

G. G. WOLFE.  
Cooking Stove.

No. 30,514.

Patented Oct. 23, 1860.

Fig. 2,

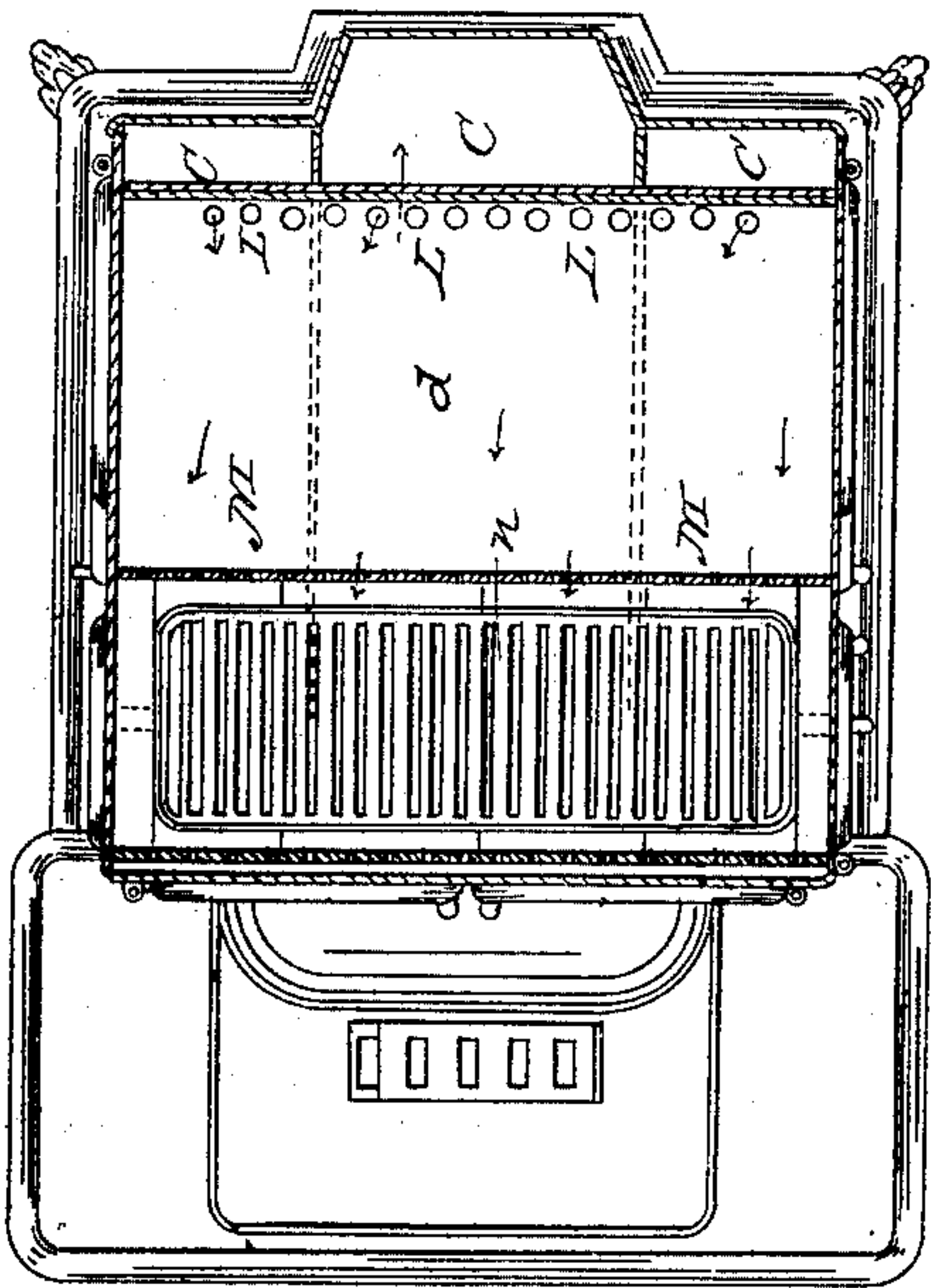


