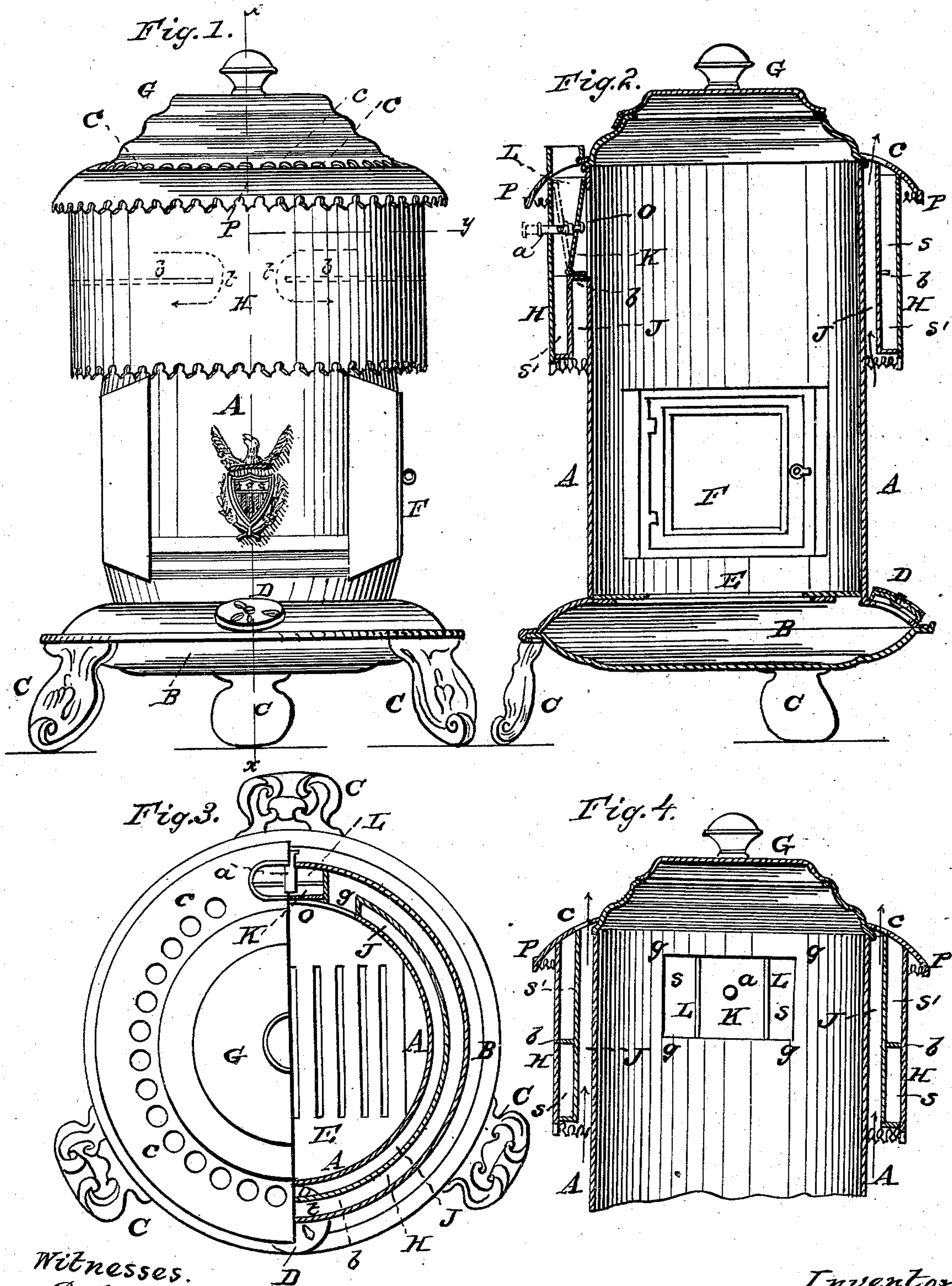


T. CRANE.
Heating Stove.

No. 77,962.

Patented May 19, 1868.



Witnesses.
R. V. Campbell
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THOMAS CRANE, OF FORT ATKINSON, WISCONSIN.

