C. GERSTEN.

Lantern.

No. 22,723. Patented Jan'y 25, 1859

Fig. 1,

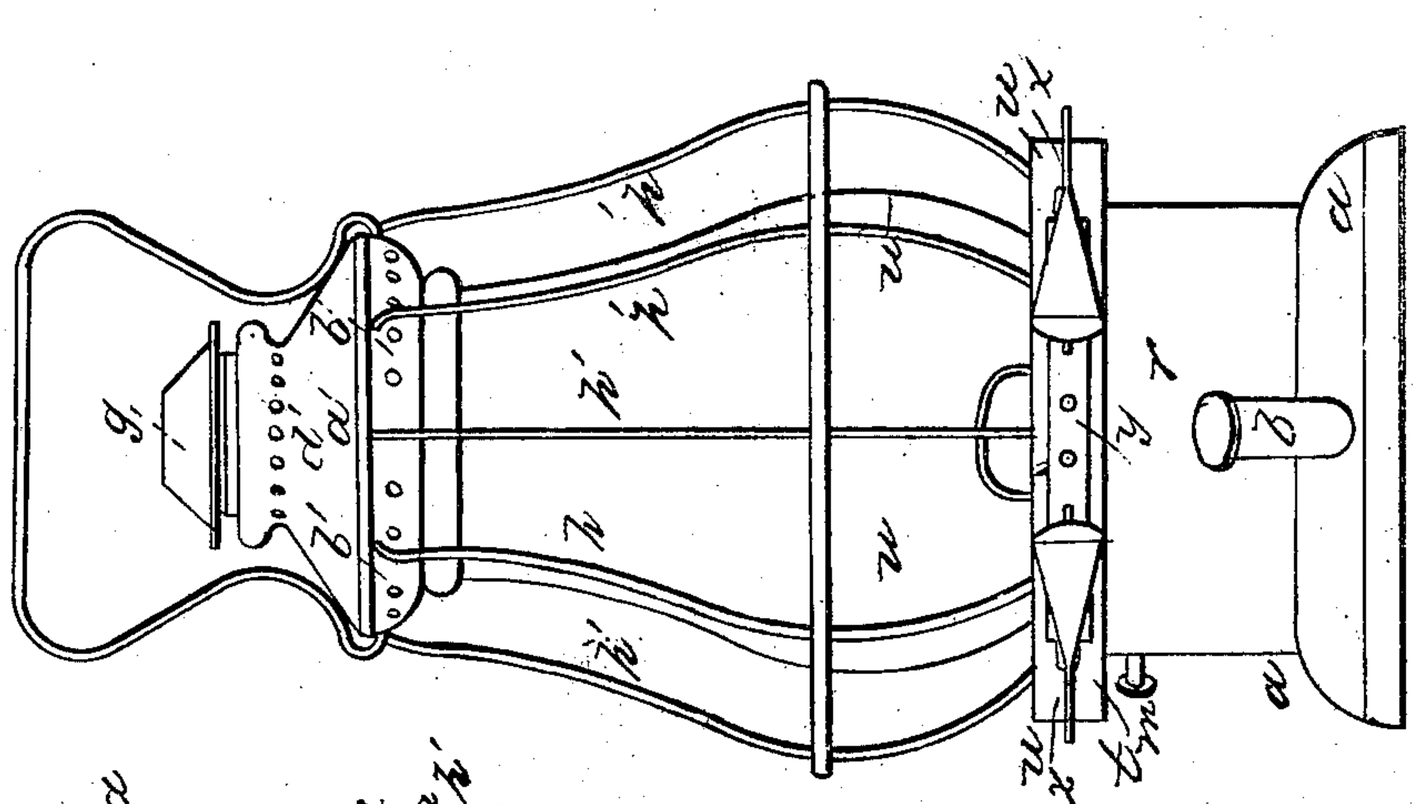


