

(No Model.)

3 Sheets—Sheet 1.

S. DOBBS.

HEATING APPARATUS.

No. 314,320.

Patented Mar. 24, 1885.

Fig. 2.

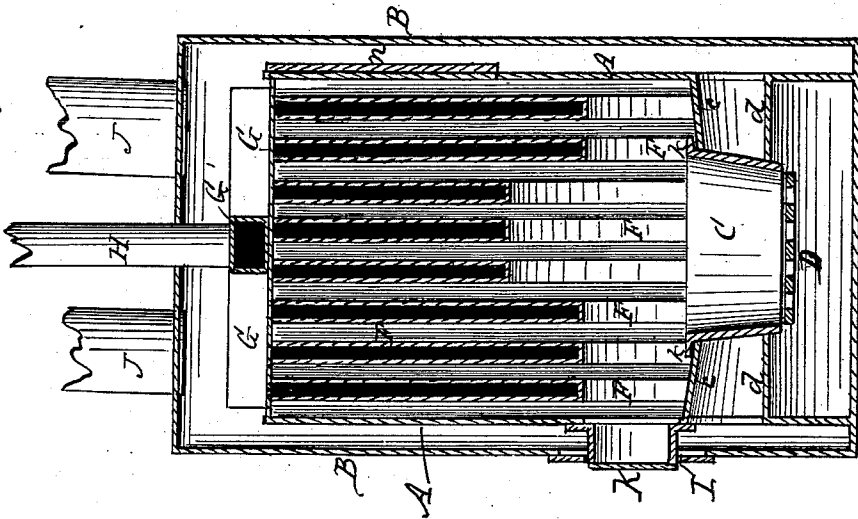
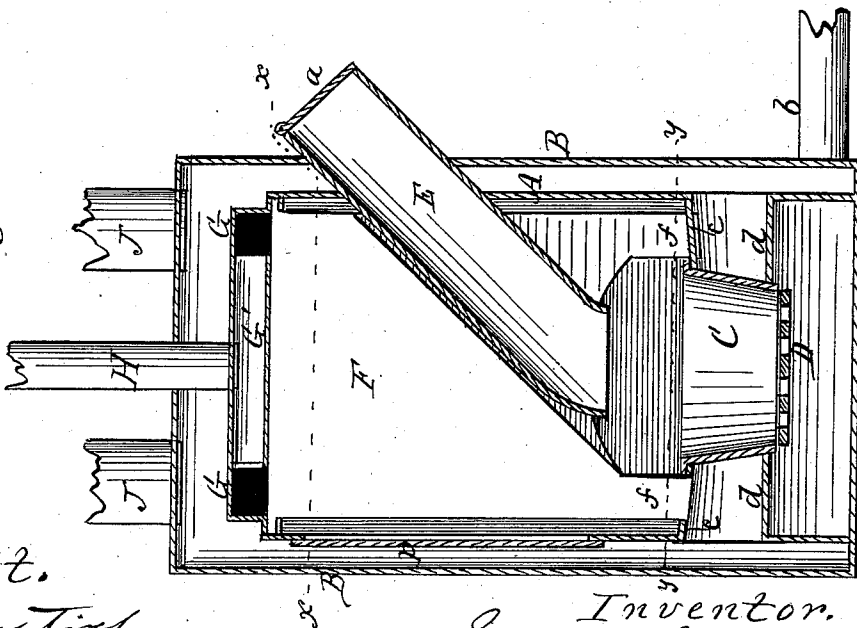


Fig. 1.



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Fig. 4.

