(No Model.)

# W. H. B. LYONS.

## HEATING DRUM.

No. 525,990. Patented Sept. 11, 1894.

Fig. 1.

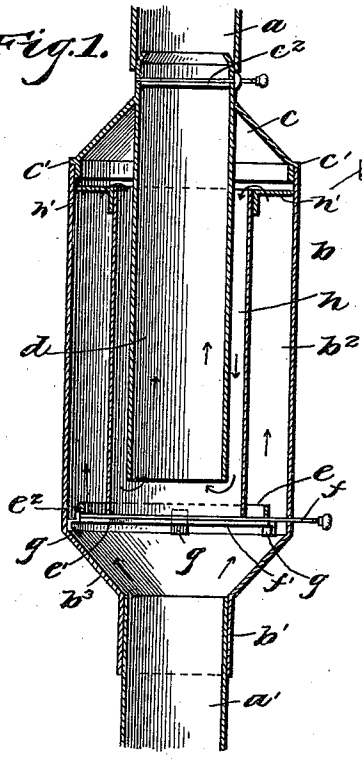



Fig. 5.

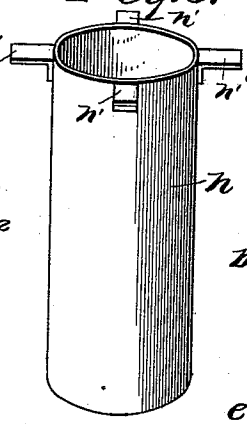



Fig. 2.

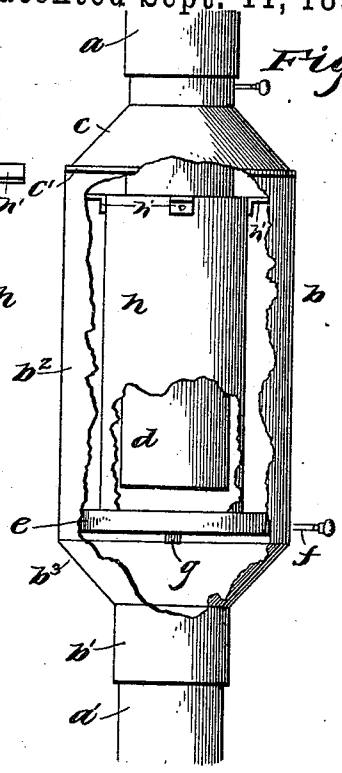



Fig. 4.

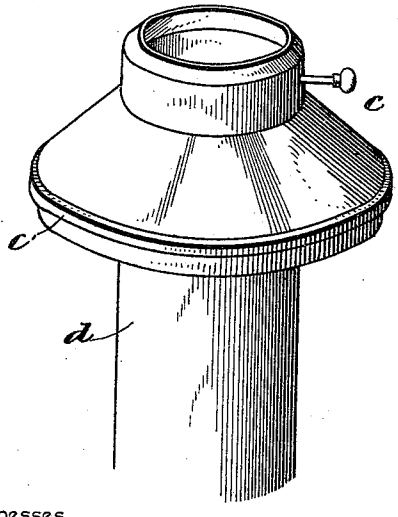



Fig. 3.

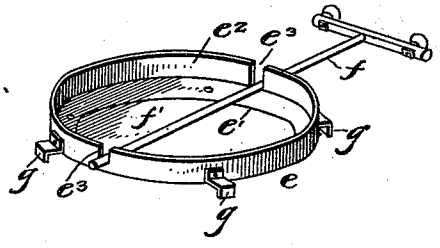
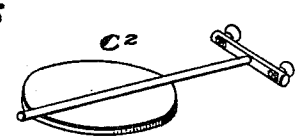



Fig. 6




Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM H. B. LYONS, OF GOSHEN, INDIANA.

## HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 525,990, dated September 11, 1894.

Application filed March 19, 1894. Serial No. 504,295. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. B. LYONS, a citizen of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented a new and useful Heating-Drum, of which the following is a specification.

The object of my invention is to provide a heating drum wherein the radiation of heat will be more effectual, and one which may be applied to any pipe or flue with greater ease than ordinarily; and to this end the invention consists in a superior arrangement of radiating tubes by which the heat is caused to travel in vertical paths, thus effecting the radiation, all of which will be more fully described hereinafter and finally embodied in the claim.

In the accompanying drawings: Figure 1 represents a longitudinal section of my improvements. Fig. 2 is a side view thereof, with parts broken away. Fig. 3 is a detail perspective of the damper frame. Fig. 4 is a perspective view of the cap and its attached tube. Fig. 5 is a perspective view of the tube supported by the damper frame. Fig. 6 is a perspective view of the damper for the cap of Fig. 4.

