

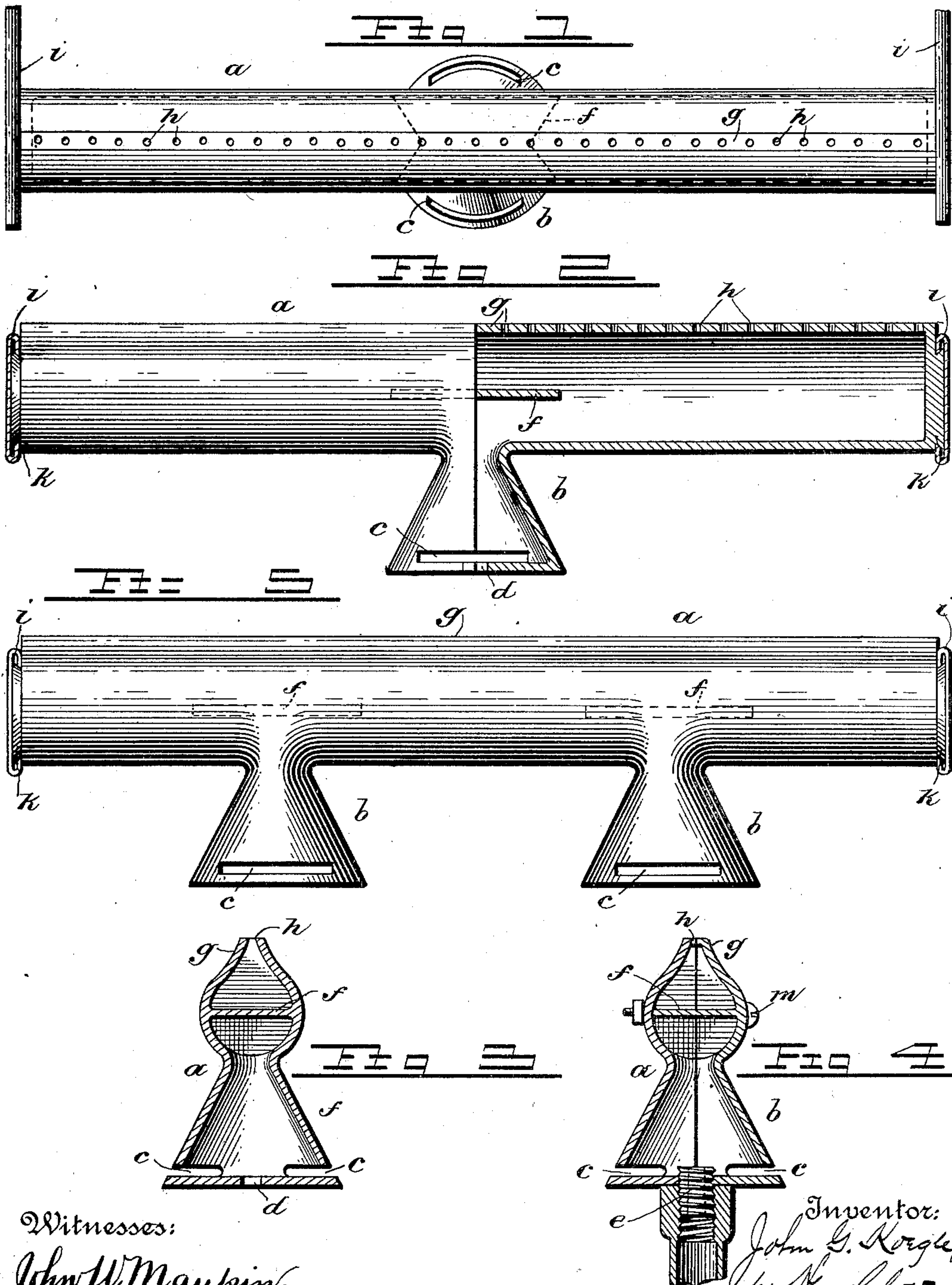
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Patented Aug. 12, 1902.

J. G. KOEGLE.
GAS BURNER.

(Application filed Jan. 2, 1902.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 706,761, dated August 12, 1902.

