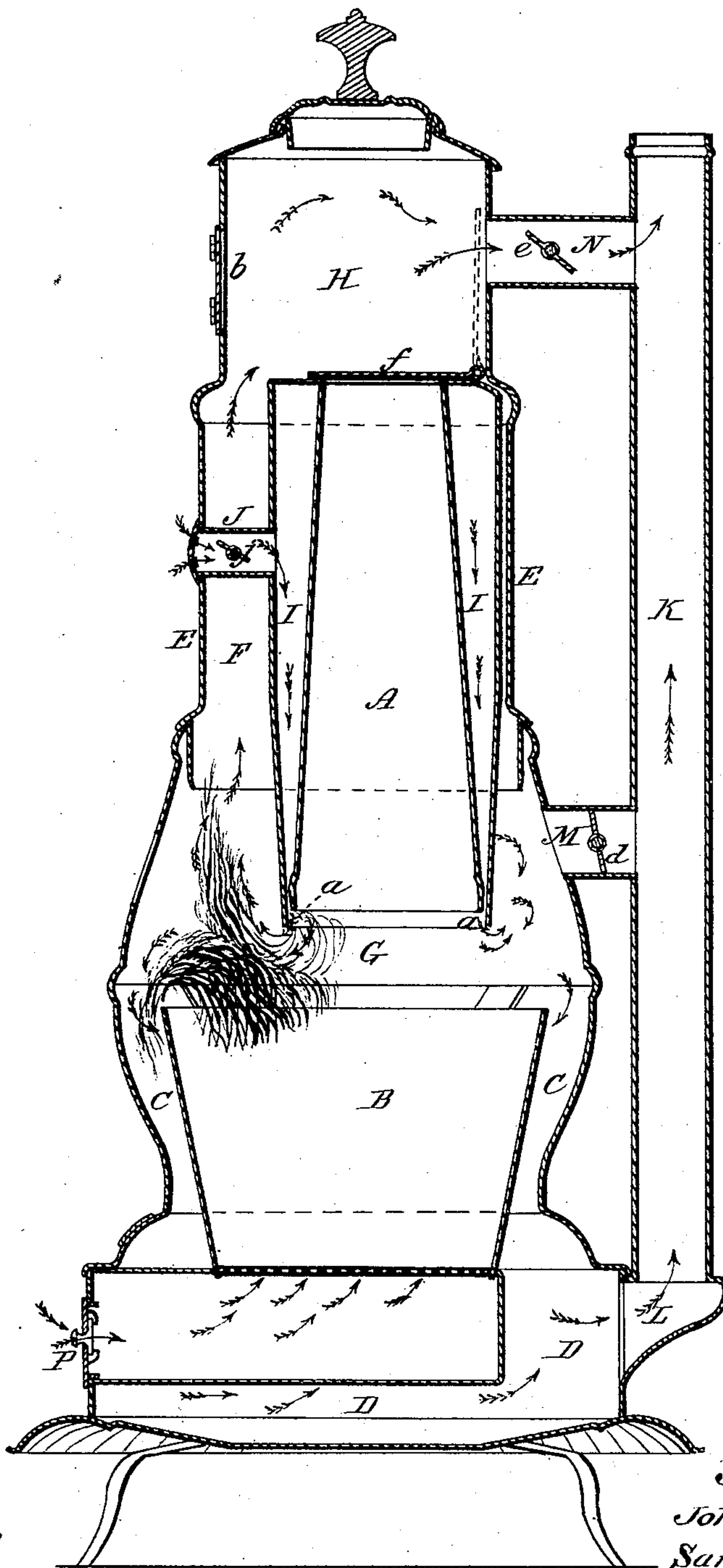


J. A. MARVIN & S. D. VOSE.

Stoves.

No. 157,016.

Patented Nov. 17, 1874.



Witnesses:

J. H. Rutherford
Jas. C. Patton

Inventors:

John A. Marvin

Samuel D. Vose

by *Johnson & Johnson*
their Attorneys

UNITED STATES PATENT OFFICE.

JOHN A. MARVIN AND SAMUEL D. VOSE, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **157,016**, dated November 17, 1874; application filed February 13, 1874.

To all whom it may concern:

Be it known that we, JOHN A. MARVIN and SAMUEL D. VOSE, both of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Magazine-Stoves, of which the following is a specification:

Our invention relates to magazine heating-stoves for burning soft coal. The magazine and its surrounding air-chamber, in connection with the vertical heating-flue surrounding the magazine, and the revertible base-flue with air-discharge orifice at the junction of this flue with that surrounding the magazine, have been used in heaters of this class, and in which these features have been combined with cooking-ovens arranged both below and above the magazine. We are not aware, however, that such magazine-stoves have been constructed with the special design for burning soft coal, and in which the flame from the combustion-chamber has been divided alike within the revertible and vertical flues, or directed wholly downward, as may be desired, and in which a heating-radiator has been located above the magazine, for the purpose of transferring the flame from the combustion-chamber directly into the radiator at the top of the stove.

