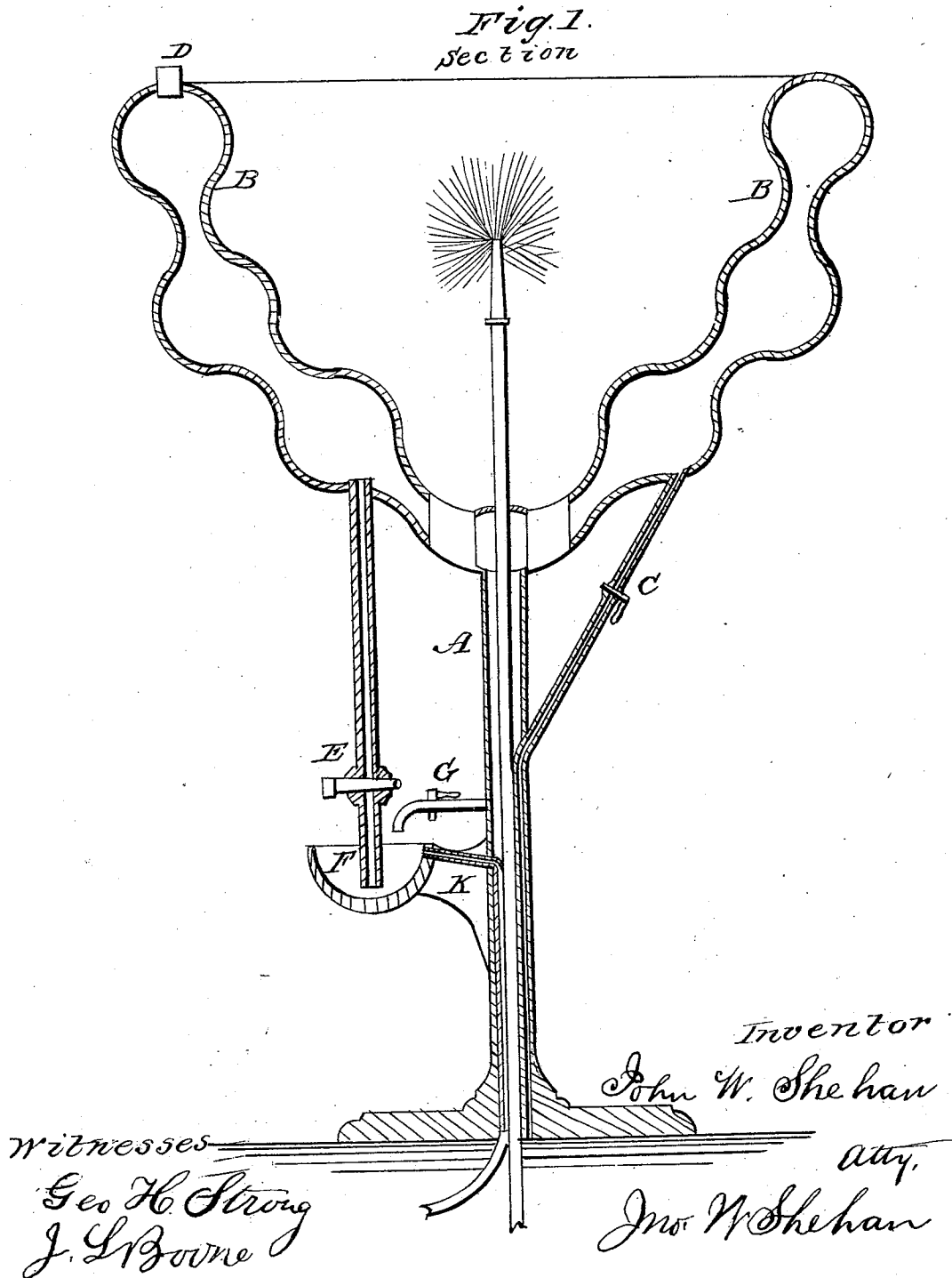


J. W. SHEHAN.

Refracting Attachment for Lamps.

No. 92,661.

Patented July 13, 1869.



# United States Patent Office.

JOHN W. SHEHAN, OF SAN FRANCISCO, CALIFORNIA.

*Letters Patent No. 92,661, dated July 13, 1869.*

## IMPROVEMENT IN 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, JOHN W. SHEHAN, of the city and county of San Francisco, State of California, have invented an Improved Mode of Intensifying Light from Burners; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains, to make and use my said invention or improvements, without further invention or experiment.

