No. 676,950. Patented June 25, 1901.

G. C. HAWKINS.

HEATING APPARATUS.

(No Model.) (Application filed Oct. 3, 1898.)

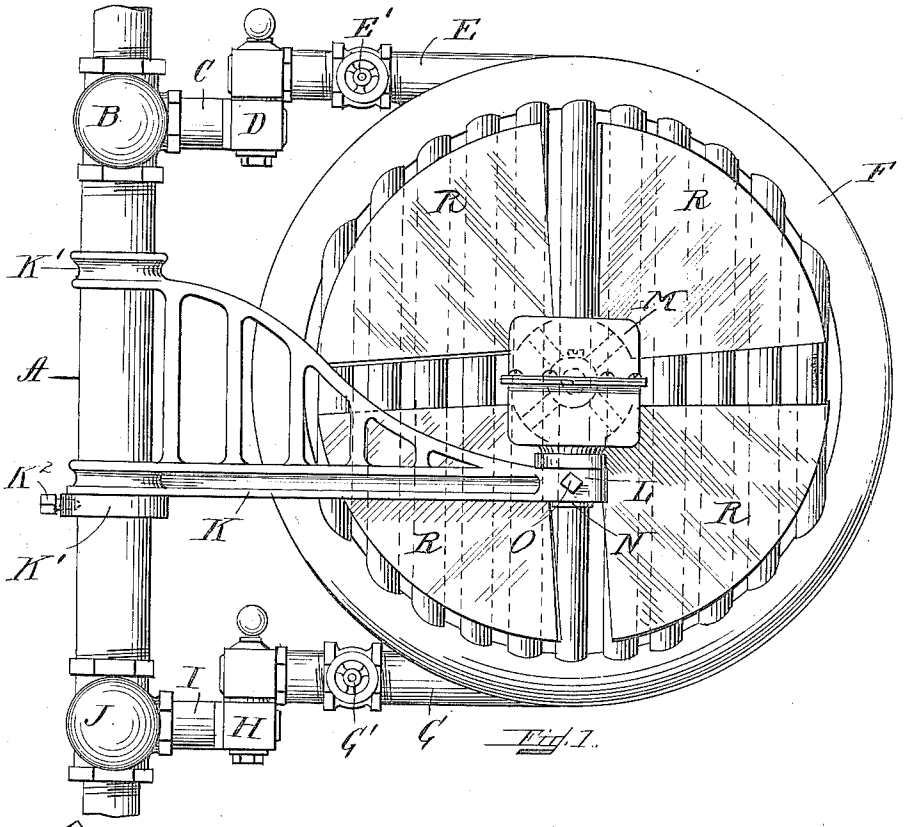


Fig. 1.

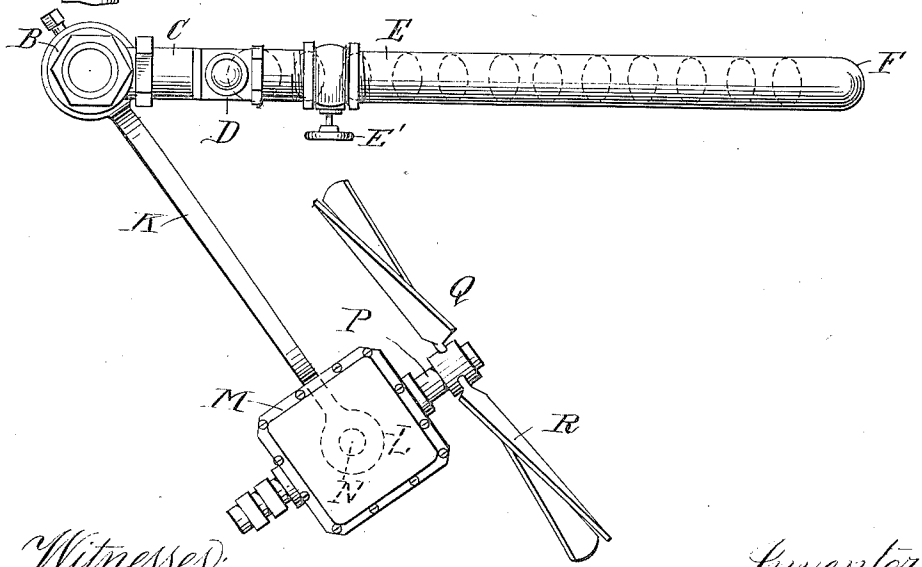


Fig. 2.

Witnesses:
A. L. Mason
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UNITED STATES PATENT OFFICE.

GARDNER C. HAWKINS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BAY STATE ELECTRIC HEAT & LIGHT COMPANY, OF JERSEY CITY, NEW JERSEY.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 676,950, dated June 25, 1901.

Application filed October 3, 1898. Serial No. 692,527. (No model.)

To all whom it may concern:

Be it known that I, GARDNER C. HAWKINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Heating Apparatus, of which the following is a specification.

