

(No Model.)

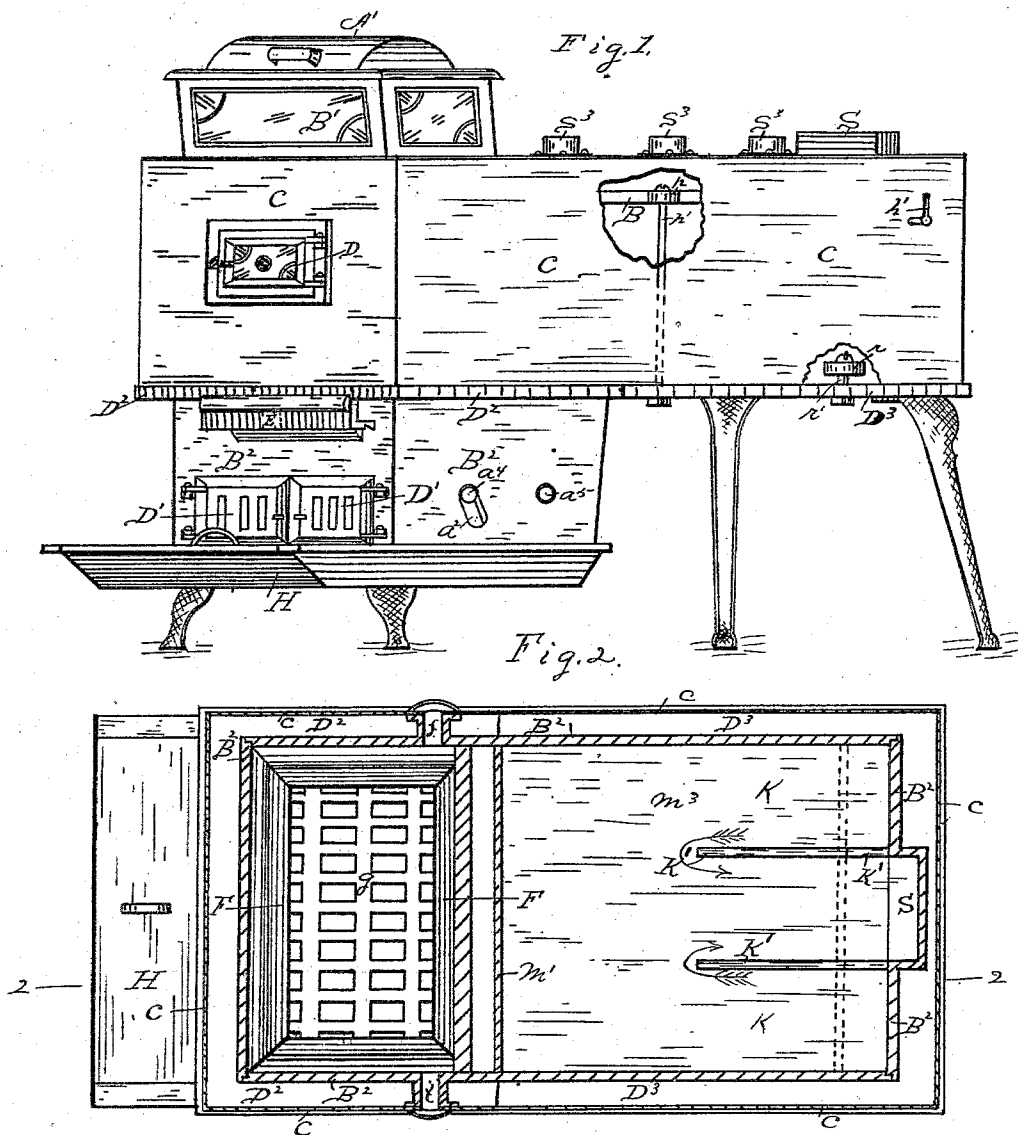
2 Sheets—Sheet 1.

