

No. 610,795.

Patented Sept. 13, 1898.

L. B. BOWERS.
STOVE.

(Application filed Mar. 28, 1898.)

(No Model.)

2 Sheets—Sheet 1.

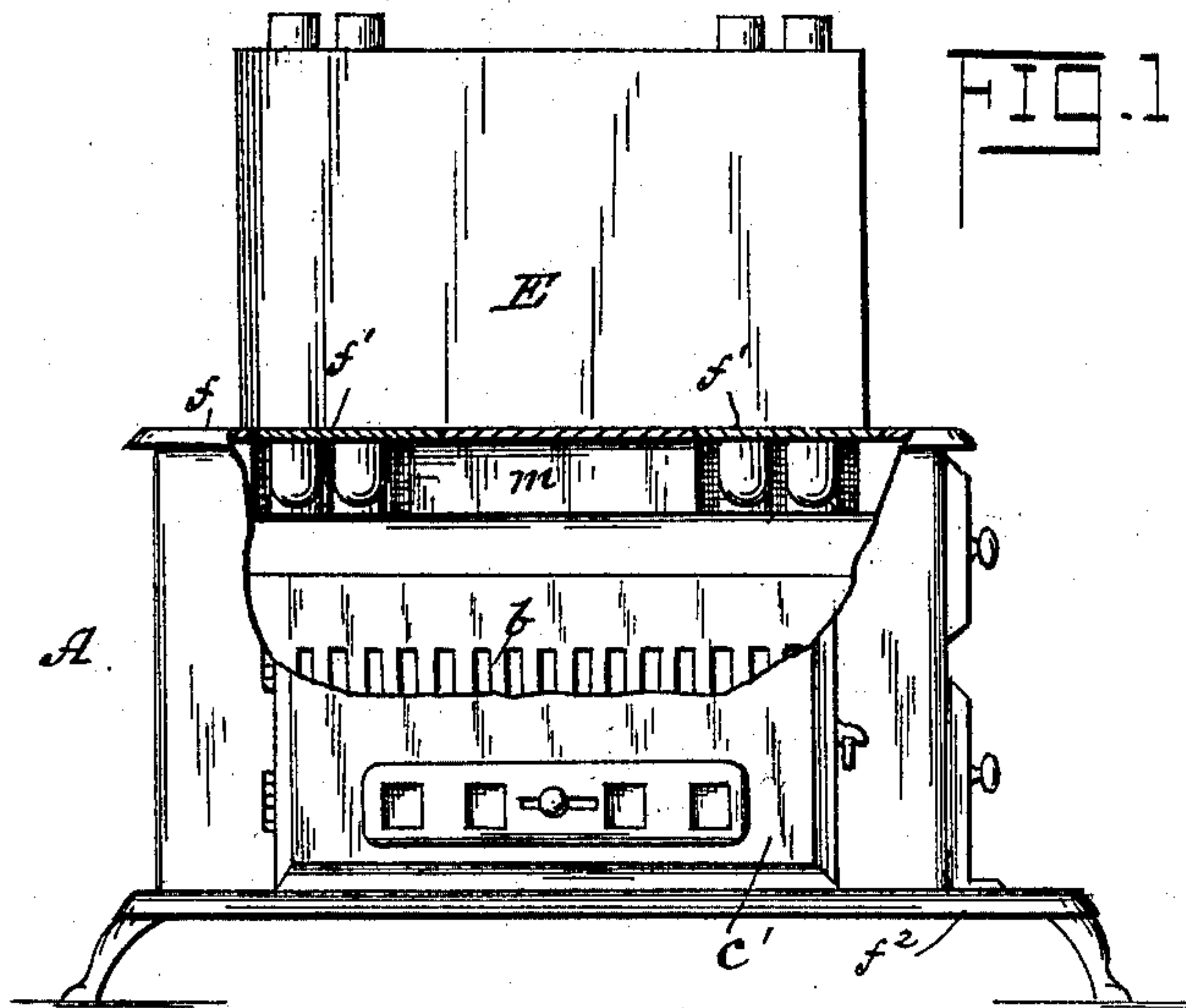
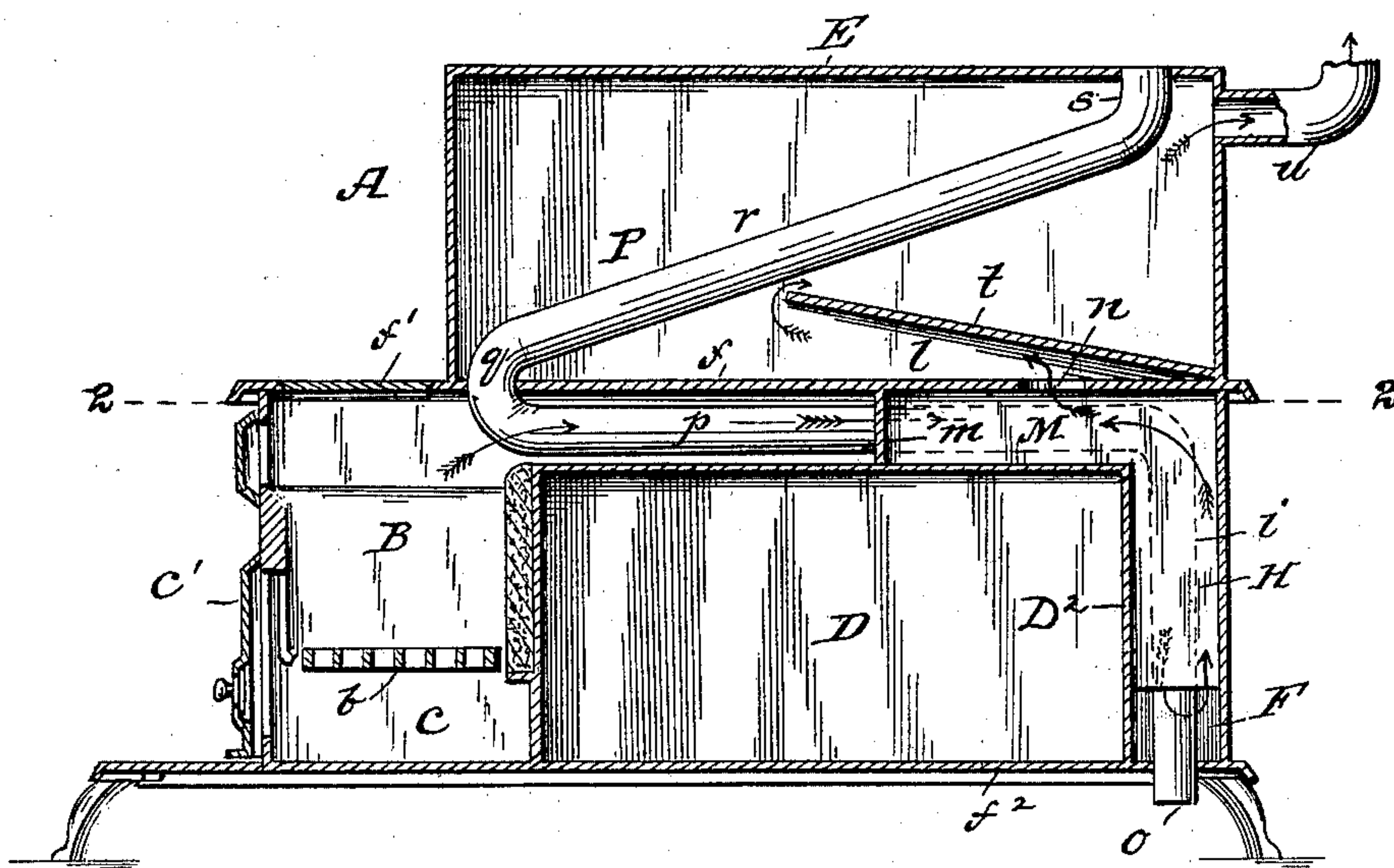


