W. HODGINS.

Catoptric Lighting Apparatus.

No. 41,432. Patented Feb. 2, 1864.

Fig. 1.

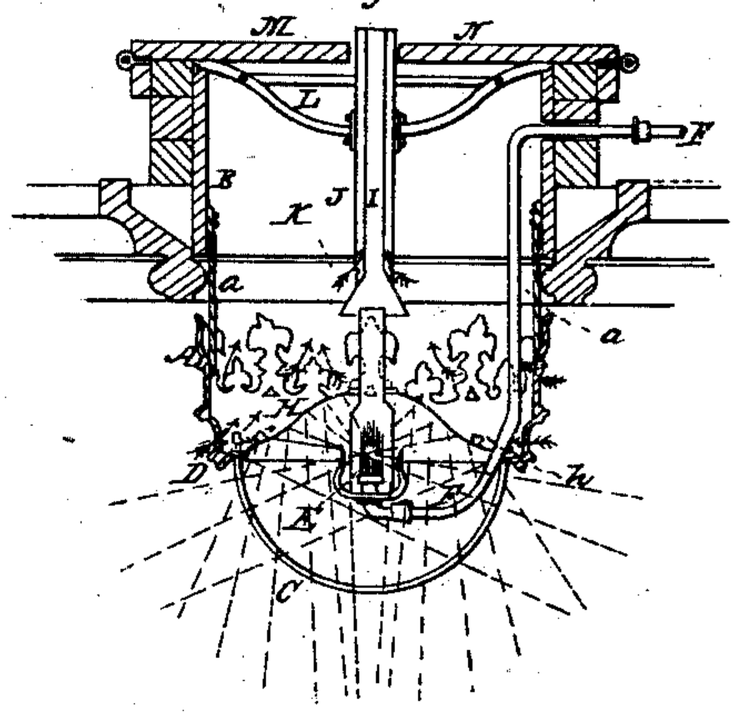


Fig. 2

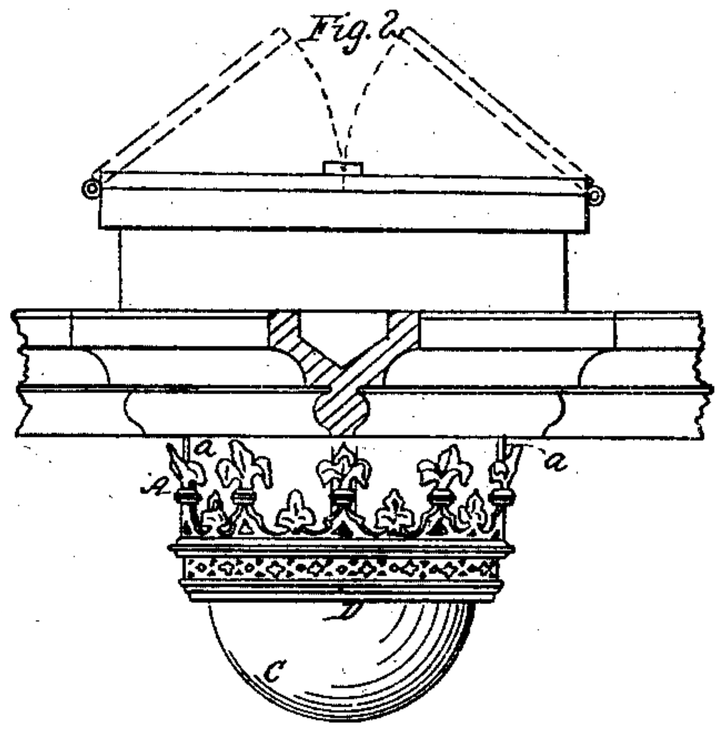


Fig. 1.

