

C. W. BERGENER.  
 TUBULAR LANTERN.  
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1,069,370.

Patented Aug. 5, 1913.

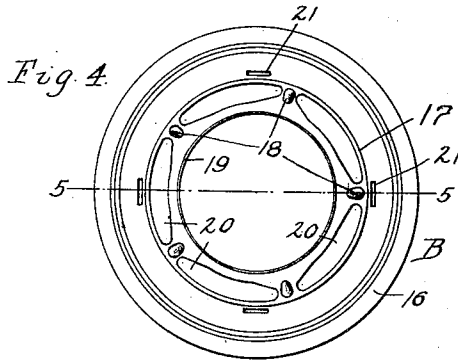
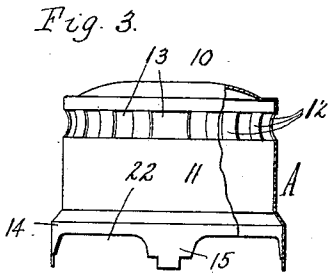
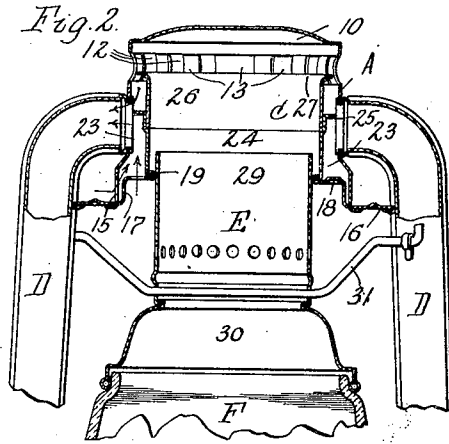
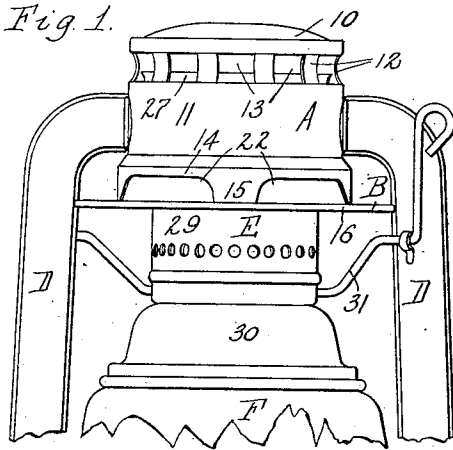


Fig. 6.

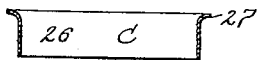


Fig. 5.

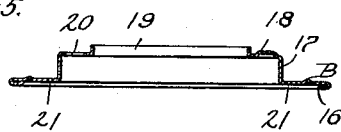


Fig. 7.

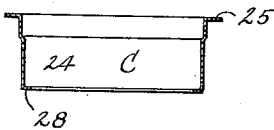
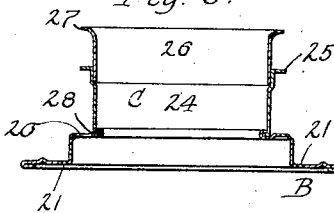


Fig. 8.



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# UNITED STATES PATENT OFFICE.

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## TUBULAR LANTERN.

1,069,370.

Specification of Letters Patent.

Patented Aug. 5, 1913.

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*To all whom it may concern:*

Be it known that I, CHARLES W. BERGENER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Tubular Lanterns, of which the following is a specification.

This invention relates to the top portion or dome of tubular lanterns of the cold blast type and has the object to improve the devices by which air for the support of the flame is supplied to the tubes and the products of combustion are discharged.

In the accompanying drawings: Figure 1 is an elevation of the top portion of a tubular lantern provided with this improvement. Fig. 2 is a vertical section of the same. Fig. 3 is a view of the outer wall of the dome detached, partly in elevation and partly in section. Fig. 4 is a top plan view of the bottom plate of the dome detached. Fig. 5 is a vertical section in line 5—5, Fig. 4. Fig. 6 is a sectional elevation of the upper part of the inner wall of the dome. Fig. 7 is a similar view of the lower part thereof. Fig. 8 is a detached sectional elevation of the base plate and inner wall.

Like reference characters refer to like parts in the several figures.

A represents the outer wall of the dome comprising a top plate 10, a cylindrical body 11, connecting bars 12 separated by openings 13, and a downwardly enlarged base 14 terminating in legs 15, all preferably drawn or stamped from a single blank of sheet metal.

B represents the annular base plate of the dome, comprising a base flange 16, a short upstanding collar 17 on the same, radial arms 18 extending inwardly from the upper edge of this collar, and an attaching ring 19 supported by the inner ends of these arms. The latter are separated by circumferentially elongated openings 20. The base plate B is provided outside of the collar 17 with slits 21 into which the legs 15 are inserted and in which the legs are secured, preferably, by clenching the tenons or reduced ends of the legs against the underside of the base plate. The spaces 22 between the legs 15 form air inlet openings above the base plate.

