. SMITH, FRANK H. ROEBUCK, JOHN F. MILLS, and JOHN R. KIRK, all of East Las Vegas, in the county of San Miguel and Territory of New Mexico, have invented a new and Improved Lighting Apparatus, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation, partly in section, of one form of our improved lighting apparatus. Fig. 2 is a vertical section taken on line 2—2 in Fig. 1. Fig. 3 is a horizontal section taken on line 3—3 in Fig. 1; and Fig. 4 is a longitudinal section of one of the light distributers, taken on line 4—4 in Fig. 2.

Similar letters of reference indicate corresponding parts in all the views.

The object of our invention is to provide means whereby light may be distributed from a central point so that it may be used at several places.

Our invention consists in the combination with a source of light, of one or more concave reflectors, one or more convex reflectors, and dispersing lenses, whereby the light from the central source may be thrown in any direction or any number of directions at the same time, all as will be hereinafter more fully described.

In the present case, we have shown our improvement applied to the headlight of a locomotive, but we do not limit or confine ourselves to this or any particular use of our improved apparatus.

The headlight A, is provided with the lamp B and the usual parabolic reflector C. In the sides of the lantern are inserted tubes D, D′. To the inner ends of these tubes are hinged concave reflectors *a*, *a′*, with which are connected levers *b*, *b′*, pivoted to rods *c*, *c′*, extending to the cab of the locomotive. In the outer ends of the tubes D are inserted the necks of the light distributers E.

As will be seen by reference to Fig. 4, the light distributer E, is formed of the casing *d*, of oval longitudinal section, with a neck *e* for insertion in the tube D or D′. In the side of the casing *d* is formed an aperture *f*, in which is inserted a plano-convex lens *g*, and within the casing, opposite the opening of the neck *e*, is secured a convex reflector F, which is arranged at an angle of forty-five degrees to the axis of the neck *e* and with the plane side of the lens *g*.

The light received by the concave reflectors *a* or *a′*, is reflected through the tube to which it is attached and is received upon the convex reflector F, which renders it divergent and reflects it through the lens *g*. The concave mirrors *a* and *a′* are adjusted by swinging the levers *b*, *b′*, by means of the rods *c*, *c′*.

The light projected through the light distributers E replaces that of the lamp commonly used. By means of this construction, light may be sent in any direction for a long distance, and distributed so as to be used like ordinary lamp light.

In carrying out our invention, we do not limit or confine ourselves to any particular source of light, as gas or oil flame, or an electric incandescent or arc light can be used.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination with a head or other light, of a tube extending from the light, a concave reflector on the inner end of the tube within the light casing, and a light distributer on the outer end of the tube, the said light distributer comprising a casing secured to the tube and provided with an opening in one side, a plano-convex lens in the said opening, and a convex reflector in the casing, substantially as described.

2. The combination with a head light, of a tube projecting into the same, a reflector hinged to the end of the tube in the head light and adapted to be operated from the cab, and a light distributer on the outer end of the tube, substantially as described.

3. The combination with a head light, of a tube projecting into the same, a concave reflector hinged to the end of the tube in the headlight, and adapted to be operated from the cab, and a light distributer on the other end of the tube and consisting of a casing

provided with an aperture in one side, a lens in said aperture, and a reflector in the casing, substantially as described.

4. The combination with a head light, of tubes projecting into the head light on opposite sides, a concave reflector hinged to the end of each tube in the head light, means for operating the reflector, and a light distributer on the outer end of each tube, the said light distributer comprising a casing having a neck for connecting it with the tube and provided with an opening in one side, a plano-convex lens in the opening, and a convex reflector in the casing opposite the neck, substantially as herein shown and described.

ARTHUR B. MOORE.
GEORGE W. RUE.
CORAL D. SMITH.
FRANK H. ROEBUCK.
JOHN F. MILLS.
JOHN R. KIRK.

Witnesses:
ROBT. H. MELLEN,
GEO. MUNNICH.