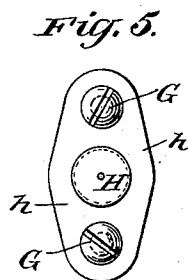
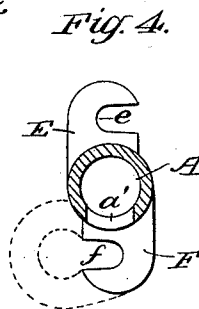
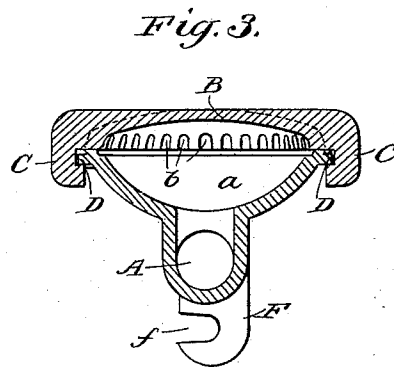
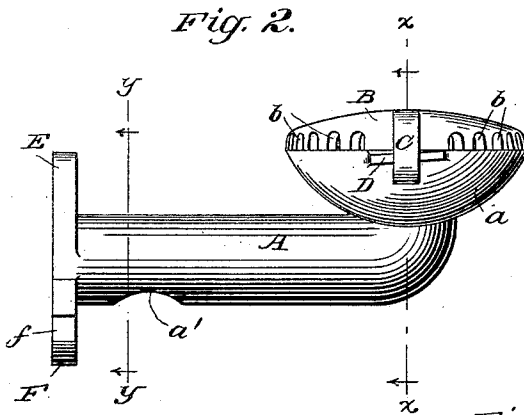
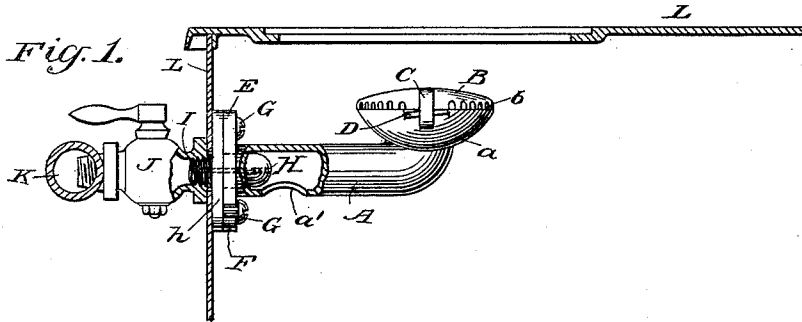


J. GIBBONS.
BURNER.

Patented Nov. 10, 1891.



WITNESSES:

J. M. Griswold
C. Sedgwick

INVENTOR:

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BY Munn & Co

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UNITED STATES PATENT OFFICE.

JAMES GIBBONS, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE GIBBONS
SUPERHEATING COMPANY, OF SAME PLACE.

BURNER.

SPECIFICATION forming part of Letters Patent No. 462,922, dated November 10, 1891.

Application filed October 28, 1890. Serial No. 369,584. (No model.)

To all whom it may concern:

Be it known that I, JAMES GIBBONS, of Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Burners, of which the following is a full, clear, and exact description.

My invention relates to gas or fluid-fuel burners, and has for its object to simplify the construction and mode of connection of burners of this character, and thereby promote convenience in thoroughly and quickly cleaning them to assure their most effective operation.

The invention will first be described, and then will be particularly defined in claims hereinafter set forth.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of a portion of a gas-stove with my improved burner held thereto. Fig. 2 is an enlarged side elevation of the burner-stem or mixing-tube and its flame-cap. Fig. 3 is a vertical sectional view taken on the line *x x* in Fig. 2. Fig. 4 is a transverse section of the stem, taken on the line *y y* in Fig. 2. Fig. 5 is a face view of the gas-inlet nipple of the burner.

Gas or fluid-fuel burners commonly used in stoves, heaters, furnaces, or elsewhere for cooking, heating, and lighting purposes give considerable annoyance in use by choking up at their gas and air inlets or passages and at the flame cap or tip by sooty deposits given off from the fuel they burn and dusty or greasy particles which accumulate about the parts and which become hard-baked upon the screw or bolt fastenings usually employed to hold the flame cap or tip to the burner-stem or mixing-tube. When these screw or bolt fastenings "burn in," it is very difficult and often impossible to remove them. Hence the parts of the burner cannot be dismembered to facilitate convenient and thorough cleaning of it to maintain a most effective hot blue flame. Burners of this class have also usually been rigidly and permanently fixed to or within the gas-stove or other support with which they are used, thus making it impossible to remove them by persons

using them and rendering the cleaning operation all the more disagreeable and uncertain. My invention fully obviates these difficulties.

The stem or mixing-tube A of the burner lies horizontally when the burner is in use, and at its outer part is enlarged to form a cupped head *a*, and at its inner part has an opening *a'*, admitting atmospheric air to the stem or tube to mingle or mix therein with gas or fluid fuel admitted at the back end of the stem through a suitable nipple or plug. The flame cap or tip B of the burner is held to the stem-head *a* by an interlocking joint and without the aid of screws, bolts, or rivets, whereby the cap may easily be removed to allow thorough cleaning of it and the stem, and more particularly the apertures *b*, at which the burner flames, and which are shown wholly in the cap B, but may be wholly in the stem-head *a* or in both parts B *a* of the device.

