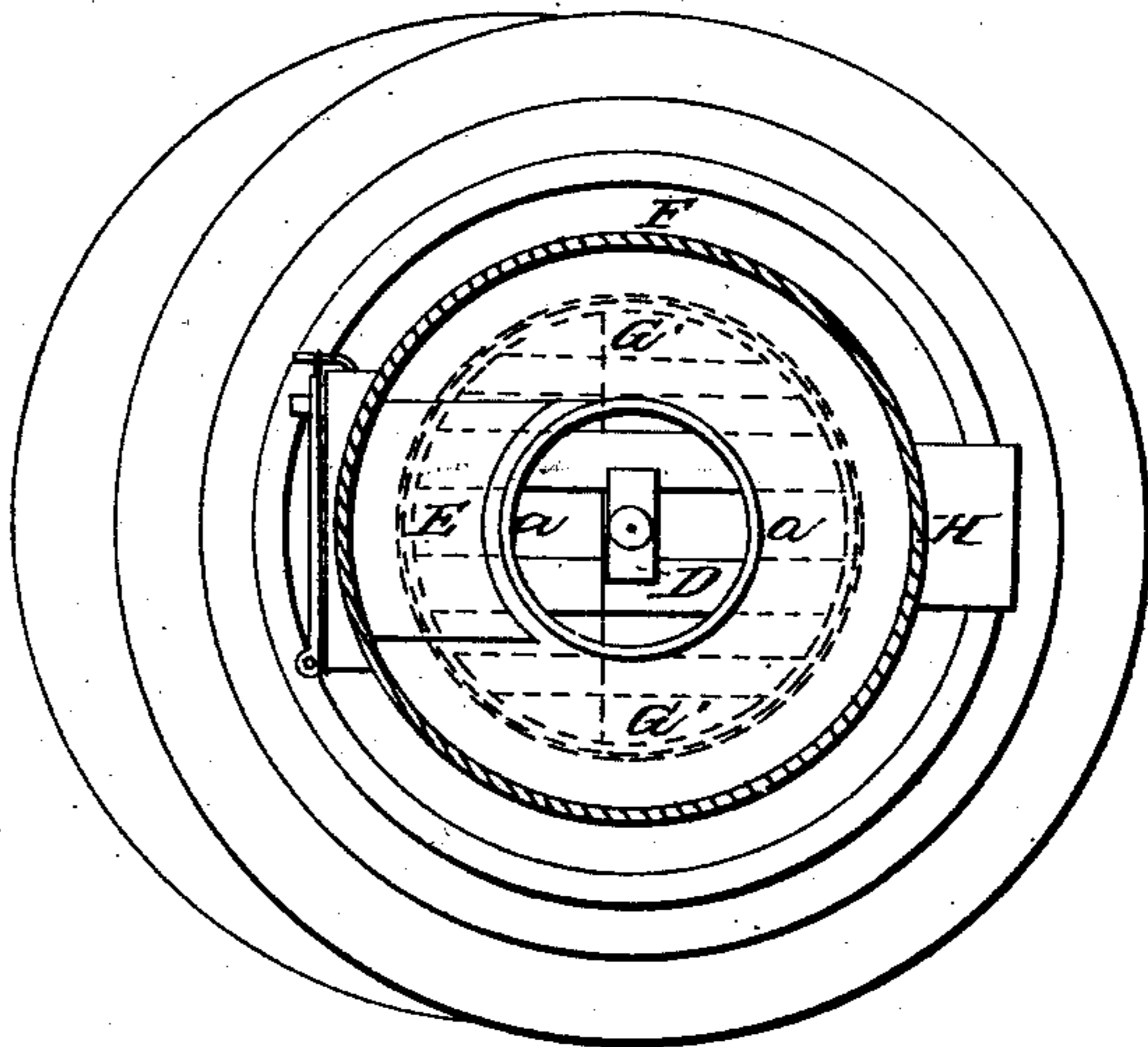