Fig. 1,

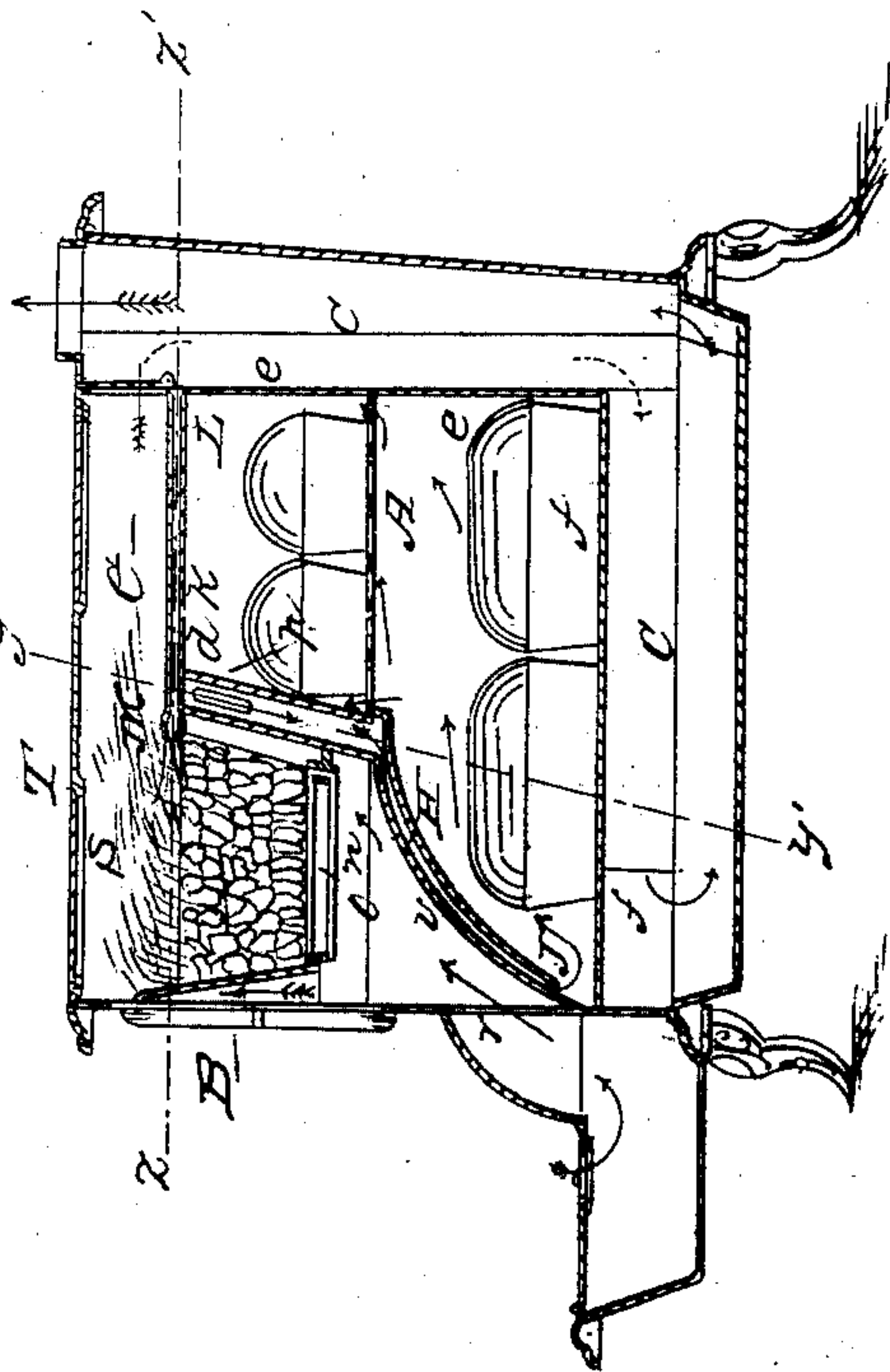
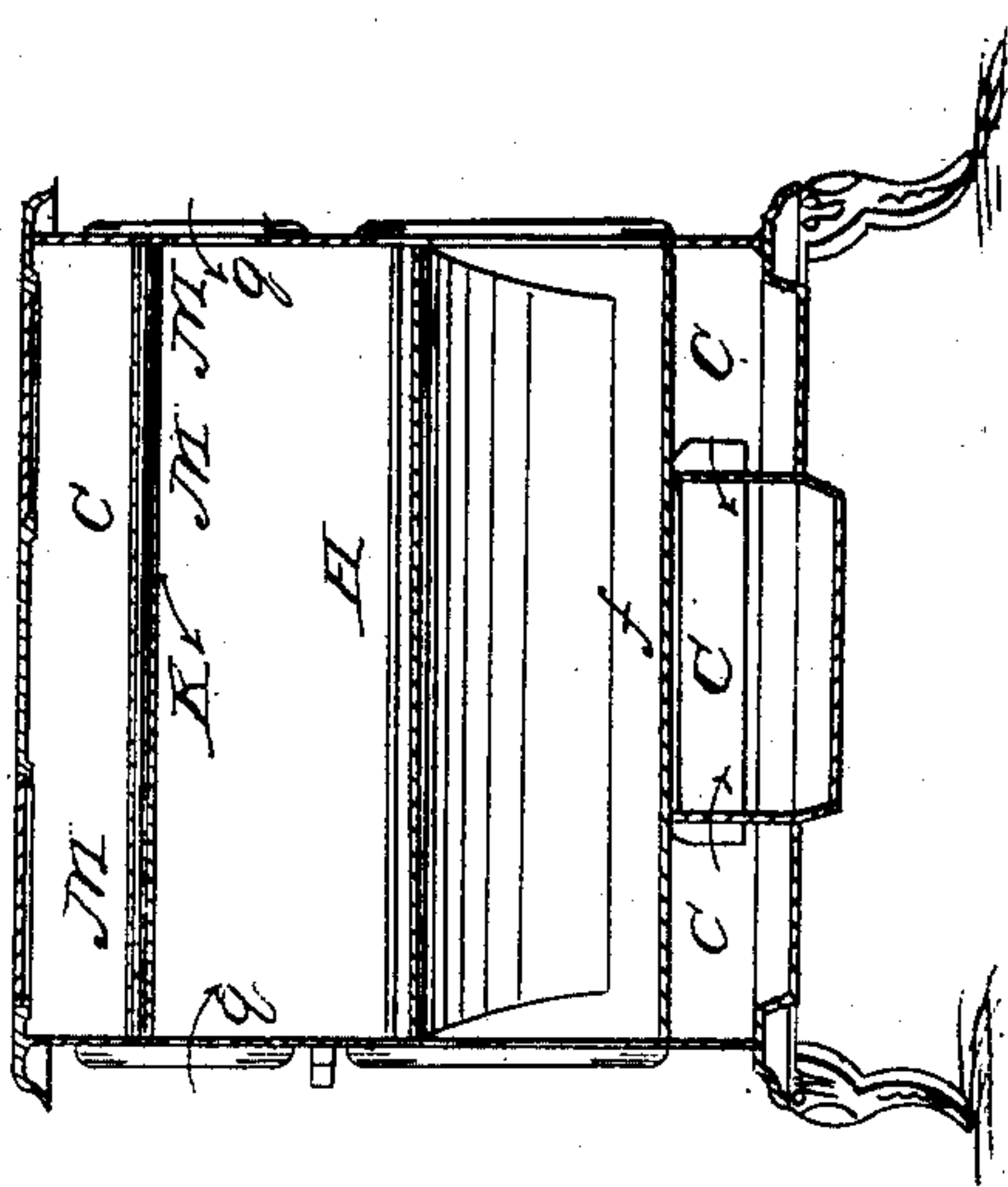


Fig. 3,



Witnesses:  
J. L. Barney  
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Inventor  
Gordon G. Wolfe.



