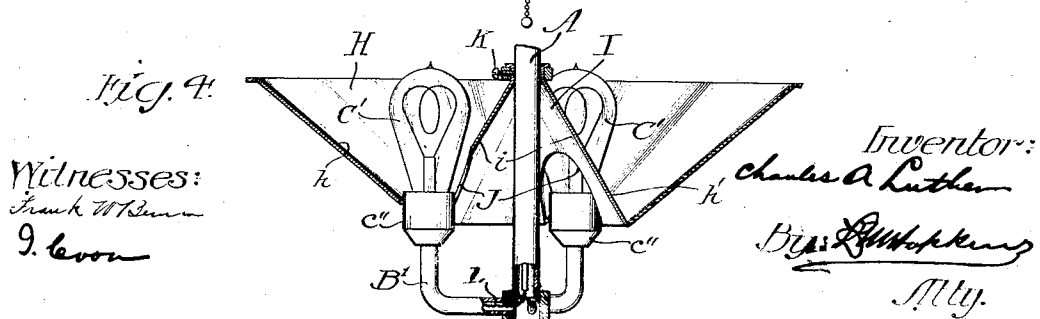
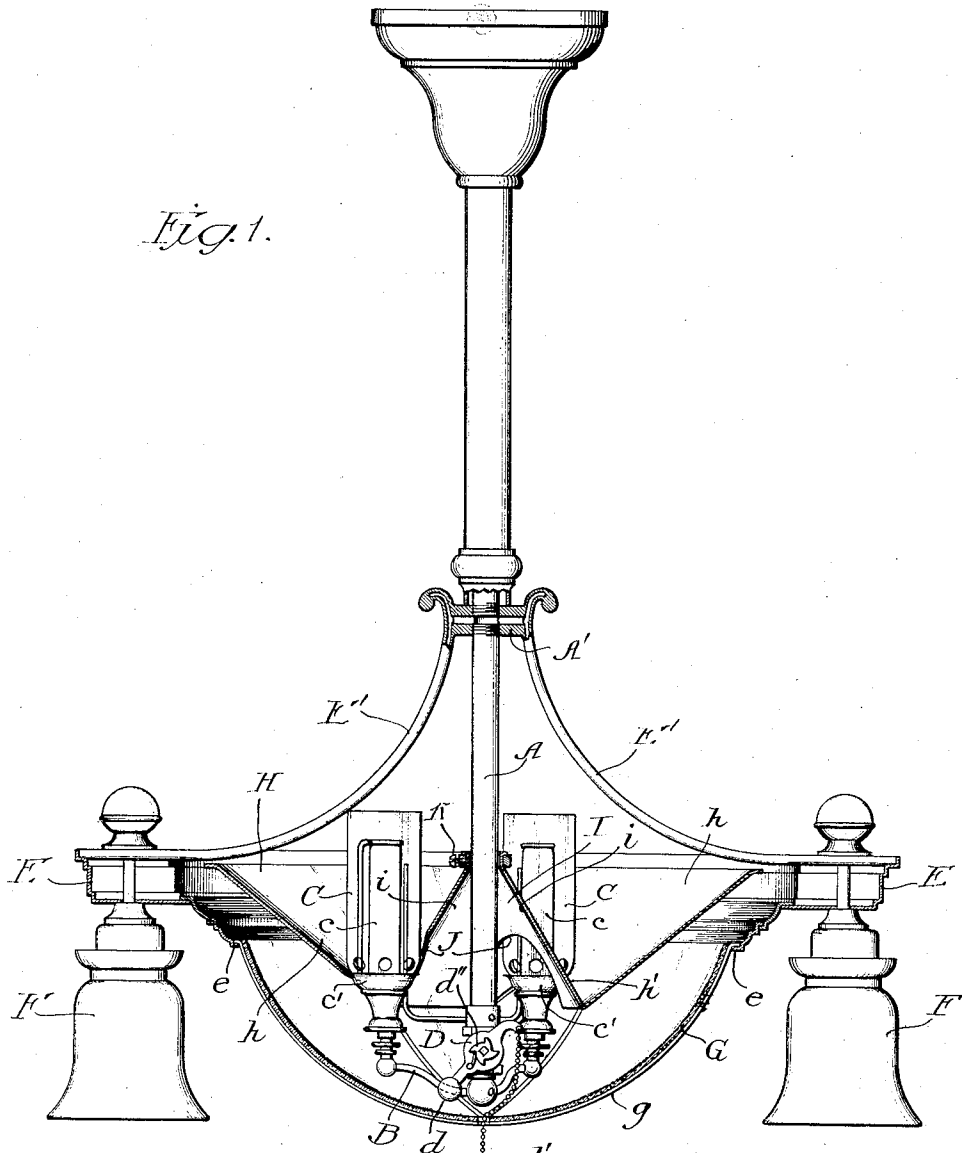


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CHANDELIER FOR GAS OR ELECTRIC LIGHTING.
APPLICATION FILED APR. 12, 1910.

