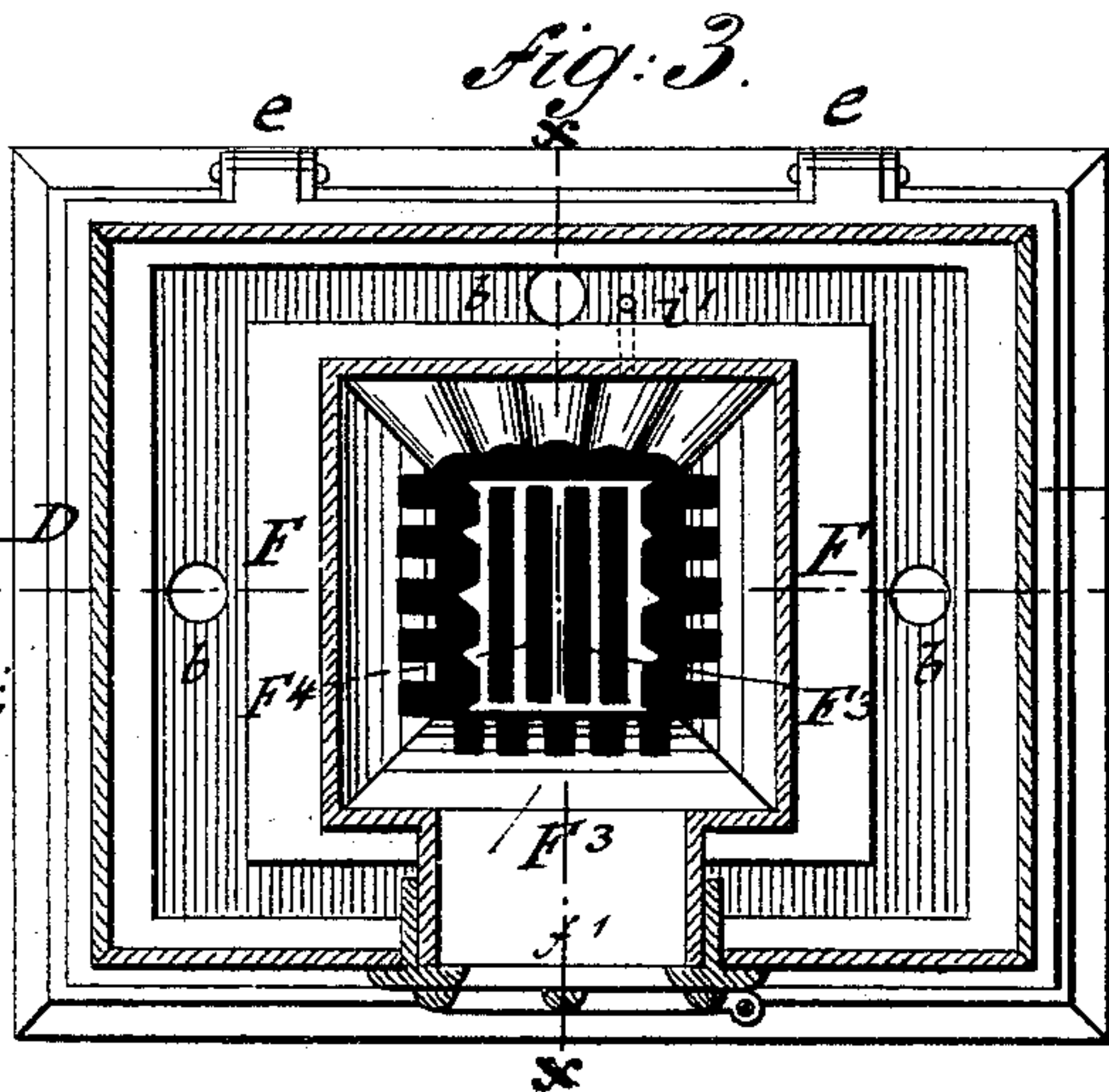
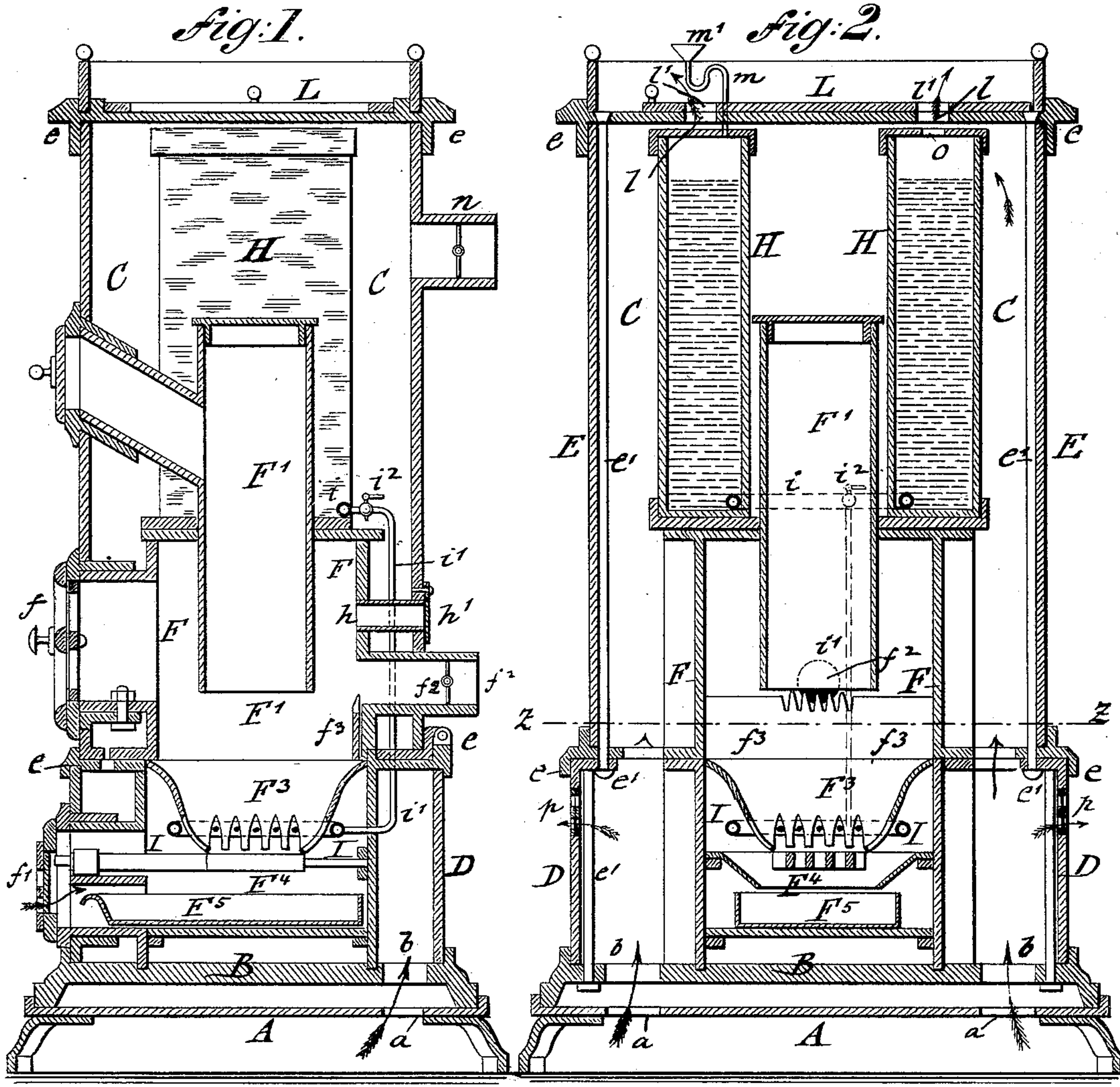


