

T. WHITE.  
HEATING-STOVE.

No. 183,033.

Patented Oct. 10. 1876.

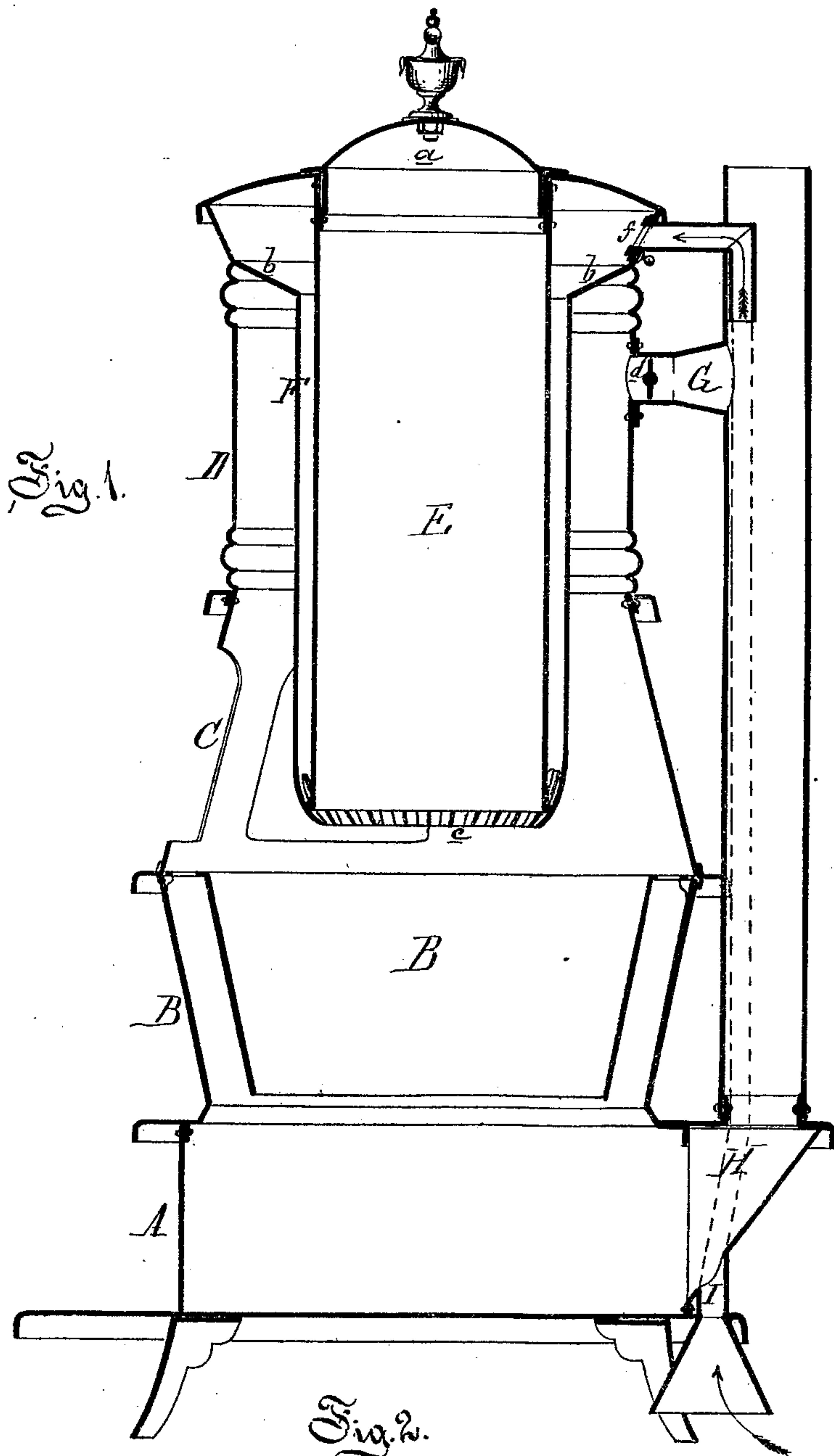


Fig. 2.



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# UNITED STATES PATENT OFFICE.

THOMAS WHITE, OF QUINCY, ILLINOIS.

## IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **183,033**, dated October 10, 1876; application filed June 29, 1875.