# UNITED STATES PATENT OFFICE.

GURDON G. WOLFE, OF TROY, NEW YORK.

## COOKING-STOVE.

Specification of Letters Patent No. 30,514, dated October 23, 1860.

*To all whom it may concern:*

Be it known that I, GURDON G. WOLFE, of the city of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Cooking-Stoves; and I do hereby declare that the following contains a full and exact description of the same, reference being had to the annexed drawings, in which—

Figure 1 is a central vertical section from front to rear of one of my improved cooking stoves; Fig. 2 a horizontal section of the same at, and plan of some parts below the line  $z z'$ ; and Fig. 3 an inclined section of the same at, and elevation of some parts in front of the line  $y y'$ .

The same letters refer to like parts in all the figures; and the red arrows indicate the course of the gases of combustion, and the black ones the course of the atmospheric air through the stove.

In my improved cooking stove, the oven, A, is arranged along one side of, and is extended lower than the fire-box B for the fuel; and the smoke-flues, C, lead from the top of the fire-box, first over the top-plate,  $d$ , of the oven, and afterward extend along the back-plate,  $e$ , and bottom-plate,  $f$ , of the oven. Between the oven and the fire-box there is a chamber G, which has communication with the open air, and with a sheet-flue, H, which extends down along the front-plate,  $i$ , of that part of the oven which is below the fire-box. At or near the lower end of the sheet-flue, H, is a slit or aperture, J, by which that flue communicates with the oven. Between the top of the oven and the smoke-flue over it, is a sheet flue-space, K, which communicates at one end by a slot or apertures, L, with the oven, and at the other end with the fire-chamber by a slit or series of small holes, M, arranged just above the place for the fuel in the fire-box. An abundance of atmospheric air is admitted into the bottom of the burning fuel in the fire box, through the grate  $n$ , and a chamber, O, having communication with the open air.

The heated gaseous products of combustion pass from the fire-box, B, through the smoke-flues C, first, over the top-plate,  $d$ , of the oven A; and afterward along in contact with the outside of the back-plate,  $e$ , and bottom plate,  $f$ , of the oven; and thereby heat the top, bottom and back plates of the oven sufficiently. The draft of the gases of combustion through the smoke-flues of the

stove, causes a current of atmospheric air to enter into the chamber G, and to pass from thence successively through the sheet-flue H, aperture J, oven A, apertures L, flue-space K, and apertures M, into the fire-chamber just above the fuel in the fire-box; so as to thereby increase and equalize the heat within, and ventilate the oven, and also supply jets of heated atmospheric air to, so as to complete or increase the combustion of, the unburned gases and fuliginous matters just as they rise, ignited, out of the top of the burning coal or other fuel. This current of atmospheric air in passing through the chamber G, protects the front plate  $p$ , of the upper portion of the oven from the too intense heat of the fire-box, and thereby becomes highly heated. And the air, in passing from the chamber G, through the flue-space H into the oven, first protects the upper portion of the front side of that part of the oven which extends below the fire box, from the too intense heat radiated from the under side of the ignited fuel on the grate,  $n$ , and thereby has its heat increased; and next protects the lower portion of the front side of that part of the oven from the cold air to which it is exposed on the outside, at  $n$ . And, that same current of atmospheric air, in passing from the oven through the flue-space K, into the fire-chamber just above the burning fuel, protects the top side,  $d$ , of the oven from the too powerful heat of the gases of combustion in their passage, when hottest, over the top of the oven; and in so doing has its heat thereby greatly increased so that it supports the combustion of the unconsumed gases, which rise from the fuel, with greater energy.