The reference letters *a* and *a'*, indicate the sections of flue or stove piping, to which are joined the drum, *b*, and cap, *c*, respectively. The drum, *b*, is joined to section, *a*, by means of the reduced end *b'*, and consists of an enlarged body portion $b^2$, connected to the lower portion by means of the conical end $b^3$, and having its upper end open, as shown. The cap, *c*, is frusto-conical in shape and is provided with a flange, *c'*, at its lower edge, which is arranged to fit into the open end of drum, *b*, and thereby form a smoke tight joint. Arranged in the upper end of the cap *c*, and directly under the pipe section *a'*, is the damper $c^2$, which operates to close all communication with the pipe *a'*, and the function of which will be more fully set forth hereinafter.

Rigidly secured to the inner side of the cap, *c*, and at the upper portion of the conical part is the tube, *d*, which is adapted to project downwardly from its cap and into the drum, *b*.

*e*, indicates a circular damper frame which is formed with a central opening *e'*, therein, and with the vertically extending flange $e^2$. The opening *e'*, is of a size nearly as large as the diameter of the frame, thereby giving it the appearance of a circular rim, while the flange $e^2$, projects up for a slight distance and is provided with the oppositely disposed openings $e^3$, in which the spindle, *f*, of the damper *f'*, is arranged so as to be capable of rotary movement therein. Damper *f'*, is circular in shape, and is arranged in and adapted to close the opening *e'*, of the frame *e*, while its spindle *f*, projects outside of the drum, *b*, and by this means the disposition of the damper may be regulated. Secured rigidly to or formed integral with the lower periphery of the frame, *e*, are the legs or supports *g*, which extend outwardly and downwardly from the frame and are adapted to engage the conical end $b^3$, of the drum, *b*, thereby supporting the frame, *e*, and its attachments. Mounted within the flange $e^2$, of the damper frame, *e*, and held in place by means of said flange is the tube *h*. This tube is of a diameter about equal to that of the rim, *e*, and is so related to the size of drum, *b*, that a space of about one inch will be left between the two when the parts are assembled, and the said tube extends upwardly from the frame, *e*, to a point near the cap, *c*, where it opens into the drum *b*. Thus it will be seen that the tube *h*, has its upper end open at all times and that its lower end is capable of being closed by means of the damper *f'*, the purpose of which will hereinafter appear. Secured to the upper end of tube *h*, are the lugs *h'*, which project outwardly and engage the interior of drum, *b*, and serve to brace and render rigid the tube *h*.

In assembling the parts, the cap, *c*, is arranged upon the open upper end of the drum, *b*, and the two parts, cap and drum, connected to their respective pipes, *a'* and *a*. When so arranged, the heat upon passing up pipe, *a*, and into the drum, *b*, will, supposing the damper *f'*, to be closed and damper $c^2$, open, pass up around the frame, *e*, and tube, *h*, and engage the cap, *c*. As this affords no exit, the heat will be forced down between tubes, *d*, and *h*, until it again engages the closed dam-

per $f'$, whereupon it will pass up tube $d$, and out by way of pipe, $a$. Thus it will be seen that the heat passing up the pipe $a'$, will be forced to proceed out by a circuitous route and during this extended passage will throw off a large percentage of its substance which goes toward warming the apartment, thereby getting the benefit of all the heat generated and saving fuel perceptibly. This is, however, understood.

If it be not desired to use the radiator, the damper $f'$, may be opened, and this will be followed by a direct passage of the heat through the opening $e'$ and tube, $d$, and out by way of cap, $c$, and pipe $a$. The function of damper $c^2$, is to prevent the passage of smoke through the pipes $a$, and $a'$, as in an ordinary stove. By means of these two dampers, the passage of heat through the stove pipe and the radiation of heat in drum, $b$, are placed under perfect control, the heat may be turned in or out of the drum irrespective of the disposition of damper $c^2$, and the damper $c^2$, may be operated without danger of confusion with its companion.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

A heating drum comprising in its construction an enlarged cylindrical body portion having a tapering lower end and an open upper end, a circular rim provided with legs projecting downwardly therefrom and engaging the conical lower end of the body portion, a damper in said rim and capable of opening and closing the same, a tube resting on the rim and extending up the body portion, said tube having its upper end provided with outwardly-projecting arms adapted to engage the interior of the body and to hold the tube in place, a cap fitting over the open upper end of the body portion, a second pipe secured to the cap and projecting downwardly into the first pipe, and a damper commanding the second pipe, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM H. B. LYONS.

Witnesses:
J. H. JAQUITH,
D. F. YARIAN.