L. F. BETTS.

Base-Burning Stove.

No. 168,962. Patented Oct. 19, 1875.

FIG. I.

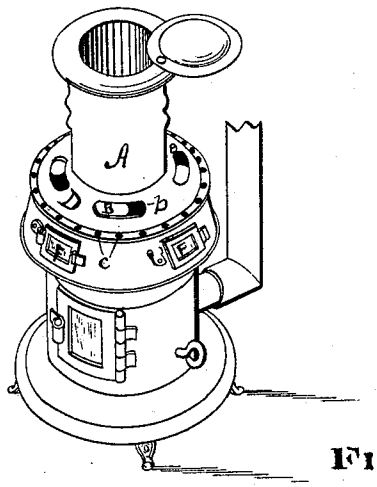


FIG. II.

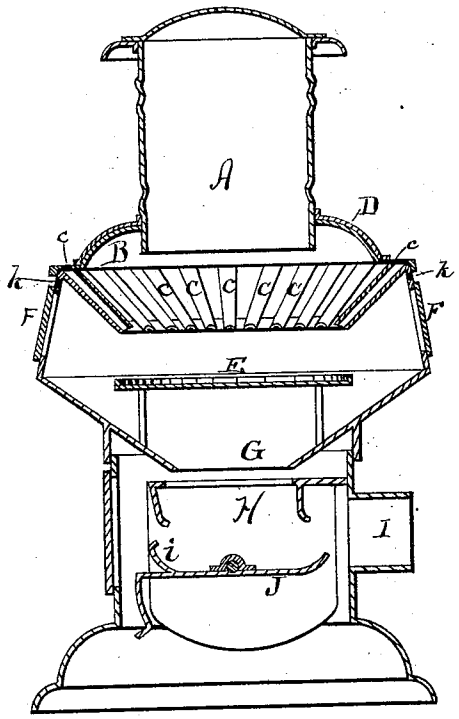
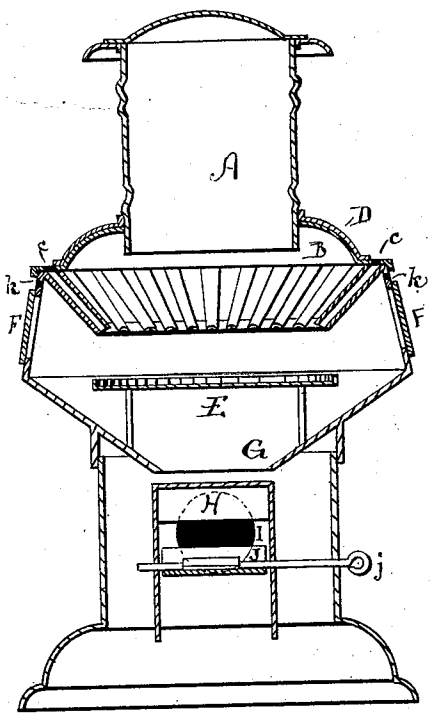


FIG. III.



WITNESSES

F. B. Townsend

E. M. Salvatore

INVENTOR

Lewis F. Betts

By his atty. R. D. O. Smith

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEWIS F. BETTS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN BASE-BURNING STOVES.

Specification forming part of Letters Patent No. **168,962**, dated October 19, 1875; application filed September 28, 1875.

To all whom it may concern:

Be it known that I, LEWIS F. BETTS, of Chicago, in the county of Cook and State of Illinois, have invented a Base-Burning Stove, of which the following is a specification:

This invention relates to that class of stoves wherein the fuel is contained in a magazine, and is automatically fed to the grate as it is consumed at the bottom; and it consists, first, in the introduction and passage of the draft of air, at or near the base of the magazine, downward through the base of the mass of the fuel, and into the flue at the bottom of the stove; second, in the tubular grate-bars, which open at the upper end through the wall of the stove; third, in making the fire-pot circular in horizontal section, and converging toward the bottom, and supplying it with a close but detached bottom plate, supported independently of the grate; fourth, in a funnel-shell or compressor below the grate, to concentrate the products of combustion; fifth, in the deflector, to change direct to circulating draft, provided with a cinder-shelf; sixth, in the window-ventilators to prevent smoking of the glass.