The nature of my invention consists in connecting, with a double lamp-globe or chimney, or a globe or chimney having double sides or walls, a supply-pipe, for introducing a fluid between said walls; and, also, in connecting, with said globe or chimney, a safety-pipe or tube, opening into a cup below, partly filled with water, as will be hereinafter fully set forth.

To more fully illustrate and explain my invention, I refer to the accompanying drawings, and letters marked thereon, forming part of this specification, of which—

Figure 1 represents my device as attached to a street-light.

In the drawings—

B is a double globe, containing water or other fluid between its outer and inner shells, which are curved or corrugated, so as to form, with the contained fluid, lenses, arranged horizontally around the flame within, for the purpose of increasing its illuminating-efficiency.

The globe B is here shown as mounted upon a street lamp-post, A, the gas-pipe passing up through the post, in the usual manner.

The supply-pipe C, which is to be connected with the street water-pipe, is also led up inside the post to a convenient height, and then branches from it through an opening provided for it, and terminates in the space between the two shells of the globe B.

At the top of the globe is an opening provided with a stopper, D.

This stopper being removed or loosened, so as to permit the escape of air, the globe may be supplied with water, as required, by turning the stop-cock in the pipe C, and the stopper D may then be fitted tightly into its place.

To allow for the expansion and contraction of the air, water, or other fluid contained in the globe, as well as for safety in the case of steam being formed by the heat of the flame, I provide the safety-tube E, which terminates, at its upper end, in the fluid contained in the globe, and, at the lower end, in the cup F, partly filled with water, so as to cover the end of the tube.

When the top of the globe is closed tight, the cock in the pipe E should be opened, and the water in the globe will be sustained by the atmospheric pressure

upon the water in the cup F, but will yield and descend into the cup, in case of any increase of pressure within the interglobular space.

This attachment also furnishes a very convenient means of changing the water in the globe, and of washing it out thoroughly.

By closing the stopper D, and opening both the pipes C and E, the water will flow freely and rapidly through the globe B, and speedily accomplish the purposes above mentioned.

Water may be supplied to the cup F, from the pipe C, through the branch-pipe G, and the surplus water, if any, may flow off by the pipe K.

By giving the globe B the proper form and shaping, and arranging the lenses, hereinbefore mentioned, in a suitable manner, a very strong light may be thrown out horizontally, (or in other desired direction,) and an effect produced similar to that produced by the well-known light-house lantern of Fresnel.

The same form of globe may be used for movable lamps, in which case the two sides will not be closed at the top, but remain open, and the water be poured into it by hand, from any convenient vessel.

Before water is poured into the globe, the stop-cock E is closed, so as to prevent the water from flowing into the cup, but when the globe is full, and corked air-tight above, the stop-cock is turned, and the water in the globe is kept in equilibrium by the atmospheric pressure on the water contained in the cup.

Should the water enclosed in the globe form an atmosphere of its own, by heat or otherwise, it would press the water into the cup, and remain there until the right temperature is restored, when it will again ascend and resume its former position.

Lamp-chimneys can be made on the same principle, or the globe, or portion which immediately surrounds the light may only be made double and filled with water, in which case a suitable opening will be left at some convenient point, through which the water may be introduced to the space between the sides.

Clear water should be used, as the rays of light will meet with less opposition than in colored water, and the light will not be "deadened."

The refraction of salt water is greater than that of fresh, and a solution of saltpetre will, to some extent, increase the refractive power, and cause a greater illumination.

In cold countries, where there is a liability of the water freezing, it should be withdrawn from the vessel when the central light is not burning, but when burning, the heat, given out from it, will, in most cases, prevent freezing; but when the cold is so intense as to overcome the heat emitted, the water should be withdrawn, as the vessel would be broken should it freeze in it.

The lenses, of which the sides are made, may be of

any of the forms known, and may be graduated as desired.

This device can be used for lighting streets and houses, and, in fact, may be used where a light of any kind is required.

It produces a greater light at a less cost of illuminating-matter than any other device known, while it can be so arranged that the water which supplies the sides can be taken directly from the water-pipes when the device is used in a city.

Having thus described my invention,

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

1. In combination with a double lamp-globe, arranged to contain a fluid, the supply-pipe C, substantially as herein described.

2. In combination with the double globe B, the safety-tube E and cup F, substantially as and for the purposes set forth.

In witness whereof, I have hereunto set my hand and seal.

JOHN W. SHEHAN. [L. s.]

Witnesses:

GEO. H. STRONG,  
J. L. BOONE.