

No. 622,863.

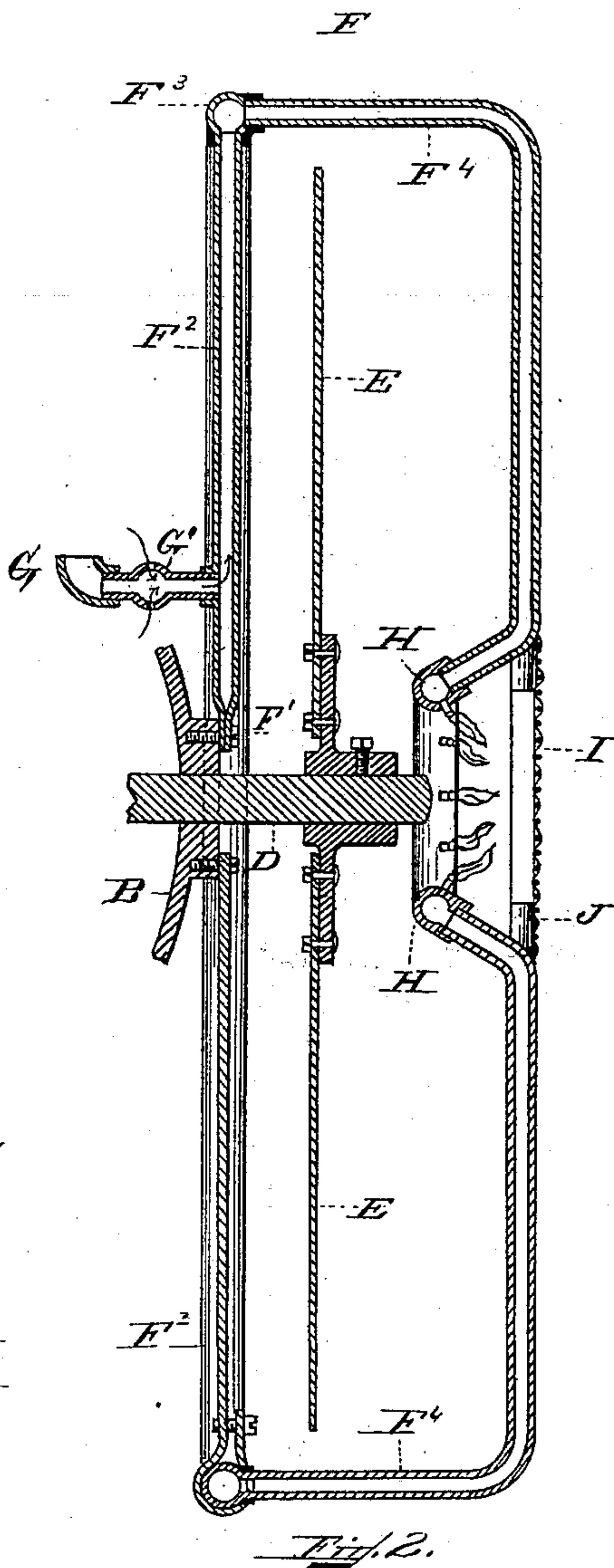
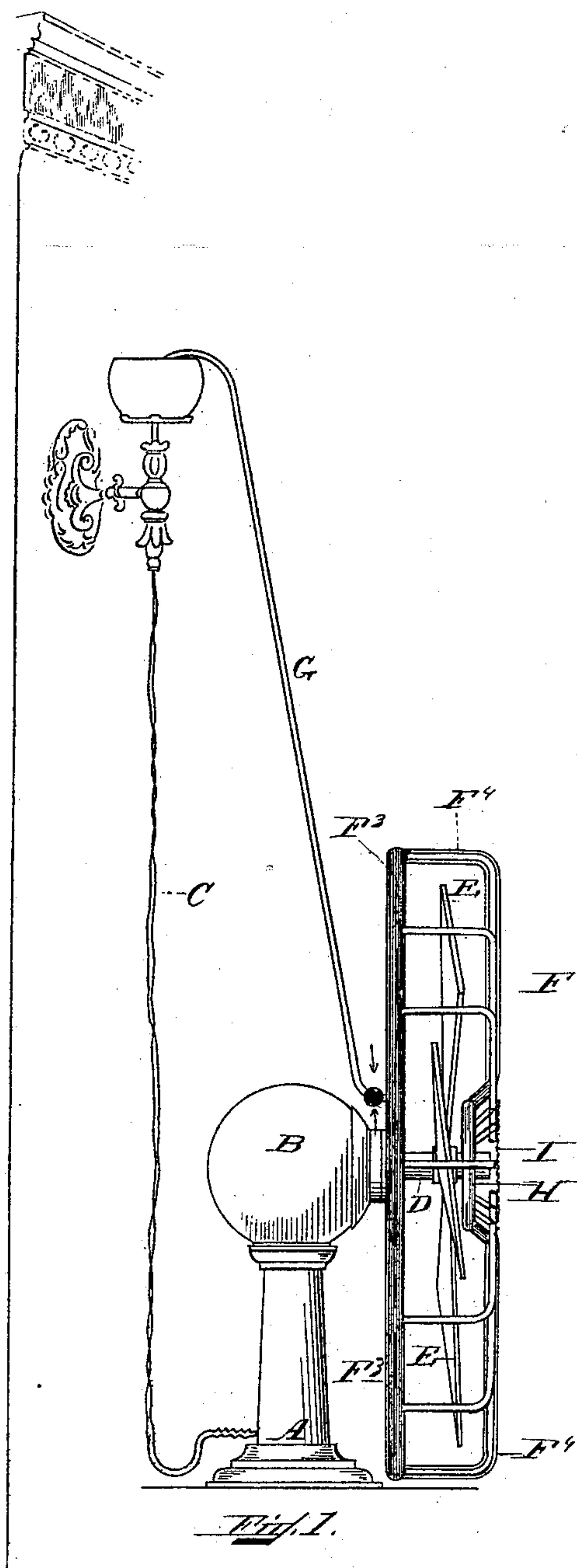
Patented Apr. 11, 1899.

