

GEORGE W. MORRISON.

Improvement in Lenticular Globes for Lamps.

No. 114,701.

Patented May 9, 1871.

Fig. 1.

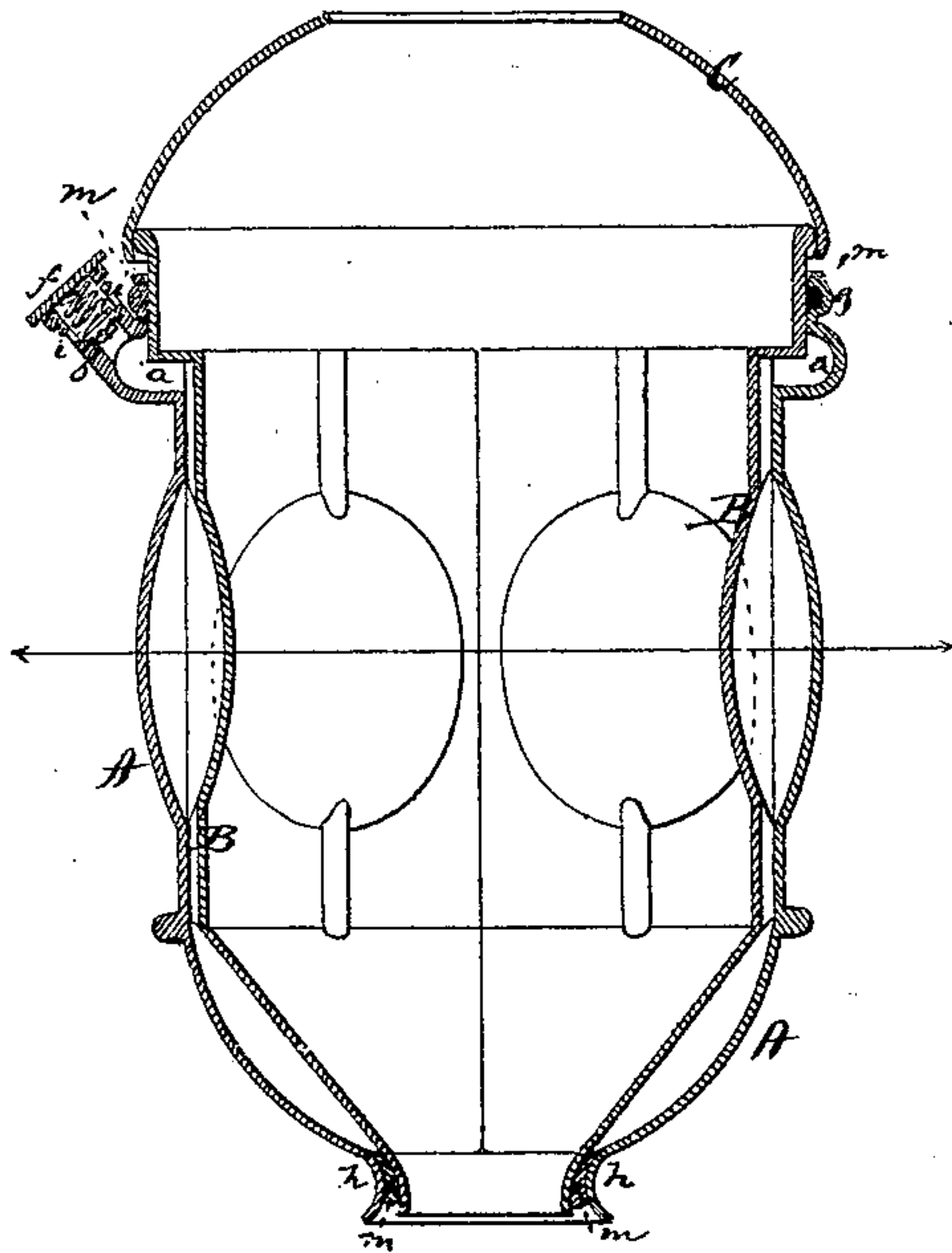
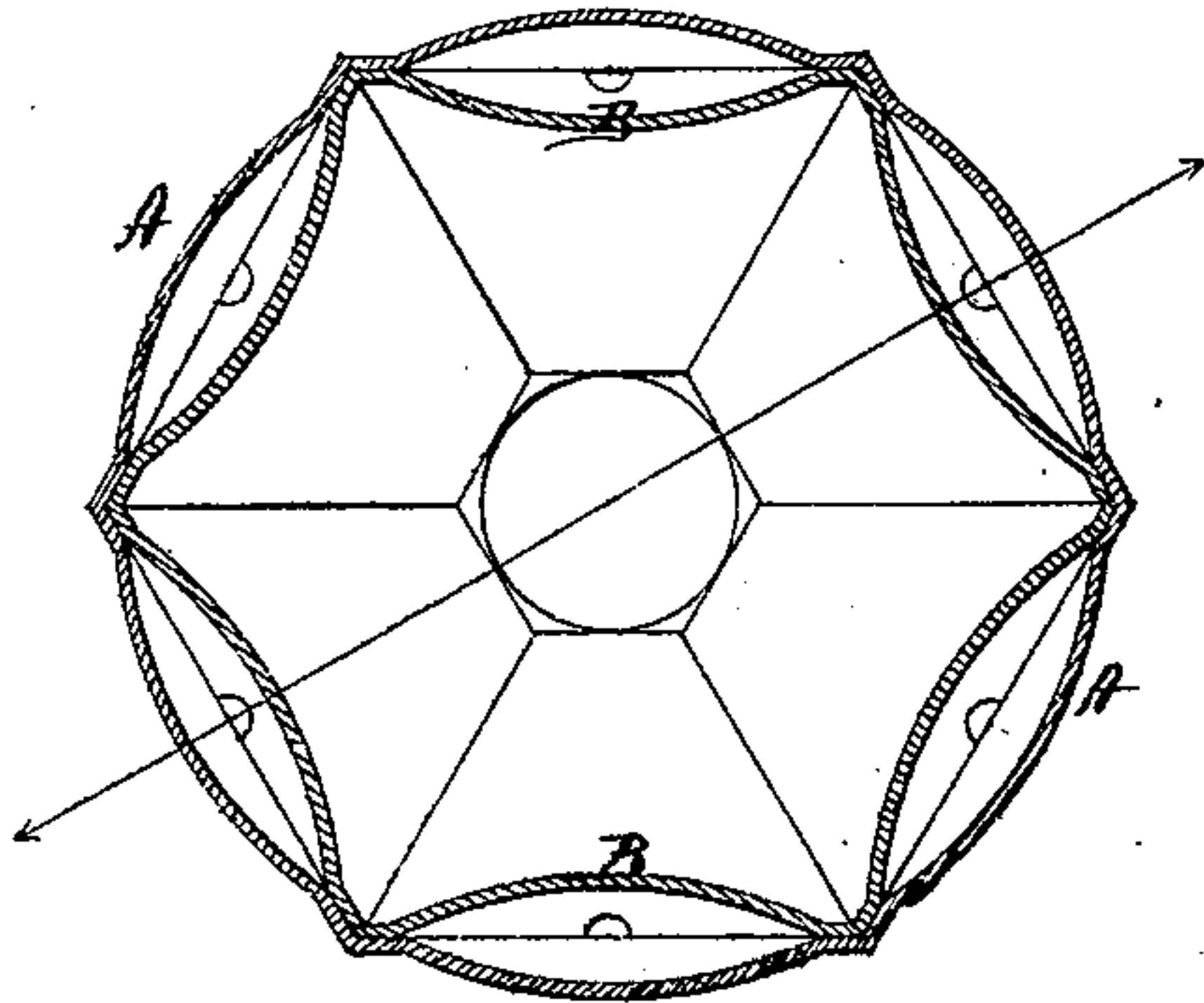