That others may fully understand my improvement, I will particularly describe it, having reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my stove. Fig. 2 is a vertical longitudinal section, and Fig. 3 is a vertical transverse section, of the same.

A is the magazine, which may be constructed in any suitable way. It is supported by the top plate B, and projects a short distance below said top plate. The fire-pot is composed of bars C C, supported by similar connecting pieces or frames. The upper ends of their bars rest against the inner side wall of the stove, and their lower ends converge toward the center, so as to form a basket shaped like the frustum of a cone, base upward. The bars C are each tubular and open at each end, their upper ends communicating with the outer atmosphere by suitable holes, *c*, through the wall of the stove, or by an annular tube or duct, which communicates with the outer atmosphere. Air, therefore, flows through said bars, and is discharged at the base of the fire-pot, to assist in consuming the gases driven off from the burning fuel. The plate B is provided with a series of draft-holes, *b b*, covered by a damper-ring, D, by which the flow of air may be regulated or entirely cut off, as may be desired. A close plate, E, which may be re-enforced with fire-brick, cement, or other refractory material, is placed below the open space at the lower ends of the grate-bars, but at a little distance below them, and supported upon legs otherwise independent of the grate, so as to leave unobstructed the space between said plate and the grate. The fuel rests upon this plate, and the ashes and cinders accumulate thereon, and may be readily removed by a raker introduced through one of the side doors F. Below the plate E I place a funnel-plate, G, the opening through the center of which is smaller than the plate E. The products of combustion, as well as the ashes, cinders, &c., pass down through said opening, and the heat of the products of combustion is, therefore, concentrated, and tends to effect the complete combustion of the cinders which may fall from the grate or off the plate E. The air which enters through the hollow grate-bars assists in this combustion. There is a chamber or box, H, open at the top, immediately below the opening of the funnel-plate G, and the outlet-flue I is at the back of said box. When direct draft is established the smoke and products of combustion descend through the funnel G into the box H, and escape into the flue I; but when a circulating draft is desired to heat the base of the stove, a gate, J, hinged in the middle of said box, upon a bolt running crosswise thereof, is tilted so that its rear edge engages with the rear edge of the top of said box, and closes the direct passage to the flue. The smoke then escapes at the front of box H, and passes around its sides to said flue. The upper or front side of the gate J is provided with a shelf or bracket, *i*, which, when said gate is closed, arrests many pieces of cinder, &c., and holds them exposed to the action of the hot products of combustion as they pour down through the funnel G. A suitable ash-drawer or other receptacle occupies the base of the stove, in the usual way. The gate J is operated by its joint or hinge

rod, *j*, which projects through the side of the stove for that purpose. The doors F are provided with mica sheets, so as to permit the illumination of the apartment; and to prevent the smoking of said mica when the fire is kindled inside, I make a series of small orifices, *k*, immediately above said side door, or otherwise provide for the admission of a small amount of air at that point, which flows down along the surface of said mica, and is interposed between said surface and the smoke, with the effect of preventing contact, and the consequent obscuring of the glasses.

Having described my invention, what I claim as new is—

1. A fire-pot composed of tubular bars C, open at each end, and at the upper end communicating with the outer atmosphere through orifices *c*, substantially as shown.

2. The fire-pot composed of bars converging downward toward the center, combined with a close plate, E, supported at a little distance below said fire-pot, and draft-inlets above said fire-pot, as and for the purpose set forth.

3. The conical fire-basket, composed of bars converging downward toward the center, with draft-inlets above and outlet below said fire-basket, and with its close bottom plate E, combined with the funnel-plate G, open at its center and below said close plate, as set forth.

4. The box H, with the outlet-flue I at its back, combined with the gate J, arranged as described, to close direct draft and cause the same to circulate, as set forth.

5. The funnel G, box H, and gate J, combined with the cinder-shelf *i*, for the purpose set forth.

6. In a single stove, the combination of a magazine, with draft-inlets at or near its base, a conical fire pot or basket open at the center, a close plate below said opening to support the fuel, a funnel-plate below, with an opening at its center, to concentrate the products of combustion as they pass to the base of the stove.

LEWIS F. BETTS.

Attest:
H. P. STEWART,
J. T. LECKLIDER.