Letters Patent No. 77,962, dated May 19, 1868.

IMPROVEMENT IN COAL-STOVES.

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, THOMAS CRANE, of Fort Atkinson, in the county of Jefferson, and State of Wisconsin, have invented a new and useful Improvement in Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front elevation of the improved stove.

Figure 2 is a diametrical section through the stove, taken in the vertical plane indicated by red line *x* in fig. 1.

Figure 3 is a half top and half sectional view of the stove, taken in the planes indicated by the course of red lines *x y* in fig. 1.

Figure 4 is a diametrical section of the upper part of the stove, taken in a vertical plane at right angles to the plane of the section represented in fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention is an improvement on single-cylinder drum-stoves, and is designed to afford a much greater heat-radiating surface than has heretofore been provided, without materially changing the form and style of such stoves.

The nature of my invention consists in surrounding the upper section or portion of a drum-stove with a double-wall flue-jacket, which is so applied to the stove as to leave an annular space between it and the stove-drum, and which is so constructed that when a direct draught is not required, the heated products of combustion, after escaping from the body of the stove, can be made to circulate entirely around this jacket before escaping at the chimney-flue, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

The stove which I have improved consists of an upright cylinder, A, which is secured to a hollow base-section, B, and mounted upon legs C. This stove is provided with a register, D, in its extended base B, a grate, E, a feed-door, F, a cap, G, and an extended flanged top, P, as clearly shown in the drawings.

Surrounding the upper portion of the cylinder A, and suspended from the flange P, is a double-wall jacket, consisting of two annular walls, which are closed at top and bottom, except at the point L, which is the exit-flue or smoke-pipe. This jacket is of such diameter internally as to leave an annular space, J, between it and the wall A of the stove, through which air is allowed to circulate freely, the air entering at the bottom of this space, and escaping through apertures *c c*, which are made through the flanged cap P.

Within this annular jacket, H, is a horizontal partition, *b*, which divides this jacket into an upper flue, S, and a lower flue, S', with an opening through the partition, as shown at *t*, figs. 1 and 3, which forms a communication between the flues.

The exit-flue L extends down to the partition *b*, at the back of the jacket H, and is provided with a damper or valve, K, and a damper-rod, *a*, shown in figs. 2 and 3. This damper or valve K is hinged at its lower edge, so that when it is adjusted, as shown in fig. 2, direct communication between the cylinder A and flue L will be cut off, and the products of combustion will pass through openings, *g*, on each side of said flue, into the flue-space S in the jacket, thence pass around the jacket to the opening *t*; the products will then descend into the flue-space S', and pass back again toward the flue L, from which they will finally escape. When the damper or valve K is adjusted, as indicated in red lines, fig. 2, the products of combustion will pass from the cylinder A directly out through the flue L.

In fig. 4, the passages, *g g*, on each side of exit-flue L, are clearly represented. These passages are the only means provided for the escape of the products of combustion from the cylinder or fire-chamber A, when the direct draught is cut off. The partition *b*, in the double-wall jacket H, with the passage *t* through it, compels the heated products of combustion to circulate entirely around the space enclosed by this jacket before being allowed to escape. Thus it will be seen that a very large amount of heat-radiating surface is obtained in

a very compact space, without materially increasing the size of the stove to which it is applied. Both sides or walls of the jacket H are exposed to currents of external air, and the air which will ascend between the jacket and the cylinder A will be exposed to two heating-surfaces.

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

1. A single-cylinder drum-stove, provided with an annular flue-jacket, H, surrounding its upper portion, and communicating with the fire-chamber, by means substantially as described.

2. The means, shown and described, of compelling the products of combustion leaving the fire-chamber A to circulate entirely around the suspended jacket H, when this jacket is arranged and applied to a stove, substantially as described.

3. A flue-jacket, H, made shorter than the fire-cylinder A, and applied to said cylinder so as to form an air-space, J, which leads through the perforated top P, substantially in the manner and for the purpose described.

THOMAS CRANE.

Witnesses:

OLE WIGDALE,

P. E. HOVEY.