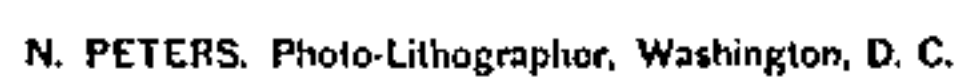


## Lamp for Lighting Gas Burners.

Patented Dec. 17, 1850.





# UNITED STATES PATENT OFFICE.

ROBT. THOMPSON, OF LOWELL, MASSACHUSETTS.

## LAMP FOR LIGHTING GAS-BURNERS.

Specification of Letters Patent No. 7,848, dated December 17, 1850.

*To all whom it may concern:*

Be it known that I, ROBERT THOMPSON, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new or Improved Lamp for Lighting Gas-Burners in Factories; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of said drawings Figure 1, represents an external view of my improved lamp. Fig. 2, is a vertical and central section of the same. Fig. 3, is a vertical and central section of a lantern made on my improved plan, and used for such purpose. Fig. 4, represents a transverse section of the lantern taken at right angles to that in Fig. 3.

In Fig. 2, of the drawings, A represents the oil reservoir of the lamp, B, the wick tube, and C, the wick. A long cylindrical tube D, is made to surround the wick, to rise above the same, and to be covered or closed at its top as seen in the drawings. In the lamp represented in Figs. 1 and 2, this tube is made to shut over the oil reservoir, and to pass down into a cistern E, which is made to extend entirely around the oil reservoir, and is for the purpose of catching any superfluous oil which may by accident be thrown out from the oil reservoir.

The sides of the tube D, are perforated with numerous holes of about one-eighth of an inch in diameter, those around the immediate vicinity of the wick being made about a quarter of an inch apart from one another, while those above the flame, and which are simply for the exit of smoke, hot air, or the volatile products of combustion may be arranged at a greater distance asunder. When the lamp is lighted, and the external surface of that part of the tube D, which immediately surrounds the flame of the wick is brought in contact with the stream of gas proceeding from a gas burner, the gas will be lighted or set fire to as readily, or with about the same facility as it would were it exposed directly to the flame without the intervention of the protector or tube D. The object of the protector is to prevent the contact of light filaments of cotton, or cotton waste with the flame of the lamp.

So dangerous is the use of lamps in factories when uncovered by transparent shades, that their use is generally prohibited in the

cotton factories of this place and elsewhere. It is therefore in order to prevent the flame from coming in contact with the cotton that I have surrounded it with a protector as above described.

Another form of a protector is represented in Figs. 3 and 4, as applied to a lantern, and on the exterior of the flame. The oil reservoir within the lantern or chamber G, is shown at H, the wick tube being seen at I, and the wick at K, the wick tube being made to project from the side of the oil reservoir, and directly over the protector which is seen at L.

The protector L, rises above the bottom of the lantern, is open at bottom, closed at top, and has its sides perforated with holes as seen in the drawings, which holes are about an eighth of an inch in diameter, and situated about a quarter of an inch apart. A plate of mica or other transparent equivalent may be inserted in one or more sides of the lantern in the ordinary manner, for the purpose of allowing the diffusion of the rays of light.

When the lantern is to be used for the purpose of lighting a gas lamp, the lamp of the lantern being supposed to be lighted, the lantern is placed directly over the gas burner, so that the gas may pass up through the perforated sides of the protector, and come in contact with the flame. When this is done the gas issuing from the burner will be lighted.

I am aware that Sir Humphrey Davy surrounded the external flame with one or more cases or layers of wire gauze, the meshes of which were so small as to prevent the explosion of gas coming in contact with the outer surface of the gauze. The object of such fine wire gauze was to interpose between the flame and the gaseous atmosphere a material which from its nature was an excellent conductor and radiator of heat, and which possessed great cooling power, one which in fact becomes a separator of the flame from the gas produced by said flame. For it is a well known philosophical fact, that if we place a sheet of fine wire gauze horizontally over the flame of a candle or lamp, such flame will not pass through the same, while the gas produced by the flame, and which otherwise would be burnt by it will freely pass through the meshes and may be lighted above the gauze. The metallic tissue therefore when of the requisite



fineness possesses the power to extinguish flame, and this being the case the application of such tissue by Sir Humphrey Davy, was for the purpose of preventing combustion  
5 of surrounding gas. So that if the flame of a common lamp be everywhere surrounded properly by thin wire gauze, and in that state immersed into an explosive gaseous mixture, it will be inadequate for  
10 its inflammation, that part only within the cage being burned; communication to the inflammable air without being prevented by the cooling power of the metallic tissue. It is a well known fact that the safety of the  
15 miners' safety lamp, entirely depends upon the perfect state of the wire gauze, and upon the non-existence of any aperture or channel sufficiently large to admit of the passage of flame. Whereas by my factory lamp the  
20 very reverse is the case, as the object of said lamp is to explode or inflame the gas between which and the flame the protector is arranged. The particular object of the protector being to protect the flame, and sparks

proceeding therefrom, from cotton waste, 25 or light fibrous filaments which are so common in factories, and constantly liable to be inflamed. I therefore do not claim the mere surrounding the flame of a lamp with fine wire gauze, or by a perforated material such 30 as will prevent the passage of the flame through it, and the inflammation or explosion of surrounding gas. But

What I claim as my invention is—

The protector, as made and applied to the 35 lamp, and so as not only to be capable of exploding or inflaming the gas brought into contact with it, substantially as specified, but of protecting fibrous matters which may come in contact with the protector, from 40 direct exposure to the flame.

In testimony whereof I have hereto set my signature this twenty-seventh day of September A. D. 1850.

ROBERT THOMPSON.

Witnesses:

ITHAMAR W. BEARD,  
PATRICK O'SULLIVAN.