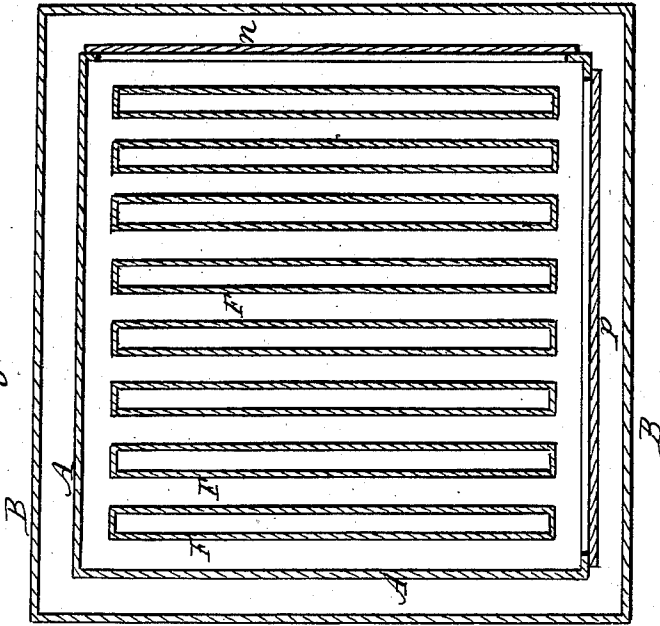
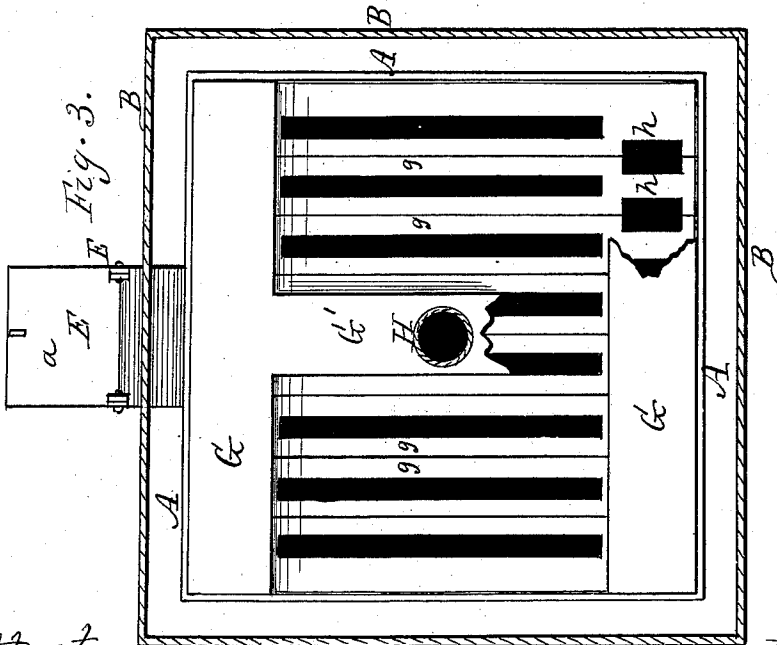


Fig. 3.



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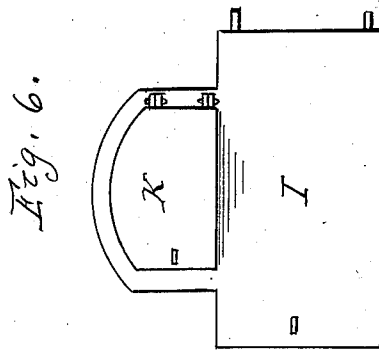
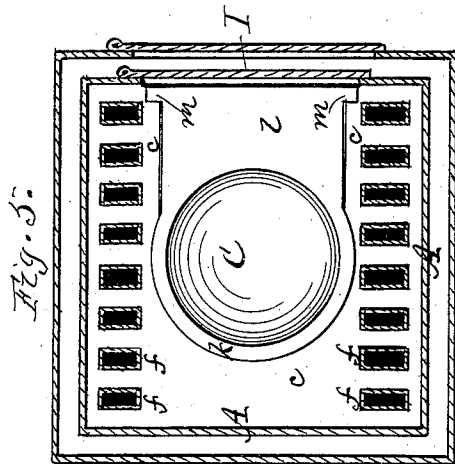
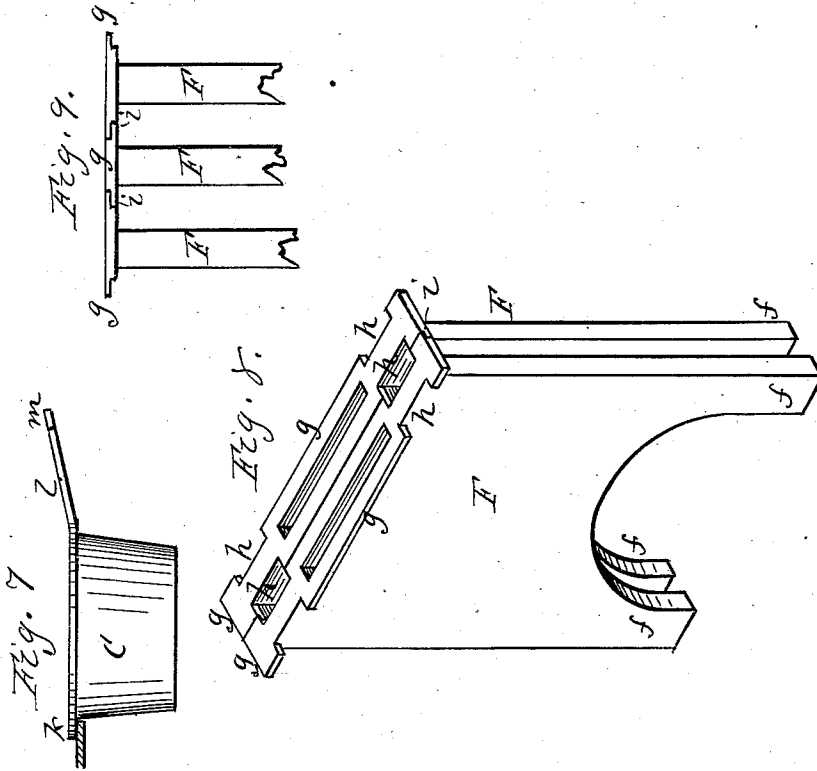
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UNITED STATES PATENT OFFICE.

