

(No Model.)

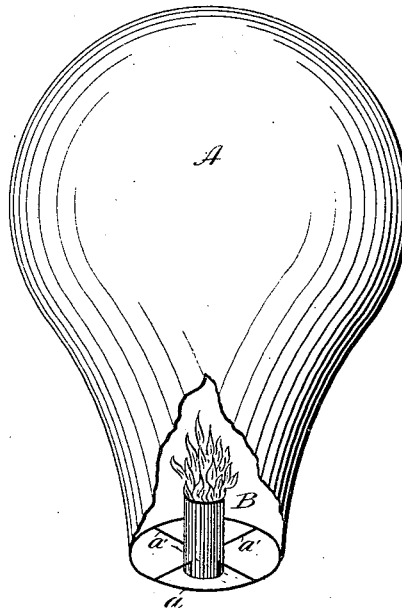
G. A. LILLIENDAHL.

FIRE BALLOON.

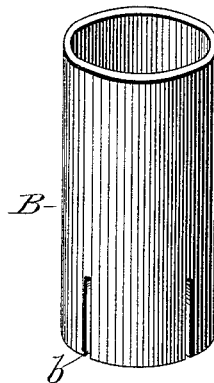
No. 262,235.

Patented Aug. 8, 1882.

*Fig. 1.*



*Fig. 2.*



*Witnesses*

*H. Thom*  
*R. S. Hudepeth*

*Inventor:*

*Gustavus A. Lillindahl*

# UNITED STATES PATENT OFFICE.

GUSTAVUS A. LILLIENDAHL, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO  
CHARLES A. JOHNSON, OF BROOKLYN, NEW YORK.

## FIRE-BALLOON.

SPECIFICATION forming part of Letters Patent No. 262,235, dated August 8, 1882.

Application filed January 23, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAVUS A. LILLIENDAHL, of Jersey City, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Fire-Balloons, of which the following is a specification.

In fire-balloons as commonly constructed a fire-ball or torch of cotton or other absorbent material is secured in the neck of the balloon, and when the balloon is to be used this cotton or absorbent material is saturated with alcohol or other suitable burning-fluid and then ignited. In order to prevent the balloon itself from taking fire, (which it is liable to do, especially when any wind is blowing,) it has been customary to make the neck of the balloon very large, and therefore the effect of the fire in rarefying the air in the balloon is greatly lessened.

The object of my invention is to prevent the balloon from taking fire, even when the neck is made of small size, and to accomplish this result without materially adding to its weight.

To this end my invention consists in the combination, with a fire-balloon, of a chimney made of asbestos paper or other extremely light and non-combustible fabric, and which is adapted to surround the flame, and thereby prevent the balloon from being ignited. The ring at the mouth of the balloon is usually provided with cross-wires, to which the fire-ball or torch is secured, and the chimney may be notched at the lower end, so as to fit over these wires, and thereby be retained in an upright position.

In the accompanying drawings, Figure 1 represents a perspective view of a balloon having the paper at the neck broken away, and showing my improved chimney or fire-protector applied thereto. Fig. 2 illustrates an enlarged view of the asbestos-paper chimney or fire-protector detached from the balloon.

A designates the balloon, and *a* the usual ring at the neck thereof, provided with cross-wires *a' a'*. At the intersection of the cross-wires *a' a'* is placed the usual fire-ball or torch, which may be composed of cotton or other absorbent material, which is to be saturated with alcohol or other combustible fluid when the balloon is to be used.

B designates my improved chimney or fire-protector, which consists simply of a short tube, open at both ends, and adapted to be placed over the fire-ball or torch. This chimney is made of asbestos paper or other non-combustible fabric which has so little weight that it will not materially increase the weight of the balloon, and because of its fire-proof qualities and extremely light weight asbestos paper is very advantageous for this purpose. In order to attach the chimney I preferably notch or slit it at its lower end, as at *b*, and it may then fit over the cross-wires *a' a'*, and will be securely held in position. Before the fire-ball or torch is lighted the chimney is placed over the same, which confines the flame and prevents its being blown into contact with the paper wall of the balloon. The chimney or protector enables the neck of the balloon to be made small in diameter, and consequently the fire is much more effective in rarefying the air in the balloon.

It is obvious that the details of my invention can be modified in various ways without departing from its principle—*i. e.*, the employment of asbestos paper or other suitable material for protecting the balloon from the fire that inflates it.

Having thus fully described the nature, construction, and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a fire-balloon, of a fire-protecting device made of asbestos paper or other suitable light non-combustible material adapted to surround the flame, substantially as described.

2. The combination, with a fire-balloon, A, of the chimney B, made of asbestos paper or other suitable light non-combustible material adapted to surround the flame, substantially as and for the purpose herein specified.

3. The combination, with the balloon A, having cross-wires *a' a'*, of the non-combustible chimney B, provided with means for attaching it to said balloon, substantially as and for the purpose specified.

G. A. LILLIENDAHL.

Witnesses:

R. R. MOFFATZ,  
JOHN N. PATTON.