Application filed January 2, 1902. Serial No. 88,112. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. KOEGLE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide a gas-burner more particularly intended for use with heating-stoves and grates having asbestos backs, but also adapted for other uses, and which while of simple construction, so that it may be cheaply manufactured, will be convenient, durable, and efficient in use.

To this end the improved burner comprises a cast-metal body, integral with and depending from which is a frusto-conical or inverted-funnel-shaped mixing-chamber having a suitable opening or hollow plug for attachment to a gas-pipe and suitable side openings for the admission of air. Within the chamber of the burner, above the inlet-opening from the mixing-chamber, is a horizontal spreader, against which the ascending mixture of air and gas, which is compressed as it rises in the inverted-funnel-shaped mixing-chamber, strikes with some force, so as to be evenly distributed within and to quickly fill the chamber of the burner. The upper portion of the elongated body of the burner is contracted so as to be approximately frusto-conical in cross-section, with a reduced upwardly-extending part or ridge in which the burner-openings are formed.

The burner may be cast in one piece by proper coring or may be formed in two or more pieces, the adjacent edges of which will be properly smoothed and the parts of which can be secured together by bolts. The body of the burner is preferably provided at its ends with circular supports having beveled or undercut edges to be engaged by lips on suitable holders, in which the burners may be pivotally mounted, so that they may be adjusted to give them any desired slant or inclination relative to the backs of the stoves or grates in which they are mounted.

Referring to the drawings, Figure 1 is a plan view of the improved burner; and Fig. 2, an elevation of the same, partly in vertical

section. Fig. 3 is a central vertical transverse section of the burner shown in Figs. 1 and 2, and Fig. 4 is a similar section of a slightly-modified form of burner. Fig. 5 is a side view of one form of my burner having two inlet and mixing chambers.

Referring to the drawings, *a* denotes the body of the burner, which may be cast in a single piece properly cored out, and *b* is a frusto-conical or inverted-funnel-shaped mixing-chamber depending from the body *a* at or about midway of its length and preferably formed integral with said body. The chamber *b* is provided near its base with side openings *c* for the admission of air and with a gas-opening *d*, with which a suitable gas-pipe may be placed in communication, either by means of a plug *e* or otherwise.

Above the inlet or upper end of the mixing-chamber *b*, within the chamber of the body of the burner, is provided a spreader *f*, consisting of a horizontal transverse web or plate of suitable length to deflect the upwardly-rising mixture of air and gas outward toward the ends of the chamber of the burner, so as to make the pressure within the chamber of the burner as nearly uniform as possible.

The upper portion of the elongated hollow body of the burner is upwardly tapering, both interiorly and exteriorly, to form a transverse contracted ridge or part *g*, in the top of which the burner-openings *h* are formed either by casting or drilling.

The body of the burner is preferably provided at its ends with circular undercut lugs or projections *k* to serve as journals or supports for the burner, said lugs or projections being of suitable form to be engaged by turned flanges or lips on holders *i*, in which the burners may be mounted. By making the supports *k* circular the burners may be partially turned in their supports *i* to give them any desired slant or inclination in mounting them in place in the stove or grate. It will be understood, however, that these supports at the ends of the burners need not necessarily be circular, but might be square or of other polygonal form, if it be not desired to mount the burners in such a way that they can be turned in their mountings. These end supports, while convenient, are not

essential, as the improved burner may be mounted in any suitable manner in other forms of supports.

The burner may, if desired, be cast in two halves, as indicated in Fig. 4, such halves to be secured together by suitable transverse bolts *m*. In thus casting the burner in two halves the burner holes or orifices may be formed partly in both halves of the burner or may be entirely in one half, as denoted in Fig. 4.