SENECA DOBBS, OF ROCHESTER, NEW YORK.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 314,320, dated March 24, 1885.

Application filed February 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, SENECA DOBBS, of Rochester, Monroe county, New York, have invented a certain new and useful Improvement in 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 drawings, in which—

10 Figure 1 is a central vertical section through a hot-air furnace, showing my invention. Fig. 2 is a similar view at right angles to Fig. 1. Fig. 3 is a top view on an enlarged scale, and with the exterior casing in cross-section. Fig. 4 is a cross-section in line *xx* of Fig. 1, also enlarged. Fig. 5 is a cross-section in line *yy* of Fig. 1. Fig. 6 is a front elevation of the double door opposite the fire-chamber. Fig. 7 is a side elevation of the fire-pot. Fig. 8 is a perspective view of two of the air trunks or conduits fitted together. Fig. 9 is an edge elevation of the same parts.

15 My improvement relates to apparatus for heating by hot air or steam, and is designed to present a greater amount of radiating-surface in a cheap form than is ordinarily presented in hot-air furnaces, stoves, and steam apparatus now in use.

25 The drawings show my invention adapted to a hot-air furnace, although it is also adapted to stoves and steam-heaters.

30 A indicates the shell of the furnace; B, the exterior casing; C, the fire-pot; D, the grate, and E a magazine which extends from over the fire-pot outward in an angular direction through the shell and casing, and has a spout outside covered by a door, *a*.

35 The shell of the furnace, also the exterior casing, may be made of any desired form—square, round, rectangular, or otherwise.

40 The cold air is fed into the jacket-space between the furnace and casing by a pipe, *b*, at the bottom, which leads to the outside air.

45 At the top and bottom of the fire-pot are two horizontal plates, *c d*, allowing the air in the jacket-space also to flow in through the space between said plates and surround the body of the fire-pot by which it receives additional heat.

50 F F are a series of air trunks or conduits, resting vertically in the space of the furnace

above the fire-pot. They are hollow, open at the top, and have legs *f f*, which open down through the upper plate, *c*, around the fire-pot, thereby receiving the air from the space 55 below, and allowing it to pass through the hollow trunks and escape at the top, where it unites with the volume of air which passes up the jacket-space between the furnace and casing. The legs *f f*, where they pass through 60 the plate *c*, rest in bearings or enlargements cast on the plate, and are puttied or cemented in place to make the joint gas-tight.

The air trunks or conduits may be made of the rectangular form shown or of any other 65 form desired. At the bottom they are arched between the legs, leaving fire-space above the fire-pot; but those of the air-trunks which come opposite the magazine are beveled off, as shown in Fig. 1, to give room for the magazine to enter. 70 Spaces are left between the trunks sufficient for the passage of the heat and the products of combustion upward, and spaces are also left between the edges of the trunks and the sides of the furnace for the same purpose, so that the 75 air-trunks on all sides are surrounded by intense heat, and the air which passes up through the trunks is in such thin layers that the maximum heating action is obtained from the great amount of radiating-surface exposed. 80

At the top of each air-trunk is a horizontal flange, *g*, projecting on opposite sides. In these flanges, near the ends, are made notches *h h*. When the flanges of two trunks are fitted edge to edge, as shown in Fig. 8, the central portions are closed, cutting off the draft 85 between the trunks; but the notches *h h*, fitted together form ports through which the draft can escape upward. The edges of the flanges which meet are halved out, as shown 90 at *i i*, Figs. 8 and 9, and are puttied or cemented together to make them gas-tight.

