H. A. STADLER.

ILLUMINATING APPARATUS FOR OVENS.

No. 190,637. Patented May 8, 1877.

Fig. 1.

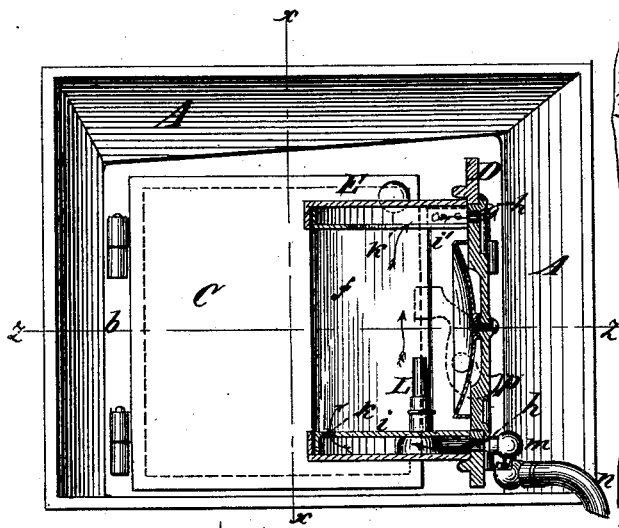


Fig. 2.

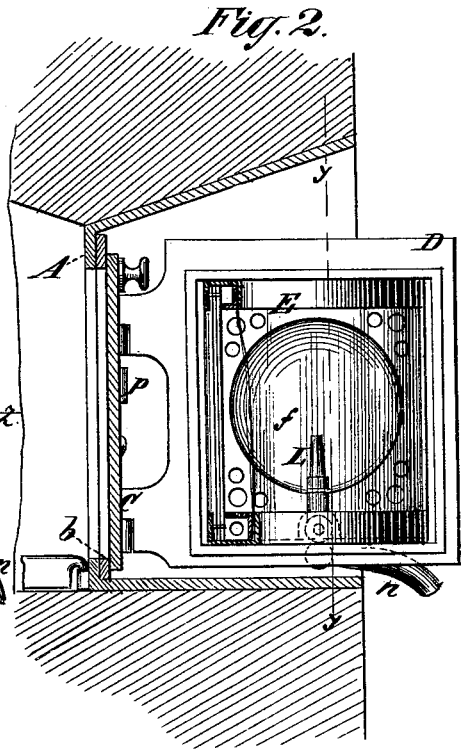


Fig. 3.

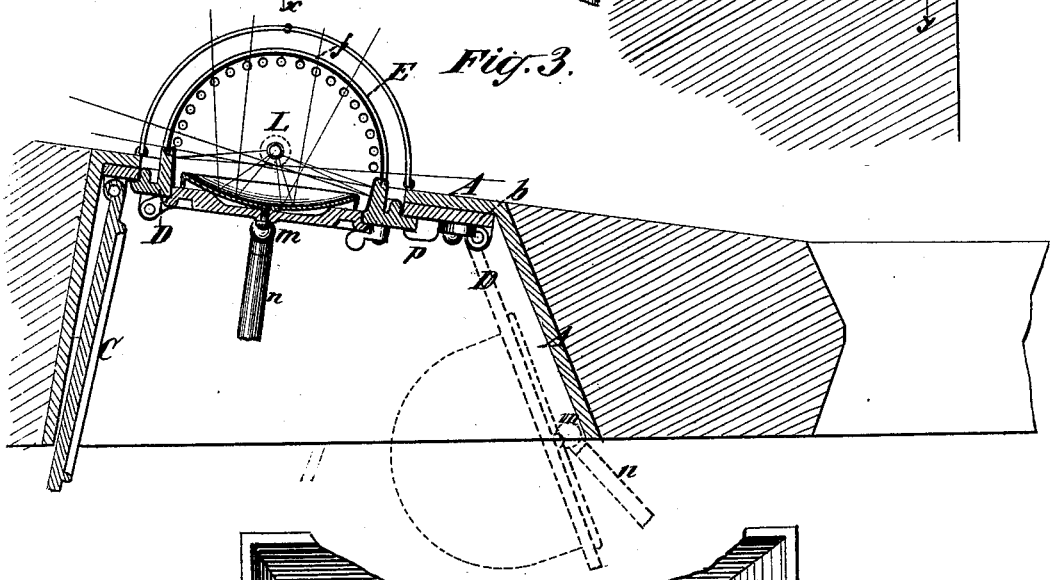
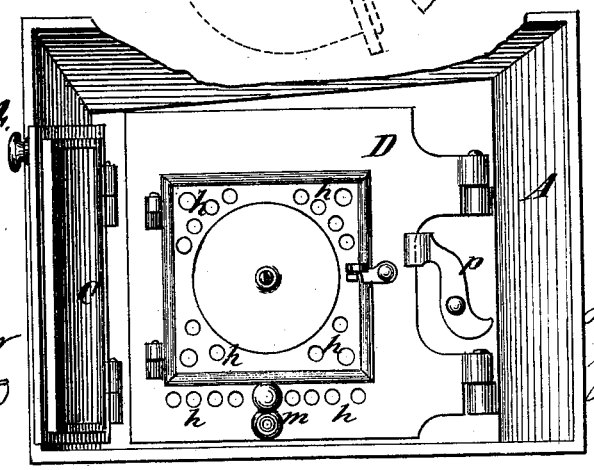