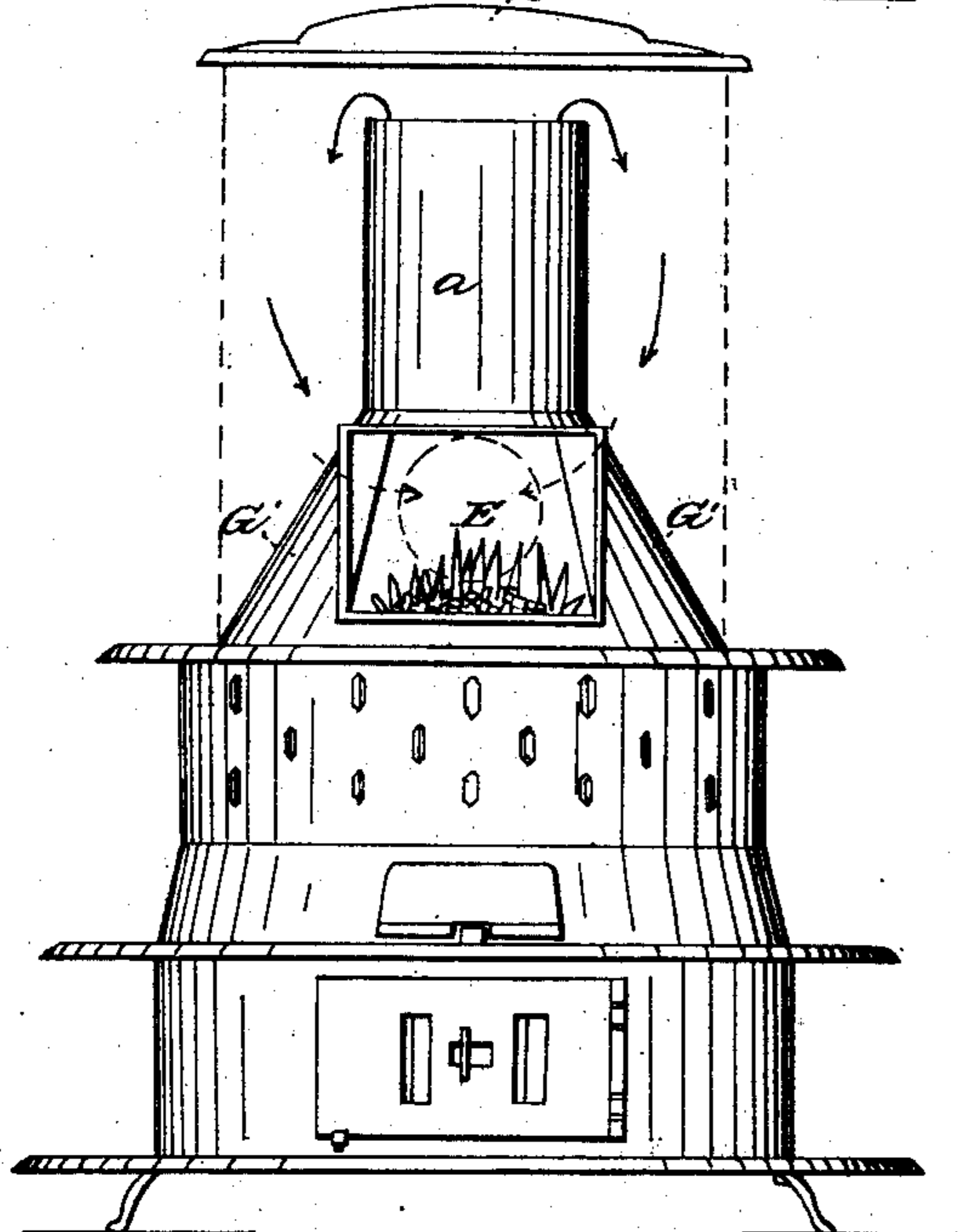
