(No Model.)

H. I. GRENNELL.

HEATING DRUM.

No. 525,896. Patented Sept. 11, 1894.

Fig. 1.

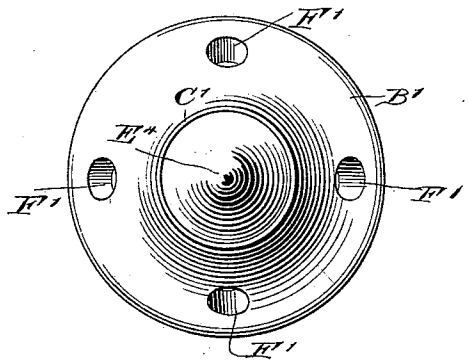
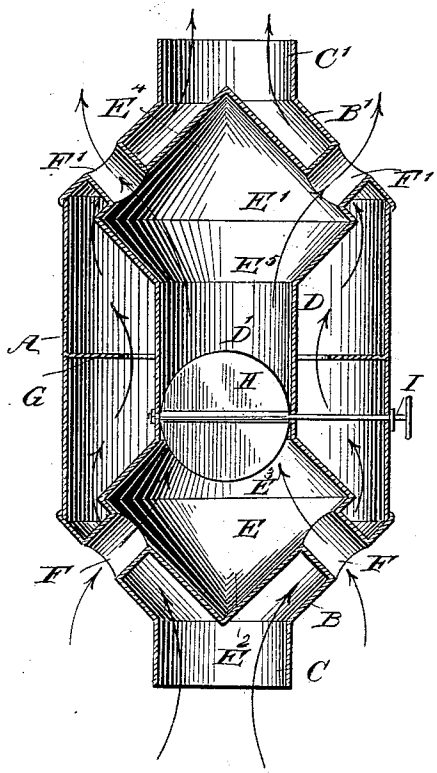


Fig. 2



WITNESSES:

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HENRY I. GRENNELL, OF ASHLAND, WISCONSIN.

HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 525,896, dated September 11, 1894.

Application filed March 13, 1894. Serial No. 503,420. (No model.)

To all whom it may concern:

Be it known that I, HENRY I. GRENNELL, of Ashland, in the county of Ashland and State of Wisconsin, have invented a new and Improved Heating-Drum, of which the following is a full, clear, and exact description.

The invention relates to heating drums, used in connection with stoves, furnaces and other heat generating devices, and its object is to provide a new and improved heating drum, which is simple and durable in construction, very effective in operation, and arranged to form a passage for the smoke and gases, and a controllable passage for the air, to thoroughly heat the same.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a plan view of the improvement; and Fig. 2 is a sectional side elevation of the same.

The improved heating drum is provided with an exterior cylindrical shell A, provided at its lower and upper ends with the frusto-conical heads B and B′, of which the head B is provided with an inlet pipe C, connected with the pipe from the stove, furnace or other heating device, to conduct the smoke and gases into the exterior shell A, as hereinafter more fully described. The upper head B′ is provided with an outlet pipe C′, connected with the chimney or other means for carrying off the smoke and gases after their passage through the shell. Within this exterior shell A, is arranged a drum D, provided with a central cylinder D′ carrying at its ends the heads E and E′, of which the head E is formed of the inverted cone E^2 and the frusto-cone E^3 united at its base with the base of the cone E^2, as is plainly illustrated in Fig. 2. The sides of the cone E^2 are parallel with the sides of the conical head B. The upper head E′ of the drum D, is constructed similarly to the head E, and is provided with the cone E^4, and the frusto-cone E^5, united at its base with the base of the cone E^4. The sides of the latter are parallel to the sides of the upper head B′, as is shown in Fig. 2. From the sides of the cones E^2 and E^4 of the heads E and E′, extend the pipes F and F′ respectively, through the sides of the conical heads B and B′; the said pipes serving as entrance and exit pipes for the air, and also for suspending the drum D within the shell A.

In the shell A is arranged a ring G, fastened by its outer edge to the inside of the shell, and having its opening somewhat larger in diameter than the diameter of the cylinder D′, to permit the smoke and gases to pass upward in the shell in the spaces between the latter and the drum D. In the lower part of the cylinder D′ is arranged a damper H, provided with a damper rod I, extending through the cylinder D′ and shell A to the outside to be under the control of the operator, to regulate the air circulating through the drum D. Now it will be seen that the smoke and gases from the heater pass through the pipe C, into the spaces formed between the exterior shell A, and the drum D, to finally pass through the pipe C′ to the chimney or smoke stack. The smoke and gases in circulating around the drum D, heat the latter and consequently the air circulating through the drum, it being understood that the air enters the drum D through the pipes F, passes up from the head E through the cylinder D′ into the head E′ and from the latter through the pipes F′ back into the room after having been thoroughly heated during its passage through the drum D.

By reference to the arrows in Fig. 2, it will be seen that the smoke and gases passing from the pipe C into the head B are deflected outward by the inverted cone E^2, and then pass inward in the shell A, close to the cylinder D′ owing to the interposed ring G. The smoke and gases then again pass outward on account of being deflected by the frusto-cone E^5, to then pass to the head B′ and inward along the sides of the cone E^4 to finally pass into the outlet pipe C′. Now it will be seen, that by this arrangement, the passage of the smoke and gases through the shell A, is retarded to a considerable extent, so that the air circulating through the drum D, is thoroughly heated.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

A heating drum, comprising an exterior cylindrical shell having conical ends provided with inlet and outlet pipes, an air drum suspended in the said shell and provided with a central cylinder, double conical heads at the ends of the said cylinder and having sides parallel with the sides of the shell heads, branch pipes leading from the said double cylindrical heads of the drum through the heads of the said shell, and a ring attached to the inside of the said shell and having an opening larger in diameter than the said cylinder, substantially as shown and described.

HENRY I. GRENNELL.

Witnesses:
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