*To all whom it may concern:*

Be it known that I, THOMAS WHITE, of Quincy, in the county of Adams and State of Illinois, have invented an Improvement in Magazine Heating-Stoves, of which the following is a specification:

The object of my invention is to supply a volume of air to the combustion-chamber through the double wall of the magazine at or near the temperature of the gases of combustion; and it consists in the combination of the direct and revertible flues, and an air-pipe arranged within the exterior flue, with its lower end near the floor and its upper end connecting with the upper end of the air-space; and, further, in the peculiar damper at the upper end of the said air-pipe, all as more fully hereinafter explained.

Figure 1 is a vertical section of a revertible-draft base-burning stove fitted with my improvement. Fig. 2 is a horizontal section at *x x*, showing the hot-blast register-slide.

In the drawing, A represents the ash-pit, B the fire-pot, C the combustion-chamber, and D the magazine-section, of an ordinary magazine-stove, in which the magazine E is suspended from the top, access to which is had by removing the cover *a*. F is a casing suspended from an annular flange, *b*, in the upper part of the magazine-section. It incloses the magazine proper and terminates just below its lower end in a row of inwardly-curved fingers, *c*, the arrangement of the magazine and its casing being such that an annular current of air can pass down between them and be divided into jets before passing into the combustion-chamber to mingle with the gases.

The magazine-section has a direct-draft flue, G, issuing from its back, which flue has a damper, *d*, for reverting the gaseous currents into the base-chamber, (which surrounds the ash-pit proper,) and from which issues a back flue, H, through which the reverted currents rise. The back flue is intersected by the direct-draft flue, as shown.

I disclaim the invention of a stove constructed as above described, as also the invention of a double-walled magazine, or of the casing which incloses it, except the arrangement or combination of the inwardly-curved fingers at the lower end, extending below the

mouth of the magazine proper, which I believe to be new and original with me. The description of the old parts are introduced merely for the purpose of illustrating the nature and application of my invention.

Into the lower end of the back flue I enter a tube, I, whose lower end is flaring and extends nearly to the floor. This tube may extend upward in the back-flue to a point above the plane of the direct-draft flue, as indicated by the dotted line, or, as shown, it may be simply an air-inlet to the lower end of the back flue. In either case it is continued from a point just above the flue G upward to a point above the flange *b*, thence horizontally into the annular chamber surrounding the magazine proper. At the inner end of the air-pipe there is a damper, *f*, which can be used to regulate or shut off the influx of air.

The draft of the stove causes a column of cold air and the heavier gases in the apartment to be drawn up through the tubes I into the top chamber of the stove, thence down between the magazine and its casing, and discharged in highly-heated jets from the lower end of the latter, mingling with the gases of combustion at such an elevated temperature as will retard their passage, and promote and secure their immediate and perfect combustion.

If cold air were taken directly into the space between the magazine and its casing, as has heretofore been done, it would not be raised sufficiently in temperature before mingling with the gases to allow them to ignite, but would lower the temperature of the whole volume of mixed air and gases, and retard the ignition until again raised to the proper temperature, if an opportunity were afforded, before finding an exit from the combustion-chamber; hence the necessity of heating the influent air-current before it enters the magazine-casing, which is effected in the manner described, the air-tube in the back flue being either continuous or interrupted, as shown. In the latter case the cold air drawn in mingles directly with the gaseous products of combustion that ascend the back flue, and is raised in temperature before an equivalent volume is withdrawn at the top of the back flue to supply the downward draft in the magazine-casing.



The coal cannot lodge or choke at the mouth of the magazine by reason of its swelling in the process of coking, as the influent currents at that point secure its combustion, after which it settles down into the fire-pot, and thus allows the fuel to feed the fire as required.

What I claim as my invention is—

1. In a heating-stove, with an incased magazine, and an exterior flue adapted for direct and for revertible draft, and in combination with the direct and revertible flues, the air-pipe I, arranged within the exterior flue, with its lower end near the floor and its upper end connecting with the upper end of the air-space between the double walls of the maga-

zine, and adapted to supply heated air to the combustion-chamber whether the draft of the stove be direct or revertible, substantially as described and shown.

2. In combination with an air-tube, I, the slide-damper *f*, adapted to cover wholly or in part the upper end of said air-tube, for the purpose of regulating the flow of hot air in the same, substantially as described and shown.

THOMAS WHITE.

Witnesses:

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