G G are two flues, fitted one on each side over all the ports *h h*, and receiving the draft therefrom. The two flues are connected by a 95 central cross-flue, G', and a single exit-pipe, H, extends from this cross-flue. In the plan view, Fig. 3, portions of the flues are broken away to show the ports for conveying the draft, and the openings in the top of the trunks for 100 the passage of the hot air. By slight modifications, obvious to any person skilled in the

art, the action might be reversed, the hot air being made to pass up between the trunks and exterior to the same, and the draft being made to pass up through the interior of the hollow trunks. Steam or water may be heated in the same way and by the same means that the air is heated. The hot air is taken off from the dome at the top by hot-air pipes J J, in the usual way.

I is a large door in the casing and in the furnace-wall in front of the fire-chamber, through which the fire-pot is inserted and removed.

The fire-pot C has a circular flange, *k*, projecting from its periphery at the top, and it also has an inclined plate or chute, *l*, in front, with two laterally-projecting lugs, *m m*, at the outer edge, Figs. 5 and 7. An opening is made in the plate *c*, in which the plate *l* fits when in place, the lugs *m m* in that case projecting over and resting on top of the plate *c*, and supporting the plate *l*. The circular flange *k* also projects over and rests upon the circular seat formed in the plate *c* to receive it.

The fire-pot thus fitted is loose, and can be drawn out or put in at pleasure. The door I is of such size and form as to allow this to be done. To remove the fire-pot, it is only necessary to open the door in the casing and furnace-walls and draw it out. By this means the fire-pot can be taken out for repairs or to replace it by another, and by this means there is no necessity of taking the casing off and tearing the walls apart.

The air-trunks are also easily removed from the interior of the furnace. To do this the exterior casing is removed. A door or plate, *n*, covers a large opening in one side of the furnace-walls, opposite the broad side of the air-trunks, as shown in Figs. 2 and 4. By slightly raising the air-trunks one at a time, and inclining them outward through the opening when the door or plate is removed from place, the air-trunks can be readily removed.

This opening and door in the side of the furnace are of importance, to enable the air-trunks to be removed in low cellars and other places where the air-trunks cannot be raised high enough to remove them from the furnace without striking the ceiling. The loose connec-

tion and fitting of the air-trunks enables them to be separated and removed one by one without difficulty, and obviates the great trouble that occurs in separating the parts of ordinary furnaces.

p is another door or plate, covering a similar opening on another side of the furnace, but opposite the edges of the air-tubes. By removing this door or plate the edges of the air-tubes are exposed, and a broom, brush, or other instrument may be inserted between the air-trunks for the purpose of clearing them from ashes and soot.

Having thus described my invention I claim—

1. In a heating apparatus, the hollow air trunks or conduits F F, constructed with legs *f f* at their bottom, which form an arch over the fire-chamber, and with horizontally-projecting flanges *g g* at the top, halved together, and provided with notches *h h*, the whole so arranged, as described, that the flanges form a continuous covering to the tops of the air-trunks, to prevent passage of the draft except through the notches *h h*, as herein shown and described.

2. In a heating apparatus, the combination, with a series of hollow air-trunks, F F, having flanges *g g* at the top, which match together and form a continuous covering to the air-trunks, of side flues, G G, covering ports *h h* in the flanges, that allow the passage of the draft, a cross-flue, G', which connects the two side flues, and an exit-pipe, H, leading from the cross-flue, as shown and described, and for the purpose specified.

3. In a heating apparatus, the fire-pot C, constructed with the circular rim *k*, projecting plate *l*, and side lugs, *m m*, fitting removably in an opening in the fixed plate *c*, and capable of being inserted and removed through a door in the casing of the furnace, as herein shown and described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SENECA DOBBS.

Witnesses:

R. F. OSGOOD,
Z. L. DAVIS.