By forming the improved burner with an upwardly-tapering or inverted-funnel-shaped mixing-chamber, in which the mixture of air and gas will be compressed as it rises, the ascending volume of air and gas will issue into the chamber in the body of the burner with considerable force and as it comes in contact with the spreader will be deflected toward the outer ends of the said chamber, also causing the pressure within the chamber of the burner to be as nearly uniform as possible. Also by forming the interior upper portion of the body of the burner upwardly tapering inwardly on curved lines in the manner shown, so as to form a reduced longitudinal ridge at the top of the burner and in which the burner-openings are provided, the combustible mixture of air and gas will be somewhat compressed as it rises and will issue from the burner-openings with more force than would otherwise occur, and thus a better burning effect in the gas-jets will be produced.

The improved cast-metal burner is strong and durable and may be cheaply manufactured and by being all made in one, or at most very few parts, is so simple that liability of getting out of order or of losing or breaking any parts is reduced to a minimum.

My improved burner may, if desired, be provided with more than one inlet and mixing chamber *b*. Fig. 5 shows one of my burners having two frusto-conical inlet and mixing chambers, and for very long burners more might be provided.

I have demonstrated by practical tests that the curved-line upwardly-tapering interior chamber of the body of my improved burner is important, in that it causes such a thorough mixing or commingling of the ascending volume of air and gas coming together from the two opposite sides of the burner so that I am enabled by this construction to secure a much better burning result or effect than can be secured by a burner the upper part of which is simply rounded or curved interiorly in cross-section, owing, as nearly as I have been able to discover, to the compressed commingling effect resulting from my upwardly-tapering construction. I do not, however, wish to be understood as limiting my invention to the exact upwardly-tapering construction of the body of the burner herein shown or to the exact construction shown for the inlet and mixing chamber or chambers.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A burner consisting of an elongated hollow body the interior upper portion of which tapers upwardly, on curved lines, to form a reduced longitudinal ridge which is provided with a row or series of burner-openings; whereby as the combustible mixture within the burner ascends in the chamber thereof it will be compressed and caused to issue from said burner-openings with more force than would otherwise occur; said burner-body having at its lower part one or more depending frusto-conical mixing-chambers into which the gas is conducted, said mixing-chambers being each provided, near its base, with side openings for the admission of air; and the said burner-body having, above the inlet of each mixing-chamber, a baffle-plate, *f*, to equalize the pressure of the combustible gaseous mixture within the chamber of the said burner.

2. A burner consisting of an elongated hollow body to form a main receiving-chamber for the combustible material, the interior upper part of said body tapering upwardly on curved lines, to form an auxiliary distributing-chamber having the form of a reduced longitudinal ridge surmounting the main chamber, said ridge being provided with a row or series of burner-openings at its apex; whereby as the combustible mixture within the burner ascends into the said distributing-chamber it will be compressed and caused to issue from said burner-openings at the apex of the ridge with more force than would otherwise occur; the body of said burner being provided at its opposite ends with exterior supports to be engaged by holders.

3. A burner, consisting of a longitudinal hollow body the interior upper portion of which tapers upwardly on curved lines, to form a reduced longitudinal ridge which is provided with a row or series of burner-openings; whereby as the combustible mixture within the burner ascends in the chamber thereof it will be compressed and caused to issue from said burner-openings with more force than would otherwise occur; the body of said burner being provided at its opposite ends with circular exterior supports so that the burner may be pivotally mounted in suitable holders.

4. The combination in a burner, of an elongated body containing a main receiving-chamber for the combustible mixture, an upper central longitudinal ridge surmounting said body and containing a distributing-chamber, said ridge having burner-openings formed in its apex and having at its ends journals or pivotal supports, and holders in which said burner-body is mounted so that it may be turned to give said burner any desired inclination or slant.

5. A burner consisting of a cast-metal elongated body *a* having an integral depending and upwardly-tapering mixing-chamber *b*

provided at or near its base with transverse
air-openings *c* and with a gas-opening *d*, said
burner being provided with an interior hori-
zontal spreader above the opening with which
5 the said mixing-chamber communicates with
the interior of the burner, and the said
burner being upwardly tapered transversely
at its top portion, both interiorly and exte-

riorly, to form a reduced part or ridge which
is provided with burner-openings. 10

In testimony whereof I affix my signature
in presence of two witnesses.

JOHN G. KOEGLE.

Witnesses:

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