

M. A. DIETZ.  
Lamp Burner.

No. 23,160.

Patented March 8, 1859.

Fig. 1,

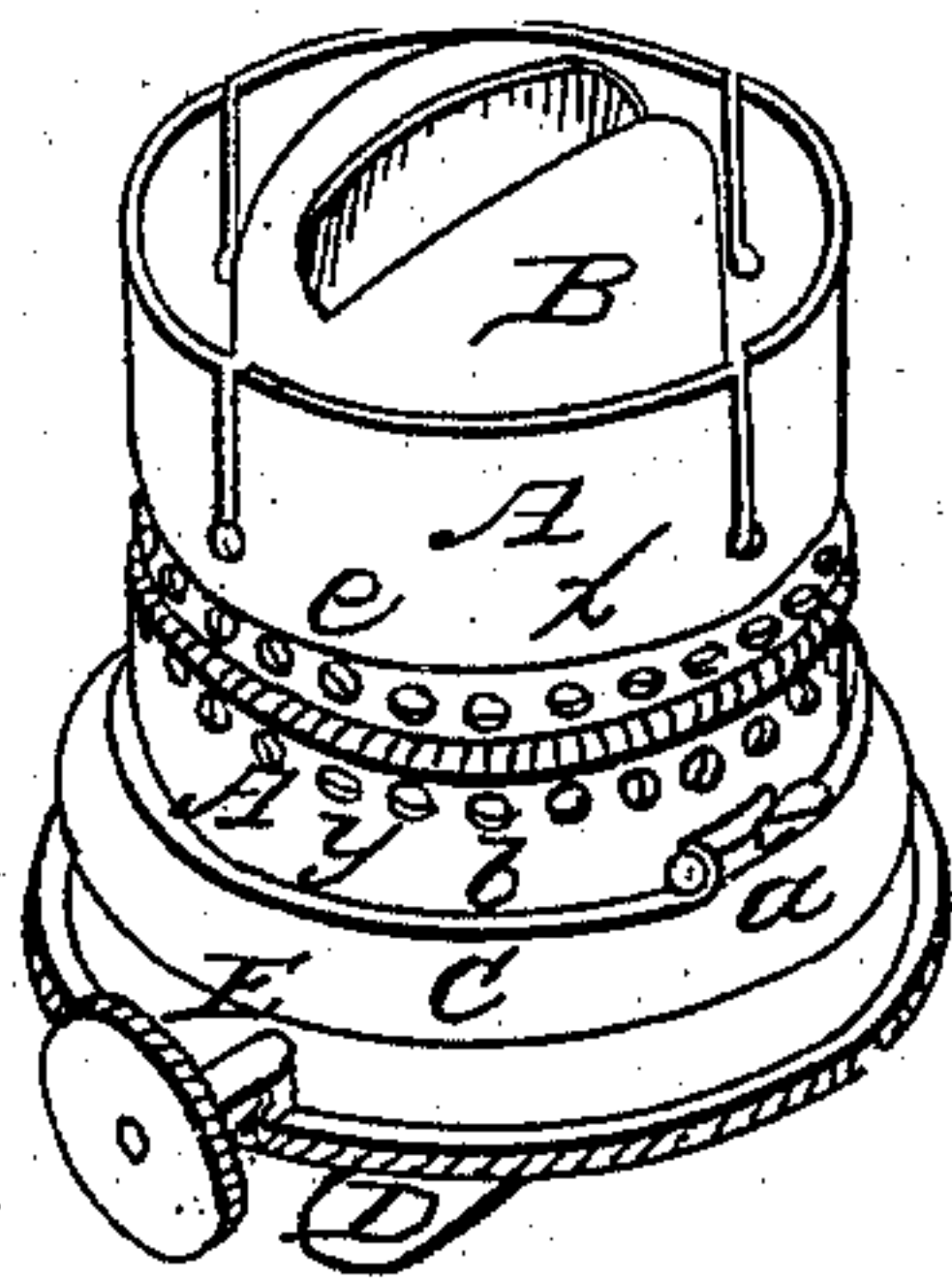


Fig. 2,

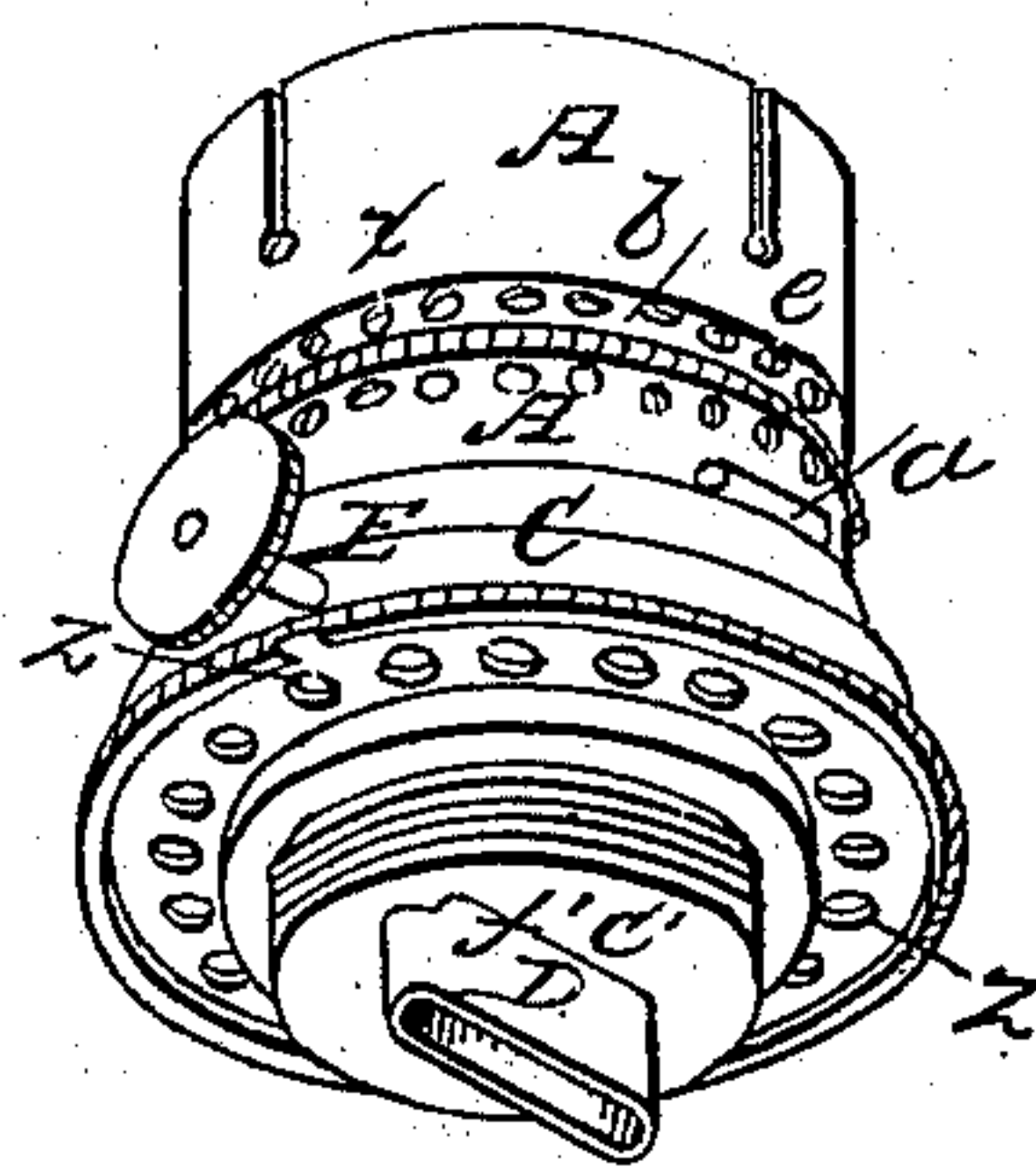


