

J. E. GRIDLEY.
Heating-Stove.

No. 216,178.

Patented June 3, 1879.

Fig. 1

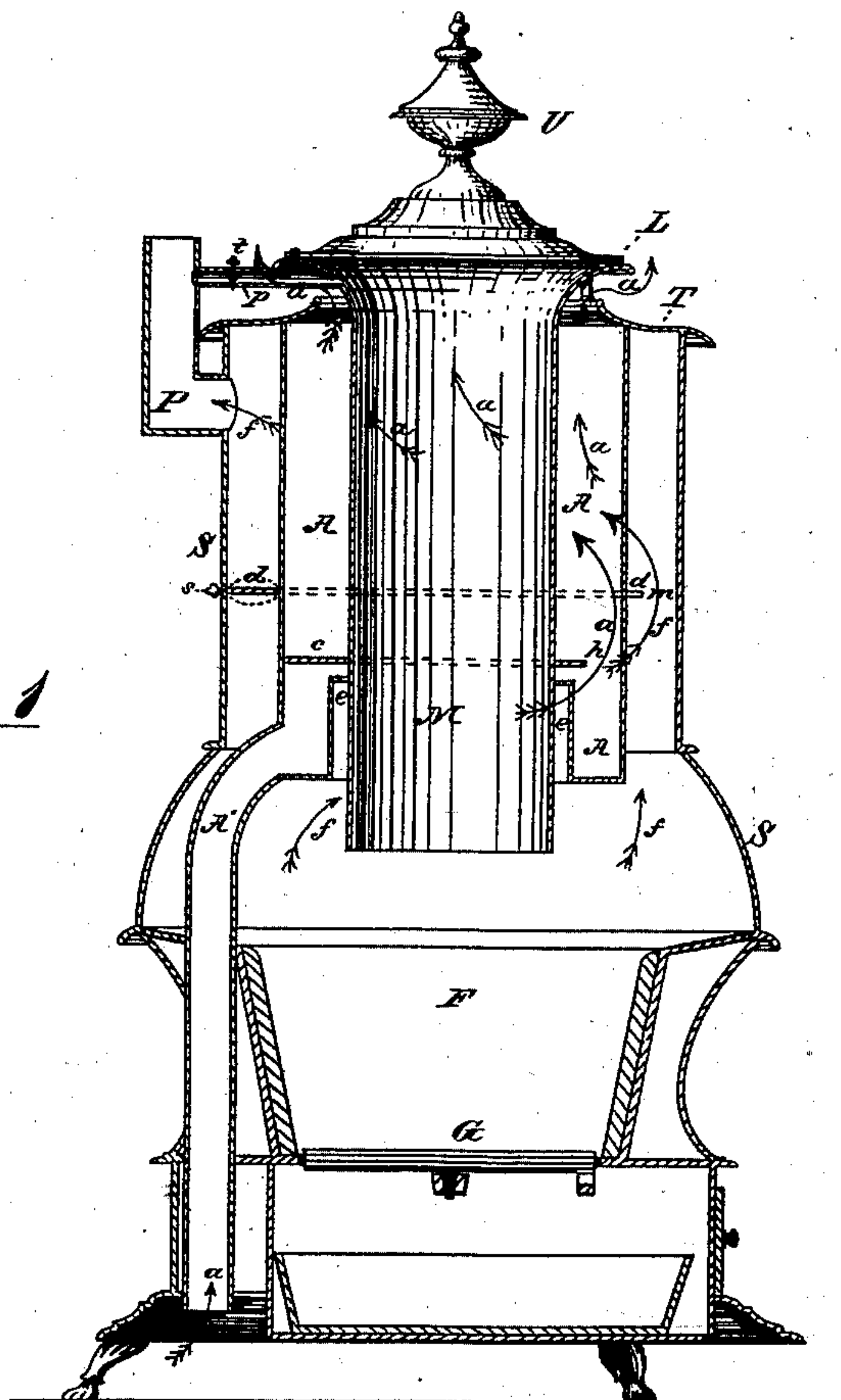
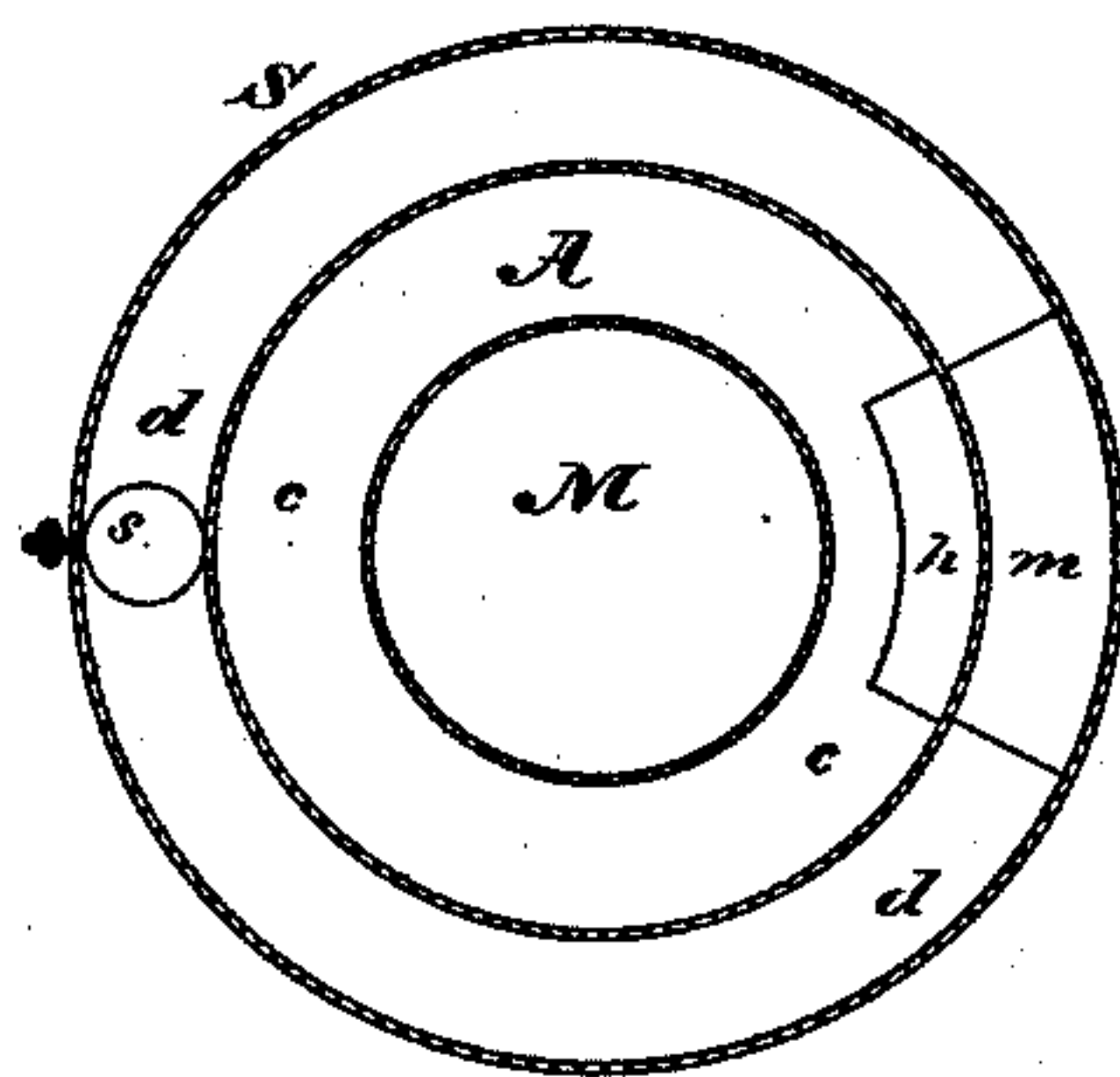


Fig. 2



WITNESSES.
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IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **216,178**, dated June 3, 1879; application filed May 23, 1878.

