

J.C.GASTON, PATENTED
 JAN 28 1868
FURNACE

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Fig.1.

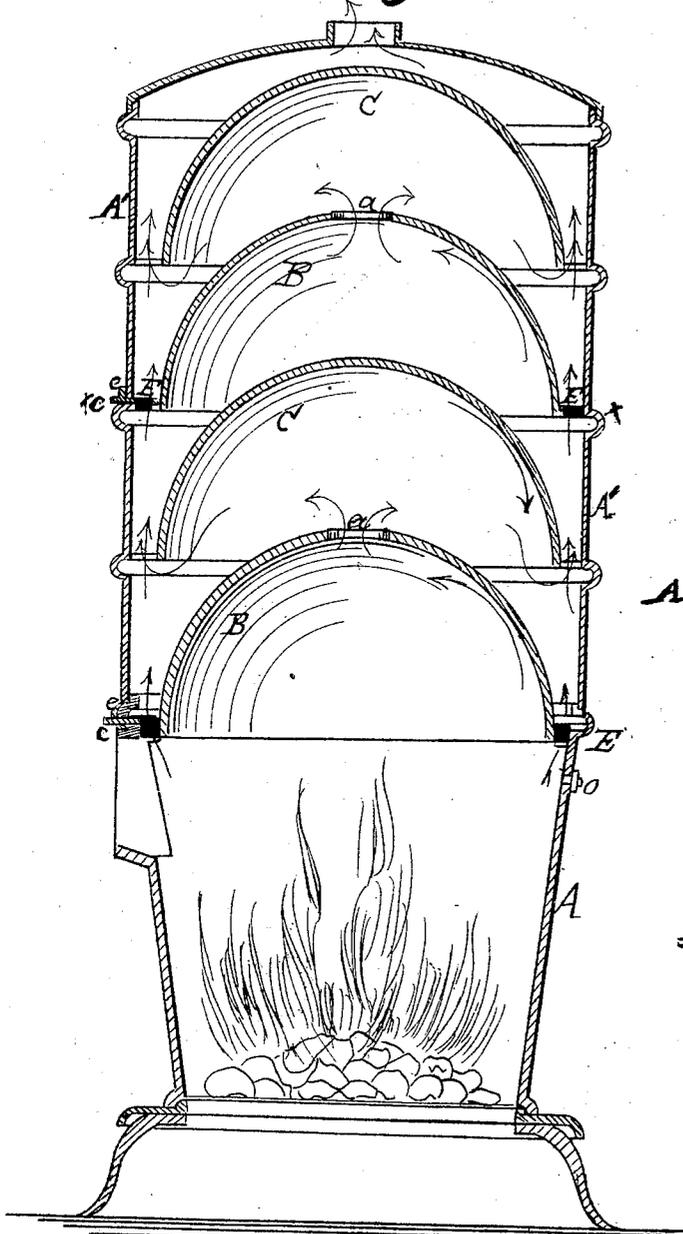


Fig.2.

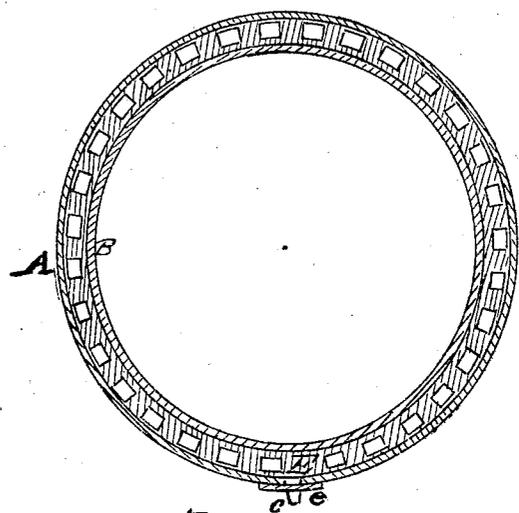


Fig 3.



Witnesses.
P. F. Dodge,
A. Pelletier

J. C. Gaston,
 Inventor,
 by *Dodges Munn*
 his Attorney.

United States Patent Office.

