G. W. HERRICK.

HEATING STOVE.

No. 182,824. Patented Oct. 3, 1876.

Fig. 1.

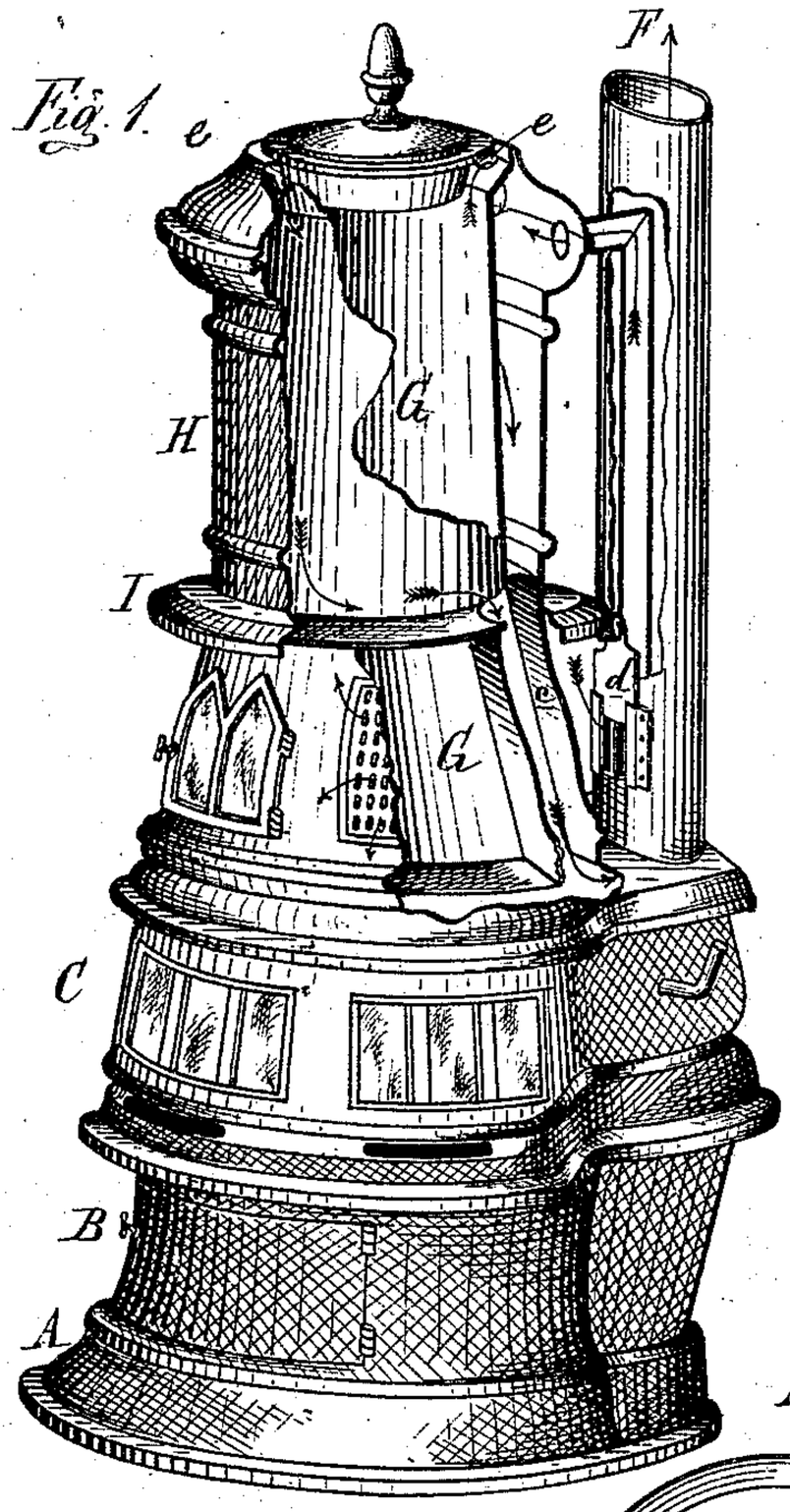



Fig. 2.

