

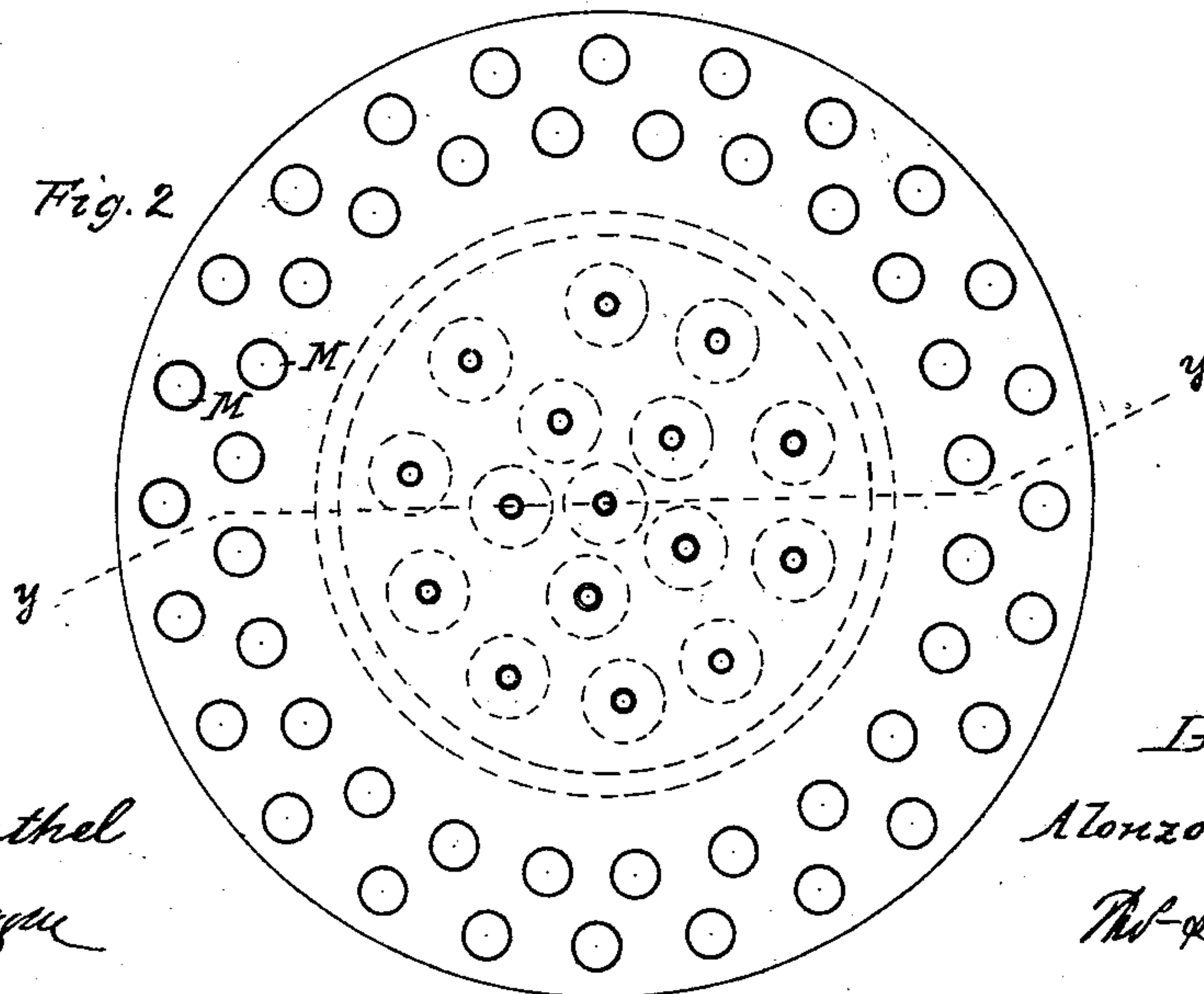