J. C. GASTON, OF CINCINNATI, OHIO.

Letters Patent No. 73,886, dated January 28, 1868.

IMPROVEMENT IN 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, J. C. GASTON, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Stoves for heating purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in arranging, within the body of a stove, a series of hemispherical domes in a peculiar manner, together with dampers arranged to operate therewith, for the purpose of more thoroughly utilizing the heat produced by the consumption of the fuel, as hereinafter more fully explained.

Figure 1 is a central vertical section, and

Figure 2 is a transverse section, taken on the line xx of fig. 1.

I construct the body of the stove in any of the usual styles, but preferably of the form shown in the drawings, the lower portion, A, being made of cast iron, while the upper portion, A', should be of sheet iron, for the purpose of more readily permitting the escape of the heat into the room to be heated. Immediately over the fire-chamber, I place a hemispherical dome, B, with its concave side downward, and having an opening, a , at the centre, this dome being provided with a radial flange around its base, by which it is secured firmly to the body of the stove, this flange being pierced by a series of openings arranged at regular intervals. Resting upon this flange is an annular ring or plate, E, pierced with a corresponding series of openings, as represented more clearly in fig. 2. This ring E is provided with a handle, c , which protrudes through suitable slots in the side of the case A', there being a plate, e , secured upon the handle, either externally or internally, to cover the slot, as shown in the drawings, or the damper E may be cast with the handle c and the flange e , all in one piece, the flange e being so arranged as to rest against the case on the inside, and thus cover the slot, as represented in Figure 3, which is an edge view.

Directly over the dome B, I place another dome, C, which has no opening at its centre, but which is secured in place by brackets, attached either to the sides of the case A', or to the dome B, in such a manner as to leave an annular space or opening between it and the case A', as represented in fig. 1. Over this, I place another dome, B, with its damper E, and over this, again, another dome, C, and so on to any desired extent, the domes B and C being arranged alternately, as shown in fig. 1. If desired, these domes may all be made of fire-clay, or they may one or all be made of metal and lined with fire-brick.

Near the base of the lower dome, a series of small openings, with slides o , may be furnished for the admission of fresh air to supply oxygen for insuring the more perfect combustion of the gases arising from the burning coal, or air may be admitted through channels or grooves formed in the rear or outer faces of the brick that will be used for lining the fire-chamber, there being suitable openings for the admission of the air through the sides of the body A to these channels.

The domes should be so placed as to fit one within another, more or less, according to circumstances. In stoves intended for burning bituminous coals, which produce a great amount of smoke and soot, they must be located further apart, while in those intended for burning anthracite coals, the domes may be placed nearer together.

The operation of my improved stove is as follows: When a direct draught is desired, as is necessary in starting the fire, and when it is desired to have the fire burn more briskly, the dampers E will all be opened, in which case the smoke and gases will pass directly up around the outside of the domes, as indicated by the blue arrows. When, however, the fire is well started, the dampers E are closed, and the heat and smoke will then pass up through the opening a of the lower dome, and impinging against the concave surface of the dome C, will be deflected downward, passing out and up around its periphery, where they will be again forced inward by the upper dome B, escaping through the opening a therein, be again deflected by the upper dome C, and escape thence at the top of the case A', its course being indicated by the red arrows in fig. 1. As the gases which arise unconsumed from the coal impinge against the highly-heated lower dome B, they will be ignited thereby, and, with the fresh oxygen supplied at the base of the dome, will be entirely consumed, and thus add

much to the amount of heat furnished from the combustion of a given amount of fuel. By causing the smoke and heated current to pass the circuitous route indicated by the red arrows, its escape from the stove is retarded until the heat is very nearly if not entirely extracted or utilized, instead of passing directly off, out the pipe.

Having thus described my invention, what I claim, is—

A stove provided with the domes B and C, and the dampers E, all constructed and arranged substantially as set forth.

J. C. GASTON.

Witnesses:

W. C. DODGE,

P. T. DODGE.