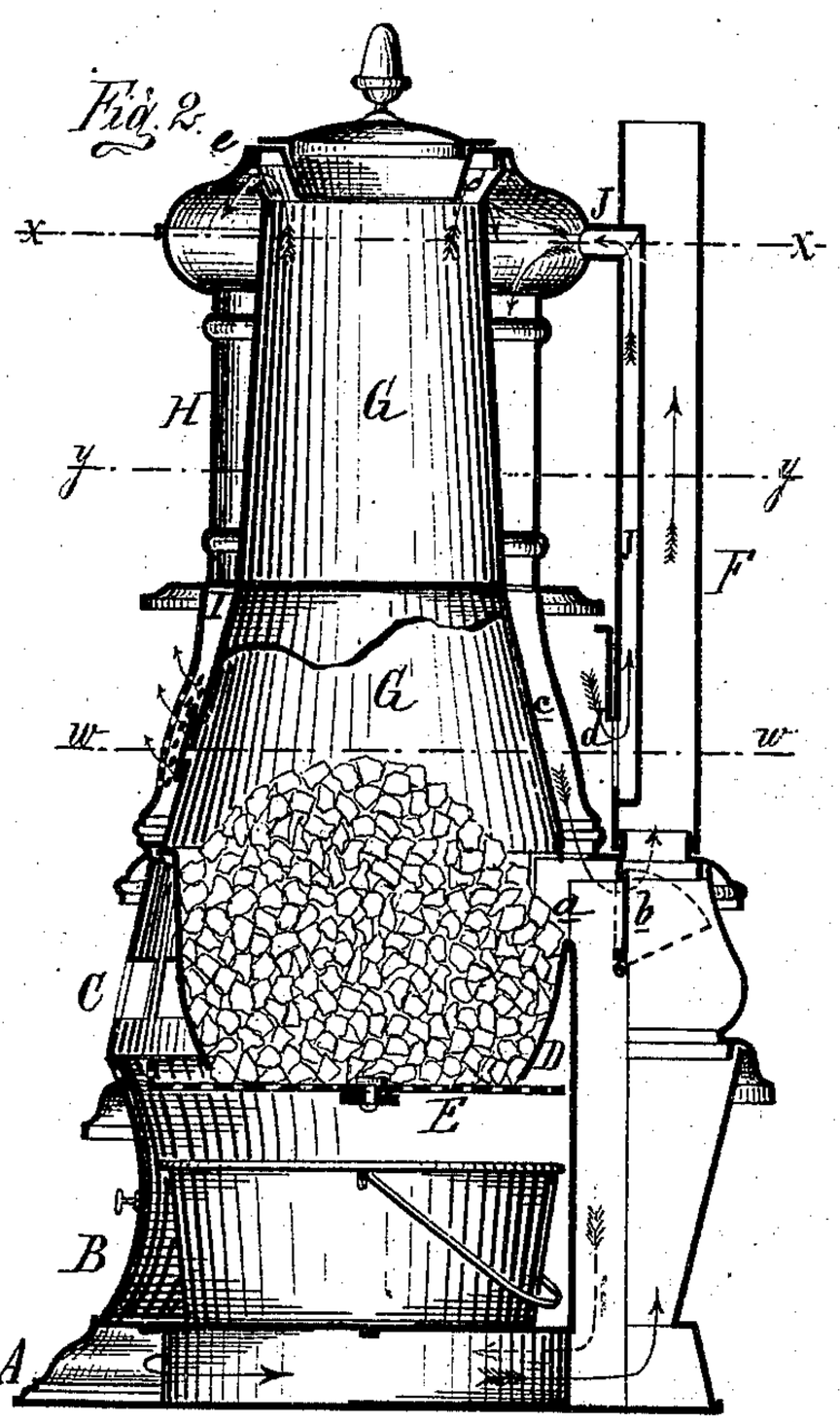



Fig. 3.