Fig. 3,

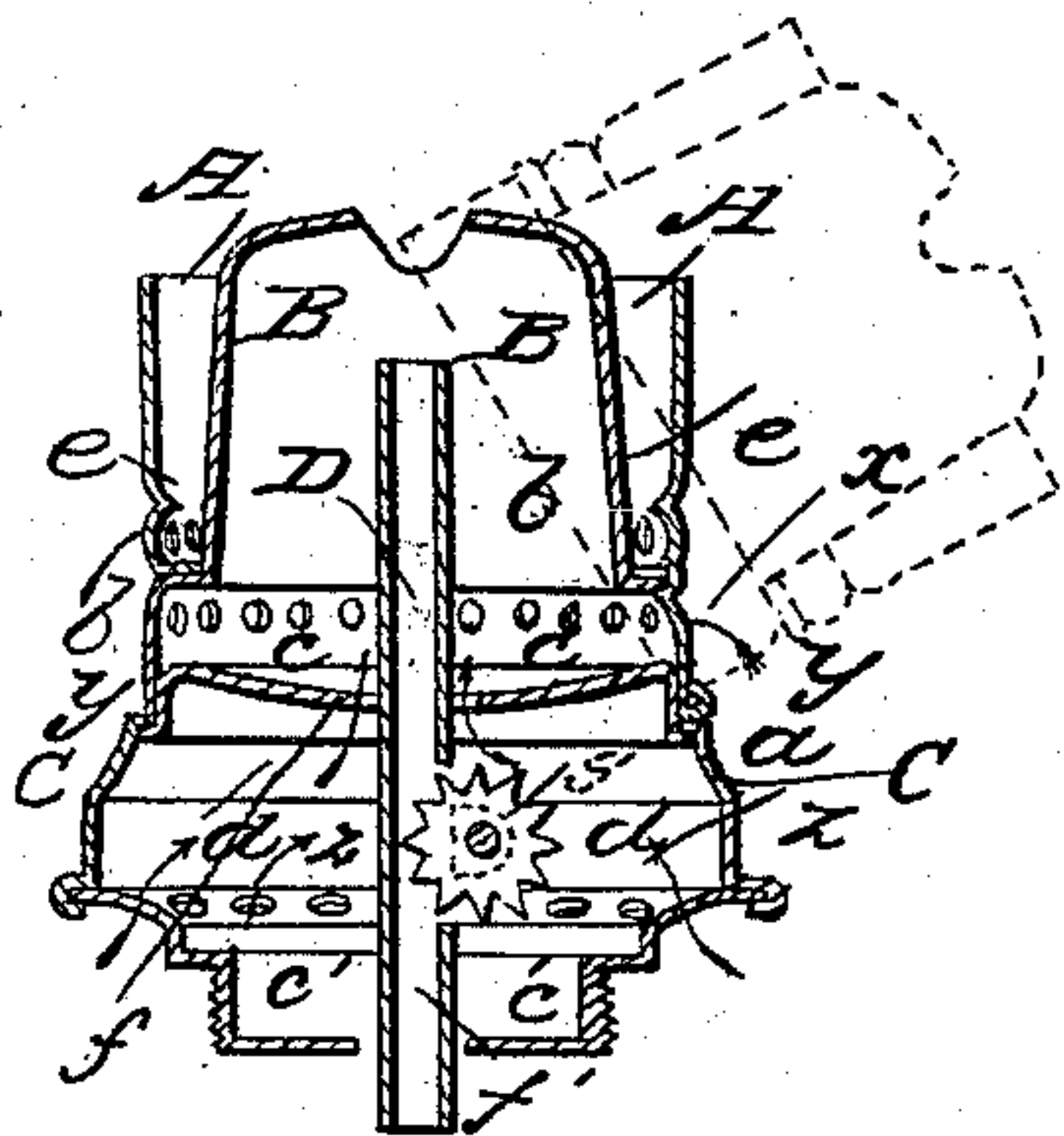
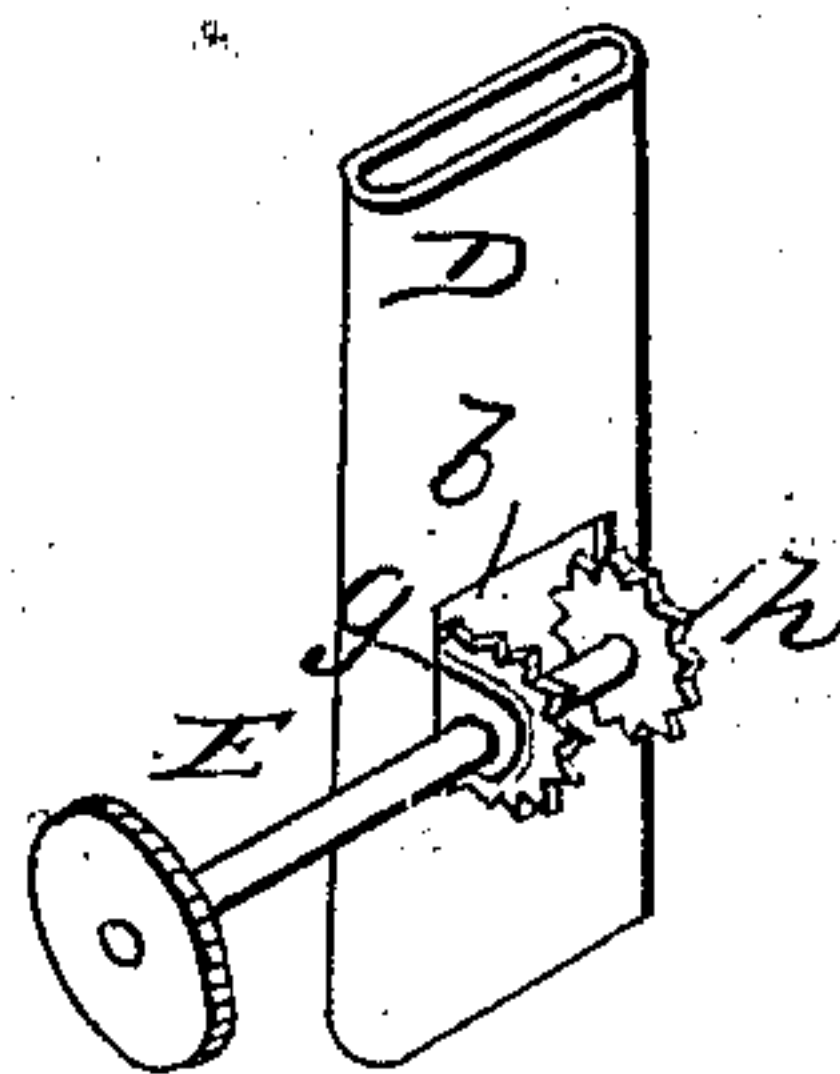