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Patented July 11, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

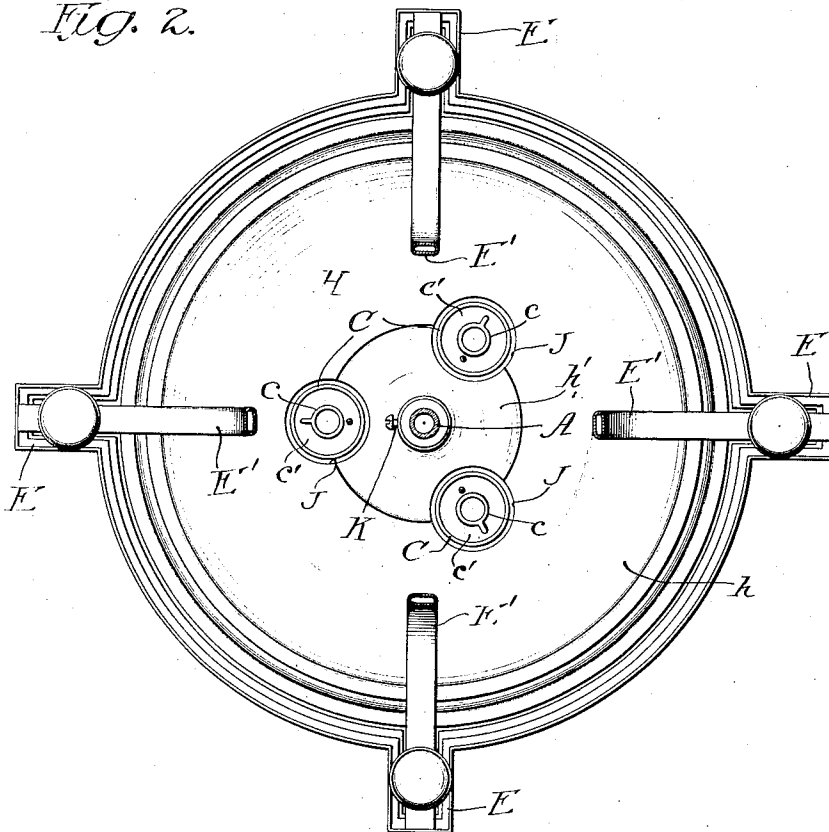
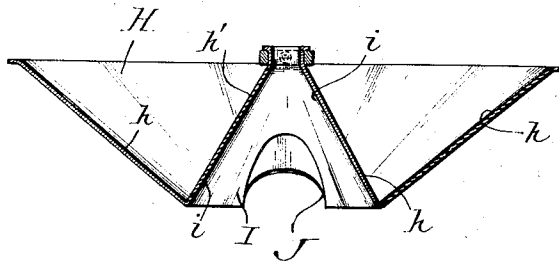


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES A. LUTHER, OF CHICAGO, ILLINOIS.

CHANDELIER FOR GAS OR ELECTRIC LIGHTING.

997,926.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed April 12, 1910. Serial No. 554,906.

To all whom it may concern:

Be it known that I, CHARLES A. LUTHER, 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 Chandeliers for Gas or Electric Lighting, of which the following is a specification.

The present invention relates to that class of chandeliers that are used for what is popularly known as indirect illumination in which the luminous body from which the direct rays of light are emitted is wholly or substantially concealed from any standing point of a person in the room, and said rays reflected and diffused so as to illuminate the room uniformly throughout, as contradistinguished from direct illumination, in which the illuminating rays are concentrated and directed to a limited area. In the practice of indirect illumination, much consideration is given to ornamentation or art effects, and to this end all parts of the chandelier itself are illuminated and the production of shadows thereby prevented as thoroughly and uniformly as possible.

The invention is equally applicable to both gas and electricity, its essential requirements in this respect being satisfied by the use of a lamp having means for producing the luminous body from which the direct rays of light are emitted. In connection with gas a lamp is used having a burner of either the open or the incandescent type. When an open burner is used, the luminous body or source of light is the open flame which burns in the open atmosphere. When an incandescent burner is used, the luminous body is the mantle or other body which is raised to incandescence by the heat of the flame. In connection with electricity a lamp of the incandescent type may be used and in this case the luminous body will be the incandescent filament. In short, any means for producing a luminous body is within the scope of the invention.