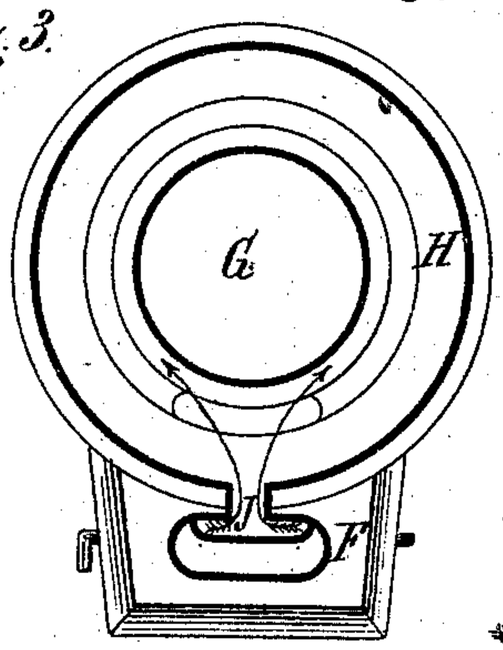



Fig. 4.

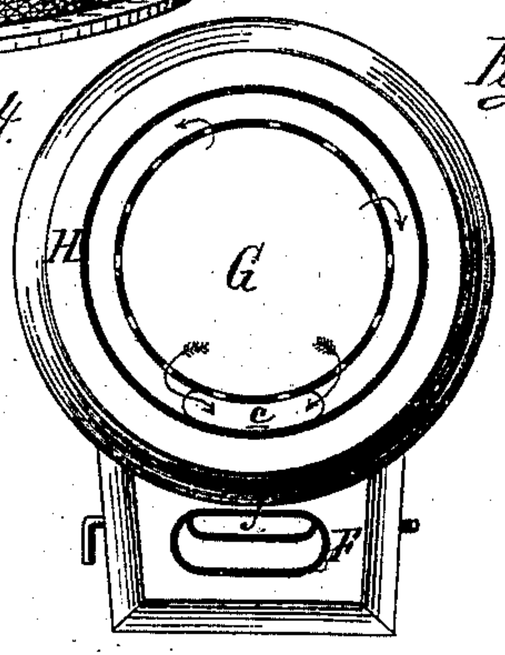



Fig. 5.

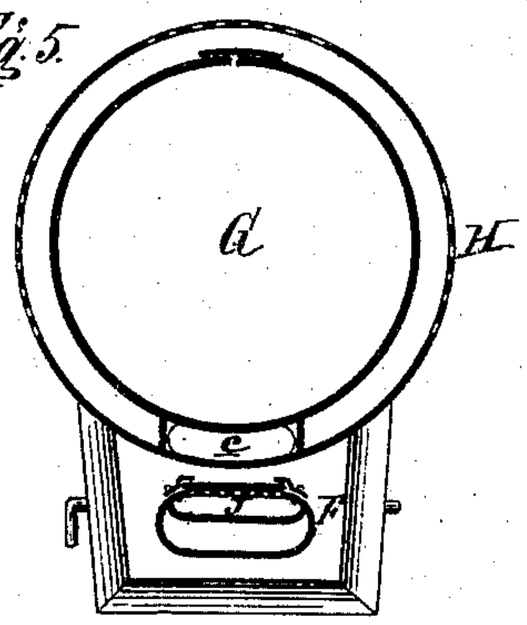
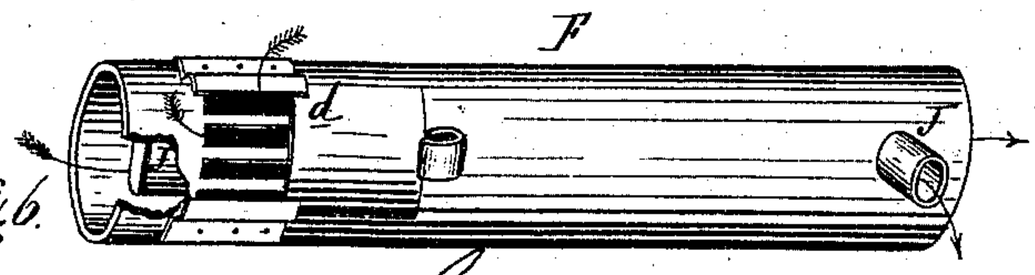



Fig. 6.

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By Atty
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# UNITED STATES PATENT OFFICE.

GEORGE W. HERRICK, OF DETROIT, MICHIGAN, ASSIGNOR TO DETROIT STOVE WORKS, OF SAME PLACE.

## IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **182,824**, dated October 3, 1876; application filed August 25, 1876.