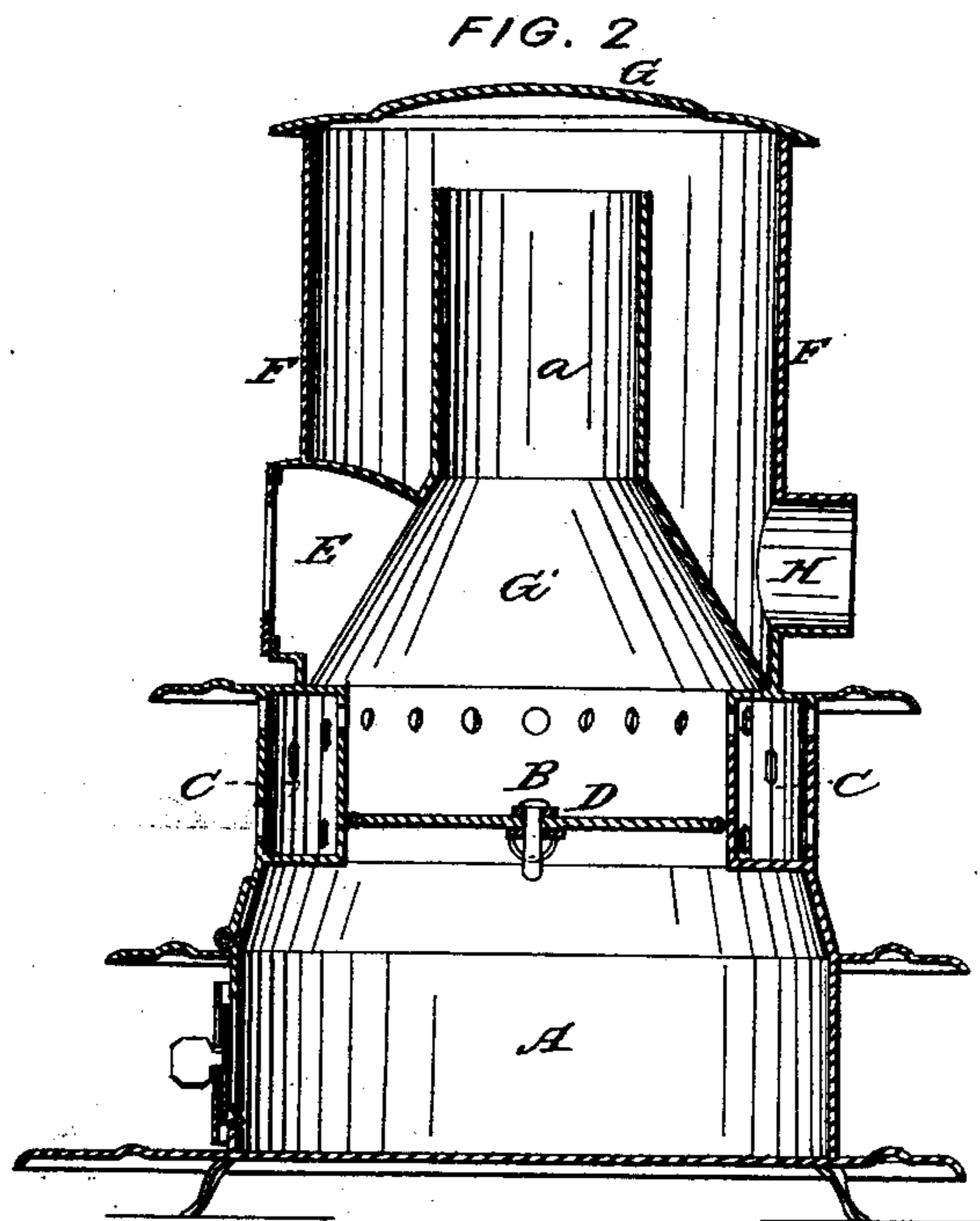