Fig. 4,





# UNITED STATES PATENT OFFICE.

MICHAEL A. DIETZ, OF BROOKLYN, NEW YORK.

## LAMP.

Specification of Letters Patent No. 23,160, dated March 8, 1859.

*To all whom it may concern:*

Be it known that I, MICHAEL A. DIETZ, of Brooklyn, State of New York, have invented a new and useful Improvement in Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1, represents a perspective view of the top of a lamp constructed on my improved plan. Fig. 2, a similar view showing the underside of the top. Fig. 3, a vertical section of the same. Fig. 4, a perspective view of the wick tube with the spindle and feed wheels.

My improvement relates more especially to that class of lamps with flat wicks which are provided with a deflector as now in general use for burning coal or carbon oil and other such fluids.

These lamps as heretofore constructed are in so far defective as that the flame is not perfectly steady and regular, and the light not always so clear and brilliant as might be desired, which in a great measure is to be attributed to the manner in which the air is supplied to the flame. The fresh air from the outside as it enters at the sides through a series of apertures provided for this purpose in the chimney band, being repulsed at first by the heated air of the inside, rises up along the sides of the deflector, thus establishing a continuous current which flows only along the boundaries of the inner space under the deflector, thus only coming in contact and commingling with the gaseous products at the upper part of the flame above the wick;—no air, or at least but a very small portion, flowing in at the bottom of the flame close to the wick. Again as by the peculiar shape of the deflector or cone which incloses the wick tube, a large portion of the caloric produced by the flame is absorbed and retained by the burner, the wick tube becomes so highly heated that it causes the burning fluid to evaporate more rapidly than is necessary for the regular supply of the flame.

To obviate which defects is the object of my present improvement and it consists in forming the lower part of the top into an air chamber, near the bottom of which a series of holes are pierced for the admission of fresh air, and at the upper part of which a narrow aperture is left on each side of the wick tube, for the passage upward of the

air from the air chamber beneath, by means of which a continuous current is established running upward along the wick tube, cooling the latter as it passes up, and bringing the air to a proper temperature previous to its being brought in contact with the gaseous products of the oil at the lower part of the flame, which materially assists in producing a brilliant, steady and regular light.

To enable others skilled in the art to make construct and use my improvement I will now proceed to describe it in detail, omitting the description of such parts as are not essential to the full understanding of my present improvement.

