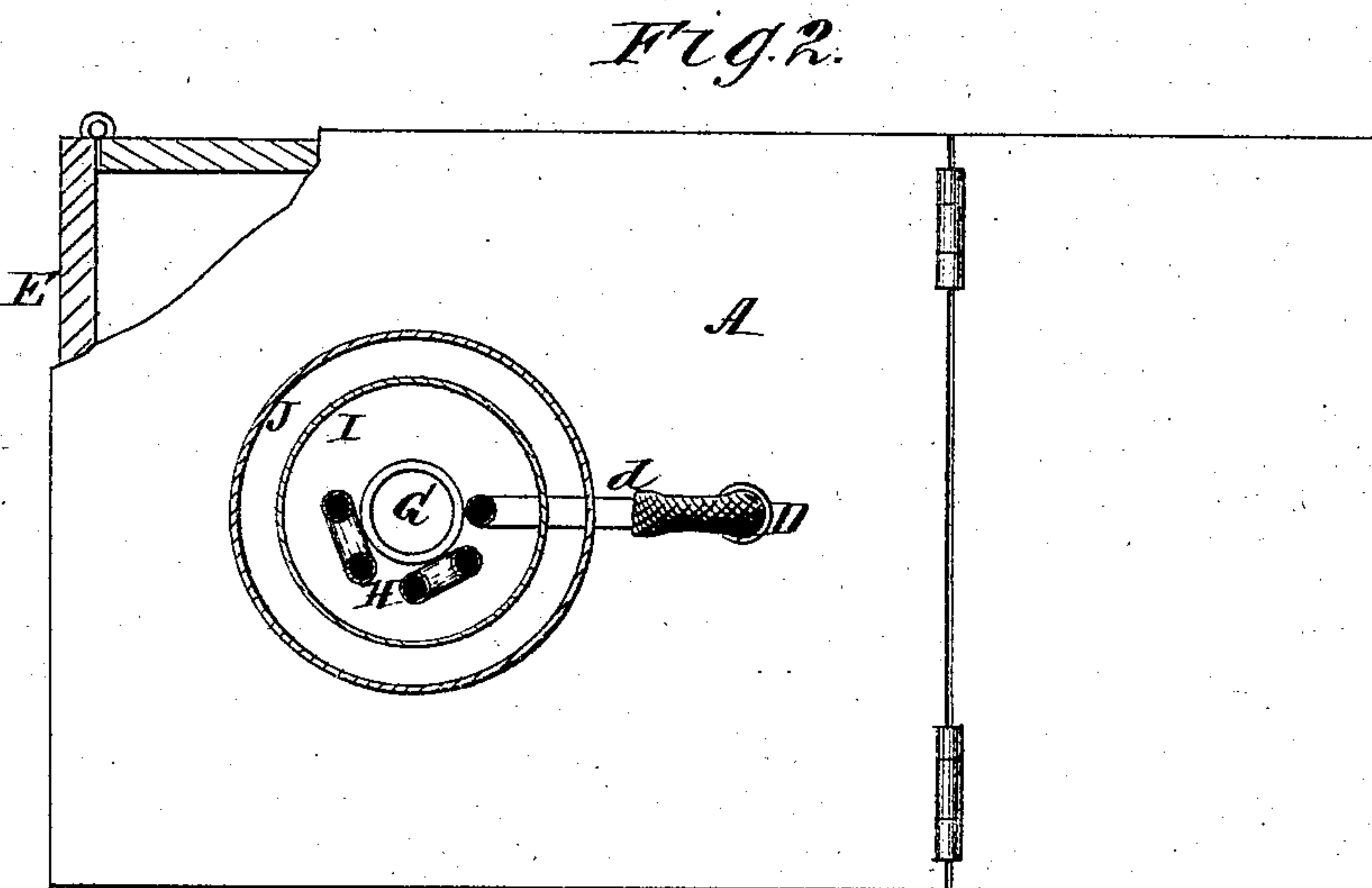
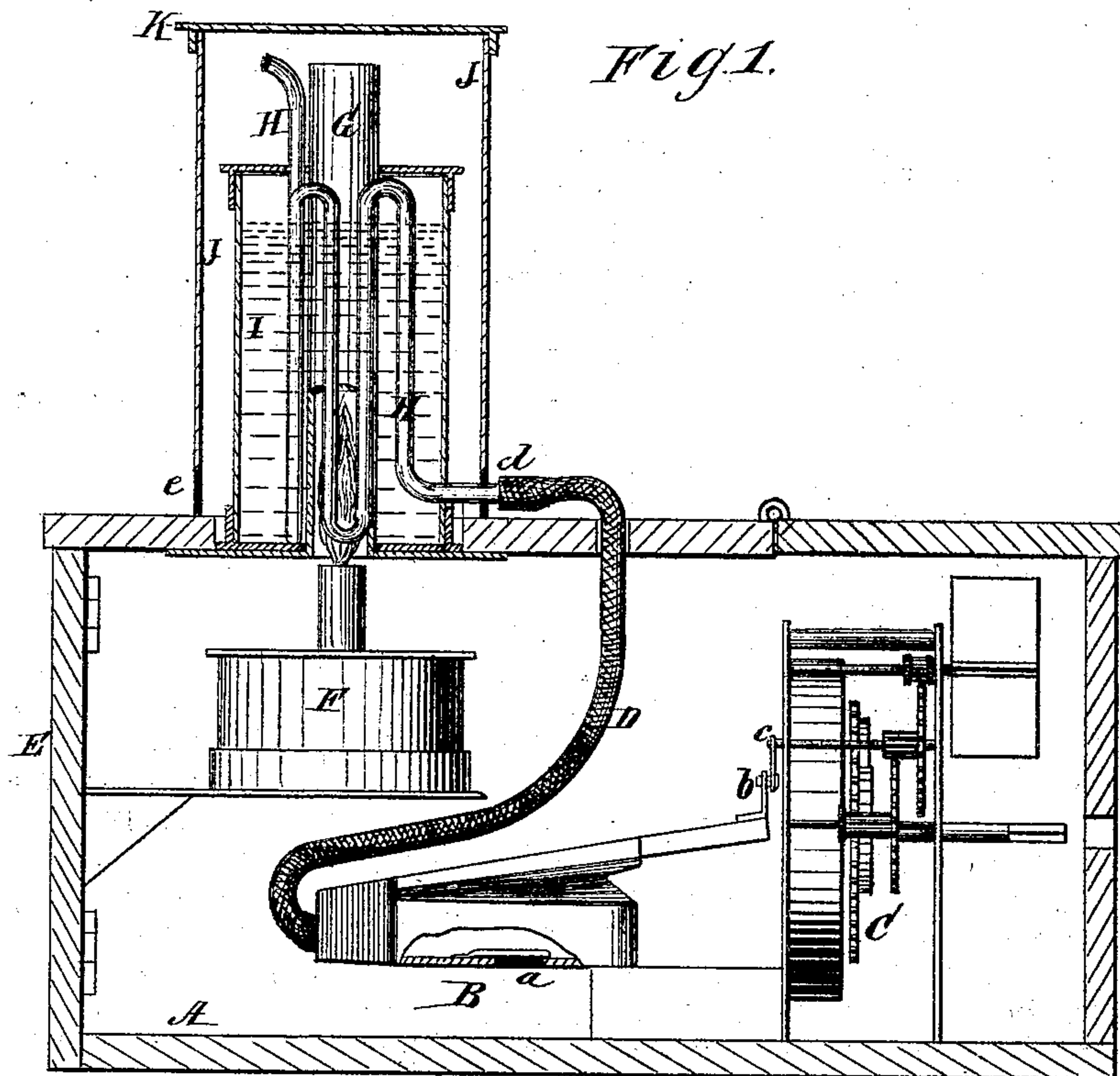