E. F. PORTER.

APPARATUS FOR HEATING AND AGITATING AIR.

(Application filed Feb. 17, 1898.)

(No Model.)



Witnesses:  
A. L. Messer  
C. A. Stewart

Inventor:  
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Att'y



# UNITED STATES PATENT OFFICE.

EDWIN F. PORTER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BAY STATE ELECTRIC HEAT AND LIGHT COMPANY, OF JERSEY CITY, NEW JERSEY.

## APPARATUS FOR HEATING AND AGITATING AIR.

SPECIFICATION forming part of Letters Patent No. 622,863, dated April 11, 1899.

Application filed February 17, 1898. Serial No. 670,615. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN F. PORTER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Heating and Agitating Air, of which the following is a specification.

My invention relates to improvements in apparatus for heating and agitating air; and its object is to thoroughly heat and diffuse a body of air throughout an apartment.

In carrying out my invention I use a fan with a gas or oil burner placed in front or behind the fan and in the region of calm at the vortex of the fan. By placing the burner in this location with relation to the fan the flame is not appreciably disturbed by the violent action of the air as it is moved by the fan, as would be the case if it were placed elsewhere in relation to the fan. The heat as it rises from the burner is taken up by the flow of air from the revolving fan and is diffused throughout the apartment, and by this construction a large body of air is more rapidly heated and thoroughly diffused throughout the apartment than is possible with the present stationary gas-radiator or gas-log, which imparts its heat to the air coming in contact therewith by the ordinary slow circulation, allowing it to ascend to the ceiling and remain stored, thereby heating the upper part of the room only.

My invention consists of certain novel features hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 is a perspective view of my improved gas or oil heater. Fig. 2 is a longitudinal section through the fan and burner and showing the means for supplying the burner with gas or oil.

Like letters of reference refer to like parts throughout both views.

On a suitable base A there is supported an electric motor B, which is operated by the circuit C. To the shaft D of said motor there is fixed at its outer end a fan E of ordinary

construction. Located around the fan E is a suitable guard F, secured to the motor B by screws F'. Gas is fed by the tube G to the guard F, which is made of tubing to conduct the gas from the supply to the burner H at the vortex or center of the fan, and located in the supply-tube G is a gas and air mixer G'. The gas, with the air, passes through the tube F<sup>2</sup>, which forms one of the supports of the guard, into the tube F<sup>3</sup>, which entirely surrounds the fan and from which one or more tubes F<sup>4</sup>, which form a part of the guard F, lead the gas to the burner H. Located in front of the burner H is a disk of wire-gauze or asbestos I, held in place on a suitable ring J, secured to the guard to act as a screen to the flame for purposes of safety. Where gasoline or oil is used, the same passes from the source of supply through the guard to the burner in a similar manner to that shown for gas.

In operation when the fan is revolving the air is thrown from the blades, producing a decided current of air excepting at the center near the hub, where there is a region of calm, which offers an opportunity to locate the burner where the flame will be practically undisturbed by the revolution of the fan. The hot air from this burner rises and mingles with the flow of air from the fan and is blown about the room to be heated instead of rising directly to the ceiling and remaining there, as is the case in the use of stationary gas or oil heaters.

I do not limit myself to the arrangement and construction shown, as the same may be varied without departing from the spirit of my invention.

Having thus ascertained the nature of my invention and set forth a construction embodying the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an air heating and agitating apparatus, a source of heat for heating the air, a fan for diffusing the air heated by said source of heat, a support for holding said source of heat at the center of the fan in the vortex of

motion, and a motor actuated independently of the draft of said source of heat for operating said fan.

2. In an air heating and agitating apparatus, gas or oil burners for heating the air, a fan for diffusing the air heated by said gas or oil burners, a support for holding said gas or oil burners at the center of the fan in the vortex of motion, and a motor actuated independently of the draft of said gas or oil burners for operating said fan.

3. In an air heating and agitating apparatus, a fan for diffusing the heated air, a guard for said fan, gas or oil burners for heating the air located on said guard at the center of the fan in the vortex of motion, and a motor for operating said fan.

4. In an air heating and agitating apparatus, a fan for diffusing the heated air, a guard for said fan, gas or oil burners for heating the

air, one or more tubes forming part of said guard for supplying gas or oil to said burners, and a motor for operating said fan.

5. In an air heating and agitating apparatus, a fan for diffusing the heated air a guard on said fan, gas or oil burners for heating the air located at the center of said fan in the vortex of motion, one or more tubes forming part of said guard for supplying gas or oil to said burners, and a motor for operating said fan.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of February, A. D. 1898.

EDWIN F. PORTER.

Witnesses:

A. L. DESSER,  
C. A. STEWART.