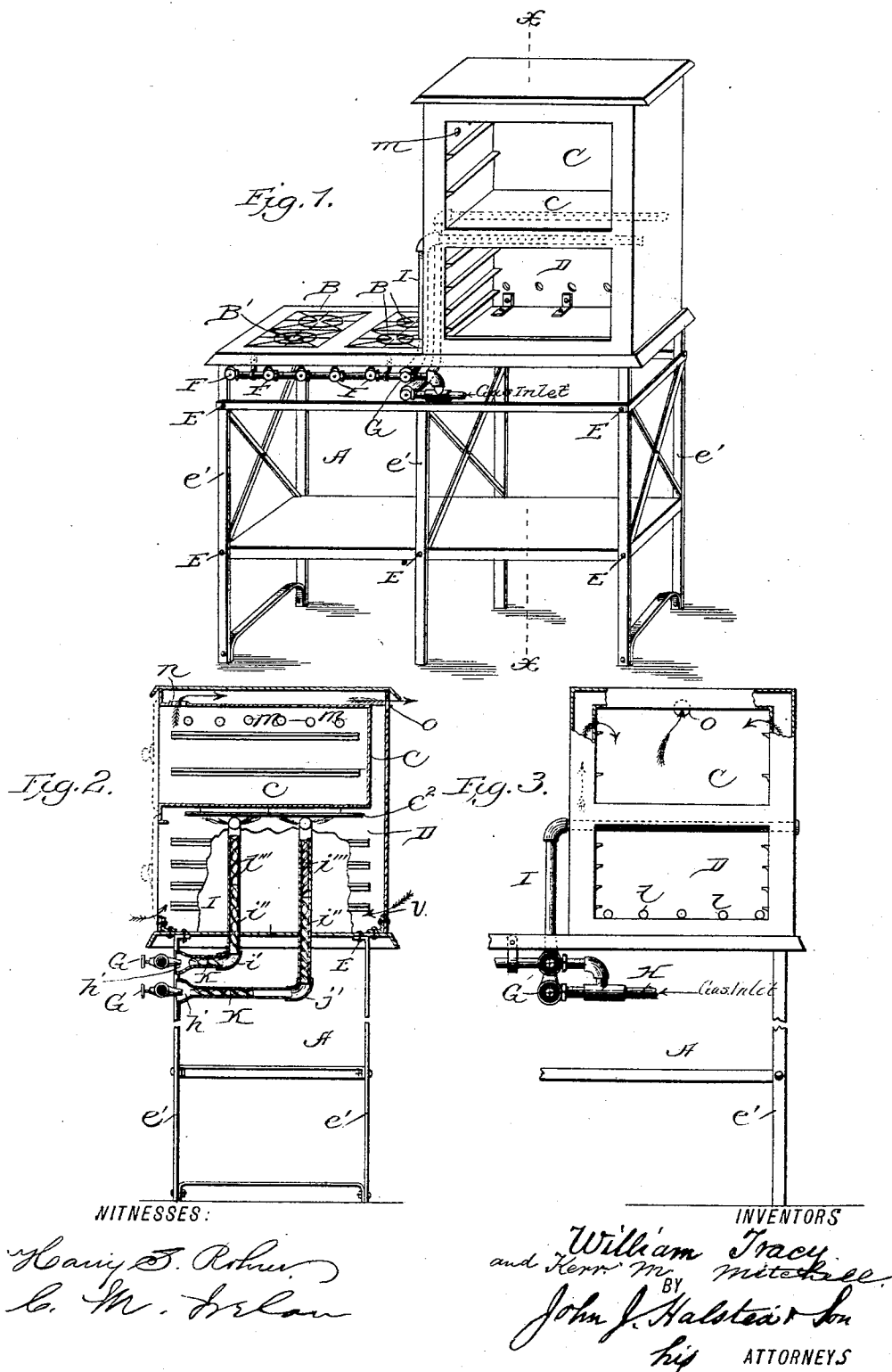


(No Model.)

W. TRACY & K. M. MITCHELL.
GAS STOVE.

No. 580.096.

Patented Apr. 6, 1897.



UNITED STATES PATENT OFFICE.

WILLIAM TRACY, OF LEAVENWORTH, KANSAS, AND KERR M. MITCHELL,
OF ST. JOSEPH, MISSOURI.

GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 580,096, dated April 6, 1897.

Application filed December 19, 1895. Serial No. 572,713. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM TRACY, of Leavenworth, in the county of Leavenworth, Kansas, and KERR M. MITCHELL, of St. Joseph, Buchanan county, State of Missouri, have invented certain new and useful Improvements in Gas-Stoves; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to certain special features presently to be herein clearly described.