My invention relates to improvements in heating apparatus; and its object is to rapidly radiate or diffuse the heat from the heat-developing surfaces by means of an air-agitating body, such as a fan, so that the heat will be evenly diffused throughout the apartment in which the apparatus is located instead of rising to the ceiling and becoming stored there, as is the case with the usual heating apparatus at present in use. To obviate this imperfect diffusion of the heat and to render the temperature equable, I show a fan and motor for operating the fan in connection with a steam or hot-water radiator, whereby through the agitation of the air the heat is prevented from rising directly to the ceiling and is diffused throughout the apartment, and, further, by such an arrangement the fan moves the air quickly and brings a greater number of particles in contact with the heating-surfaces and removes the heat as rapidly as it is generated instead of allowing it to remain stored, as is the case in ordinary forms of stationary radiators.

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 side view of my improved apparatus. Fig. 2 is a plan view of the same.

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

A represents the usual steam or hot-water supply pipe for steam or hot-water heating apparatus, and on the upper end of said pipe is a T-joint B, from which leads the inlet-pipe C to a pivoted hollow steam-packed pivot-joint D, and from said joint D leads the pipe E, having the usual controlling-valve E'. The pipe E communicates with the radiator F of any desired construction, and from the lower end of the radiator F leads the outlet-pipe G, having the usual controlling-valve G', to the steam-packed pivot-joint H, and from said joint the pipe I leads to the T-joint J around the pipe A, so that the steam or hot water coming through the pipe A passes into and out of the radiator F through the connections above described. By pivoting the radiator in the above manner it can be moved to any desired position.

The swinging bracket K is provided at its inner end with two sleeves K', and by means of the screw-nut K^2 the bracket can be adjusted to any desired position. On the outer end L of the bracket is located a suitable motor, preferably electric, M, which is provided with a downwardly-extending pin N through a hole in the end L. The set-screw O is provided for holding the motor in its adjusted position on said bracket K. On the shaft P of the motor, at its front end, is secured fast the fan Q, having any desired number of blades R. By pivoting the radiator and the fan as above described they can be adjusted to any desired position toward or from each other, each being independent of the other in its movements.

To obtain the maximum heating effect, the radiator and fan should be moved toward each other, the fan turning on the pin N in order to bring it parallel with the radiator, as shown in Fig. 1, and in this position of the apparatus all the air delivered by the fan impinges on the heating-surfaces of the radiator and is rapidly diffused throughout the apartment. When the proper temperature has been reached, by changing the position of the fan with relation to the radiator the contact of the air on the heating-surfaces is in proportion as the angle is increased, the circulation of the air in the apartment remaining the same by the operation of the fan, which is exposed on all sides to the atmosphere, and thus creates in its revolution the movement of the surrounding air. It will be obvious that when the fan is parallel with the radiator, as shown in Fig. 1, all the air thrown by the fan will pass through the radiator, whereas when the fan is moved to the position shown in Fig. 2 the less amount of air will blow against the radiator. In my apparatus, therefore, the variations of temperature can be produced by adjusting the radiator and the

fan. By this apparatus the exposed fan keeps the air in the room constantly circulated and at the same time brings the air in contact with the heated surfaces, so that in its operation the fan operates not only as a ventilating-fan for the apartment, but also acts to throw the air from the heating-surfaces and to diffuse the same throughout the apartment.

By attaching the radiator directly to the steam or hot-water supply pipe the installation and manufacture of the apparatus are simplified and cheapened.

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. The combination of a radiator, a fan and a fan-supporting bracket, said radiator and fan-supporting bracket being pivotally supported and adapted to swing in substantially the same plane, and the fan being pivotally supported upon the bracket whereby its position relative to the radiator may be changed.

2. In a heating apparatus, a supply-pipe containing a heating medium, a radiator through which said medium circulates and pivotally connected to said supply-pipe and adapted to be adjusted, upper and lower valved pipes connecting the radiator and supply-pipe, a fan for displacing or removing the heated air from said radiator, and adapted to be adjusted with relation to said radiator, and a bracket for supporting said fan mounted on said supply-pipe.

3. In a heating apparatus, a supply-pipe containing a heating medium, a radiator through which said medium circulates and pivotally connected to said supply-pipe and adapted to be adjusted, an adjustable bracket on said supply-pipe, a fan mounted on said bracket and adapted to be adjusted with relation to said radiator, and means for holding said fan in its adjusted position.

4. In a heating apparatus, a supply-pipe containing a heating medium, a radiator through which said medium circulates and pivotally connected to said supply-pipe and adapted to be adjusted, upper and lower valved pipes connecting said radiator and supply-pipe, an adjustable bracket mounted on said supply-pipe, a fan mounted on said bracket and adapted to be adjusted with relation to said radiator, and means for holding said fan in its adjusted position.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 28th day of September, A. D. 1898.

GARDNER C. HAWKINS.

Witnesses:
A. L. MESSER,
C. A. STEWART.