G. STEVENS.
Heating Apparatus.

No. 152,429.

Patented June 23, 1874.



WITNESSES:
G. Martin.
John A. Lemon

INVENTOR:
Eustace Stevens
BY *[Signature]*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GUSTAVUS STEVENS, OF EAST TAWAS, MICHIGAN.

IMPROVEMENT IN HEATING APPARATUS.

Specification forming part of Letters Patent No. **152,429**, dated June 23, 1874; application filed May 21, 1874.

To all whom it may concern:

Be it known that I, GUSTAVUS STEVENS, of East Tawas, in the county of Iosco and State of Michigan, have invented a new and Improved Heating Apparatus; 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 a part of this specification, in which—

Figure 1 is a vertical elevation, partly in section; Fig. 2, a plan view with corner broken away.

The object of this invention is to secure an economical method of heating rooms without the use of stoves or heaters, in which ordinary fuel is burned; and it consists in a new and improved way of drawing pure air from outdoors by means of a bellows operated by a clock-gearing, and of forcing it through air-pipes heated by a large lamp into the room.

In the drawings, A represents the box or casing of the apparatus. B is a bellows, for which a blower may be substituted, having underneath the inwardly-opening valve *a*, which connects with the pipe that leads to the open air. To the upper arm of the bellows is attached a slanting arm, *b*, which is struck by the revolutions of a crank, *c*, and motion thereby communicated to the bellows. Said crank *c* is attached to one of the shafts of a large-sized clock-gearing, C, having mainspring, arbor, and ratchet-wheel, spring, pawl, spur-gear, and fly. Leading from the bellows is the flexible pipe or hose D, that conveys the air to the heating-tubes. E is an end door, to which a large lamp, F, is attached by means of a bracket, and when this door is closed the flame from the lamp passes up a metallic pipe, G. Immediately around this pipe is wound the coil H, through which the air is forced from the bellows, the end *d* being connected with

the hose D. Surrounding pipe G and coil H is the cylinder I, which is made tight and filled with water or air, as may be desirable, outside of this there being still another cylinder, J, with air-holes *e* at the bottom.

The action of this heating apparatus is as follows: When the clock-gearing is wound up by means of a key, the shaft is set in motion that moves the crank *c*, and said crank, by striking the inclined arm *b*, gives to the bellows a motion that draws air from the outside and forces it through the hose into the coil H, and afterward out into the room. Now, as the pipe G is heated directly by the flame from the lamp, and the coil H is in contact with it, and also immersed in the water which surrounds it, or the air, as the case may be, the air, in passing through said coil, must become heated before it passes into the room. The cylinder I also helps to heat the room by radiation, the heat being conducted to it from pipe G by the water. Cylinder J is so arranged as to allow the heated air from pipe G, coil H, and cylinder I to pass out at the top, or to pass out at the holes *e* by putting on the cap K.

Having thus described my invention, what I claim as new is—

The combination of the pipe G, coil H, cylinders I and J, lamp F, clock-gearing C, and blowing apparatus, for the purpose of heating and ventilating the room, by introducing pure air from outdoors, and heating the same in its passage through the apparatus before it enters the room, substantially as and for the purpose described.

GUSTAVUS STEVENS.

Witnesses:

W. C. STEVENS,
M. WILBUR.