Fig. 3. A a

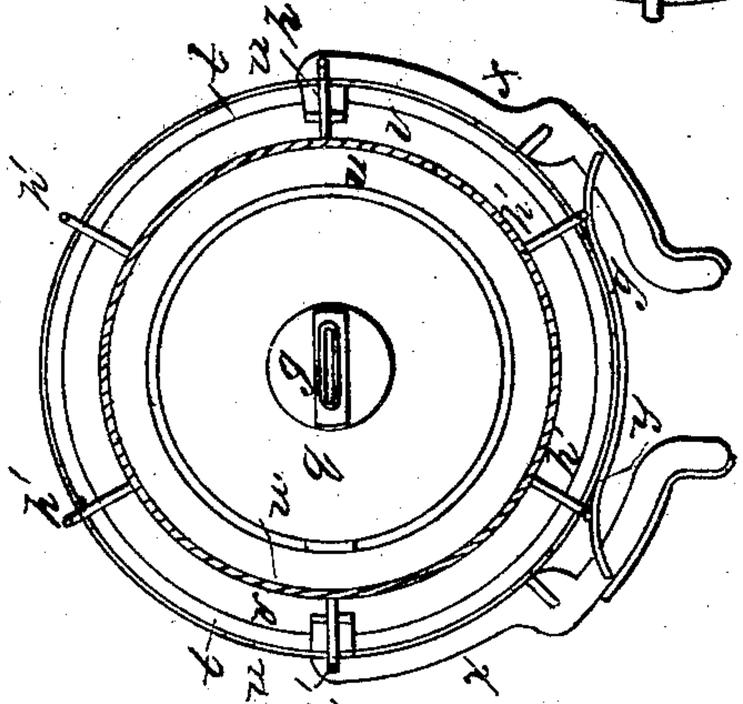
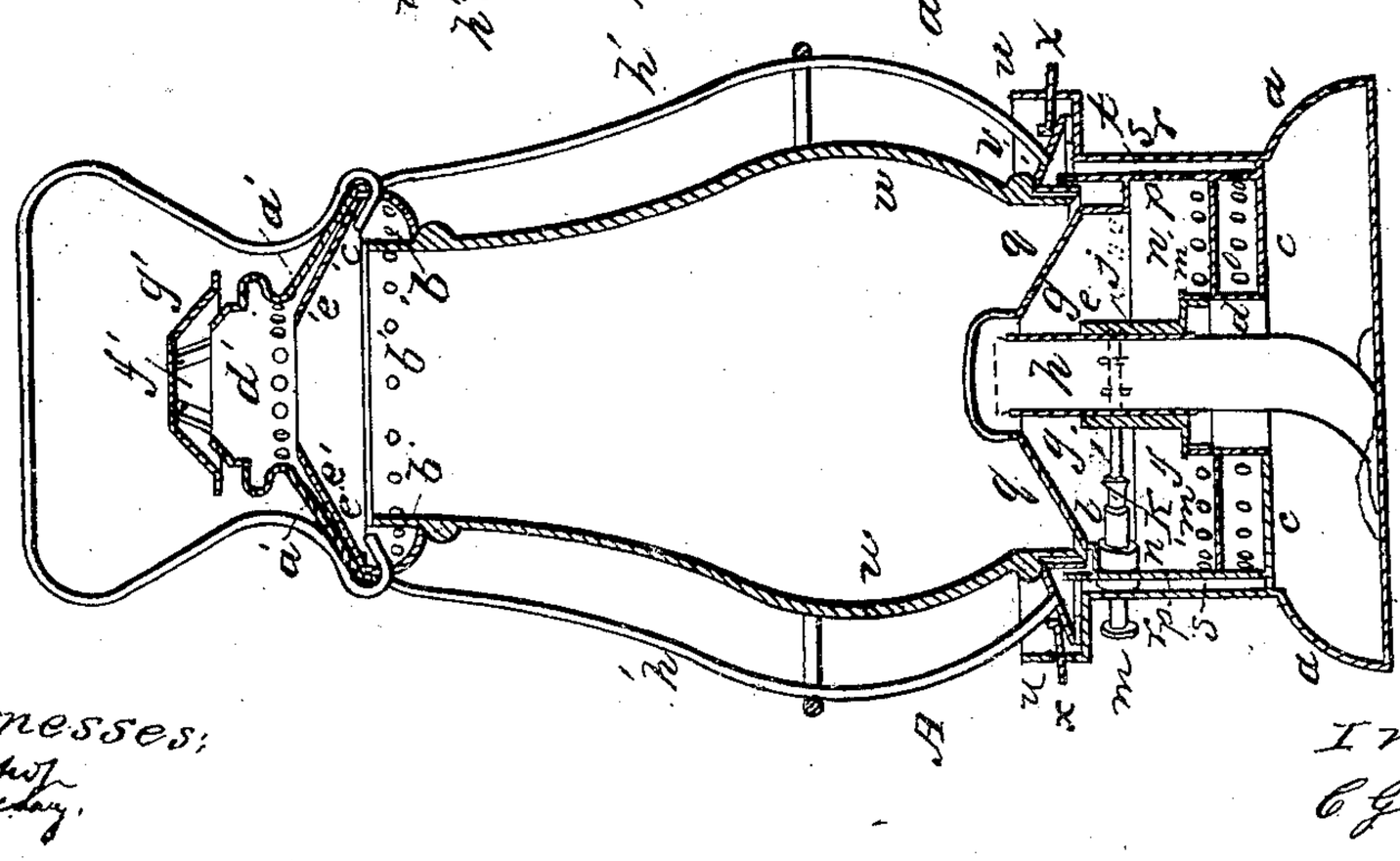


