A. KÜNKLER.

GAS BURNER.

APPLICATION FILED FEB. 9, 1909.

1,003,053. Patented Sept. 12, 1911.

FIG. 1.

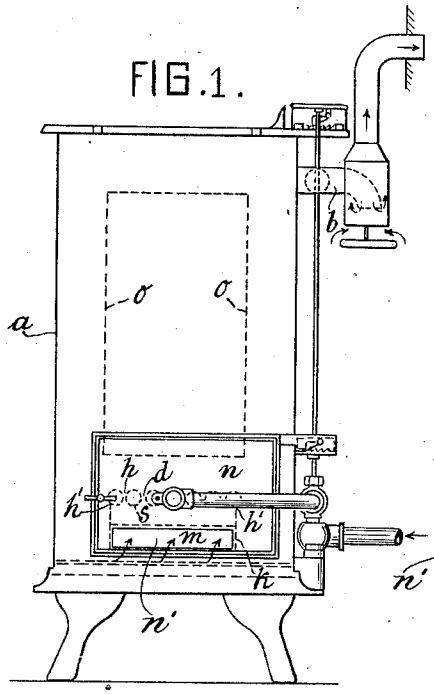


FIG. 3.

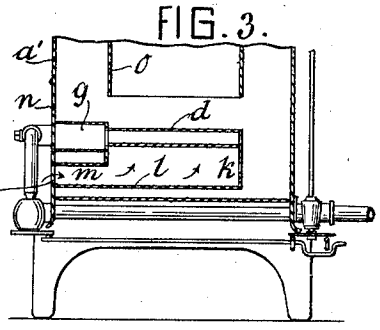


FIG. 2.

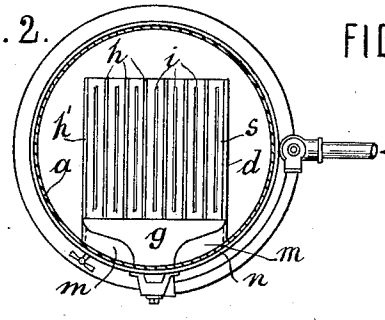
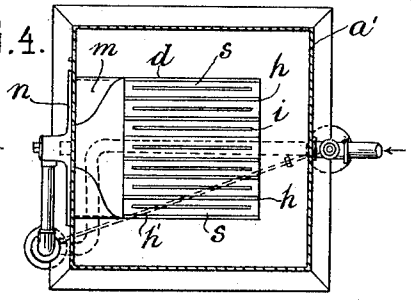


FIG. 4.



WITNESSES

W. P. Burke

Chas. G. Smith

INVENTOR

Albert Künkler

BY Wm. Wallace Kirby

ATTY.

UNITED STATES PATENT OFFICE.

ALBERT KÜNKLER, OF MANNHEIM, GERMANY.

GAS-BURNER.

1,003,053. Specification of Letters Patent. **Patented Sept. 12, 1911.**

Application filed February 9, 1909. Serial No. 476,882.

To all whom it may concern:

Be it known that I, ALBERT KÜNKLER, a subject of the German Empire, residing at No. 4 Rennershofstrasse, Mannheim, Germany, have invented new and useful Improvements in Gas-Burners, of which the following is a specification.

This invention relates to a gas stove, the casing of which is closed with the exception of the outlet for the combustion gases and the inlet for the air for combustion, the burner being placed between the said inlet and outlet.

The invention consists in the combination with a gas stove of the kind referred to of a burner comprising a series of orificed gas supply casings or tubes spaced apart so that a number of slots are left between the casings or tubes through which air may be led, the arrangement being such that, under atmospheric pressure, sheets of gas and air issue above the burner.

The invention will now be described with reference to the accompanying drawings in which,

Figure 1 is a vertical elevation of one form of the stove, Fig. 2 is a sectional plan of Fig. 1, Figs. 3 and 4 are a sectional elevation and sectional plan respectively of a second form of the stove.

