2 Sheets—Sheet 1.

J. D. HARDEN.

Cooking Stove.

No. 97,084. Patented Nov. 23, 1869.

Fig. 1

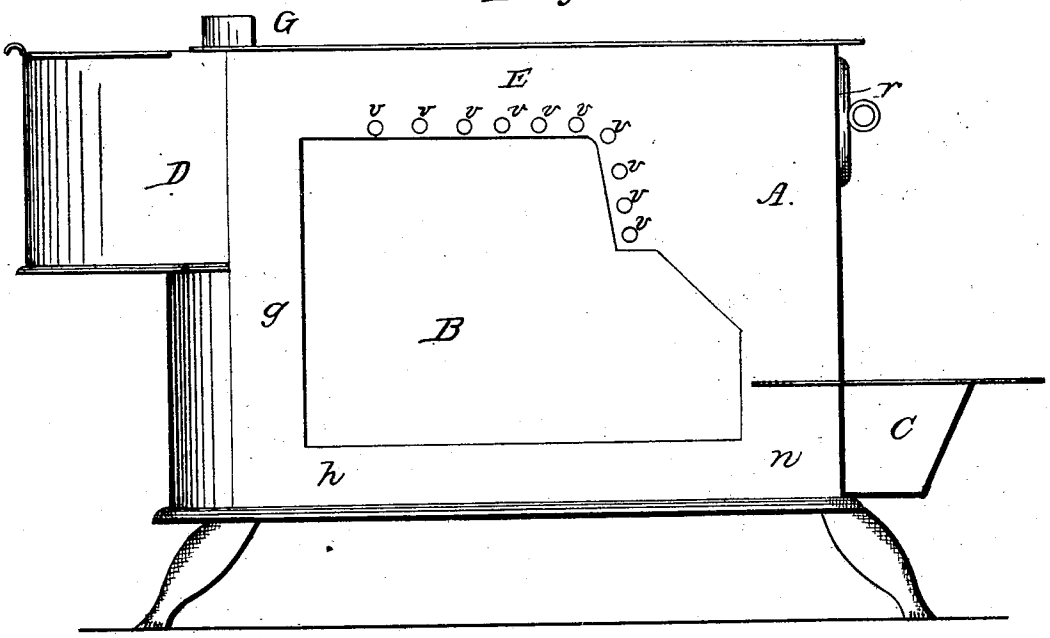
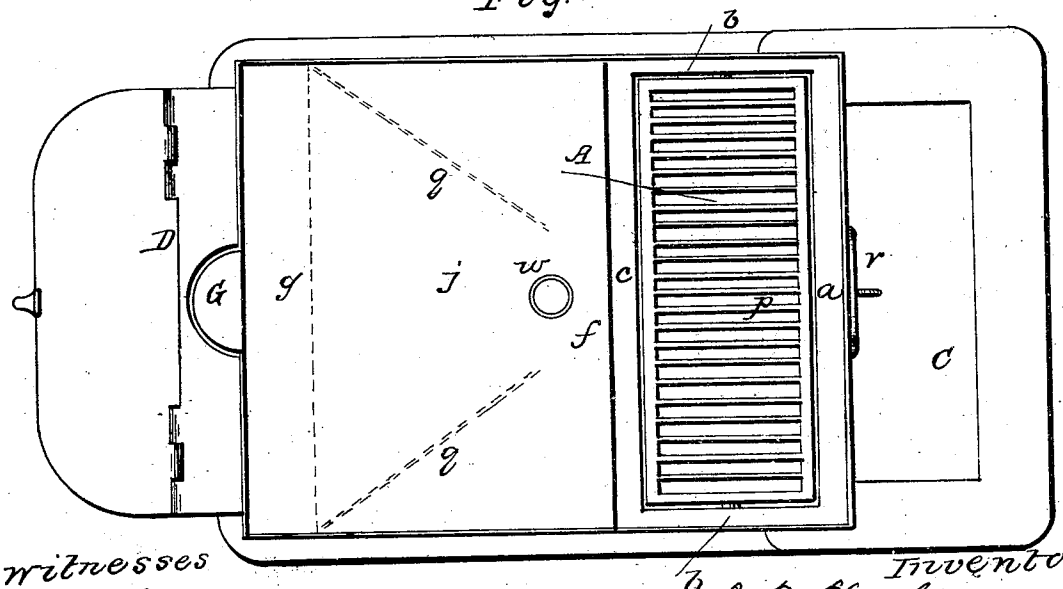


Fig. 2



Witnesses
C. F. Harkness
R. D. Smith

Inventor
J. D. Harden
By his Atty
J. F. Brown

2 Sheets—Sheet 2.

J. D. HARDEN.

Cooking Stove.