In the accomplishment of these advantages our improvements consist in the combination of the escape-pipe with the top radiator, the combustion-chamber, and the ash-pit chamber, with which said pipe communicates, and in which said communication with the combustion-chamber is made above the outlet of the magazine by a dampered opening, whereby the draft of the stove is increased in kindling direct from the fire-chamber, and the said draft-opening prevented from being closed by the feed from the magazine; also, in the combination of the dampers in the escape-pipe, the air-inlet, and base draft-dampers with the revertible and vertical flues, the air-outlet and the top radiator, whereby the flame may be divided both upward and downward from the air-impinging point, or caused entirely to descend the revertible flue, whereby the combustion can be increased or diminished at pleasure, and the draft placed under easy control.

The accompanying drawing represents a ver-

tical section of a magazine-stove embracing our invention.

The heater has the ordinary magazine A for the fuel, with the fire-pot B, and the revertible flue C below communicates with the ash-pit D, in the usual manner. The magazine is either located centrally or eccentrically with the case E; but in either case there is a vertical active flue, F, between it and the casing. This flue F joins the space G above the fire-pot, and opens directly into a top radiator, H, into which the magazine enters. An air-chamber, I, surrounds the magazine A, extending from its top to its bottom, and increasing in area from the bottom upward, so as to form a contracted orifice, *a*, at the bottom, from which the heated air passes into the fire-space. This air-chamber is supplied by a dampered pipe, J *j*, opening from the outside through the casing. The radiator H, as will be seen, is located above the magazine, and forms a prolongation of the vertical open flue F, and thereby a direct communication with the fire-pot, leaving free course of the flame therefrom up into the top radiator, to heat alike the top and bottom of the stove. The escape-pipe K joins the stove at three points, viz., the ash-pit chamber at L, the fire-pot chamber at M, and the top radiator at N, and the openings M N are regulated and closed by dampers *d e*, while the ash-pit has the usual dampered opening P. The dampered opening M joins the fire-chamber above the outlet of the magazine, in order that it will be free from being closed by the feed of the coal, and for increasing the draft in starting the fire, as by this outlet a strong draft is obtained directly at the point of kindling, instead of at the top of the stove. The dampers *j d e* are capable of adjustment, to give complete control over the fire.

The combustion is most active when the three dampers *j e P* are open. The fire is modified by closing the damper *e* in the top radiator. It is further reduced by closing the damper *j*, to cut off the supply of air; and closing all three of the dampers brings the coal to a smoldering state, but ready to burn quickly as the draft may be let on. By closing dampers *e* and P, and slightly opening damper *j*, a gentle slow fire can be secured, by which a moderate heat only will be diffused, which is

generally desirable at night, at the same time preventing the accumulation and deposit of soot in the flues.

By this arrangement of the dampers, in connection with the flues and the radiator, the flame is divided at the air-inlet *a*, descending the revertible flue, and, rising to the top radiator *H*, heating alike the entire surface of the stove. In the production of this result, of course, the dampers must be suitably adjusted. It is not the introduction of the air at the junction of the flues with the fire-chamber that effects the burning of the coal by both upward and downward draft, but the combination, with these things, of the top radiator and the dampered openings described.

The stove is fed through a side door in the radiator, the draft-damper *e* and the top damper *f* being opened.

We claim—

1. The combination of the smoke-pipe *K* with the top radiator *H*, the combustion-chamber *G*, and the ash-pit chamber *D*, with which

said pipe communicates at *M*, *N*, and *L*, two of which openings, *e* *d*, being dampered, and in which the draft-opening *M* is above the outlet of the magazine, as and for the purpose described.

2. The combination of the dampers *d* *e* *j* *P* with the revertible and vertical flues *C* *F*, the air-outlet *a*, and the top radiator *H*, as described, and to obtain the advantages stated.

In testimony whereof we have hereunto set our hands to the above specification of our improvement in base-burning stoves in the presence of witnesses.

JOHN A. MARVIN.
SAMUEL D. VOSE.

Witnesses to the signature of JOHN A. MARVIN:

FRED. REUSS,
GUSTAV REUSS.

Witnesses to the signature of SAMUEL D. VOSE:

A. E. H. JOHNSON,
J. W. HAMILTON JOHNSON.