Fig. 4.



Witnesses
John. Becker
Fred. Haynes

Inventor:
H. A. Stadler
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

HENRY A. STADLER, OF NEW YORK, N. Y.

IMPROVEMENT IN ILLUMINATING APPARATUS FOR OVENS.

Specification forming part of Letters Patent No. **190,637**, dated May 8, 1877; application filed April 17, 1877.

To all whom it may concern:

Be it known that I, HENRY A. STADLER, of the city and State of New York, have invented an Improved Illuminating Apparatus for Ovens, also applicable to other purposes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification.

My invention is more particularly designed for bakers' ovens, but it may be advantageously used by chemists in the hoods of their laboratory furnaces, or applied to any inclosure which it is desirable to illuminate, but which contains gases or vapors which will not vigorously support the combustion of illuminating material, or which would entirely extinguish the same.

There may be several ways of carrying out my invention without materially affecting the character of the improvement, and various illuminating materials may be used; but in the example of the invention shown in the drawing, the description of which will fully illustrate the nature of the invention, I use gas for illumination, which is, where it can be obtained, more convenient than other illuminating materials.

The invention consists partly in a combination, with a door for insertion in the side of an oven or inclosure to be illuminated, of a lantern, which, when the door closes, lights the interior of the oven, said lantern having draft-holes at the bottom and top of the same for the exit of the gases of combustion, and supply of external air to support the combustion of the illuminating material supplied to the burner, from which is excluded the internal atmosphere of the oven or inclosure by the construction of the lantern.

The invention further consists in the combination, with the said door and another door for closing the opening through the door-casing when the lantern-carrying door is opened, of a latch-bar, arranged in such relation with the said doors, which open in opposite directions, that it holds either of the doors shut by acting against the front edge of one door and the back edge of the other door.

The invention also consists in the combination, with an oven-door having an attached lantern, of a swing-joint gas-cock, for partially shutting the flow of gas to the burner when said door is opened and the interior of the oven is not required to be lighted.

Figure 1 in the accompanying drawing represents an outside view of the door-casing with one door closed, and a vertical central section of the lantern and lantern-carrying door swung outward, as when not in use. Fig. 2 is a section on the line *x x* in Fig. 1, and a view of the inside face of the lantern and lantern-carrying door. Fig. 3 is a horizontal section of the entire apparatus on the line *z z* in Fig. 1, with the lantern in position to light up the interior of the oven or inclosure it is designed to illuminate. Fig. 4 is a front elevation of the apparatus viewed from the outside, the parts being in the same adjustment as shown in Fig. 3.