No. 97,084. Patented Nov. 23, 1869.

Fig. 3

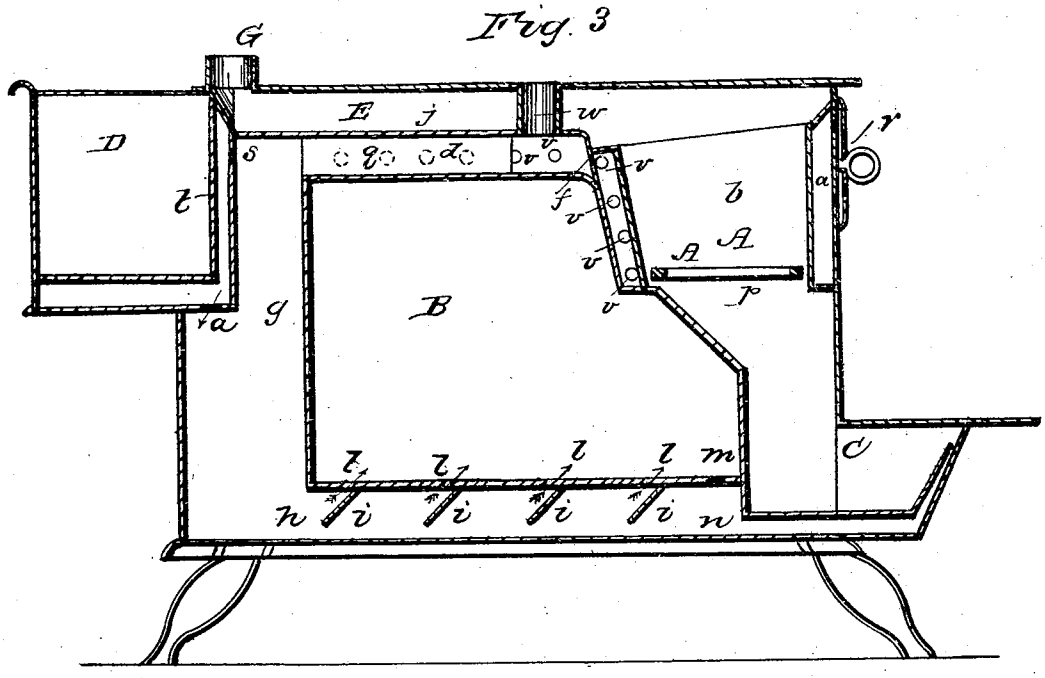
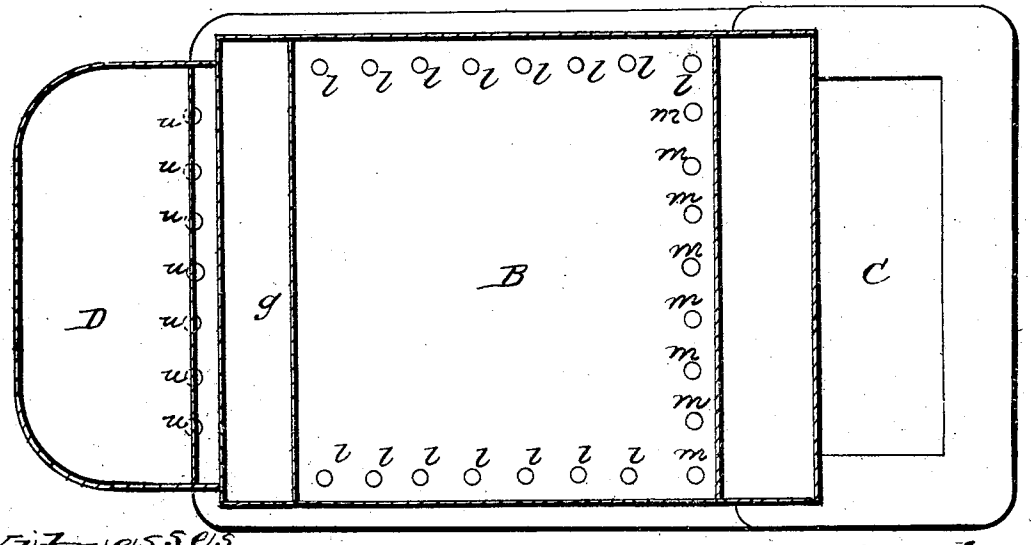


Fig. 4



Witnesses
C. A. Harknes
R. O. Smith

Inventor
J. D. Harden
By his attys
J. S. Brown

United States Patent Office.

JOSEPH D. HARDEN, OF TROY NEW YORK.