FIG. 2.



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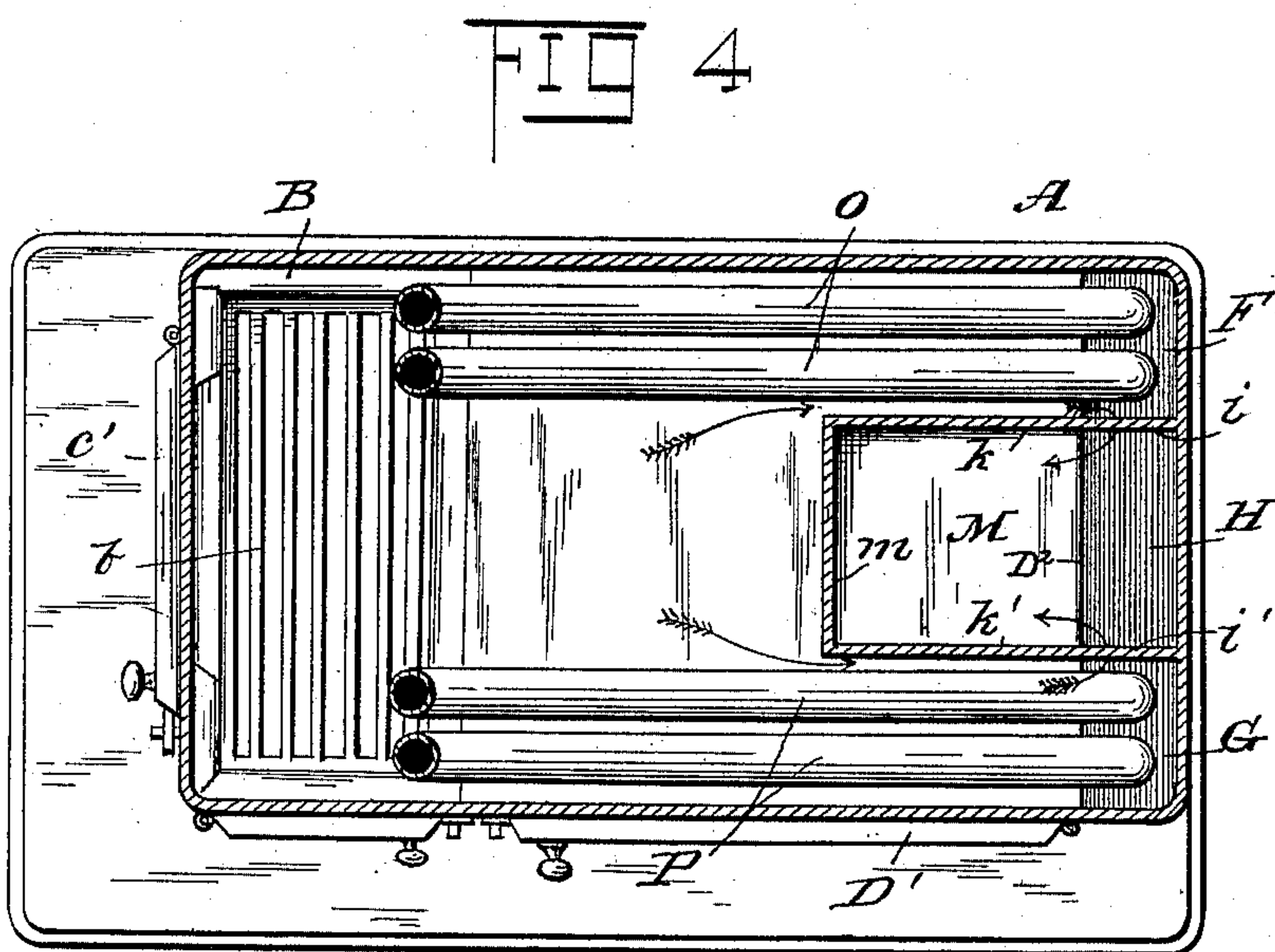
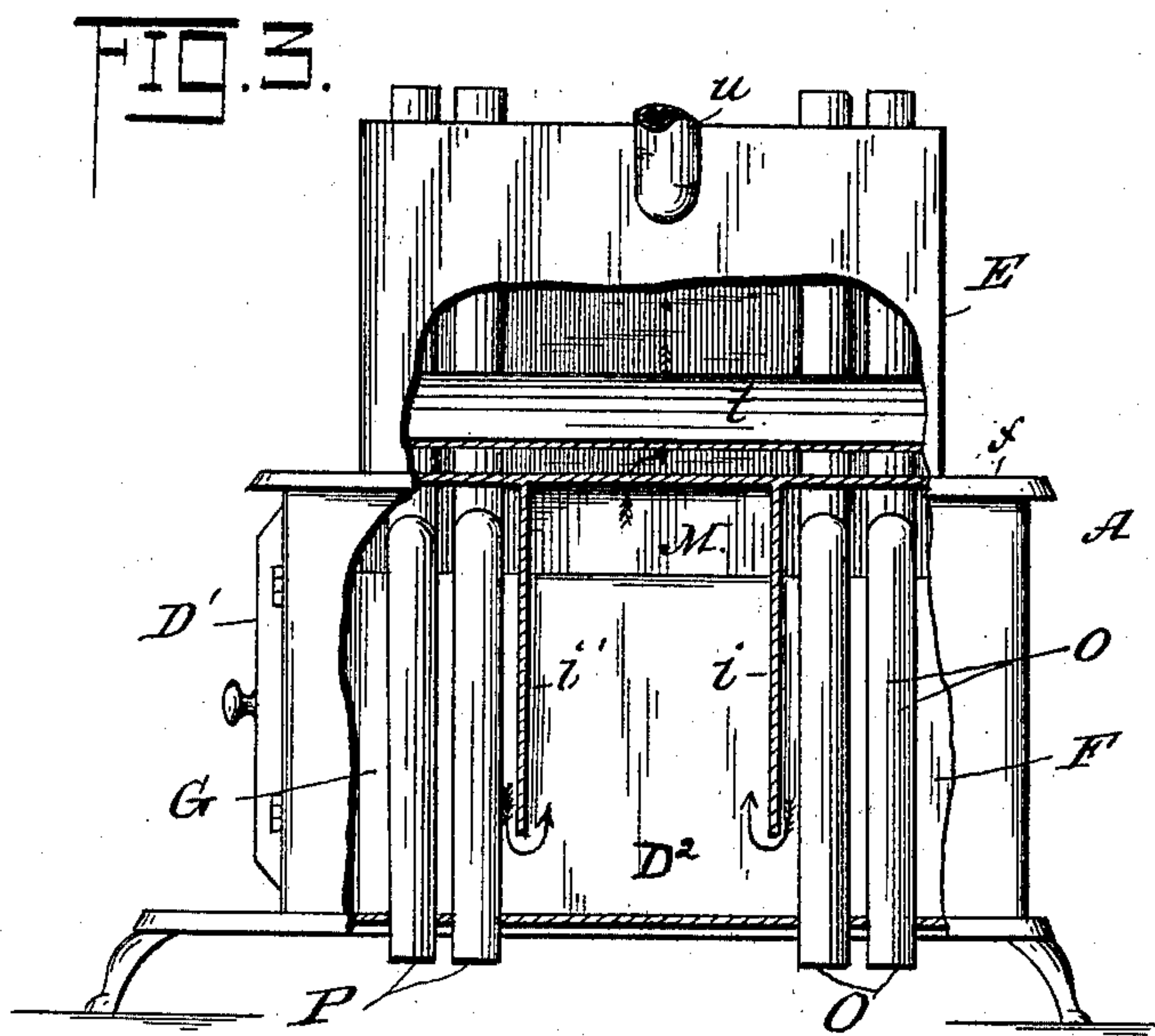
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UNITED STATES PATENT OFFICE.