A represents the door-casing, to which, or to a frame, *b*, attached to said casing, is hinged the door C. Or the said door may be fitted to slide in the said casing, as may be preferable for some purposes. The object of said door is to close off communication between the interior and exterior of the oven or inclosure, in the side of which the said casing is inserted, at times when it is not desired to illuminate the interior of such oven or inclosure, and while the oven is being heated, at which time the lantern-carrying door is opened to prevent its being blackened or obscured by smoke.

Said casing may be made of iron or any other suitable material, and of any suitable form; but I prefer to make it flaring toward the exterior of the oven. The said door being hinged to the casing at one side thereof, I hinge to the other side of said casing the lantern-carrying door D. But the said door D may be constructed to slide in said casing. Whether said lantern-carrying door slides or swings, the lantern is attached to its inner side, so that when said door is alid or swung to close the opening, the lantern projects into the interior of the oven or inclosure to be illuminated.

I do not confine myself to any particular construction of the lantern, except the provision for supplying external air to support

the combustion of the illuminating-flame therein, and the exclusion therefrom of the gases or vapors in the oven or inclosure, which would either diminish or totally extinguish the flame; but I prefer to make its interior surface, except such portions thereof as are transparent, a reflecting-surface, either by coating the same with polished metals or alloys, or by affixing thereto suitable reflectors. Or I may use both these methods, the reflecting-surfaces being so arranged either adjustably or otherwise, to throw as much light as possible into the oven or inclosure to be illuminated.

E is the lantern attached to the door D. It is preferably semicircular in its horizontal cross-section, and it has a transparent face, *f*, preferably of mica. The said lantern is so fitted to the door D that no vapor or gas from the interior of the oven or inclosure can enter it to diminish or extinguish the flame, it being tightly closed on the side next the interior of the oven.

In the back part of the lantern, at both the bottom and the top of the same, I form a draft passage or passages, hole or holes, *h*, the lower for the influx of pure external atmospheric air, to support the combustion of the illuminating-flame, and the upper for the escape of the heated gases generated by said combustion, the circulation being indicated by arrows in Fig. 1.

Reflecting-plates *i i'* are, respectively, placed near the top and bottom of the interior of the lantern, leaving spaces or flues between said plates and the top and bottom of the lantern for air circulation. The lower plate *i* is perforated at *k*, and the upper plate is perforated at *k'*, Fig. 1, for the passage of air, said plates directing the flow of air to better support the combustion of the flame.

L represents the burner. When a gas-burner is used, I employ a swing-joint gas-cock, *m*, to connect the external tube or pipe *n*, which supplies gas to the burner with the short tube which passes through the door D and connects the pipe *n* with the burner. When the said door D is swung outward the swing-joint gas-cock *m* abuts against the side of the casing A, as shown in dotted outline in Fig. 3, and turns off the gas, so that it burns very low, (merely with what is known as a "tell-tale" flame,) a stop preventing the gas from being wholly extinguished. This construction compels economy by workmen in the use of gas.

Either of the doors is held closed by the latch-bar *p*, which acts either against the rear edge of the door D, as shown in Figs. 3 and 4, or against the front edge of the door C, as shown in Figs. 1 and 2.

I claim—

1. The combination, with the oven door D, of the lantern E, closed toward the interior of the oven, but provided with draft holes or passages for the entrance of external atmospheric air and the exit of the gases of combustion, substantially as and for the purpose specified.

2. The combination, with the door D and the door C, opening in opposite directions, of the latch-bar *p*, arranged to act against the front edge of one door or the rear edge of the other door, to hold either of said doors closed, substantially as and for the purpose specified.

3. The combination, with the lantern carrying door D and the door-casing A, of the swing-joint gas-cock *m*, substantially as and for the purpose set forth.

HENRY A. STADLER.

Witnesses:

BENJAMIN W. HOFFMAN,

FRED. HAYNES.