(No Model.)

O. P. & G. O. ELTERICH.  
HEATING STOVE.

No. 407,001.

Patented July 16, 1889.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

OTTO P. ELTERICH AND G. OTTO ELTERICH, OF NEWARK, NEW JERSEY, ASSIGNORS OF ONE-THIRD TO CLEMENS HEITEMEYER, OF SAME PLACE.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 407,001, dated July 16, 1889.

Application filed May 1, 1888. Serial No. 272,528. (No model.)

*To all whom it may concern:*

Be it known that we, OTTO P. ELTERICH and G. OTTO ELTERICH, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Heating-Stoves, of which the following is a specification.

This invention relates to improvements in heating-stoves by which a more perfect combustion of the fuel is produced and in which the heated air is passed into the room in a moistened condition; and the invention consists of a heating-stove in which water-boxes are supported on suitable shelves at both sides of the fuel-receptacle, said water-boxes being connected by vertical pipes with perforated pipes on the fire-pot, so as to supply aqueous vapors to the fire, by which a more perfect combustion of the fuel is produced.

The invention consists, further, of certain minor improvements, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical central transverse section of our improved heating-stove on line  $x x$ , Fig. 3. Fig. 2 is a vertical longitudinal section of the same on line  $y y$ , Fig. 3; and Fig. 3 is a horizontal section on line  $z z$ , Fig. 2.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the base-plate of our improved heating-stove. The base-plate is supported on legs and provided with a lip, which retains the bottom plate B of the stove-body proper. Both the base-plate A and the bottom plate B are provided with openings  $a$  and  $b$ , through which the air can readily pass to the heating-space C of the stove, which is arranged between the stove-body and the exterior casing or mantel of the same. The side walls and bottom of the casing or mantel are preferably made of ornamented glass plates or tiles, by which the appearance of the stove is not only greatly enhanced, but the heat retained for a longer time than with mantels of sheet or cast iron. The casing or mantel proper consists of a lower part D and a top part E, the walls or sides of which are supported by suitable frames  $e$ , that are connected by the bottom

plate B and by vertical bolts  $e'$ , as shown in Fig. 2. The upper part E of the mantel is hinged to the lower part at  $e^2$ , so that the part E can be tilted back when necessary for cleaning the interior parts of the fire-box and making repairs.