C represents the inner wall of the dome supported by the base plate B and sepa-

rated from the outer wall A by an annular air passage 23. This inner wall consists, preferably, of a lower portion 24 having at its upper end an outwardly projecting flange 25, and an upper portion 26 having an outwardly projecting top flange 27 arranged adjacent to the openings 13 between the bars 12. The lower end of this inner wall is secured upon the attaching ring 19 of the base plate B by a lock joint formed, preferably, by an inwardly projecting bottom flange 28 on the lower portion of the inner wall, around which flange the supporting ring 19 of the base plate is closed. The two parts of the inner wall are rigidly secured together by any suitable means, for instance by interlocking the two parts by punch pricks.

D represents the air tubes which are secured at their upper ends to the cylindrical body 11 of the dome in the usual way. The intermediate flange 25 of the inner wall stands opposite the mouths of the tubes and operates to deflect toward the tubes air currents which flow through the annular air passage 23 between the outer and inner walls of the dome.

E represents the globe holding chimney which is vertically movable in the central opening of the base plate B, in which opening it is guided, and which is composed, preferably, of an upper substantially cylindrical portion 29 and a lower downwardly flaring portion 30 which bears upon the globe F. This chimney may be provided with any suitable means for raising and lowering it, for instance a cranked transverse lifter shaft 31 engaging the upper portion 29 of the chimney.

In the operation of the lantern in a quiet atmosphere, the products of combustion pass from the chimney E through the central passage formed by the inner wall C of the dome and out through the openings 13 underneath the top plate 10. Outside air passes into the lower portion of the annular air passage 23 through the openings 20 in the base plate B and the openings 22 in the enlarged base portion of the dome and this air is deflected into the tubes by the intermediate flange 25 on the inner wall C. When the lantern is blown upon by the wind or moved about, this action is modified in many ways, depending upon the direction of the wind and of the motions. For illustration, the

top flange 27 of the inner wall obstructs the annular air passage 23 and resists the outflow of air from the upper end of this passage, but the annular opening formed  
 5 between this top flange and the outer wall of the dome permits air to enter the top of this passage in a downward direction under certain wind conditions or when the lantern is suddenly lifted or swung by the bail, and  
 10 any current of air flowing downwardly through the upper part of the air passage above the intermediate flange 25 is deflected by the latter into the tubes and supplies the flame although the air current may be re-  
 15 versed in the passage below this flange and flow downwardly and out through the openings 20 and 22. The tubes receive in this manner an abundant supply of cool outside air under any condition of wind or motion  
 20 to which the lantern can be subjected, thereby maintaining a bright and smokeless flame under all circumstances and preventing overheating of the lantern.

The invention is equally applicable to  
 25 lanterns with two tubes and to lamps having a single tube.

I claim as my invention:

1. The combination with an air tube, of a dome comprising a top plate, an outer body  
 30 wall and connecting bars separated by openings, said top plate, body wall and connecting bars forming a rigid structure, an inner wall separated from said outer wall by an annular air passage, an annular base plate  
 35 to which said outer and inner walls are rigidly secured, and a vertically movable chimney arranged with its upper portion within the lower portion of said inner wall, substantially as set forth.
- 40 2. The combination with an air tube, of a dome comprising an outer wall to which the upper end of the tube is connected, an inner wall separated from the outer wall  
 45 by an annular air passage and provided above the tube with an outwardly projecting flange and opposite the tube with an external deflecting flange, and an annular base

plate to which the lower ends of said outer and inner walls are rigidly secured and which is provided with openings admitting  
 50 air to the passage between said walls, substantially as set forth.

3. The combination with an air tube, of a dome comprising a top plate, an outer body wall and connecting bars separated by  
 55 openings, an inner wall separated from said outer wall by an annular air passage, and an annular base plate, said outer wall, top plate, connecting bars, inner wall and annular base plate forming a rigid structure, 60  
 and a vertically movable chimney arranged with its upper portion within the lower portion of said inner wall, substantially as set forth.

4. The combination with an air tube, of 65 a dome comprising a top plate, an outer body wall having downwardly extending legs, and bars connecting said top plate and said outer wall and separated by openings, said top plate, outer wall and connecting  
 70 bars forming a rigid structure, an inner wall separated from said outer wall by an annular air passage, and an annular base plate provided with air inlet openings and secured to said inner wall and to the legs  
 75 of said outer wall, substantially as set forth.

5. The combination with an air tube, of a dome comprising an outer wall to which said tube is connected, an inner wall separated from the outer wall by an annular air  
 80 passage and having an inwardly turned flange at its lower end, and an annular base plate to which said outer and inner walls are secured and which is provided with air inlet openings between said walls, said base  
 85 plate being secured at its inner edge to said flange of the inner wall by a lock joint, substantially as set forth.

Witness my hand, this 5th day of December, 1912.

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Witnesses:

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WALLACE I. MILLER.