The arrangement of the fire-box B, oven A, smoke flues, C, C, C, air-heating chamber G, hot-air flue H, outlet opening J, hot air flue K, inlet opening L, and discharge aperture M, all in combination as above described, constitutes my invention.

I do not claim the above described arrangement of the air-heating chamber G, hot-air flue H, outlet opening J, hot air passage K, inlet opening L, and discharge aperture M, in combination with the oven A, fire-box B, and a smoke or gas flue leading from the top of the fire box first over the top of the oven, when smoke-flues are not extended or arranged along both the back-plate,  $e$ , and the bottom plate,  $f$ , of the oven. In my improved cooking stove it is



absolutely necessary that the smoke flues should be arranged along both the bottom and the back side of the oven; for the heat communicated to the oven from the fire-box, and from the smoke-flue over the top of the oven, and from or by the current of heated air passing from the chamber G into and through the oven, is, all quite insufficient for ordinary baking purposes, and requires the aid of the heat which is given to the oven by the smoke-flues, C, where they extend along the back-plate *e*, and bottom plate *f*, of the oven. And I do not claim the arrangement of the chamber G, air-flue H, opening J, chamber K, and opening L, in combination with the oven, A, fire-box, B, and smoke-flues, C, along the top, back, and bottom of the oven, when there is not any opening or apertures, M, from the chamber K, into the fire-chamber, S, just over the fire-box B. For in my improved cooking stove it is not only necessary that the chamber G should have communication with the open air by some suitable air-passage or opening, *q*, and with the oven by means of the flue-space H and opening J; and that the smoke-flues C should extend along the bottom and back sides of the oven as well as over its top; but it is also absolutely essential to my improved cooking stove that the chamber K should have communication with the fire-chamber by a slot or apertures M, and with the oven by an opening or openings L, so that the heated air which passes from the oven through the chamber K shall be discharged into the fire-chamber or just above the fuel in the fire-box, where the combustible gases and fuliginous matters which rise from the burning fuel are in an ignited state, and consequently in a condition to take fire and burn upon being supplied with atmospheric air; and where the caloric which is set free by the combustion of those gases and sooty particles will increase the heat of cooking vessels or boilers placed upon, or in the pot-holes of, the top-plate T of the stove.

If the stove was so constructed that the

air would be conducted from the oven through the chambers G and K and from the back end of the space K into the smoke-flues of the stove at or near the back end of the top-plate *d*, of the oven, the heated air thus discharged into the smoke flues would not generally increase the combustion of the gases and sooty matters evolved from the burning fuel, for those gases and carbonaceous particles do not ordinarily have enough heat left to make them take fire and burn upon mingling with the air thus discharged into the smoke-flues at a distance from the fire-box; or if those gases and sooty particles should take fire and burn upon mingling with air introduced into the gas flues C at the back end of the chamber K, the caloric set free by such combustion would not add heat to any vessels placed upon or inserted through the cooking plate T of the stove. And if the stove was so constructed that the air would be conducted from the oven through the chambers K and G, and from the latter discharged under the grate *n* into the under side of the burning fuel; the air thus conducted from the oven would indeed serve to support or increase the combustion of the solid fuel in the fire box, but would not generally pass up through and rise above the mass of burning coal in a sufficiently pure state to support and complete the combustion of the carbonic oxid and other combustible matters which rise out of and above the ignited coal.

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

The combination and arrangement of the air-heating chamber G, hot-air passage H, opening J, flue-space K, opening or openings L, and aperture or apertures M, with the oven, A, fire-box B, and smoke-flues C along the top, back and bottom of the oven, substantially as herein shown and described.

GURDON G. WOLFE.

Witnesses:

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AUSTIN F. PARK.