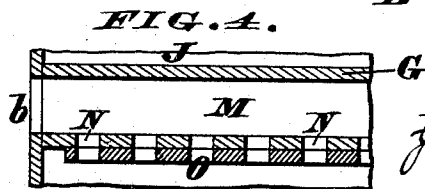
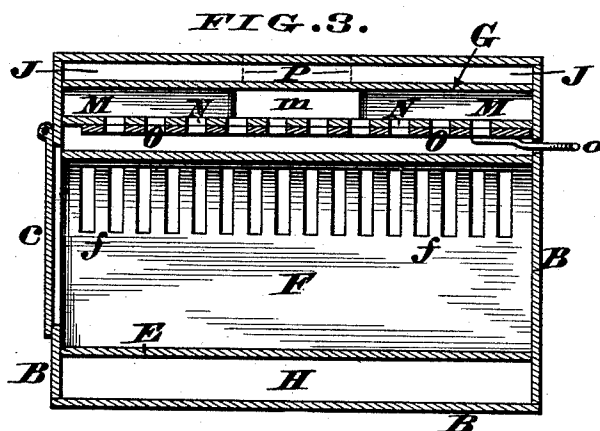
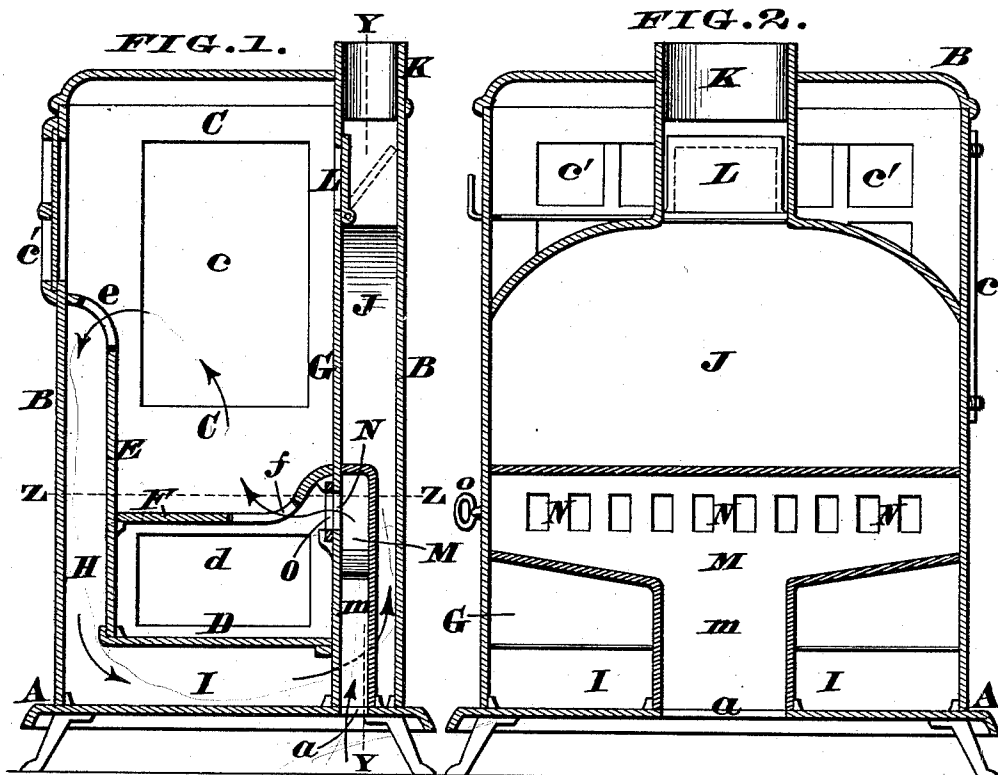


(No Model.)

J. W. ELLIOTT.
STOVE.

No. 469,466.

Patented Feb. 23, 1892.



Attest
Samuel M. Quinn
Arthur Moore

Inventor.
James W. Elliott.
By James H. Layman
Atty.

UNITED STATES PATENT OFFICE.

JAMES W. ELLIOTT, OF WARREN, ASSIGNOR TO WILLIAM RESOR & CO., OF CINCINNATI, OHIO.

STOVE.

SPECIFICATION forming part of Letters Patent No. 469,466, dated February 23, 1892.

Application filed June 30, 1891. Serial No. 397,993. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. ELLIOTT, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form a part of this specification.

