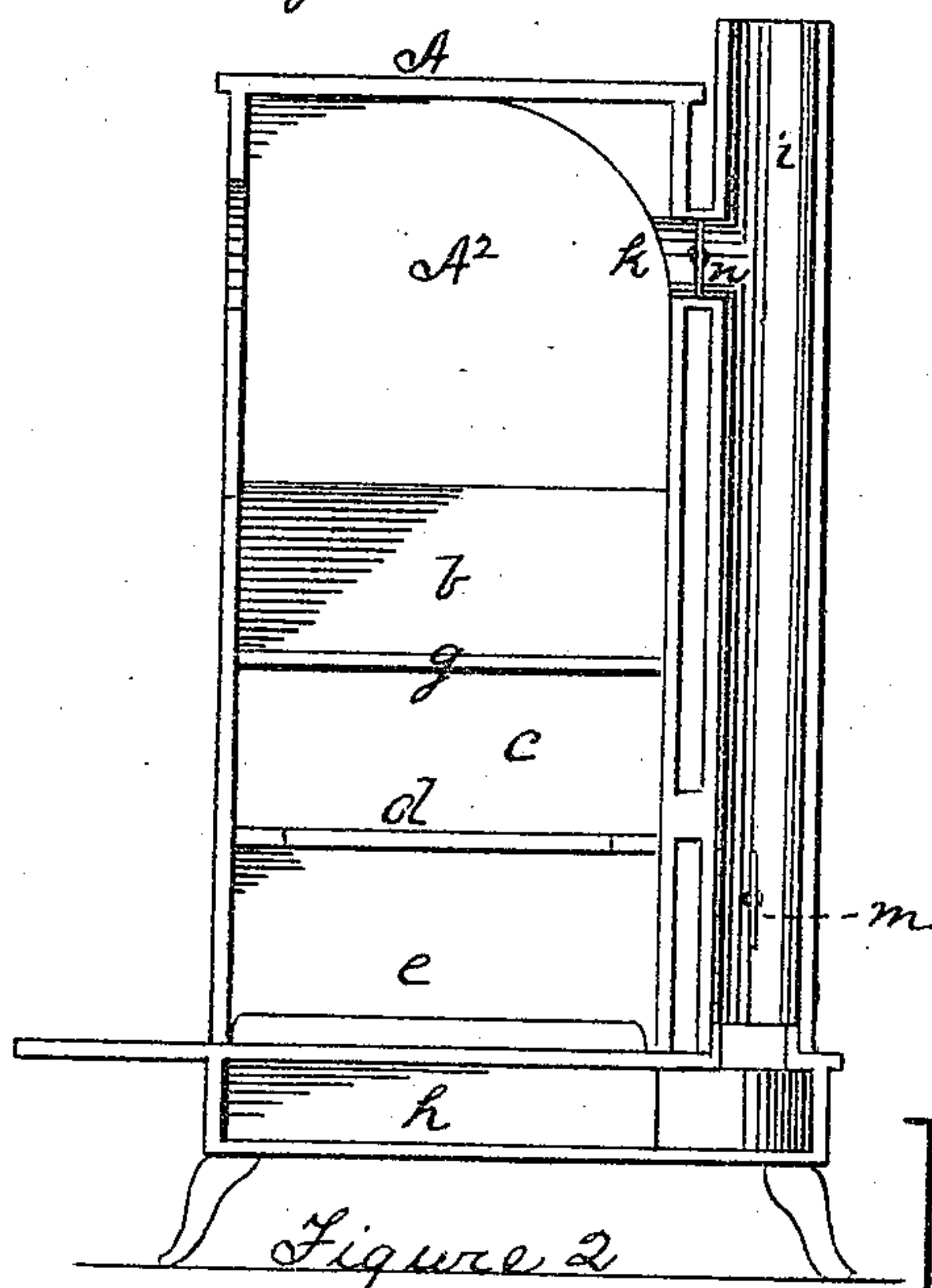
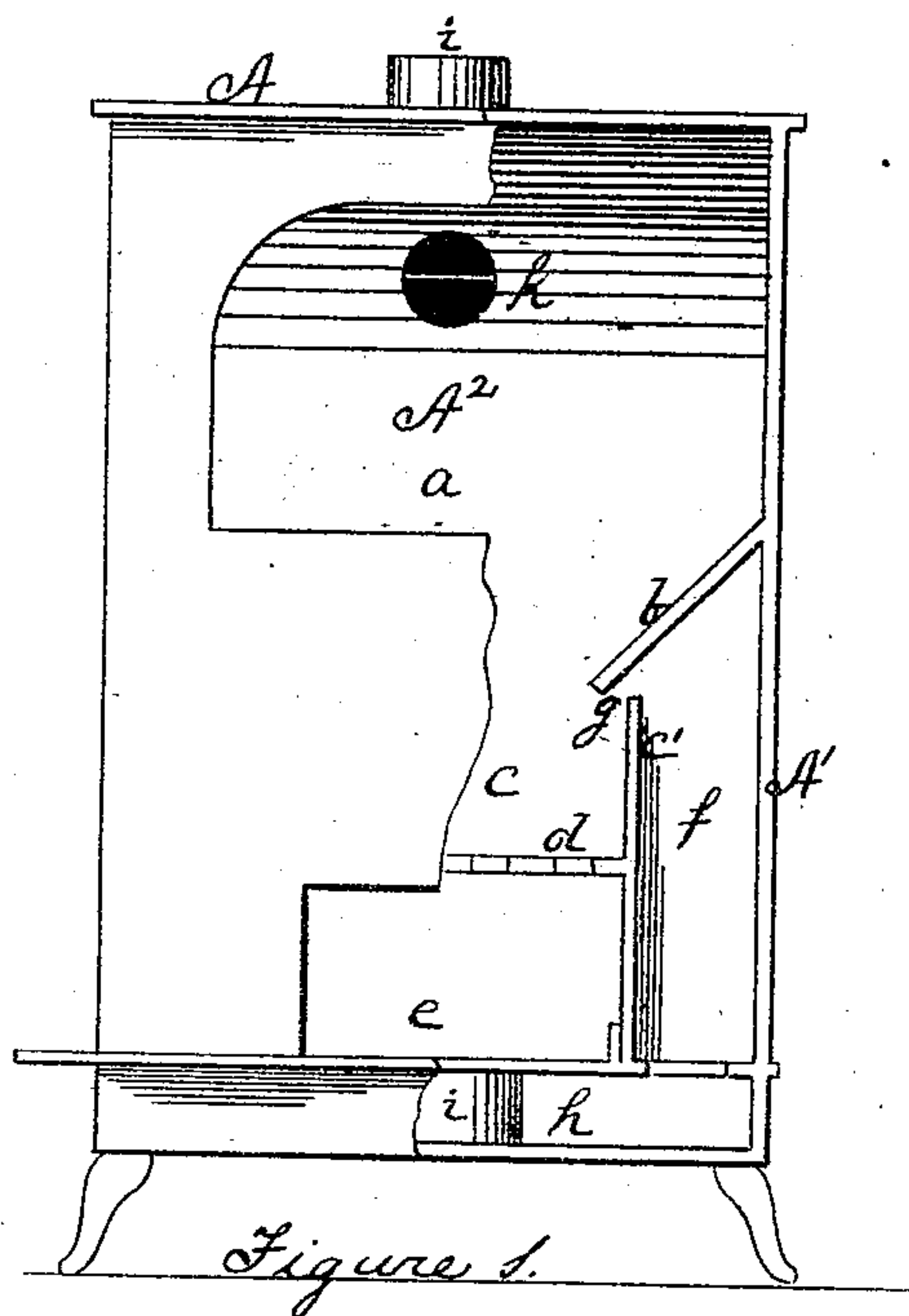


