

United States Patent Office.

DAVID L. STILES, OF ROCHESTER, NEW YORK.

Letters Patent No. 102,726, dated May 3, 1870.

HEATING-STOVE.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, DAVID L. STILES, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Stoves, of which the following is a specification.

Nature of Invention.

This invention consists—

First, in the construction of the top of the stove, as hereinafter described, for producing an indirect draught; and

Second, in the employment of perforated plates in the fire-chamber, for distributing the air to support the combustion.

General Description.

In the drawings—

Figure 1 is a sectional perspective view.

Figures 2 and 3, cross-sections, respectively, in the planes of lines $x x$ and $y y$, fig. 1.

A is the main cylinder of the stove, shown in the drawing as adapted to the burning of wood.

B B are a series of pipes or tubes extending upward from the main cylinder, and opening into a chamber, C, in the top of the stove.

D is a reverse jacket, opening downward from chamber C, and extending to the top of the main cylinder, to which it joins with a division between.

E is an interior cylinder, opening from the fire-chamber, and extending up through the jacket-space, and opening above the chamber C, into smoke-space G.

A passage, b , is left between jacket-space D and cylinder E, for producing the connection through.

The smoke-chamber G is made with its sides inclosed, as shown in fig. 1, and communicates with the exit-pipe I in the usual manner.

This space is covered by a swing or other cover, in which is a boiler-hole, for the insertion of a tea-kettle or boiler, and this boiler-hole, when not in use, is also covered by an ornamental vase or other cover.

H is a valve, covering the passage from the fire-chamber to the interior cylinder.

The operation is as follows:

When the valve H is closed, the draught passes upward through the series of tubes B, into chamber C; thence down through jacket-space D, and thence up again through interior cylinder E, to smoke-space G, whence it finally escapes through the smoke-pipe.

This produces an indirect draught, which economises the heat to the greatest degree, as it expends its force before reaching the exit.

A direct draught may be produced by simply opening the valve H, thereby making a clear passage through interior cylinder E.

I am aware that revertible flues are common in stoves, situated in the cylinder, around the fire-chamber itself. Such is not the equivalent of my arrangement, which is situated over the fire-space, and forms a distinct top to the stove.

I am aware also that in radiating drums an indirect passage is given to the draught, by means of tubes, passages, and jackets. Such I do not claim.

A special feature of novelty in my invention in the construction of the above-described arrangement is the inclosed smoke-space G, of such shape as to form a convenient receptacle for a tea-kettle or boiler sitting over the opening in the cylinder E.

By this means, facility for boiling is produced, without interfering in the least with the indirect draught.

In the fire-space are situated two flue-plates, K K, on opposite sides, connected at the rear by an air-passage, k , which allows a clear circuit through from one to the other.

These plates stand out from the sides of the fire-chamber, so as to leave clear spaces $m m$, for the passage of the air.

Their tops are formed into angular flanges $n n$, which cover the spaces $m m$, and prevent the entrance of ashes.

Their bottoms do not quite extend to the bottom of the fire-space, but have an opening, p , all around; for the free escape of such ashes as may collect inside.

The sides of the plates are filled with numerous fine perforations $q q$, for the distribution of the air properly to all parts of the fire.

The induction air enters on one side through an opening, r , covered by a suitable register.

A portion of this air enters directly through air-passage r' to the fire-space, while the balance circulates through the spaces $m m k$, as before described.

I am aware that closed plates, somewhat resembling in form the plates k , have before been used in stoves, to form a downward or hot-air flue. Such I do not claim, as my plates are intended for a different purpose, and, instead of being made closed, are filled with perforations to feed the air in on all sides. Such an arrangement would not answer simply for downward-draught flues.

The arrangement of the two perforated side plates, connected by an air-passage at the back, whereby the whole is fed from one register, and the back

space is left free for the insertion of long sticks of wood, I believe to be new.

What I claim, and desire to secure by Letters Patent, is—

1. The combination and arrangement of the series of tubes B B B, chamber C, jacket D, interior cylinder E, with valve H, and the smoke-chamber G, the whole constituting the top of the stove and producing an indirect passage, as herein described.

2. The arrangement of the perforated plates K K and connecting-passage k, combined together as described, and operating in the manner and for the purpose specified.

DAVID L. STILES.

Witnesses:

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GEO. W. MIATT.