No. 891,245. PATENTED JUNE 23, 1908.

B. A. GEURINK.

GAS BURNER.

APPLICATION FILED OCT. 16, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

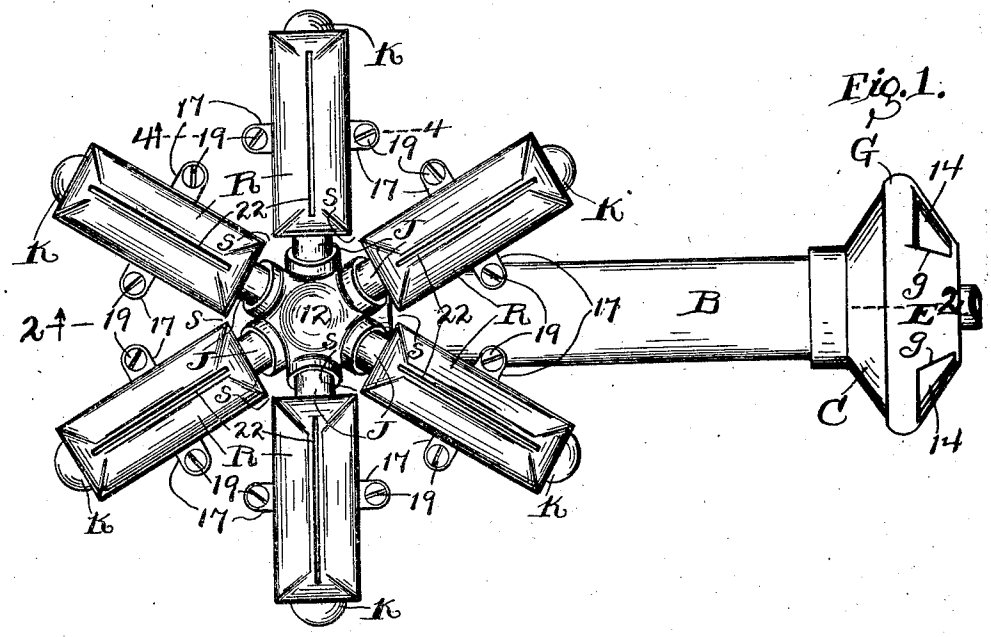
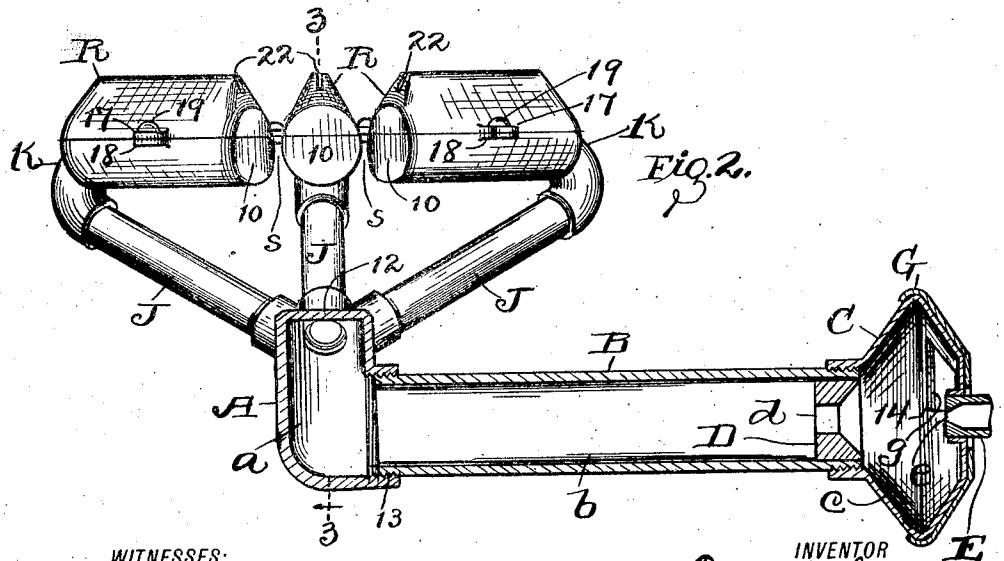



Fig. 2.




WITNESSES:

Daniel E. Daly.

B. C. Brown.

INVENTOR

Bernard A. Geurink

BY

his ATTORNEYS

No. 891,245. PATENTED JUNE 23, 1908.

B. A. GEURINK.

GAS BURNER.