LILLIE B. BOWERS, OF GRINNELL, IOWA.

STOVE.

SPECIFICATION forming part of Letters Patent No. 610,795, dated September 13, 1898.

Application filed March 28, 1898. Serial No. 675,431. (No model.)

To all whom it may concern:

Be it known that I, LILLIE B. BOWERS, a citizen of the United States, residing at Grinnell, in the county of Poweshiek and State of Iowa, 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, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in heating-stoves, and particularly to that class having air-heating tubes or flues arranged in the combustion-chamber.

The primary object of my invention is to provide a stove of this class having a novel construction and arrangement of the flues and coöperating parts by which its heating efficiency is increased, and a further object is to provide a stove that is adapted for both heating and cooking.

To this end the invention consists in certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, illustrating the invention, Figure 1 is a front elevation of the stove with parts broken away to show the interior construction. Fig. 2 is a central vertical longitudinal section of same. Fig. 3 is a rear elevation with parts broken away to show the tubes or pipes and back compartments. Fig. 4 is a horizontal section on line 2 2 of Fig. 2.

Like letters of reference designate corresponding parts throughout the several figures of the drawings.

A represents the body of the stove, comprising in its construction the fire-box B, having the grate *b*, the ash-pit *c* below the grate, and the oven D.

E represents a drum mounted upon the top plate *f* of the stove, which latter is provided in front of the drum with pot-openings closed by the usual removable lids *f'*. Access to the ash-pit may be obtained through a door *c'* and to the oven through a door *D'*, located at the side of the stove.

The construction thus far described is substantially that of the ordinary cooking-stove.