At the lower part of the stove-body is arranged a closed fire-box F, which is preferably made of cast-iron plates, said fire-box being provided at the upper part with a fuel-reservoir F', which is charged by an inclined chute F<sup>2</sup>, having a door for opening and closing the same. Below the fuel-reservoir F' is supported the fixed basket F<sup>3</sup>, and below the same the grate F<sup>4</sup> and ash-pan F<sup>5</sup>.

Doors  $f$  and  $f'$  at the front part of the stove give access to the upper part of the fire-box F and the ash-pit, the lower door  $f'$  being also provided with the usual register for supplying the air for combustion. The grate F<sup>4</sup> is an axially-turning dumping-grate of any approved construction.

The rear part of the fire-box F is provided at the point where the same is connected by a pipe  $f^2$  with the smoke-pipe leading to the chimney with a protecting-plate  $f^3$ , which is toothed at its upper edge, as shown clearly in Fig. 2, so as to prevent the dropping of pieces of burning fuel or of ashes into the connecting smoke-pipe  $f^2$ . An air-inlet pipe  $h$ , provided with a pivoted lid  $h'$ , leads through the upper part of the body E into the fire-box, so as to produce the damping of the fire by admitting cold air on the top surface of the same, so that the combustion can be retarded whenever the fire burns too briskly or whenever it is desired to have a slow-burning fire, as during the night.

On the top of the fire-box, and preferably at each side of the fuel-reservoir F', is supported a water-box H, which water-boxes are connected at the base by a horizontal pipe  $i$ , which is again connected by a vertical pipe  $i'$ , having a stop-cock  $i^2$ , with a perforated jet-pipe  $l$  located outside of the basket F<sup>3</sup>, as shown in Fig. 2. This perforated pipe  $l$  is heated by the fire and serves to instantly evaporate the water that is fed in drops from the water-boxes H to the jet-pipe  $l$ . The vapors thus supplied to the fire by the evaporation of the water are dissociated into their



component elements by contact with the glowing fuel and serve to greatly accelerate combustion, so as to increase the heating capacity of the stove. This is an important feature of our heating-stove, as thereby the principle of dissociating aqueous vapors for producing the more perfect and economical combustion of the fuel is applied to common heating-stoves.

One of the water-boxes H is provided with an opening *o* at the top, by which a certain quantity of moisture can escape, so as to be carried with the heated air from the stove and into the room to be heated, so that instead of dry heated air an agreeably moistened and heated air is supplied to the room. The top plate of the mantel E is provided with openings *l*, which communicate with openings *l'* in a sliding register L, that is guided at the top of the mantel, so that the supply of moist and heated air to the room can be regulated at will.

An S-shaped pipe *m* with a funnel *m'* at the upper end connects with the top of one of the water-boxes H, so as to fill both boxes from time to time, the connecting bottom pipe *i* establishing a common water-level in both boxes H.

In case a room above or a room adjoining the room in which the stove is located is to be heated, a valved hot-air pipe *n* at the upper part E of the stove-body is connected by a pipe with the room to be heated, so that the surplus heat can be utilized in this manner.

For facilitating the heating of the room, the mantel of the stove is so constructed that the heated and moistened air can be emitted into the room from any part of the mantel, either at the top or bottom, by opening either the register L or registers *p*, which latter are arranged in the lower part of the mantel. By this construction of the mantel the heated air can be supplied from the lower part of the stove to the floor without the use of a base-flue, as in base-burning stoves.

The air to be heated is drawn in at the bottom of the mantel, heated by contact with the outer walls of the fire-box and with the walls of the mantel, which latter are heated by radiation from the fire-box. The temperature

of the water in the water-boxes is raised by the heat in the fire-box, but not to the boiling-point, so that a slow evaporation takes place without creating any pressure in the water-boxes. The supply of water from the water-boxes to the evaporating-pipe in the fire-pot is regulated by the stop-cock of the supply-pipe, so that the proper quantity of water required for the combustion of the fuel is supplied.

By the construction described a heating-stove is furnished which combines a number of advantages—namely, the perfect combustion of the fuel, the increased heat emitted by the fuel in connection with the aqueous vapors supplied from the water-boxes, the warm and moistened air which is supplied to the rooms to be heated and the capacity of retaining the heat for a considerable length of time, and the facility by which the fire and the supply of heated air to the room can be regulated.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a heating-stove, the combination, with the fire-box and basket of the same, of a water-box supported on the fire-box, a perforated jet-pipe extending around the basket, the jet-openings being located between the prongs of the basket, and a valved pipe connecting the water-box with the said jet-pipe, substantially as set forth.

2. In a heating-stove, the combination, with a fire-box and basket of the same, of the water-box supported on the fire-box, a pipe connecting the lower ends of the water-box, a jet-pipe extending around the basket and having jet-openings located intermediately between the prongs of the same, and a valved pipe connecting one of the water-boxes with the jet-pipe, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

OTTO P. ELTERICH.  
G. OTTO ELTERICH.

Witnesses:

PAUL GOEPEL,  
SIDNEY MANN.