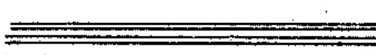
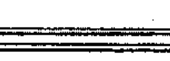
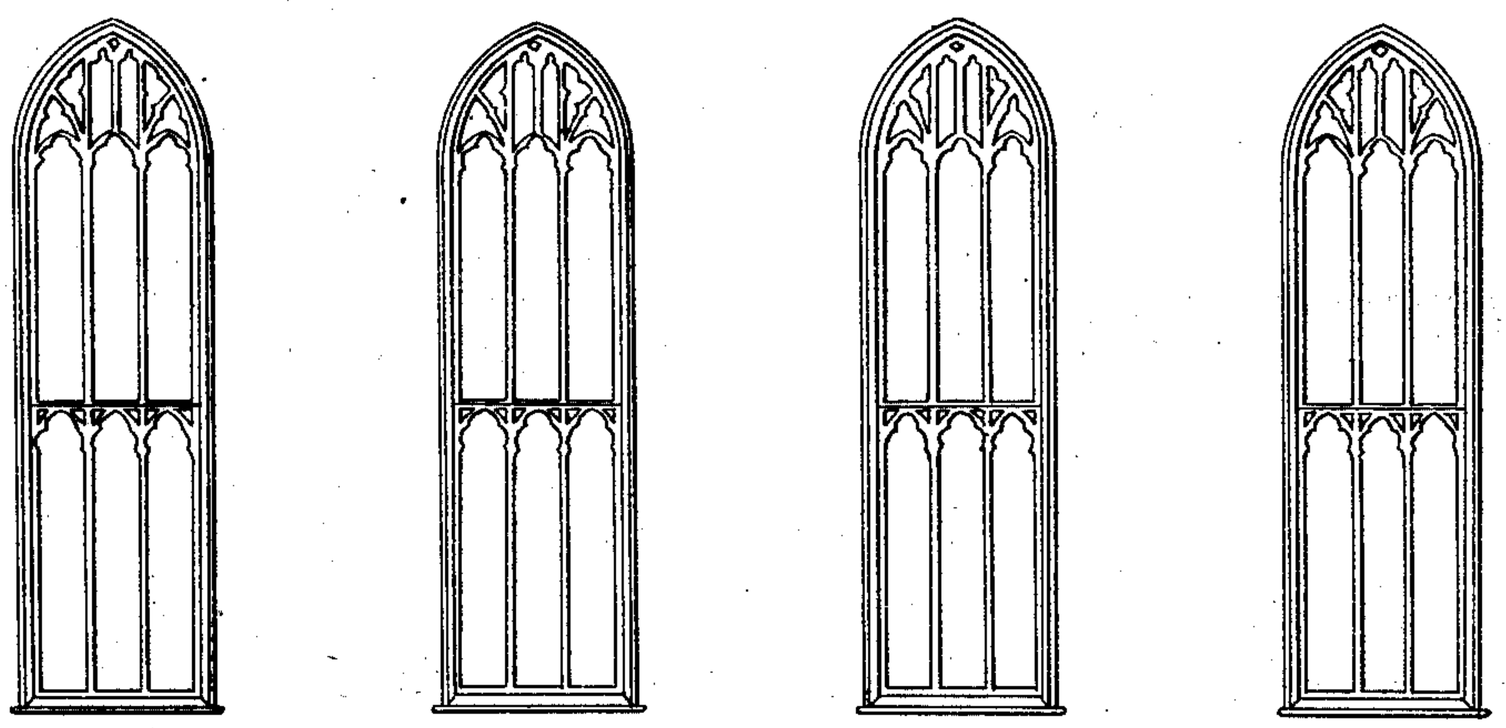


Fig. 2.

Fig. 3.





Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM HODGINS, OF ALBANY, NEW YORK.

IMPROVED CATOPTRIC LIGHTING APPARATUS.

Specification forming part of Letters Patent No. **41,432**, dated February 2, 1864.

To all whom it may concern:

Be it known that I, WILLIAM HODGINS, of Albany, in the county of Albany and State of New York, have invented a new and improved catoptric lighting and ventilating apparatus for churches and other buildings, while at the same time it forms a ventilator and takes off the impure air, and from the peculiar shape of the reflector the rays of light are reflected over a larger area than by other contrivances, and possesses other advantages which will be herein set forth.