APPLICATION FILED OCT. 16, 1905

2 SHEETS—SHEET 2.

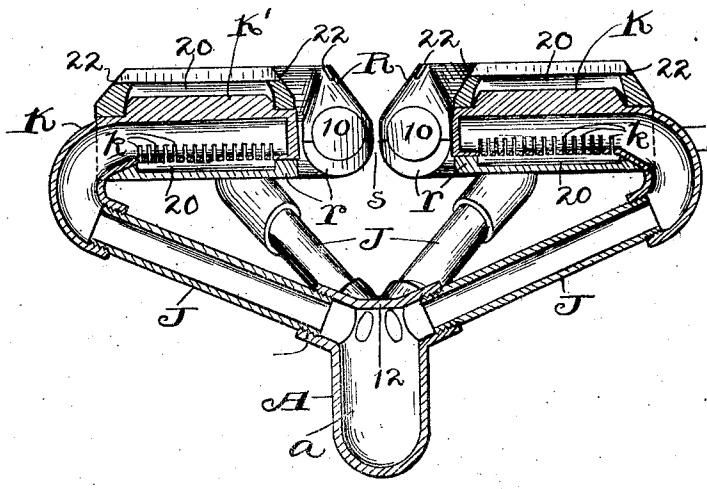



Fig. 3.

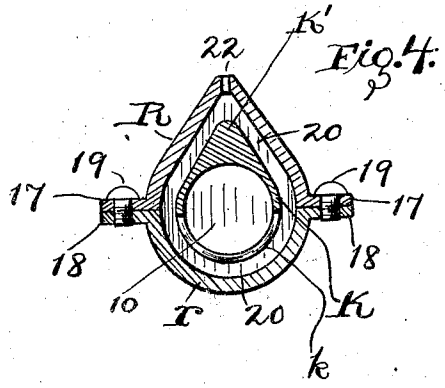



Fig. 4.

WITNESSES

David E. Daly.

B. C. Brown.

INVENTOR

Bernard A. Geurink.

BY

Church & Church

ATTORNEYS

# UNITED STATES PATENT OFFICE.

BERNARD A. GEURINK, OF CLEVELAND, OHIO, ASSIGNOR TO AMERICAN STOVE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

## GAS-BURNER.

No. 891,245. Specification of Letters Patent. Patented June 23, 1908.

Application filed October 16, 1905. Serial No. 283,003.

*To all whom it may concern:*

Be it known that I, BERNARD A. GEURINK, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gas-Burners; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in gas-burners more especially designed for use as top-burners in gas-stoves for burning acetylene gas for heating purposes.

One object of this invention is to provide an acetylene-gas-burner in which the flame or flames of the burner can be lowered without liability of extinguishing the said flame or flames.

Another object is to provide an acetylene-gas-burner more especially designed for use in a gas-stove as a top-burner which is kept comparatively cool during the operation of the burner.

Another object is to provide a gas-burner of the character indicated which is noiseless and reliable in its operation.

With these objects in view, and to the end of realizing other advantages hereinafter appearing, this invention consists in certain features of construction, and combinations of parts, hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan of a gas-burner embodying my invention. Fig. 2 is a vertical section on line 2—2, Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a vertical section on line 3—3, Fig. 2, looking in the direction indicated by the arrow. Fig. 4 is an enlarged vertical section on line 4—4, Fig. 1, looking outwardly.

Referring to the drawings, A indicates the body of my improved gas-burner, which body is composed preferably of a metal casting which has a head 12 forming the top wall of the chamber *a* which is formed interiorly of the body A. The body A is provided at its lower end with a horizontally arranged or lateral aperture 13 which connects with the chamber *a*. The surrounding wall of the aperture 13 is provided with screw-threads engaged by corresponding screw-threads formed on and exteriorly of the discharging end of a pipe B which communicates with the chamber *a*. The pipe B is screw-threaded exteriorly at its opposite or receiving end, and a metal shell C is screwed onto the last-mentioned end of the said pipe. The shell C forms a chamber *c* at the receiving end of the pipe B. The pipe B is provided in its receiving end with a short nipple D which snugly fits within the said pipe.

The nipple D is provided centrally with a passage-way *d* extending longitudinally through the nipple and establishing communication between the chamber *c* and the passage-way *b* formed by and within the pipe B. The passage-way *d* is gradually enlarged or flares at its receiving end toward the chamber *c*. The chamber *c* is provided directly opposite the nipple D with a gas-inlet formed by the discharging orifice *e* of a gas-pipe E, and the shell C is externally embraced by a valve-forming sleeve G provided with apertures or holes *g* adapted to register with apertures or holes 14 formed in the shell C and suitably spaced around the gas-inlet *e*. The holes *g* in the sleeve G communicate with the external atmosphere, and obviously in conjunction with the openings 14 feed air into the chamber *c*. The quantity of air supplied to the chamber *c* is regulated by manipulating the sleeve G to increase or decrease the size of the air-passage-way adapted to be formed by the holes *g* and 14.