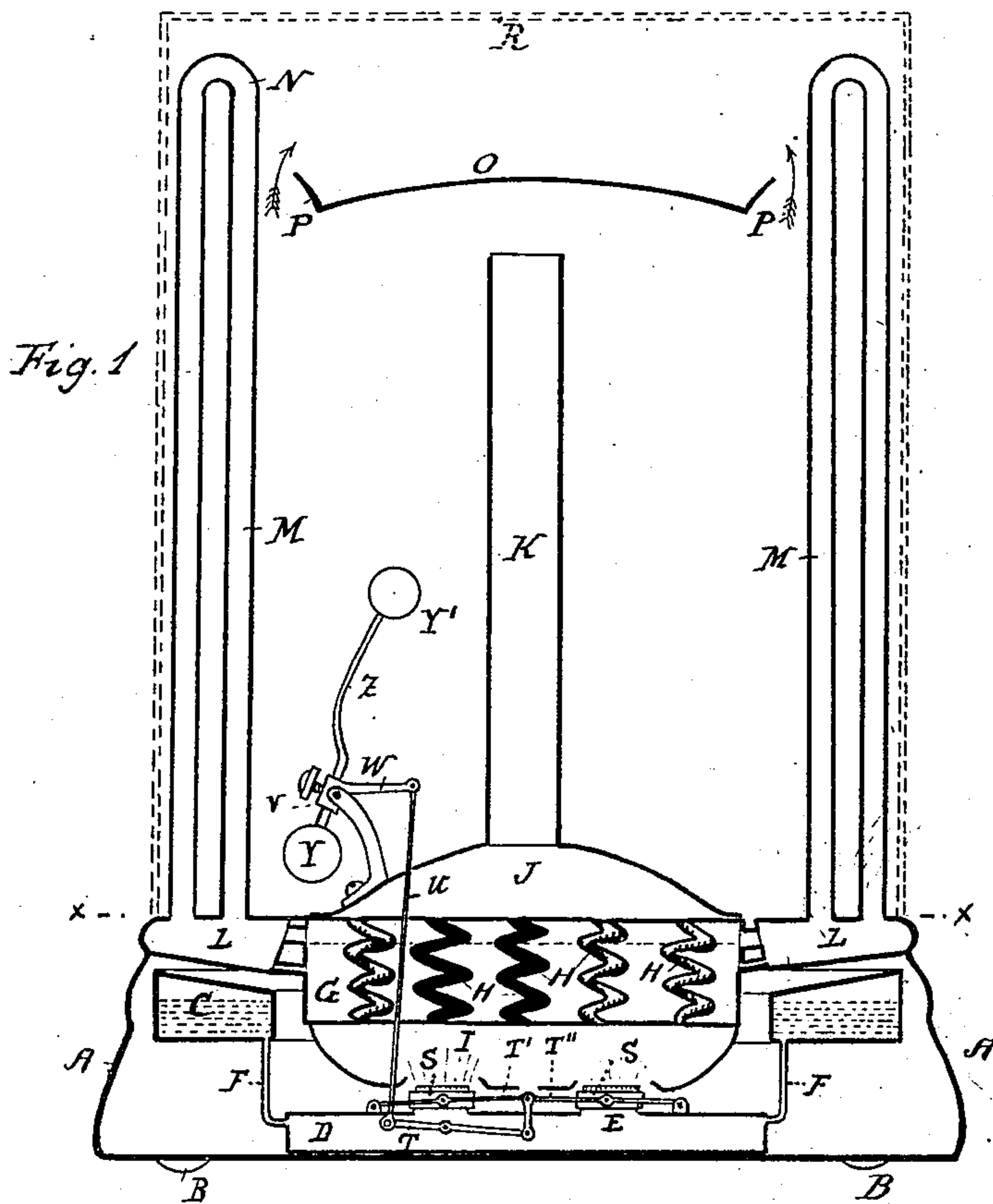
(No Model.)