To all whom it may concern:

Be it known that I, JAMES E. GRIDLEY, of the city of Chicago, and State of Illinois, have invented a new and useful Improvement in Heating-Stoves, of which the following, taken together with the accompanying drawings therein referred to, is a full and accurate specification.

My invention relates to that class of heating-stoves known as "base-burners" or "self-feeders," in which a centrally-located coal-magazine is suspended over the fire-pot, for the automatic supply of coal thereto as consumption proceeds.

It consists in an air-heating chamber or drum arranged in combination with the magazine, and provided with bottom and top openings for the reception and discharge of air; in the combination, with both drum and magazine, of heat and air deflecting plates, as more fully described below.

Figure 1 of the drawings shows a heating-stove of the class mentioned in vertical median section from front to back. Fig. 2 is a horizontal section of the upper portion, taken below the smoke-flue.

S is the shell of the stove; G, the grate; F, the fire-box, and M the coal-magazine. About the magazine is arranged concentric therewith the annular chamber A, intended to afford a passage for air through the interior of the stove and to heat the same—*i. e.*, the air—rapidly. This air-heating chamber is wholly cut off from communication with the fire-chamber surrounding it, but is open at the bottom through the flue A' and at the top through the annular space about the magazine, (shown in the drawings,) so that as the air is heated it rises, and a constant current is maintained.

In order to more completely abstract the heat from the fire-chamber and from the products of combustion as they rise to the smoke-flue, the deflecting-plate *d* is placed in the heat-passage surrounding the air-chamber. It is provided with an opening, *m*, in front, and through this opening the hot gases have their course in the direction of the arrows *f*. In this manner an extended surface of the outer wall inclosing the chamber is exposed to contact with them.

Within the chamber A a corresponding plate, *c*, is arranged, preferably in the same plane, or nearly the same plane, with *d*, thus directing the air into contact with the most highly-heated portions of the drum-walls, as shown by the arrows *a*. Several of these deflecting-plates may be placed in each chamber, their openings *h m* being arranged to give to the course of the hot gases and of the air any desired degree of sinuosity, and effecting thereby the most complete transfer of heat from the former to the latter.

In the plates *d* may be placed valves *s*, to give direct draft from the fire-bed to the smoke-flue when desired.

The base plate or ring of the air-chamber is located as near the fire-bed as practicable without obstructing the fire-light or preventing radiation through the central illuminated portion of the stove-shell.

The magazine-mouth always extends below the base-plate of the air-chamber into proper relation with the fire-pot, insuring a suitable space always between the air-chamber and the fire-bed. When the air-chamber is made thus low in the fire-chamber, the annular space *e* is provided below the connection of the air-chamber and the magazine, both for the purposes of exposing a larger surface of the air-chamber base to the radiations of the fire, and also to prevent the cracking of the base-casting from unequal temperature, particularly when fresh coal is applied to the lower portion of the magazine.

To avoid the admission of coal into the air-chamber while filling the magazine, the latter is extended above the air-escape, and is made flaring at the top, as shown, or is suitably flanged to protect the opening into the air-chamber. The plate T also is curved upward at its inner margin.

An annular register with either vertical, inclined, or horizontal openings may be applied at this point with the double purpose of protecting the air-chamber and regulating the passage of heated air.

Provision for the egress of heated air may, however, be made immediately beneath the top plate of the stove, and the magazine in that case may be given the usual form and

connection at the top without impairing the effectiveness of the air-heating devices.

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

A heating-stove provided with a central coal-magazine, an annular air-chamber external to and concentric with the magazine, and a smoke space or passage exterior to the air-chamber,

and having the heat-deflector *d* and air-deflector *c*, arranged in the several chambers, substantially as shown and described, and for the purposes set forth.

JAMES E. GRIDLEY.

Witnesses:

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