I. De HAVEN.
Heating-Stoves.

No. 151,686.

Patented June 9, 1874.



WITNESSES
James J. Kay
E. C. Fidler.

INVENTOR
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UNITED STATES PATENT OFFICE.

ISAAC DE HAVEN, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **151,686**, dated June 9, 1874; application filed November 29, 1872.

To all whom it may concern:

Be it known that I, ISAAC DE HAVEN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Stoves; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is partly a front elevation and partly a sectional view of my improved stove, and Fig. 2 is a vertical cross-section of the same.

Like letters of reference indicate like parts in each.

My invention consists in the construction of an open base-burning stove. The superior ventilating qualities of the open-front fireplace or stove, as well as the marked preference of many for it, are well known. The greater heating power, radiating-surface, and cleanliness of the ordinary base-burning stove over the ordinary surface-burner make it desirable to combine the good qualities of the two in one. This is the object of my invention. In addition to the base-flues I have added a flue leading directly to the stove-pipe from the upper chamber of the stove, so that by closing the base-flues I can, if desired, have a surface-burner of the usual construction.

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

In the open-faced stove *A* I make a hopper-shaped magazine, *a*, by means of the inclined sides *b*. Below the magazine *a* is the fire-chamber *c*, having an ordinary grate, *d*, below which is the ash-pit *e*. Between the walls *c'* of the fire-chamber and the sides *A¹* of the stove, on each side of the stove, is a flue, *f*, which communicates with the fire-chamber by the opening *g* between the walls of the fire-chamber and the inclined sides of the magazine *a*, and which leads down into the base *h* and thence to the chimney *i*. The mouth of the ash-pit *e* is designed to be furnished with suitable doors, so that, if required, it may be closed and thereby shut off the

ascending draft. The point of combustion is at the openings *g*, whether the draft of air is from the open front of the stove or from the ash-pit, or from both. The magazine *a* is filled with fuel, which descends until it reaches the openings *g*, where it is consumed. The draft of air from the open face of the stove and from the ash-pit leads into the flues *f* by the openings *g*, and thence to the chimney, carrying off all the products of combustion which remain unconsumed. The smoke and carbonaceous gases which are evolved from the coal, whether above or below the openings *f*, are compelled to pass through the incandescent fuel in their passage to the chimney, and a large percentage is thereby consumed. By this means both economy of fuel and an absence of sooty deposits in the chamber of the stove are secured. By making a flue, *k*, leading back from the chamber *A²* to the chimney *i*, and shutting off the draft through the openings *g* by means of a suitable damper placed in any convenient place, such as in the base *h*, or in the chimney *i*, below the flue *k*, as at *m*, I make a surface-burning stove of an ordinary construction, and having a direct draft. The flue *k* is designed to be furnished with a suitable damper, *n*, so that it can be closed when the lower draft is used.

I am aware that closed base-burning stoves having the same and similar arrangements of flues and passages are known and used; but I disclaim closed stoves of every description as not within the scope of my invention, and without its advantages and benefits.

What I claim as my invention, and desire to secure by Letters Patent, is—

An open-faced base-burning stove, having a magazine, *a*, and the vertical flues *f f* and base-flue *h* leading to the chimney, the indirect draft *g* being below the edge of the opening of chamber *A²*, substantially as and for the purpose specified.

In testimony whereof I, the said ISAAC DE HAVEN, have hereunto set my hand.

ISAAC DE HAVEN.

Witnesses:

A. S. NICHOLSON,
THOS. B. KERR.