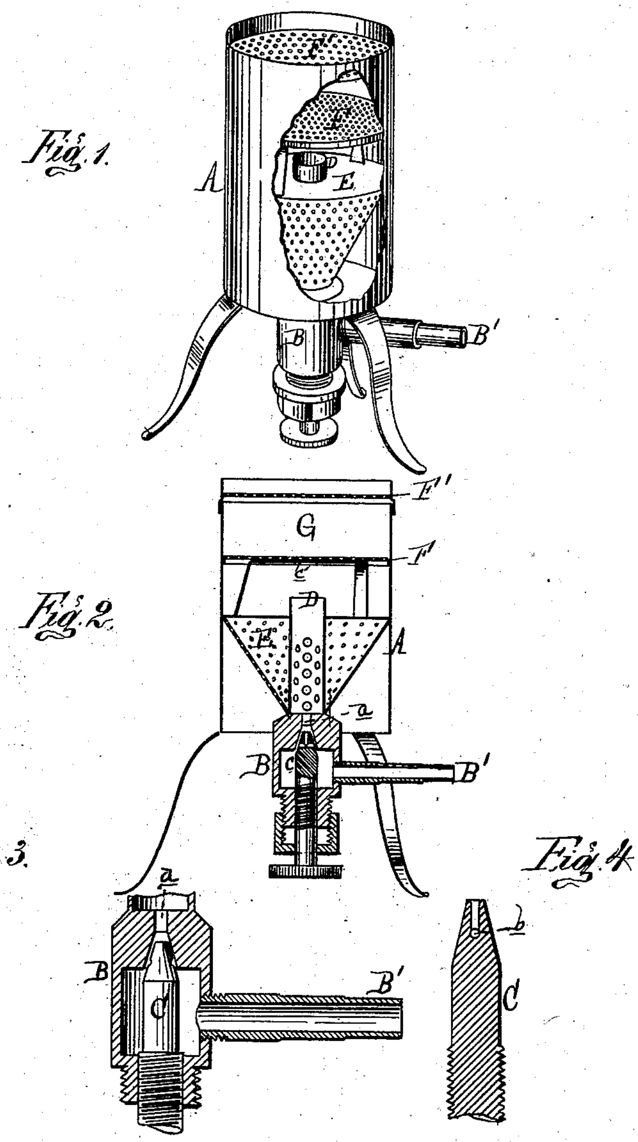
W. McKENZIE.

GAS-STOVE.

No. 191,988. Patented June 12, 1877.



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UNITED STATES PATENT OFFICE.

WILLIAM McKENZIE, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSEPH H. BERRY, OF SAME PLACE.

IMPROVEMENT IN GAS-STOVES.

Specification forming part of Letters Patent No. **191,988**, dated June 12, 1877; application filed January 15, 1877.

To all whom it may concern:

Be it known that I, WILLIAM McKENZIE, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Gas-Stoves, of which the following is a specification:

The nature of my invention relates to an improvement in gas-stoves for heating and cooking; and it consists, first, in the interposition of a conical wire-guaze or sheet-metal cage between the case and the burner-tube below its top, for the two-fold purpose of dividing the air into jets before passing in, and to prevent explosive combustion in the bottom of the case, should the flame be inadvertently placed under it; also, in the general construction and combination of the several parts.

Figure 1 is a perspective view, with a portion of the casing broken out. Fig. 2 is a vertical section. Fig. 3 is an enlarged vertical section of the expansion-chamber, showing the valve in elevation. Fig. 4 is a detached vertical section of the valve.

In the drawing, A represents a cylindrical case, open at both ends, and supported by legs, as shown, in a vertical position. B is an expansion-chamber in the axis of the case, in the lower part thereof, and to which gas is admitted by a lateral pipe, B′, provided with a stop-cock. In the top of the chamber there is a burner-orifice, *d*, at the lower end of which there is formed a seat, against which a valve, C, tapped through the bottom of the chamber, may be screwed up to a seat. Below the valve-seat the valve is transversely slotted, and a minute aperture, *b*, is axially drilled in the end of the valve to intersect the transverse slot, and from which the gas issues, passing through from the chamber B, out of the orifices *b d*, into a tube, D, mounted on the chamber. E is an inverted conical screen-cage of wire-cloth or perforated sheet metal, having a solid metal base or top, which closely fits the interior of the case, closing it to the direct upward flow of air. The tube D passes up through the top of the cage, below which it is perforated to permit atmospheric air to flow from the interior of said cage into it, and mingle with the ascending column of gas. The issuing column strikes against a solid plate, *c′*, in the center of a perforated plate, F, in the case A, which spreads it out annularly before it can rise through. Above the plate F there is a perforated plate, F′, through which the air-diluted gas rises, and where it is ignited.

The space G between the two plates F F′ constitutes a retort, in which the mingled air and gas are raised in temperature until they will, as soon as they pass through the upper perforated plate, be in condition to ignite instantly, instead of, as heretofore, retarding the combustion until raised to the required temperature after passing through the screen-plate.

As is well known, gas varies in density and gravity as it is rich or poor, the poor gas being the heavier and inclined to settle in the chamber B, in which case, by opening the valve C, the jet issuing from the orifice *b* will act, as in the injector, to drag up the sluggish current from the chamber B. This enables the successful use of hydrocarbon gases for feul, which cannot be safely used in other burners now in use.

What I claim as my invention is—

1. The combination of the cage E with the burner-tube, case, and one or more perforated plates above said burner, substantially as described.

2. The combination of the case A, expansion-chamber B, valve C, tube D, cage E, and perforated plates F F′, substantially as and for the purpose set forth.

WILLIAM McKENZIE.

Witnesses:

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H. S. SPRAGUE.