My invention comprises a special construction of stove, range, or furnace whereby the supply of air necessary to support combustion is very highly heated before being utilized. This construction includes an ascending flue at the rear of the stove, range, or furnace, another flue connecting said ascending flue with the fire-box, and an air-heating chamber located within and near the bottom of said ascending flue. The chamber has a cold-air inlet and an outlet, which latter is situated below the grate and near the back thereof, in order that the hot air escaping through said outlet may have direct access to the fuel in the fire-box or furnace. By this arrangement of parts ample provision is made for furnishing a large volume of heated air without unduly increasing the size of the apparatus or adding materially to its cost of manufacture, as hereinafter more fully described.

In the annexed drawings Figure 1 is a vertical section taken from front to rear of a stove embodying my improvements. Fig. 2 is a vertical section taken from side to side of the stove at the line Y Y of the preceding illustration. Fig. 3 is a horizontal section of the stove, taken at the line Z Z. Fig. 4 shows a modification of my invention.

A represents the base-plate, and B the outer shell or casing, of any approved form or construction of stove, which shell incloses the fire-box or furnace C and ash-pit D, said furnace being composed of a front fire-plate E, grate F, and back fire-plate G.

c is the fuel-door of the fire-box, and c' a "mica section" thereof. The upper portion of plate E curves outward to bear against the shell, and has an opening e, or preferably a series of openings, that lead into the front flue H of the stove. This flue leads into a

horizontal or base flue I, and the latter communicates with a back flue J, having at top a collar K. This flue has a damper L, capable of being opened to the position indicated by dotted lines in Fig. 1 when it is desired to have a direct draft up the smoke-pipe of the stove. Situated within this back flue J is a chamber M, extending usually from side to side of the stove and having an inlet m communicating with an opening a of the base-plate A.

N are outlets made in that portion of plate G inclosed by the chamber M, which outlets are controlled by a sliding register O, having an external handle o. These outlets must be situated below the grate F, and it is preferred to curve the rear part of this grate in the manner seen in Fig. 1, and to pierce it with a series of slots or perforations f of any suitable size and shape.

d is the ash-pit door.

From the above description it is evident that the construction of the stove is such as to cause the chamber M and its inlet m to be at all times surrounded with the products of combustion escaping up the flue J, and as a natural result these parts M m soon become very highly heated. Consequently the air traversing the inlet-pipe m and chamber M must also become very highly heated before it reaches the outlets N, through which openings it is discharged directly under the grate F. The heated air then passes through the slots f of the grate and mingles directly with the fuel, thereby promoting a rapid combustion of the latter, the fire and smoke from the furnace C being drawn forward to the opening e of plate E, and thus affords a brilliant illumination at the mica section c'. The products of combustion now dive down the front flue H, enter the base-flue I, and finally escape up the back flue J and out at the exit K. It will thus be seen that a large volume of highly-heated air is supplied to the fuel without adding a particle to the running expense of the stove, and as this supply of air is drawn off from near the floor the room is rapidly relieved of foul and vitiated vapors. Therefore the stove acts as a constant and automatic ventilator that requires no more

attention than is necessary to replenish it with wood or coal or other suitable fuel.

In a modification (seen in Fig. 4) an opening *b* is made in the shell of the stove to admit air at one end of the chamber M, and, if desired, a similar opening can be provided at the opposite end of said chamber; or the air-inlet can be carried directly back from the chamber M and pass through the rear plate P of the stove, as indicated by the dotted lines in Fig. 3.

From the above description it is evident my invention is not limited to any special arrangement of pipes or other inlets for admitting air to the chamber, as these devices can be arranged to suit any peculiar construction of heating or cooking stove, range, or furnace.

I claim as my invention—

1. The combination, in a stove, of a fire-box C, a grate F, having openings *f* wholly near its rear, a front flue H, having its entrance *e* above said grate, a chamber M for heating

air, an inlet to said chamber, and an outlet N for the same, this outlet N being situated below said grate in order that the heated air may pass through the rear openings *f*, then traverse the fuel in the fire-box, and be carried up diagonally to the entrance *e* of said front flue H, as herein described, and for the purpose stated.

2. A stove, range, or furnace provided with a fire-box C, a grate F *f*, a front descending flue H, a base-flue I, a rear-ascending flue J, an air-heating chamber M, located in said ascending flue and near the bottom thereof, an inlet to said chamber, and an outlet N for the same, said outlet being situated below said grate F *f*, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES W. ELLIOTT.

Witnesses:

F. S. CHRYST,
C. E. KIRTLE.