I prefer to detachably connect the cap to the burner-stem head or body by a diametrically-opposite pair of lugs on one part, which are preferably notched or slotted and engage inclined flanges or ribs on the other part, the lugs C being preferably on the cap B and the inclined flanges D being on the stem-head *a*, as clearly shown in Figs. 1, 2, and 3 of the drawings. It is obvious that by simply turning the cap on the stem-head after they are laid together the lugs will engage the flanges, in a manner binding the cap securely to the head, but allowing its almost instant detachment therefrom when the parts are to be cleaned and as easy reapplication of the cap in true operative position.

To promote more easy and thorough cleaning of all parts of the burner I make its stem or mixing-tube readily detachable from its support, and to effect this the stem is provided at its inner end with laterally-projecting flanges or lugs, which are engaged by pins or studs on the support. I prefer to form on the burner stem or tube diametrically-opposite flanges E F, having slots *e f* opening in opposite directions, as most clearly shown in Fig. 4 of the drawings, and whereby when the burner is slipped onto its gas-supply nipple the flange-slots will engage studs or pins G G, held in position to receive them, the studs

preferably being screwed into their support and having heads which overlap the outer faces of the slotted flanges. Instead of using open-ended slots, I may employ larger flanges or lugs on the burner-stem and provide slots having an enlargement at the outer end to pass the heads of the studs G through before turning the burner-stem around to cause the narrower portions of the slots to engage the studs, one of these enlarged flanges so slotted being indicated by dotted lines in Fig. 4 of the drawings.

In the preferred construction I fix the burner-holding studs or pins G, whether they are headed or not, to the flange or base-plate *h* of the gas inlet nipple H, over which the stem or mixing-tube of the burner is fitted. This nipple, having said pins or any equivalent shoulders which lock with corresponding shoulders of the burner-stem when the parts are relatively rotated one on the other, is provided with any ordinary or approved means for connection of a gas-supply cock or pipe, said means preferably being an outwardly-projecting stem or plug I, to which is adapted to be screwed or otherwise fitted or attached a gas-cock J, to which the main gas-supply pipe K is connected; or, if desirable or necessary, the gas-supply pipe may itself be connected directly to the nipple-plug I and the gas-cock then be otherwise located on the pipe. It is obvious that by thus placing the studs G on the gas-nipple flange the burner and its nipple are a complete fixture and the studs are always accurately located relatively to the burner-stem flanges, which engage them, and the studs are also stronger than they would be if fixed with considerable difficulty as to precise positions into the wall L of a stove or other appliance containing or supporting the burner. Furthermore, by putting the attaching-plug I on the nipple base-plate or flange the complete but readily-dismemberable burner may be connected to the stove or support L by simply making one hole in its wall to receive the plug to which the gas-supply cock or pipe is preferably screwed to make a secure connection.

When the burner and its pipe connections are all in operative positions in or on a stove L or other support, as shown in Fig. 1 of the drawings, the burner-stem or mixing-tube A may be easily removed from the fixed gas-nipple H by simply turning the stem around toward the left hand, and either before or after the stem is thus detached the cap B may be as easily detached from the stem or tube head by turning it backward a little to disengage its lugs C from the flanges D, and the entire burner may then be thoroughly cleaned and the cap replaced and the whole reset in operative position upon the gas-supply nipple H by any person of ordinary intelligence and without the aid of tools. The burner may thus be kept clean and always in condition to give a clear-blue and very hot

flame, assuring freedom from disagreeable odors and promoting economy of fuel and most efficient operation.

As hereinbefore intimated, I am not limited to any particular form of engaging shoulders at the end of the burner-stem or mixing-tube and on the gas-admitting nipple entering it, whereby said parts are locked together by frictional contact while being relatively rotated one on the other. I prefer, however, to use the slotted or hook-shaped flanges on one part and the headed pins on the other part, which provide most effective locking-shoulders to retain the burner stem or body on the nipple without requiring accurate and expensive fitting of the parts. Neither am I limited to the use of a projecting stem or plug I on the nipple as a means of fastening it to the stove, wall, or support, and as a means of connecting the gas-supply cock or pipe; but said stem I provides for most easy and secure coupling of the burner, its support, and the feed-pipe, and has special utility in this respect, as it requires but one hole to be made in the stove wall or support to receive the stem or plug, as will readily be understood.

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

1. A burner comprising a detachable body or stem and a gas-admitting nipple entering the stem, each of said parts having one or more shoulders engaging by or during a relative rotation of one part on the other, substantially as described.

2. A burner comprising a detachable body or stem and a gas-admitting nipple entering the stem, each of said parts having one or more shoulders engaging by or during a relative rotation of one part on the other, said nipple also having means for connection of a gas-supply cock or pipe, substantially as described.

3. A burner comprising a detachable body or stem provided with one or more lateral slotted or hook-shaped flanges and a gas-admitting nipple entering the stem and having headed studs or pins engaged by the burner-stem flanges and disengaged therefrom by a relative partial rotary movement, substantially as described.

4. A burner comprising a detachable body or stem provided with one or more lateral slotted or hook-shaped flanges and a gas-admitting nipple entering the stem and having headed studs or pins engaged by the burner-stem flanges and disengaged therefrom by a relative partial rotary movement, said nipple also having an outer plug or stem for connection of a gas-supply cock or pipe, substantially as described.

JAMES GIBBONS.

Witnesses:

HENRY L. GOODWIN,
C. SEDGWICK.