J. M. PRESTON & J. L. BACON.

HEATING FURNACE.

No. 288,856.

Patented Nov. 20, 1883.



Witnesses.

John H. Hutchins
John J. Hutchins

Inventors.

Justus M. Preston
John Leslie Bacon

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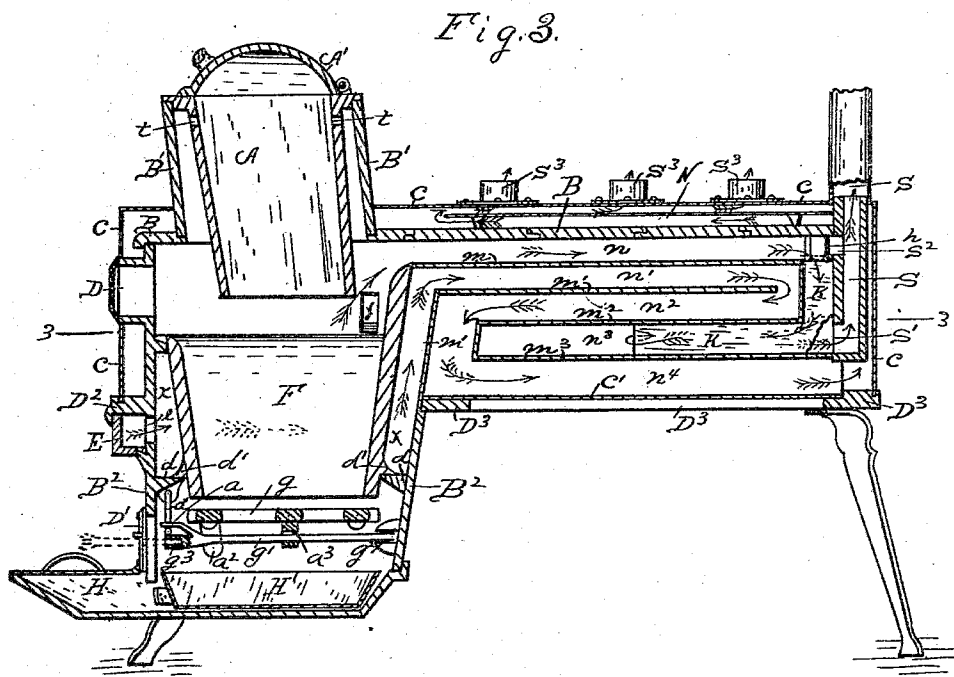
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UNITED STATES PATENT OFFICE.

JUSTUS M. PRESTON AND JOHN L. BACON, OF JOLIET, ILLINOIS.

HEATING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 288,856, dated November 20, 1883.

Application filed March 13, 1883. (No model.)

To all whom it may concern:

Be it known that we, JUSTUS M. PRESTON and JOHN LESLIE BACON, both citizens of the United States of America, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Heating-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a perspective view; Fig. 2, a cross-section on line 3 of Fig. 3, and Fig. 3 a longitudinal section on line 2 of Fig. 2.

The object and nature of this invention is a device for heating air for warming purposes for use in dwellings or any placed desired; and it consists in certain improvements in heating-furnaces.

Referring to the drawings, B² is the case containing the fire-pot F and grate g. An exterior case, c, incloses the remainder of the furnace except the extension-top B', as shown in Fig. 1. The rear portion of the furnace back of the fire-pot contains the horizontal diverting-partitions m, m', m², and m³, dividing it up into the horizontal flues n, n', n², n³, and n⁴. The fire-pot has near its lower end, and extending entirely around its exterior surface, the flange d', which rests on the corresponding flange, d, of the case, as shown in Fig. 3. This cuts off all communication between the ash-box below the fire-pot and the chamber x above the flange d', and which chamber x entirely surrounds the fire-pot F and forms the cold-air chamber, into which the cold air first enters the furnace through the air-inlet e at the front, as shown in Fig. 3. The air in passing around the outer surface of the fire-pot F is heated by contact therewith, and passes up behind the back of the fire-pot, in the direction of the arrows into the horizontal flue n', thence down at the rear of partition m' into flue n², thence down into flue n⁴, and thence out of the rear end of said flue into the outer case, c, between it and the inner part of the furnace containing said flues, and ascends to the partition N next the upper part of the case c, by which it is diverted to near the extension top or case B', and thence rises over said plate or partition N, and is finally discharged through the