Fig. 2,



Witnesses;
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Andrew Delany.

Inventor.
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UNITED STATES PATENT OFFICE.

CONRAD GERSTEN, OF BROOKLYN, NEW YORK.

LANTERN.

Specification forming part of Letters Patent No. 22,723, dated January 25, 1859; Reissued September 17, 1867, Nos. 2,765 and 2,766.

To all whom it may concern:

Be it known that I, CONRAD GERSTEN, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Lanterns for Burning Coal-Oil; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the lantern; Fig. 2, a vertical central section; and Fig. 3 a horizontal section taken at the line A, *a*, of Fig. 2.

The same letters, indicate like parts in all the figures.

The lanterns which have heretofore been made for burning coal oil will not admit of being moved through the atmosphere with any degree of velocity, or of being exposed to the wind without being extinguished, and unsteady currents of air affect the flame so as to cause them to smoke to a very considerable extent, and what has been another source of serious inconvenience in the use of such lanterns is that the wick cannot be regulated without taking the burner out of the lantern, and in consequence it cannot be adjusted in windy weather without the danger of extinguishing the flame.

The object of my said invention is to avoid the defects above enumerated, and others not necessary to enumerate. And to these ends my said invention consists in so controlling the supply of air to feed the flame that it cannot be affected within the lantern by any agitation of the air outside. And my said invention also consists in keeping the oil chamber cool (which is very important in lamps for burning that class of oils) by interposing an air chamber between the oil chamber and what may be termed the burner or flame chamber, so that by the circulation of air in the said cooling chamber, the oil will be prevented from being heated. And my invention also consists in controlling the wick from the outside of the lantern by a spindle extending from the roller that operates the wick through the several casings to the outside where it is provided with a button or other suitable means for operating the roller.