In the accompanying drawing the chimney band (A) to which the cone or deflector (B) is secured is represented as being attached to the top (C) of the lamp, by means of a hinge joint (*a*); and provided with a double row of apertures (*x* and *y*) arranged the one above and the other below the groove (*b*) in which the flange of the deflector (B) is fitted and secured. Through the lower row (*y*) of holes air is supplied to the upper part of the flame at the top of the deflector, while the cold air which enters through the upper row (*x*) serves the purpose of insulating the glass chimney from the action of the heat evolved from the flame and cone or deflector—inasmuch as the heat of the flame as it ascends the chimney induces a strong current as well through the lower as upper row of holes. The chimney band (A) for this purpose being so formed as to present a sort of annular projection (*c*) on its inside immediately above the upper row of holes (*x*) to prevent the glass chimney from descending so far as to close their communication with its inner side. But as by constructing it in this manner alone, a sufficiency of oxygen is not supplied for the entire consumption of the oil as fast as it is generated into gas, the air only being brought into contact with it—save to a very limited extent—at the top of the flame, and as for the more thorough consumption of all oils, a sufficient amount of oxygen is required to be fed to the flame at its lower end; in order to raise the gases to the proper degree of heat to be entirely consumed when mixed with the requisite quantity of oxygen; and as the wick tube as heretofore secured to the top had no means attached to it for the purpose of keeping it cool, and hence becomes heated to such a degree as to gen-



erate gas from the oil faster than can be consumed; I have arranged and formed a chamber (*d*) immediately underneath the upper plate (*c*) of the top into which the  
 5 fresh air is admitted through a series or row of holes (*z*) on its under side, whence it passes in a steady current up along the flat sides of the wick tube (*D*) and thence up  
 10 it mixes; it in its passage upward cooling the wick tube (*D*), and in turn being brought to the requisite degree of heat, or nearly so, to mix with the flame at its lower end, without cooling it to such an extent as  
 15 to injuriously affect its burning, but on the contrary materially increasing the brilliancy of the light obtained, and consuming the smoke which would otherwise escape were these apertures and air chamber not so ar-  
 25 ranged.

In passing the air up along the wick tube from the air chamber; apertures (*f*) are formed on either side in the upper plate (*c*) for this purpose; corresponding apertures  
 25 (*f'*) being also formed in the lower plate (*c'*), connecting with the oil chamber of the lamp on the one side and the air chamber (*d*) on the other, so that in the event of any gas by the heat of the wick tube or top of  
 30 the lamp, being generated inside of the lamp, it may pass off through the air chamber up alongside of the wick tube and mix with the flame along with the air and there be consumed; thus avoiding any disagree-  
 35 able smell by its escape unconsumed into the room; this same passage also serving to conduct any oil which may happen to overflow the wick back into the oil chamber again.

40 On one side of the wick tube (*D*) two

lugs (*g* and *g'*) are stamped out, of a suitable size and shape to form a support or bearing for the spindle (*E*) of the feed wheels (*h*), for which purpose they (the lugs) are bent outward at right angles to the  
 45 wick tube or thereabout, and holes formed in them, into which the ends of the spindle (*E*) are then inserted and properly secured, that is to say in such manner that while they cannot be withdrawn, they will yet be  
 50 free to rotate around their axes, so that by turning the spindle, the feed wheels being in contact with the wick, the latter may be raised or lowered as circumstances may re-  
 55 quire. By securing the spindle to the wick tube in this manner, instead of soldering, the former can not be disengaged from the latter no matter what amount of heat may be brought to bear upon it, which is a point  
 60 of great practical importance.

Having thus described my improvement what I claim as new and desire to secure by Letters Patent is—

The arrangement of an air chamber (*d*) in the top of a lamp having a flat wick, 65 when said lamp is provided with a cone or deflector (*B*) for feeding air to the flame, and the air chamber (*d*) with a series of holes (*z*) for the admission of fresh air, and openings (*f*) for its passage upward along  
 70 the sides of the wick tube, or their or either of their equivalents, in the manner and for the purposes substantially as set forth.

In testimony whereof, I hereunto set my hand to this specification.

MICHAEL A. DIETZ.

Witnesses:

CHS. P. DIETZ,  
 EDWD. J. HAMILTON.