A. W. ELDREDGE.

PORTABLE STEAM GENERATOR.

No. 282,618.

Patented Aug. 7, 1883.



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# UNITED STATES PATENT OFFICE.

ALONZO W. ELDREDGE, OF BIG RAPIDS, MICHIGAN.

## PORTABLE STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 282,618, dated August 7, 1883.

Application filed December 23, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ALONZO W. ELDREDGE, of Big Rapids, in the county of Mecosta and State of Michigan, have invented new and useful Improvements in Portable Steam Generators and Radiators; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the construction and operation of steam-radiators, by means of which such radiators are made portable, not connected to any central steam-generator, and adapted to be used, each independent of the other, at any time when desired.

Ordinarily steam-radiators are connected by a system of steam-pipes with a central station or generator, and are provided each with a drip and with suitable valves, by means of which such radiators are brought into action from time to time, deriving their steam from said central point; and the object of my invention is to provide such radiators as may be portable, and each be provided with its own generating chamber and furnace or heating apparatus, so that it may be as easily removed from room to room as any other article of furniture, and at all times be ready for use by lighting the fire beneath the generator, which forms an integral part of the radiator.

The invention consists in the peculiar construction of parts, their combinations and operations, as more fully hereinafter set forth.

Figure 1 is a vertical central section on the line of *y y*, Fig. 2. Fig. 2 is a cross-section on the line *X X* in Fig. 1.

In the accompanying drawings, which form a part of this specification, A represents a circular hollow base, supported upon wheels or casters B in any suitable and convenient way, for rolling the device from one position to another when too heavy to be readily lifted, as these radiators may be made large for larger rooms and smaller for smaller rooms. This base is hollow, and contains a circular chamber, C, elevated above the oil-tank D, which is provided with lamp-burners E, of any suitable construction, and a connection between the

elevated tank C and the lamp-tank D is had by a pipe or pipes, F.

G is a steam generator or vessel to hold water, through which pass the coil-pipe flues H, leading from the combustion-chamber I up through the boiler, carrying the heat of the combustion through the water in the boiler and discharging the same into the dome J, which terminates in a central chimney, K.

L is an annular steam and water space, into the top of which and around its periphery is secured the system of radiating-pipes M, each pair of which are coupled together by a return-bend, N, at their top, so that there is an uninterrupted passage through each pair of these pipes from and to the steam-space L.

O is a shield centrally secured over the chimney K in any convenient manner, and is provided with upwardly-projecting flanges P, so that water may be retained upon the face of the shield to furnish suitable moisture for the air of the room by its evaporation through the perforated cover R, (shown by dotted lines inclosing the whole device,) although this latter cover may be entirely omitted, if desired.

S are sleeves inclosing the wick-tube of the lamps E, and these are adapted to have reciprocating vertical movements whenever it is desired to check or diminish the flame of the lamps by raising said slides or increasing the same by lowering them to the top or below the top of the wick-tubes. This is done by pivotally connecting to each of these slides levers T' and T'', both of which are actuated by a suitable lever, T, by the mercury-governor V, pivotally supported at the outer end of the arm W, the opposite end of which is pivotally connected with the rod *u*. This governor consists of two hollow balls, Y and Y', connected together by a hollow tube, Z, and its action is as follows: The hollow ball Y and the lower part of the tube is filled with mercury, and this being nearest the source of heat, the mercury gradually rises in the tube into the ball Y', thereby destroying the equilibrium of the governor and lowering the free end of the lever T, which is pivotally connected at the bottom end of the rod *u*, thereby raising the sleeves. The levers T' and T'' are pivotally connected to this lever T as well as to the slide,



so that the movement of the lever T operates the slides S. By this arrangement of governor the flame of the lamps is regulated automatically, the governor being set to change its equilibrium with steam at any desired point.

For the purpose of allowing any air to escape from the radiator which would prevent the free circulation of steam, the upper ends of the pipes may be connected by a small pipe, into which the air will be forced by the steam-pressure, and which pipe should be supplied with a valve or petcock to allow of the escape of the air therefrom.

For the sake of preventing complication in Fig. 1, I have shown only two steam-pipes, M. There may, however, be series of them, as shown by Fig. 2.

I make no claim in this application to the wick-regulating mechanism, as it may form the subject-matter of a separate application.

What I claim as my invention is—

1. A portable steam-radiator provided with

a steam-generator and a combustion-chamber, each forming an integral part of the radiator, which latter consists of a series of return-tubes or radiating-pipes communicating with an annular steam-space which surrounds the steam-generator, substantially as described.

2. A combined steam generator and radiator provided with a combustion-chamber, and coil-flues leading therefrom through the generator and discharging into a dome which terminates in a central flue or chimney, substantially as and for the purposes set forth.

3. The combination of the steam-generator G, steam and water space L, return-tubes M, combustion-chamber I, and dome J, said combustion-chamber and dome being connected by coil-pipes passing through the steam-generator, as set forth.

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Witnesses:

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