The burner body-A is provided at its upper end with several hollow arms which are spaced equidistantly circumferentially of the said body, and preferably comprise respectively a hollow lower section J and a hollow upper section K, with the lower arm-section J projecting laterally and upwardly from the body A and consisting of a cylindrical tube which is screw-threaded externally at its inner and lower end and screwed into the body A, and with the upper arm-section K projecting inwardly from and connected with the outer and upper end of the lower arm-section J, with the upper arm-section K arranged horizontally and radially of the burner, with the interior chamber or passage-way formed in the upper arm-section K communicating at one end with the passage-way formed in and by the lower arm-section J and closed at its opposite end, as at 10. Each tube J communicates at its inner end with

the chamber *a* and at its outer end discharges into the chamber or passage-way formed within the connected upper arm-section K.

The upper section K of each burner-arm is provided in its lower portion with a row of slots *k* spaced equidistantly longitudinally of the said arm-section, which slots form the outlet of the chamber or passage formed within and by the said arm-section.

Each upper arm-section K is surrounded by a casing which is preferably formed of two sections R and *r* incasing the upper portion and lower portion respectively of the said arm-section and the said casing-sections R and *r* are provided at their adjacent edges with laterally projecting lugs 17 and 18 removably secured together by means of screws 19. The joints between the sections R and *r* of the said casing and between the arm-section inclosed by the said casing and the ends of the casing are rendered fluid-tight in any approved manner. The casing of each arm-section K extends along the full length of and somewhat beyond the row of slots *k* in the said arm-section. Upon each burner-arm-section K is mounted therefore a casing which is provided interiorly with a chamber 20 surrounding the said arm-section and formed partially in the lower section of the said casing and partially in the upper section of the casing. The upper portion of the said chamber within the upper section of the said casing has its opposite side walls converging upwardly to a slot 22 formed in and extending longitudinally of the top of the said casing-section, which slot constitutes the outlet of the said chamber.

Each upper arm-section K is provided at the top with a ridge K′ (see Figs. 3 and 4) which extends longitudinally of the said arm-section and projects into suitable proximity to the slot 22 in the casing surrounding the said arm-section.

In the operation of my improved burner the gas entering the chamber *c* at the gas-inlet *c* and the air entering the same chamber begin to commingle within the said chamber and are caused to more thoroughly commingle with each other during their passage through the nipple D from the said chamber *c* to and through the pipe B. The commingled air and gas or combustible mixture is conducted by the pipe B into the chamber *a*, and the top wall 12 of the chamber *a* is instrumental in distributing the combustible mixture passing upwardly into the said chamber between the burner-arms into which the said mixture passes. The combustible mixture received within the tubes J or lower burner-arm-sections is conducted by the latter into the upper burner-arm-sections K and escapes from the last-mentioned sections at the slots *k* into the lower portions of the chambers 20 and thence passes from in under the sections K upwardly at opposite sides of the said sections into the upper portions of the said chambers to the slots 22 where the combustible mixture is ignited and burns during the operation of the burner.

The flames issuing from the slots 22 during the operation of my improved burner can be lowered almost to the said slots without liability of extinguishing the flames; the burner operates noiselessly and economically, and a free passage of air upwardly between the burner-arms around and between the sections J and K of the burner-arms and through the space formed centrally of the burner adjacent the adjacent ends of the burner-arm-sections K prevents overheating of the burner. The free ends of adjacent burner-arms,—that is, the inner ends of burner-arm-sections K,—are separated by an air-space *s* so that air can pass freely between the said ends. The upper burner-arm-sections K are supported therefore only from the upper and outer ends of the tubes or lower burner-arm-sections J. Webs or connections between adjacent burner-arms are avoided. The air-spaces between the burner-arms are entirely unobstructed.

What I claim is:—

A gas-burner comprising a body having an interior chamber provided with a fuel-inlet; arms suitably spaced around the said chamber, which arms respectively comprise a lower section and an upper section, with the lower arm-section projecting laterally from the chamber and provided interiorly with a passage-way communicating at its inner end with the chamber, and with the upper arm-section attached to the outer end of and extending inwardly over the lower arm-section and having an interior passage-way or chamber which is closed at the free end of the said upper arm-section and in communication at its opposite end with the passage-way in the lower arm-section, with the upper arm-section provided at the top with a ridge which extends longitudinally of the said arm-section, and a casing mounted on the upper arm-section and provided at the top with a slot arranged above and longitudinally of the aforesaid ridge, which casing is provided interiorly with a chamber which extends upwardly at both sides of the ridge on the said arm-section to and communicates with the slot in the top of the casing, and the chamber or passage-way in the upper arm-section being in communication below the said ridge with the chamber in the casing.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

BERNARD A. GEURINK.

Witnesses:
C. H. Dorer,
B. C. Brown.