The invention consists in the features of novelty which are hereinafter described

with reference to the accompanying drawings which are made a part of this specification and in which:

Figure 1 is a view partly in section and partly in elevation of a gas chandelier embodying the invention, the sectional parts being shown on a vertical axial plane of the chandelier. Fig. 2 is plan view thereof with the upper portion of the chandelier omitted. Fig. 3 is an axial section of the reflector. Fig. 4 is a view partly in section and partly in elevation of a portion of an electric chandelier embodying the invention.

A is a vertical pipe the upper end of which is supported by some suitable means and communicates with a source of gas supply. At its lower end it communicates with any desired number of branch pipes, B, each of which carries a lamp, C. The casing as the valve for controlling the flow of gas to the burners is incorporated in the pipe, A, and on the projecting stem of the plug of the valve is fulcrumed a lever, D, one arm of which carries a weight, *d*, and a pull chain, *d'*, is attached to the other arm. A disk, *d''*, is non-rotatively attached to said stem and has a series of teeth or shoulders which are adapted to be automatically engaged by a spring dog carried by the lever whereby the plug may be rotated step by step for alternately opening and closing the gas passage. The lamps shown in Figs. 1 and 2 are of the incandescent type and have upright mantles *c* of any of the known constructions. That portion of the mantle which becomes incandescent is comprehended by the expression "luminous body" as used in this specification.

The pipe A, not only provides the gas passage, but in addition it serves the purpose of a hanger for supporting the chandelier. It supports the burner directly as above described, and also supports an ornamental ring, E, through the medium of branches, E'. This ring may support any desired number of lamps, F, those shown in the drawing being of the inverted incandescent type which are supplied with gas through

the branches E' which are hollow and in internal communication with the pipe, A, through a fitting, A'. The ring E, has an inwardly presented flange *e* which provides a shoulder upon which rests an outwardly presented flange or lip at the upper margin of an inverted dome, G. This dome is translucent, and is preferably made of art glass, either in a single piece or in a number of pieces secured together by ribs, *g*, or their equivalent which form a framework. The invention is not concerned with the character of the dome so long as it is translucent, and if desired, it may be transparent or it may be omitted altogether in those instances in which ornamentation is not a desideratum.

The term "reflector" as used in this specification is intended to mean a body of any suitable material having a surface by which the rays of light are reflected, regardless of the material or characteristics of the body on which said reflecting surface is made. The invention contemplates the use of two reflectors one of which, H, reflects the rays of light upward, and for the sake of brevity is herein called the "up-reflector," and the other of which, I, reflects the rays of light downward, and is herein called the "down-reflector." These two reflectors are preferably made of a single piece of sheet metal both surfaces of which are coated with white enamel, but it is apparent that the integrality of the bodies of the two reflectors is immaterial, in so far as the essence of the invention is concerned, although for manifest reasons it is preferable.

The up-reflector has a depression comprising a concave surface, *h*, which, in any axial plane, flares upward at an angle of about forty degrees and a convex surface, *h'*, which, in any axial plane, converges upward at an angle of about sixty degrees, while the down-reflector has a depression the concave surface, *i*, of which, flares downward in any axial plane, at an angle of about sixty degrees. In other words, the reflectors are composed of two hollow truncated cones located one within the other and with their bases presented in opposite directions. This combination reflector has through it a series of openings, J, which are circular as viewed from above and preferably located with their centers about at the intersection of the angle formed by projections of the flaring surfaces, *h* and *i* of the up-reflector and down-reflector, respectively. When viewed in full elevation the opposite sides of these openings will appear oval, or of conic-sectional shape, shown in Fig. 3, or otherwise according to the conic angles. These openings are of just sufficient size to permit of the passage of the burners, which

are so located that the luminous body will be entirely above the surface of the up-reflector, although, if desired, they may be so located that a small part of the luminous body will be below the projected flaring surface of the down-reflector. To this end the combined reflector is adjustably secured to the hanger, A, by means of a set screw, K, or any other suitable device which will permit of its being raised or lowered for the purpose of bringing the luminous body to any desired position relatively to the reflectors. The base, *c'*, of each of the burners is opaque and hence all direct downward rays which it intercepts are prevented from producing any illuminating effect below it. Some of the direct rays may pass through a small opening left between the upper margin of the base of the burner, and the lower margin of the up-reflector at the opening, J, but it is the intention that the rays passing through the leak opening shall strike the down reflector and be reflected within the dome, G, whereby the dome is indirectly illuminated. By properly adjusting the parts this can be perfectly accomplished, but it will not be a serious objection if some of the direct rays passing through the leak opening escape past the bottom of the down-reflector and strike the dome directly. These rays will take the form of a comparatively small beam which will not materially detract from the principal object aimed at by this construction, which is the indirect illumination of the interior of the dome. All of the other direct rays emitted from the luminous body will pass directly upward into the room and strike the ceiling or walls by which they are reflected and diffused within the room, or else they will strike the up-reflector and be reflected into the room within the angles of reflection of said up-reflector and strike the ceiling or walls of the room by which they are again reflected and diffused.