Letters Patent No. 97,084, *dated November* 23, 1869.

COOKING-STOVE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSEPH D. HARDEN, of Troy, in the county of Rensselaer, and State of New York, have invented an Improved Cooking-Stove; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification,

Figure 1 being a side elevation of a cooking-stove provided with my improvements;

Figure 2, a plan of the same, the top plate being removed;

Figure 3, a central longitudinal vertical section of the same; and

Figure 4, a horizontal section thereof through the oven.

Like letters designate corresponding parts in all of the figures.

The main feature of my invention consists in the employment of a circulating current of heated air, passed around, or around and through the oven, for baking, and around or in contact with a reservoir, for heating water, substantially as herein set forth, irrespective of the passage of the products of combustion through the stove.

And an additional feature consists in the employment of the same heated current of air, after it passes the oven and hot-water reservoir, to furnish a hot draught to the fuel-chamber.

The current of air is either all first introduced into a chamber or space around the fire-box, where it is immediately and principally heated, or partly into said heating-chamber, and partly through the sides of the stove, directly into a chamber over the oven, where the two currents commingle.

In connection with this current of heated air, a single draught-flue is employed, extending directly from the fire-chamber to the smoke-pipe, thus dispensing with diving and return-flues around the oven, and all flues around or through the hot-water reservoir.

The drawings illustrate all the features of this invention.

Thus, let A represent the fire-box,

B, the oven,

C, the ash-pit, and

D, the hot-water reservoir of a cooking-stove.

The air to form the heated current may be first introduced through the front plate of the stove, as at *r*, where it may be regulated by a register-plate or valve.

It is first admitted into a space, *a*, between the front plate and a lining-plate around the fire-box A.

Thence it extends through a space, *b*, around the end or ends of the fire-box, into a space, *c*, back of the fire-box, and between a lining-plate thereof and the front plate of the oven B.

Thence it passes through a perforated plate, *f*, into a chamber or space, *d*, above the top oven-plate, and separated, by a partition-plate, *j*, from the flue E, which leads directly from the fire-box A to the smoke-pipe collar G. Here the current may be joined by an additional supply of air, admitted directly from the outside through holes *v v* in the side plates of the stove, and also, if desired, through a short tube, (or tubes,) *w*, extending down through the top plate of the stove and the partition-plate *j*.

The current then passes down through an air-space, *g*, behind the oven, and into another space, *h*, below the oven. Here a part or all of the current may be directed up into the interior of the oven, through apertures *l l*, fig. 4, preferably near the sides of the stove, in the bottom plate of the oven, there being, if desired, transverse guide-plates *i i*, projecting downward from the said bottom oven-plate, at an inclination backward, as indicated in fig. 3, to direct the current more uniformly and surely up through the said apertures *l l*.

From the oven, the current passes down through apertures *m m*, in the front part of the bottom oven-plate, into a continuation of the space *h*, or into another space, *n*, below the hearth-pit C, into which the current is finally admitted, and furnishes the draught to the fire, through the grate *p*, the air being excluded therefrom by any other way.

The current is heated to a high temperature at the beginning, in the spaces *a b c*, around the fire-box. It also continues to receive additional heat from the draught in the flue E, by conduction through the partition-plate *j*. All together, it is sufficient to produce a baking-heat in the oven, and so distributed as to bake very uniformly therein, still the heat retained in the current is sufficient, after it reaches the hearth-pit, to bake or cook on the hearth-plate, so that a hot draught is furnished to the fire, producing very perfect combustion.

When a hot-water reservoir, D, is used, a close space, *t*, is formed between it and the back plate of the stove, and a portion of the hot-air current is passed into said space, through apertures *s s*, in the back plate of the stove, and thence back through apertures *u u*, again into the space *g*.

Oblique guide-plates, *q q*, may be placed in the space *d*, over the oven, in positions as shown in fig. 2, in order to retard and distribute the current over the oven.

Unessential variations in the mode of applying the principles of the invention, may be made, if desired.

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

The employment, in a cooking-stove wherein the products of combustion escape direct, of a current of air, first heated by the fire of the stove, and

thence caused to circulate around or around and through the stove-oven, for producing the baking-heat therein, substantially as herein specified.

Also, in a cooking-stove constructed as described, the passage of a current of air, similarly heated, through a space or spaces in contact with a hot-water reservoir, for heating the water therein, substantially as herein set forth.

Also, in a cooking-stove constructed as described, the employment of the current of air, thus heated and thus previously utilized, to furnish a hot draught to the fuel in the fire-box, substantially as herein specified.

J. D. HARDEN.

Witnesses:
HENRY A. MERRELL,
I. HALL BROCK.