Fig. 2.



Witnesses.

Harry King.
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Inventor.

George W. Morrison
per Alexander Watson
Att'y.

United States Patent Office.

GEORGE W. MORRISON, OF NEW ALBANY, INDIANA.

Letters Patent No. 114,701, dated May 9, 1871; antedated May 4, 1871.

IMPROVEMENT IN LENTICULAR GLOBES FOR LAMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE W. MORRISON, of New Albany, in the county of Floyd and in the State of Indiana, have invented certain new and useful Improvements in Globes for Lamps, Lanterns, and Signal-Lights; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

My invention relates to a new and peculiar kind of radiating globes, half-globes, and shades, which I will designate as "double crystal radiators." They are adapted to most kinds of lamps, lanterns, and signal-lights, and the results of their use are brilliancy of effect and great economy of light by concentrating and throwing the light where most required.

These globes are composed of two glasses fitting one within the other, each glass being impressed with a number of corresponding convex or radiating fancy forms, which are matched together and combined by filling the spaces between the glasses with pure distilled water or other transparent fluid, thus surrounding the light with a succession of powerful radiating convex forms, so proportioned to the distance from the light as to cast a broad and brilliant radius for a considerable distance, while the balance of the light still passes unobstructed through the portions surrounding these lens-forms.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a vertical section of a large globe suited to gas-lights or street-lamps, and

Figure 2 is a horizontal section of the same.

This globe is composed of an outside glass, A, and inside glass, B, forming a series of elliptic double convex lenses surrounding the sides, and a circular convex ring around the bottom, the space between said glasses being filled with suitable fluid.

The top, C, of the globe, above the dividing-band, is made of a single glass banded with metal, and may be attached to the globe proper at one side with a hinge.

Around the upper rim of the main part the outside glass A forms a hollow, half-pipe projecting collar, *a*, which has connection with all parts of the space occupied by the fluid between the glasses, and is protected by a thin metal covering.

The collar *a* has a small projecting neck, *b*, in which is placed a spring valve with two small holes, *i i*, pierced through the neck immediately above where the valve rests.

This valve consists of a rubber cap, *d*, pressed gently down on the mouth of the tube by a slight spiral spring, *e*, inclosed in the neck *b*, and kept in place by a small cap, *f*, screwed onto the end of the

neck, which cap can be removed with the valve to fill in the fluid.

The valve can be made with any suitable spring. Its use is to relieve the glasses of pressure and let the vapor escape when the fluid is exposed to much heat; at other times it plays down and prevents evaporation.

In filling glasses exposed to much heat a part of the collar-pipe *b* should be left empty, to admit of the vapor passing around to the valve; but where they are not subject to much heat the neck of the valve and spring are made longer and the holes on the side omitted, and the rubber cap of the valve made to play true but easy in the tube.

By this means the space between the glasses can be entirely filled, and the play of the spring will give all the required expansion of the fluid without much evaporation.

If the bulk of the fluid is large there should be two valves inserted, on opposite sides.

The glasses A and B are joined together at *g*, near the collar *a*, and at the bottom at *h*, with a compressed India-rubber band, *m*, or cemented with plaster of Paris, or other suitable cement.

I do not confine myself to any particular shape or form of these globes, as they may be made in a thousand different shapes, and be either suspended or supported by suitable arms, and may be whole globes or only half globes to throw the light downward.

The top C may be made double, the inside glass in this case being finished as a mirror-reflector, and protected by the fluid between the glasses from the liability of breaking from sudden heat.

Such a reflector produces a brilliant effect by throwing a flood of light through the convex forms on the front or below, and is suited to all globes either with clear or colored fluid.

In filling the spaces between the glasses it is best to use pure distilled or condensed water with a portion of glycerine, or a small portion of sulphuric acid, or other suitable ingredient added to prevent freezing, the proportions being regulated to suit the degree of exposure required, but glycerine in large proportion is best, as it will not freeze nor evaporate by heating.

Having thus fully described my invention,

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

The combination of two multiple lens-segments or shells A B, placed the one within the other, and provided with a water or liquid space left between them, with a suitable safety-valve, arranged substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of April, 1870.

G. W. MORRISON.

Witnesses:

D. C. McCAN,

J. D. THOMPSON.