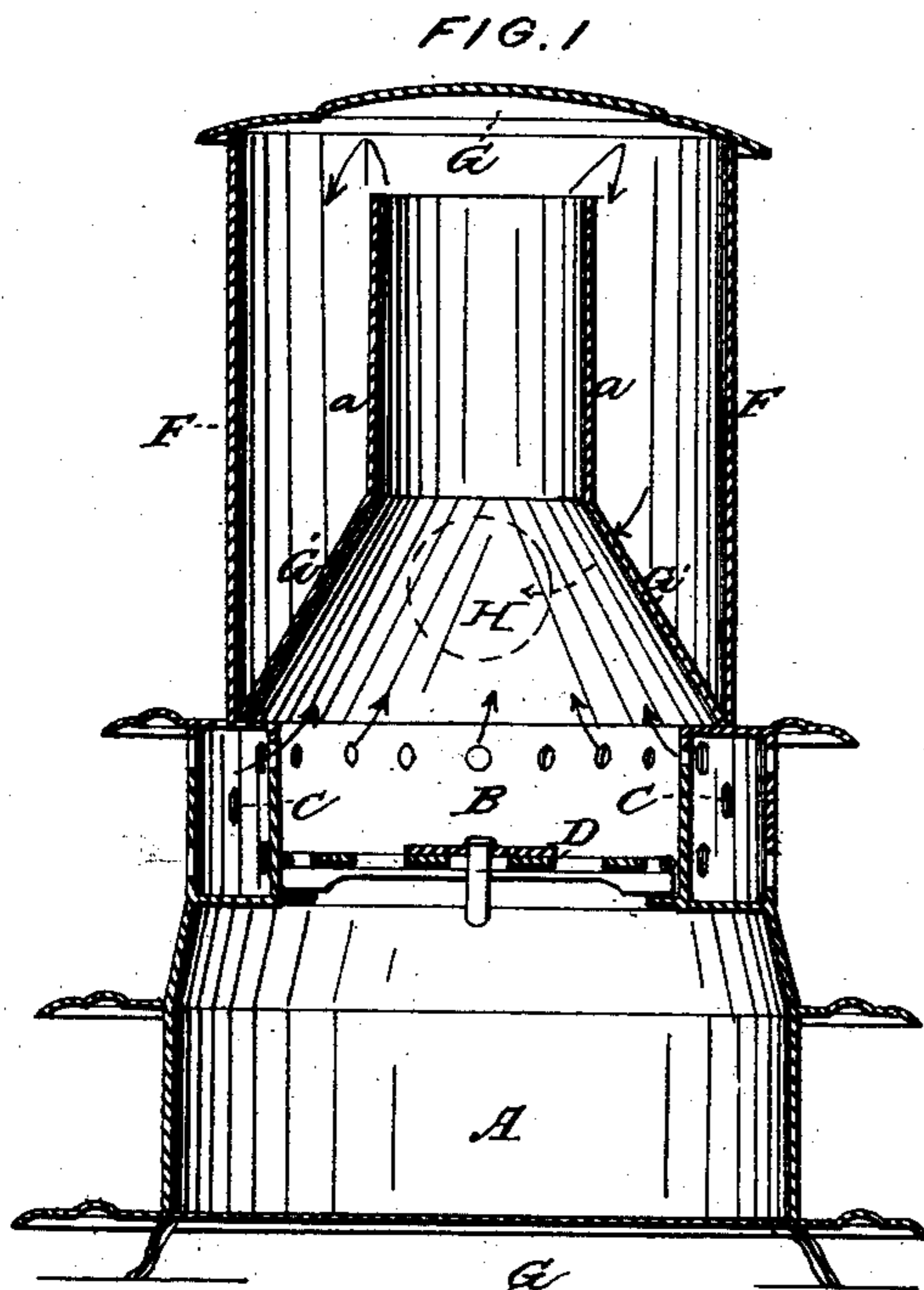