exits s³ s³ s³, to be conducted where it is desired. By passing through the flues, as stated, it passes between the smoke-flues n and n³, so that the flame and smoke from the fire-pot continue to heat the air until it is finally discharged. The flame and smoke pass from the fire-pot first into flue n, thence down at the rear over the end of partition m, into the flue k k, into flue n², around the ends of the vertical partitions k', and thence up the chimney s, thus prolonging the heat within and among the flues, for the purpose stated. A damper, h, at the end of flue n is for the purpose of giving direct draft up the chimney when desired.

D² is a frame, to which the rear legs attach, and which supports in suitable grooves the lower edge of the case c. c' is a floor resting on the frame D², to form the flue n⁴, and forms the bottom of the case.

The magazine A forms a self-feed for the fire-pot, and sets in the extended-top case B', and has a cover, A'. The magazine A is furnished near its upper end with perforations t t, to permit the escape of accumulated gas, to prevent an explosion.

The cold-air inlet e is covered with the L-shaped slide E, (shown in Fig. 1 particularly,) and is open at either end, forming an inlet for cold air. By the use of this open-end slide the cold-air inlet cannot be entirely closed, and the quantity of cold air to be let in can be increased by sliding the slide E to one side.

The grate under the fire-pot is provided at either end with two extensions, a⁴ a⁵, that extend out through the case B², as shown particularly in Fig. 1, the rear extension, a⁵, forming a hinge, so that the front of the grate can be let down as the front extension, a⁴, travels downward in the slot a². The grate rests at its center on the shake-bar g', which passes through the lug a³, integral with the grate. The front end of the shake-bar g' is held up by the hook a', which, when pulled forward, releases the shake-bar and permits that end to fall, and with it the grate, so that clinkers can be removed. By applying a handle to the outer end of the shake-bar g', as is shown by the dotted lines in Fig. 3, the grate can be shaken endwise.

D' is a door, to open into the ash-pit H, below the grate.

D is a feed-door to be used when desired.

The outer case, *c*, is provided at either side, 5 at the rear of the fire-pot, with apertures *ff*, forming poke-holes to permit a poker to enter the fire-pot at its back, to remove ashes from the back, so its heating capacity can be maintained. The bolts *p'* and *r'* (shown in Fig. 1) 10 are for the purpose of holding the parts together.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is as follows, to wit:

15 1. The combination of the fire-pot F, having the flanges *d' d'* and supported in the flanges *d d*, forming the cold-air chamber *x*, entirely surrounding the fire-pot F, grate *g*, feed-chamber A, projecting top B', slide E, 20 cold-air inlet *e*, hot-air flues *n' n² n⁴*, smoke-flues *n* and *n³*, and exterior case, *c*, having the

hot-air exits *s³*, all adapted to operate as and for the purpose set forth.

2. In the heating-furnace described, the combination of the flues *n n' n² n³ n⁴*, diverting- 25 partitions *N m m' m² m³*, exterior case, *c*, smoke-exit flue *s*, cold-air chamber *x*, surrounding the fire-pot F, cold-air inlet *e*, and grate *g*, adapted to let down at the front, as and for the purpose set forth. 30

3. In the heating-furnace described, the combination of the fire-pot F, having the cold-air chamber *x* surrounding it, the projecting 35 top B', feed-chamber or magazine A, grate *g*, and cases *c* and B², having the apertures *ff*, all adapted to operate as and for the purpose set forth.

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Witnesses:

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