*To all whom it may concern:*

Be it known that I, GEORGE W. HERRICK, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Heating-Stoves, of which the following is a specification:

The nature of my invention relates to an improvement in magazine or self-feeding stoves specially designed for burning bituminous coals, and more particularly of that class wherein the combustion of the gases is effected by the admixture with them, after they leave the fire-pot, of a certain volume of oxygen, as exemplified in the stoves for which Letters Patent were issued to me February 9, 1875, and May 25, 1875; reissued November 2, 1875.

The object I have in view is to secure a more perfect combustion of the smoke and gases evolved from the fuel, so perfect in fact that such fuel can be successfully burned in base-heating stoves, such as heretofore have solely been used for burning anthracite coals; and to this end it consists in heating, to a high degree, the air used to admix with the gases of combustion in order to secure their immediate ignition, the means employed to accomplish the purpose being a hot-blast flue located in the smoke-pipe at the back of the stove, its lower end communicating with the atmosphere, and its upper end with the magazine-casing and the air-flue leading therefrom to the throat of the combustion-chamber.

Figure 1 is a perspective view of a self-feeding or magazine and base-heating stove fitted with my improvements, portions of the magazine and its casing broken out, as is also a portion of the smoke-pipe. Fig. 2 is a longitudinal vertical section. Fig. 3 is a horizontal section at *x x*. Fig. 4 is a similar section at *y y*. Fig. 5 is a similar section at *w w*. Fig. 6 is a detached perspective view of the smoke-pipe and hot-blast flue.

In the drawing, A represents the base-section, containing three horizontal flues. B is the ash-pit section, and C is the fire-pot section, containing a fire-pot, D, under which is a grate, E. The sections A B C are extended to the rear, to inclose ascending and descending flues communicating with those in the base, differing in no way from other stoves now in use for burning anthracite coals. F is a smoke-pipe surmounting the rearward extension of the casing, and communicating with its flues. G is a conical magazine, resting on the top of the fire-pot and forming an upward continuation thereof, as described in my aforesaid Letters Patent. *a* is a throat, at the back of the fire-pot, through which the products of combustion issue, passing directly into the smoke-pipe if the damper *b* be open; but, if closed, they are reverted through the base before passing into the ascending flue, as indicated by the arrows. The magazine is surrounded by a casing, H, forming an annular chamber, stopped off at the bottom by a ring, I, except at the back, whence an air-flue, *c*, leads down to the throat *a*. Within the smoke-pipe is a small hot-blast flue, J, communicating at the lower end thereof with the external atmosphere through a register, *d*, while its upper end is bent horizontally forward, and enters the cap-chamber of the magazine-casing.

Under, or owing to, the draft of the smoke-pipe a current of air is drawn into the hot-blast flue in passing up through which it is highly heated, passing thence into the casing H, and down through the flue *c*, which delivers it to the gases of combustion at the throat *a*, where it mingles with said gases, affording the necessary volume of oxygen, and at such a temperature as to secure their instant ignition and total combustion, resulting in a clear white flame, free from smoke and soot.

As the gases which are evolved from the fuel by the partial coking thereof naturally collect in the top of the magazine, I perforate the latter with several apertures, *e*, to afford a communication with the casing-chamber, into which they pass, and there, mingling with the hot-blast currents, are carried down with them to the throat *a*, where they are ignited and consumed with those issuing from the fire-pot.

If preferred, the hot-blast flue may partially envelope, or wholly inclose, that part of the smoke-pipe which is below the plane of the top of the magazine-casing.

What I claim as my invention is—

1. In combination, and communicating with the interior of the magazine-casing of a stove, substantially as described, a hot-blast flue inclosed in the smoke-pipe thereof, substantially as and for the purpose set forth.

2. In a heating-stove, substantially as described, the combination of the following elements, to wit: a fire-pot, a grate, an ash-pit, a base-chamber, containing flues, incased ascending and descending flues, a smoke-pipe, communicating with said flues, an incased magazine surmounting the fire-pot, and a hot-blast flue inclosed in the smoke-pipe, and communicating with the interior of said magazine-casing, substantially as and for the purposes set forth.

GEORGE W. HERRICK.

Witnesses:
H. F. EBERTS,
H. S. SPRAGUE.