The gas stove Figs. 1—2, comprises a closed cylindrical casing *a*, with the outlet pipe *b*, for the combustion gases and the slit burner, *d*, which is arranged at the bottom of the said casing. The burner *d*, comprises the tubes *s* to which the gas flows through the inlet channel *g;* the frame *k* provided with a bottom *l*, and a neck *m*. The neck *m* of the frame *k*, is secured at its open end to the edges of an opening n^1 in the door *n*. The outlet slots *i*, for the gas are formed in the tubes *s*, while the slots *h*, for the inflow of air for combustion are formed by spacing the tubes *s* a small distance apart. At each side of the burner is arranged a slot h^1, formed by leaving a space between the frame *k*, and the outermost tubes *s*. The gas slots *i*, are about $\frac{3}{4}$ mm. wide and the air slots *h*, about $1\frac{1}{2}$ mm. wide, when the outlet pipe is arranged 30 centimeters above the burner. The hot combustion gases in the stove owing to constant expansion and to the pressure of the colder heavier air outside the stove are forced to enter the flue at a greater speed than the air for combustion can enter the stove. The air passes under atmospheric pressure through the open part of the door *n*, and the neck *m*, into the frame *k*, and ascends through the air slots *h*, adjacent to and mixes with the fine but wide sheets or streams of gas in the form of similar fine wide sheets of air. The combustion gases filling the stove are cooled down on the walls thereof and they are reheated by and pass through the flames and thus a lateral flow of the cooled gases toward the sides of the flames takes place. By this pressure on the flames, the fine wide streams of air and gas are pressed together, whereby an intimate mixture of gas and air takes place.

The movement of the combustion gases toward and above the flame is increased by arranging a cylinder *o* open above and below, over the flame. The higher the outlet pipe *b* the greater is the pressure of air against the sides of the inlet slots *h;* and the greater will be the velocity of the air, therefore the slots *h* must be narrower in order that there shall be no surplus of air and vice versa. The width of the slots depends on the circumstances as to whether they have to deliver air on one or both sides, whether the gas has been previously mixed with air after the manner of the Bunsen burner and whether the gas, if not previously mixed with air, is nevertheless to be burned with a non-luminous flame, this rendering more air necessary than if previously mixed. In the case of slots arranged side by side, *i. e.*, with horizontal burners, the width of the air slots must not exceed 2.5 mm.

In the modified form shown in Figs. 3 and 4, the outer casing *a'* is shown as being of a rectangular cross section. The other parts are the same as shown in Figs. 1 and 2.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim and wish to secure by Letters Patent is:—

1. In a gas stove, in combination, a casing forming a combustion chamber, a burner positioned within said chamber and comprising a series of tubes, each tube being provided with a slot extending substantially throughout its length, said tubes being spaced from one another to provide spaces adapted to permit the passage of air therethrough, and a frame positioned within said chamber and operatively associated with said tubes, said frame being provided with a bottom

portion below said burner and with walls extending upwardly in juxtaposition to the outer tubes of said series, said casing being provided with an opening communicating with said frame and with the external air, whereby air at atmospheric pressure may enter the frame and pass through the spaces between the tubes of the burner.

2. In a gas stove, in combination, a casing forming a combination chamber, a burner positioned within said chamber comprising a series of tubes, each tube being provided with a slot extending substantially throughout its length, said tubes being spaced from one another to provide spaces adapted to permit the passage of air therethrough, the width of the space between adjacent tubes being greater than the width of the slot and a frame positioned within said chamber and operatively associated with said tubes, said frame being provided with a bottom portion below said burner and with walls extending upwardly in juxtaposition to the outer tubes of said series, said casing being provided with an opening communicating with said frame and with the external air, whereby air at atmospheric pressure may enter the frame and pass through the spaces between the tubes of the burner.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT KÜNKLER.

Witnesses:
GEORG DEFFAA,
JOS. H. LEUTE.