In the drawings, Figure 1 illustrates in perspective one style of stove embodying the improvements, the doors being removed; Fig. 2, a cross-section, partly broken away, through the line $x x$ of Fig. 1, the mixing-pipes leading up to the ovens being shown in section, as also their gas-supplying valves; Fig. 3, a side view showing the oven and the roaster more in detail than in Fig. 1.

The trestle-frame A, which supports the plate in which are the main burners B and on top of which frame are located the chambers C D of the oven, is made of strap-iron and with diagonal braces, all put together by bolts and nuts E, so that besides being cheap and light and avoiding the usual liability to fracture incident to the cast-iron frames it may readily be taken apart for shipment or transportation and readily put together. This construction affords a light but durable non-frangible "knockdown" frame that any one can take apart or put together.

The legs e' of the entire frame are made high enough and all the valves and all the burners or jets are also high enough to avoid any need of stooping either to light or extinguish the fire or to use the ovens, the valves F F, &c., of the stove proper, and the valves G G, which control the passage of gas and air to the ovens, being, as shown, all grouped near together at one side.

The ovens have not any circular burners like B, nor are there any pilot-lights for starting any of the burners, whether for the stove or ovens, as they are not necessary in stoves

constructed according to our invention, because the height of the oven from the floor and the position of the perforations of pipes I J, presently to be described, are such that on opening the oven-door the gas can be readily lighted at those perforations, and it can always be seen that they are properly lighted, and this without inconvenience or stooping or reaching down under the ovens, as in step-stoves and others. The same inlet gas-pipe H which supplies the stove proper also permits the admixture of atmospheric air with the gas at the flaring air-bell mouth openings h' in the two long branch pipes I J, which, first extending horizontally to points near the center line of the table at its top, thence bend to extend upward, as at $i' j'$, and thence again horizontally into the oven just beneath the floor c of its upper or baking chamber. A deflector c^2 is advantageously used between the bottom of the upper oven and the perforated pipes. These pipes I J are finely perforated to emit fine jets of mixed gas and air, and upon opening the oven-door these jets can be instantly ignited by a common match. The great length of these pipes I J insures a long distance for the gas and air to travel together and to become more intimately intermixed before reaching the ovens.

Besides the avoidance of stooping low down to ignite or extinguish, as with ordinary burners or with pilot-lights, no pipes are employed to carry gas or mixed gas and air downward to reach the oven; but they follow the natural upward tendency when the stove is in use, and the proximity of these pipes at their valves and in their vertical parts $i' j'$ to the main burners B tends to utilize some of the waste heat of the stove to heat pipes I J and to facilitate this upward flow to the oven-chambers.

In each of the pipes I J, at their open inlet ends, is placed a spiral or auger-shaped strip K, which may be made of tin or other sheet metal, and which, by compelling a tortuous course to the incoming gas and air, insures their longer travel and their more thorough intermixture before their combustion in the oven. Besides such spiral strip K we also prefer to place within the vertical parts of these pipes similar spiral strips $i'' j''$, but with

the spirals or a portion of the same wound in a direction the reverse of those at the inlets, as shown at K K. These increase or intensify the admixture of the air and gas prior to combustion, and further strips i''' j''' may, as shown, also be placed above i'' and j'' , respectively, but having their spirals in a direction the reverse of these, thus still further compelling the admixture.

10 The bottom oven has air-admitting orifices l near its bottom, and the top oven has draft-openings m near its top. The products of combustion pass, as indicated by arrows in Figs. 2 and 3, and escape at n and o .

15 Explosions cannot take place in ovens having pipes made and applied as in our construction, as there are no top burners therein or thereon to ignite any gas that may be left on in oven-burners. We avoid any danger
20 of filling the ovens with gas and then lighting top burners or any accidental accumulation of gas in the ovens, for the draft-holes in the back of the oven would draw out at the top any small amount of gas that might get
25 there, and this would be promptly detected by its odor, and then the valve would be shut off.

Double burners may of course be employed at will, as indicated at one of them (marked B') in Fig. 1.

We claim—

1. In a gas-stove, a mixing-pipe for mixing atmospheric air with the incoming gas from a service-pipe, provided internally and near its air-bell mouth with a spiral conveyer made of sheet metal and secured to the pipe, for thoroughly intermixing the gas and air prior to their reaching the point of combustion.

2. In a gas-stove, in combination with and within the open air-bell mouth or inlet of the mixing-pipe, a spiral strip or coil of sheet metal as set forth, and a further spiral strip or strips in said pipe, each coiled in a direction the reverse of its next preceding strip, as and for the purposes set forth.

WILLIAM TRACY.

KERR M. MITCHELL.

Witnesses as to William Tracy:

W. W. HOOPER,

JOHN E. ROCHE.

Witnesses as to Kerr M. Mitchell:

JOHN J. LYSAGHT,

H. A. BROWER.