The nature of my invention consists in constructing a frame of a circular or other suitable shape with an Argand or other suitable burner placed in the center and provided with a glass chimney in the usual manner. A reflector is placed above the light and is made of a suitable form to reflect the rays of light equally over a large area.

The frame, which is ornamented to suit the architectural design of the building, is provided with a hemispherical ground-glass shade, which subdues the light when passing through. Between the ornaments on the outside of the frame openings are made to admit air within the hemispherical ground glass shade to supply the burner. Said openings also carry off the impure air through an opening in the ceiling into the roof or foul-air flues.

The smoke from the burner is carried off by an independent smoke pipe placed directly over the burner, and is provided with an outer casing pierced at the base to admit a circulation of cold air around said smoke-pipe, and thereby avoid all danger of fire by contact with the heated pipe.

The smoke-pipe is supported by a light iron frame resting loosely in notches in the ceiling-opening, so as to be easily removed to facilitate cleaning.

The reflector is constructed of silvered copper or other suitable material, the sectional profile being formed of reversed curves modified according to circumstances to secure the reflection of light over a greater or less area. It is supported by spurs or brackets secured to the back of the reflector and resting loosely on the flange of the frame or on the lip of the hemispherical glass shade.

A space is left between the periphery of the reflector and the inner circumference of the hemispherical ground-glass shade for the admission of air to the burner, which is situated in the center of the chamber formed by the reflector and the hemispherical glass shade or basin.

The isolation of the flame in this chamber prevents the heat and deleterious effects of combustion from entering the room, and provides for their immediate removal through the independent smoke-pipe and outer casing when the valves or lids are closed, which is necessary when the building is being warmed, but after reaching a given temperature they are opened and the heat of the burner and independent smoke-pipe causes an increased current of air and forms a ventilating and lighting apparatus at the same time.

The peculiar shape and position of the reflector utilizes all the rays of light and permits enough to be transmitted through the glass to illuminate the ceiling, which would otherwise and by all other means be in deep shade, thereby economizing very materially in the consumption of the gas or other illuminating material.

I have fully tested my invention by putting it in practical operation in a church, and find that it works well, gives a greater quantity of light with a small amount of gas, and ventilates the building perfectly.

Having thus set forth the nature of my invention, and to enable others skilled in the art to make and use the same, I will now proceed to describe it, and certify that the accompanying drawings are a full and correct representation of the same, like letters corresponding with like parts.

Figure 1 in the upper drawing represents a longitudinal section of the apparatus; Fig. 2, a side elevation of the same. The lower drawing represents the interior of a church with the catoptric lighting apparatus applied, Fig. 1 being a reduced section, and Figs. 2 and 3 outside views, of the same.

A is the ornamental frame suspended by rods or bars *a a*, secured to the casing B of the opening in the ceiling.

C is the hemispherical ground-glass shade

provided with a lip, *c*, around the edge which rests upon a flange, D, on the lower part of the ornamental frame A.

E is the Argand or other suitable burner in the center of the apparatus.

F is the supply gas pipe; G, the chimney for the burner E.

H is the reflector, supported by spurs on brackets *h*, which rest upon the flange D.

I is the independent smoke-pipe provided with the outer casing, J; K, the openings in the base of the same to admit air.

L is a light iron frame in which the casing J is suspended. Said frame rests on notches in the wood-work of the ceiling opening B. M and N are the hinged covers or valves secured to the top of opening B to regulate the draft.

The air passes through the openings between the ornaments of the frame, and also through the small openings near the bottom. From thence it passes through the space between the hemispherical ground glass shade and the edge of the reflector, as indicated by the red arrows in the drawings. The air also passes up through the openings in the ceilings when the covers or valves M and N are open. When closed, the air passes through the independent pipe I and the outer casing, J.

I claim—

1. The perforated ornamental frame A, secured to the opening or chamber B, and provided with the hemispherical glass shade or basin C, and reflector H, inclosing the burner E, and forming a combined lighting and ventilating apparatus, substantially as set forth.

2. The independent smoke-pipe I, provided with the outer casing, J, and openings K K, when used in combination with the opening or chamber B and valves or covers M N, substantially as and for the purpose specified.

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Witnesses:

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