The back of the stove is divided into three

compartments F G H by vertical partitions *i i'*, which extend down to near the bottom of the stove, between the back wall thereof and the back wall *D²* of the oven. These vertical partitions are connected at their upper ends to horizontal partitions *k k'*, arranged between the oven and top plate *f* of the stove in the smoke flue or passage *l*. The forward ends of said horizontal partitions are in turn connected by a transverse partition *m*, forming a compartment M, which is in communication with the vertical compartment G and also with the drum E by means of an opening *n* in the said top plate *f*.

O P represent two series of air-conducting pipes or flues arranged at opposite sides of the stove, each consisting, in the present instance, of a pair of pipes. Any number of pipes may, however, be employed, the number, of course, being determined by the number and size of the rooms to be heated and by the size of the stove. Ordinarily two pipes are sufficient and are preferably employed in cooking-stoves of the usual size. The body portion of each pipe has approximately the form of a horizontally-arranged letter V, the lower arm *p* of which is connected to the upper arm *r* by an elbow or return-bend *q*, which extends through an opening in the top plate *f* just above the rear wall of the fire-box. From this point the said arm *p* projects horizontally through the passage *l* to the rear of the stove and is provided with a vertical extension *o*, while the arm *r* has position in the drum E and projects rearwardly on a gradual upward incline to near the rear wall of the drum and is formed with an elbow or extension *s*, opening through the top of said drum. These elbows *s* are designed to have connected to them pipes leading to upper or adjoining apartments for warming them and for other purposes where heated air is desired. The horizontal arms of the pipes O are arranged on one side of the compartment M and the horizontal arms of the pipes P on the opposite side thereof, and the vertical extensions of said arms project, respectively, down into the vertical compartments F H and to the exterior through the bottom plate or hearth *f²*.

The operation of the parts thus far described is as follows: The products of combustion rising from the bed of fuel pass out

of the fire-box into the space or passage *l* and backward through said passage into the compartments F H, being deflected thereinto by the transverse partition *m*. The horizontal arms of the air-pipes are thereby heated. The products of combustion thence pass downward through the said compartments and heat the pipe extensions *o* and beneath the partitions *i i'* and up through the compartment M into the drum E through opening *n*. As the products of combustion enter the drum they are deflected by a transversely-arranged inclined deflector-plate *t* toward the center of the drum and are thereby brought into intimate contact with the upper pipe-arms *r*, whereby the latter are heated, and then after circulating around the drum the products pass out through the smoke-flue *u*. By this construction and arrangement of parts it will be seen that the pipes throughout are maintained in a highly-heated condition, resulting in quick heating of the air passing therethrough. It will be understood that cool air enters the pipes through the extensions *o*, and, if desired, these pipes may be connected to a pipe leading outdoors for supplying fresh air to the hot-air pipes. They may also be connected to pipes leading from rooms from which it is desired to draw off the cold air.

Although I have shown and described my invention in the present instance as embodied in a cooking-stove of ordinary construction, I desire it understood that the invention is not confined to the same, as it may be advantageously used in heating-stoves and furnaces. It is also to be understood that the construction and arrangement of the compartments and pipes may be varied within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof. A main compartment will be formed, however, in all cases by a transverse division-wall, which is in the present embodiment represented by the back wall D² of the oven.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. A combined heating and cooking stove comprising in its construction a stove-body provided with an oven and compartments in rear thereof, a drum mounted on the stove, and air-heating pipes extending from said compartments above the oven and thence through the drum, substantially as described.

2. A stove comprising in its construction a body provided with a transverse division-wall arranged adjacent to and parallel with its back wall and a flue-passage above said division-wall, vertical partitions forming compartments between the division-wall and back of the stove, horizontal partitions forming a compartment above the division-wall and which is in communication with one of said vertical compartments, a drum in communication with the horizontal compartment, and air-heating pipes extending continuously from said vertical compartments, through the flue-passage and also through the drum, substantially as described.

3. In a stove, the combination of the stove-body A having the oven D and flue-passage *f*, the vertical partitions *i i'* forming the compartments F G H, the horizontal partitions *k k'* connected by the transverse partition *l* and forming the chamber M in communication with the compartment G, the drum E in communication with the said compartment M, and the two series of air-heating pipes O P arranged at opposite sides of the flue-passage and extending from the compartments F G, through said flue-passage and also through the drum, substantially as described.

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

LILLIE B. BOWERS.

Witnesses:

J. B. BOWERS,
W. J. ELLIOTT.