But little need be said concerning the use of the invention in connection with electricity. In this event, as shown in Fig. 4, the hanger, A, and the branch arms, B', are hollow, but not gas tight, and the electric conductors, L, are run through them to the sockets, *c''*, of incandescent lamps, C'.

The invention is not limited to any particular or exact relative location of the down-reflector, the burner, and the leak opening. The essential requirements in this respect are satisfied by such a relative arrangement of the parts that a comparatively small number of the rays of light, whether direct or reflected, will strike the down-reflector while the major number of the rays of light will strike the up-reflector, or escape directly into the room.

What I claim as new and desire to secure by Letters Patent is:

1. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector located in the path of some of the direct rays emitted from said luminous body, and a down-reflector located in the path of some of the rays emitted from above the up-reflector and escaping past it.

2. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector located in the path of some of the direct rays emitted by said luminous body and having a leak-opening for the passage of some of other of said rays, and a down-reflector located in the path of the rays passing through the leak-opening.

3. In a chandelier, the combination of a lamp having means for making a body luminous and having an opaque base, an up-reflector having an opening occupied by said lamp and substantially closed by its opaque base, and having a small opening for the passage of a beam of light, and a down-reflector located in the path of said beam of light.

4. In a chandelier, the combination of a lamp having means for making a body luminous, a concave up-reflector within which the luminous body is located and by which some of the direct rays of light emitted by said luminous body are intercepted, and a concave down-reflector located in the path of a limited number of rays of light escaping past the up-reflector.

5. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector having an annular depression in which said luminous body is located, said depression comprising a convex surface and a concave surface surrounding it, said up-reflector having through it a small opening for the passage of a small beam of light, and a down-reflector located in the path of said beam.

6. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector having an annular depression in which said luminous body is located, said depression comprising a convex surface and a concave surface surrounding it, said up-reflector having through its convex surface a small opening for the passage of a small beam of light, and a down-reflector having a concave surface located in the path of said beam.

7. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector having an annular depression in which said luminous body is located, said depression comprising a convex

surface and a concave surface surrounding it, said up-reflector having through its convex surface a small opening for the passage of a small beam of light, and a down-reflector having an opening registering with the small opening aforesaid, and having a concave surface located in the path of said beam.

8. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector having an annular depression in which said luminous body is located, said depression comprising a convex surface and a concave surface surrounding it, said up-reflector having through it an opening, formed partly through said convex surface and partly through said concave surface, occupied by the lamp, a small portion of the opening being left unobstructed between said lamp and said convex surface for the passage of a small beam of light, and a concave down-reflector located in the path of said beam.

9. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector located in the path of some of the direct rays emitted from the luminous body, and a down-reflector located in the path of other of the direct rays and below the upwardly projected surface of the up-reflector, said down-reflector and lamp being relatively adjustable vertically.

10. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector located in the path of some of the direct rays emitted by the luminous body and having a small opening for the passage of a small beam of light, and a down-reflector located in the path of the ray's beam, said lamp and down-reflector being relatively adjustable vertically.

11. In a chandelier, the combination of a lamp having means for making a body luminous, an up-reflector having a concavity in which said luminous body is located, said concavity comprising a convex surface and a concave surface surrounding it, said up-reflector having through its convex surface a small opening for the passage of a small beam of light, and a down-reflector having an opening registering with the small opening aforesaid, said down-reflector having a concave surface located in the path of said beam, said lamp and down-reflector and lamp being relatively adjustable vertically.

12. A combined up-reflector and down-reflector, one of said reflectors having a concave reflecting surface presented in one direction and the other of said reflectors having both a convex reflecting surface and a concave reflecting surface surrounding the convex reflecting surface, said convex and concave reflecting surfaces both being pre-

sented in the direction opposite that in which the concave reflecting surface first aforesaid is presented.

5 13. A combined up-reflector and down-reflector having a common body made of an integral sheet of opaque material, said sheet of opaque material having in one of its faces a depression providing a concave surface presented in one direction and said sheet
10 having in its opposite face an annular depression comprising a convex surface and a

concave surface surrounding it, said convex and concave surfaces being presented in the direction opposite that in which the concave surface first aforesaid is presented, all of
15 said concave and convex surfaces being coated with a reflecting material.

CHARLES A. LUTHER.

Witnesses:

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