In the accompanying drawings (*a*) represents the pedestal which is hollow to form a reservoir to contain coal oil and provided with a tube (*b*) outside and a cap screw through which the oil is to be supplied. The upper plate (*c*) of this oil reservoir has a central hole provided with a cylindrical tube (*d*) which extends up to the required height, and to the upper end of which is fitted the burner (*e*) of the usual construction for such lanterns, and consisting of a cap (*f*) fitted to the tube (*d*) and provided with a flat wick tube (*g*) in which the upper end of a flat wick (*h*) slides, the main body of the wick being immersed in the oil. This wick is moved up or down by two toothed wheels on a spindle (*i*) mounted in the casing (*j*) which surrounds the wick tube. The end of this spindle is square to fit in the socket of another spindle (*k*) which slides and turns in a tubular box (*l*) passing through all the surrounding casing, and provided with a thumb and finger wheel (*m*) outside. After the wick tube has been put in place and the spindle (*k*) is pushed in to engage the spindle (*i*), by simply turning the thumb and finger wheel outside, the elevation of the wick can be readily adjusted. The bottom (*m'*) of the burner chamber (*n*) is about half an inch above the upper plate (*c*) of the oil reservoir so as to form an air chamber (*o*) interposed between the flame and the oil reservoir, and the cylindrical ring (*p*) which surrounds this space, and which forms the periphery of the burner chamber is provided with three rows of holes, the lower row to admit air to the air chamber (*o*), the second to admit air to the burner chamber (*n*) to supply the wick below the deflector, to be presently described, and the upper row to supply air to the flame above the deflector, which deflector is represented at (*q*) and is essentially of the usual form, but it is made to inclose entirely the flame chamber by extending it so that its periphery fits the inside of the cylindrical ring (*p*) and extends down below the upper range of holes. It is swelled up in a conical form, and in the center there is a boss surrounding the upper end of the burner and wick which boss has a slot cut in it a little wider than the thickness of the wick for the passage of the flame, and in consequence of entirely inclosing the flame chamber except the aperture just above the burner for the passage of the flame, the currents of air which enter the flame chamber are all deflected toward the burner to feed the flame,

and no agitating currents are permitted to take place.

The cylindrical ring (p) is surrounded by an outer cylindrical casing (r) leaving an annular space (s) between the two, closed at bottom by the pedestal, and open at top to the inside of the lantern. A little below the upper edge of the ring (p) the outer casing spreads out in the form of a horizontal flanch as at (t) and then turns up as at (u) to form a seat and inclosure for the lower metallic ring (v) of the lantern glass (w) which may be of the form represented, or of any other suitable form. To the part (u) of the outer casing are hinged two horizontal levers (x, x,) controlled by a spring (y) the tension of which forces inward the outer end of the levers which are turned inward and play through slots in the casing. The other end of the said levers are so curved as to be both operated conveniently by the thumb and finger to contract the spring. When so operated the ring (v) of the lantern glass (w) can be let down onto its seat, and then by letting go the levers the ends that play through the slots in the outer casing are forced inward over the ring thereby securing the lantern glass to the pedestal. This it will be perceived entirely incloses all the passages which can admit air to the burner. But the upper end of the glass lantern is open and provided with a ring (a') having two ranges of holes, one (b') in the lower part so that the entering currents of air have an upward direction, and must curve around the inner edge or rim (c') of the upper end of the glass; and the other (d') above this which enter above a deflecting ring (e'). The upper part of ring (a') has a central hole (f') covered by a conical cap (g'). By these or equivalent means provision is made for the supply of atmospheric air to feed the flame, and for the escape of the products of combustion.

The air which enters through the aperture at top to the inside of the lantern passes down the annular space (s) and thence enters through the series of holes in the cylindrical ring (p) to the cooling air chamber (o) and to the burner chamber (n) to supply the flame at the junction with the burner, and through the upper series of holes above the deflector to supply the flame just above the deflector, and to prevent any sudden downward current from affecting the flame, and as the supply of air can only reach the holes leading to these compartments by descending through the narrow annular space the current supplied to the flame cannot be materially disturbed by any agitation outside the lantern. By reason of this mode of directing the currents, and the inclosing of the burner chamber by the deflector, the flame is thoroughly protected against all disturbing influences outside, and the arrangement for controlling the wick from outside the lantern can be used under all circumstances, and in all kinds of weather without danger of being extinguished, or of smoking, while at the same time the oil is prevented from being overheated by the interposition of the cooling chamber. The glass lantern may be protected by metallic rods (h') or other suitable means.

What I claim as my invention, and desire to secure by Letters Patent as an improvement in lanterns, is—

1. The mode of controlling the currents of air which feed the flame, by taking the air from the top of the lantern and causing it to pass down in a narrow annular passage to the apertures leading to the burner, substantially as described, in combination with the deflector which incloses the burner chamber, substantially as described.

2. I also claim in combination with a lantern in which the flame is protected against disturbing causes outside, substantially as described, the arrangement substantially as described for controlling the wick from outside the lantern as described.

3. I also claim combining with the burner and the oil reservoir, and interposed between the two, an air chamber for preventing the oil from being overheated, as described.

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