C. H. BUCK.  
Heating Stove.

No. 69,537.

Patented Oct. 8, 1867.



WITNESSES:

R. A. Campbell  
Henry & Lorster

INVENTOR:

Chas. H. Buck

# United States Patent Office.

CHARLES H. BUCK, OF ST. LOUIS, MISSOURI.

*Letters Patent No. 69,537, dated October 8, 1867.*

## IMPROVEMENT IN HEATING-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES H. BUCK, of the city and county of St. Louis, in the State of Missouri, have invented a new and improved Stove; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical transverse section of the stove.

Figure 2 is a vertical section through the stove, taken from front to rear thereof.

Figure 3 is a front elevation of the stove, with the upper jacket removed.

Figure 4 is a horizontal section through the upper jacket, taken at a point which is above the inner dome or flue.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to effect a more complete and economical consumption of fuel by constructing a coal-stove in such manner that its fire-chamber shall be capped with a contracted dome or flue, which is enclosed by the outer jacket of the stove in such manner that the products of combustion are compelled to ascend to the top of the stove, and thence to descend around said dome before they are allowed to escape into the exit-flue, thereby subjecting the smoke and gases to such an intense degree of heat as to effect their combustion within the stove, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings A represents the ash-chamber, and B the fire-pot, which latter is enclosed by an annular chamber, C, the walls of which are perforated for the admission of air around the fire-pot and through it. D is the grate, which may be made in any suitable manner, and E is an opening through which the fuel is introduced into the fire-pot. Above the fire-pot B is the upper section F of the stove, which is closed at its top by a plate, G, and which forms a chamber through which the products of combustion are caused to circulate before they are allowed to escape from the exit pipe H. Within the upper section F of the stove there is a dome, G', which may be made in the form of the frustum of a cone, as shown in figs. 1, 2, and 3, and terminated at its upper end by a small flue, *a*, which is carried up nearly to the cap-plate G. This conical section G' is mounted upon the top plate of the fire-pot B, and the passage E, through which fuel is supplied to the stove, is made through one side of said section. I thus form an ascending flue and also a descending flue within the upper section F of the stove, through which flues the products of combustion are caused to pass on their way to the exit-flue, as illustrated by the arrows in fig. 3. When fire is made in the fire-pot B the products of combustion rise into the conical section G', where they impinge upon its inclined walls and heat them very hot. These walls deflect the products of combustion inward, and thus, to some extent, retard their upward passage. At the same time air is allowed to enter the fire-chamber in a heated state through the walls of the fire-pot, and to commingle with the products of combustion, thus causing a combustion of the smoke and gases as they slowly rise from the conical section G' through the flue *a*. After escaping into the chamber outside of the section G' the top plate G directs the smoke and gases which have not been consumed downward and around the flue *a* and cone G', where they are again caused to impinge upon these highly-heated plates before they are allowed to escape through the flue H.

By thus constructing a stove it will be seen that I obtain the benefit of a downward draught after the products of combustion have ascended to the top plate of the stove, and at the same time dispense with flues, which require frequent cleaning. The products of combustion, in rising from the fire-pot, are caused to form an eddy, and to remain for a sufficient length of time under the influence of a high degree of heat and a supply of air from below to effect their combustion, after which they are subjected to the opposite side of the ascending flue and dome or cone. By elevating the fire-chamber B D above the middle plate of the part A of the stove, a deep lower chamber with but a single wall is formed, and thus, by conduction, the heat from the upper part of the stove will be made to keep said lower part of the stove very hot and comfortable to those in the house. And by enclosing the elevated fire-chamber with a perforated jacket, an air-chamber, C, is formed, and thus the fire-pot along its whole depth and surface is preserved from too rapid burning out by red heat. The air at the same time is made available for promoting combustion just above the mass of red-hot coals, it being admit-

ted into the hood G through passages in its circumference, as illustrated by arrows. And finally, by making the terminus of the hood cylindric instead of conic, as shown, a gradual and easy escape of the gases or products of combustion takes place, after their arrest and perfect ignition through the agency of the cone hood and the inflowing oxygen have been effected. If the conical chamber or hood is continued too high up, the draught will not be as perfect as desired, on account of the draught-flue H being arranged so low; and beside this, the heat will be so intense within the cone as to soon burn out the metal of which it is composed. My invention of air-jacket and cylindric terminus to the cone hood protects the fire-pot and hood from rapid destruction, and also effects a more equable distribution of heat upon the entire outer metal of the stove.

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

The construction of the stove with a fire-pot above the middle plate of the outer cylinder, such fire-pot being surrounded by a perforated air-chamber, C, in combination with a perforated conic hood, G', which has a cylindric terminus *a a*, all arranged and operating substantially in the manner and for the purpose described

CHARLES H. BUCK.

Witnesses:

JOHN B. GERARD,

GEO. M. ECKERT.