(No Model.)

T. GORDON.

GAS BURNER.

No. 421,924. Patented Feb. 25, 1890.

Fig. 1.

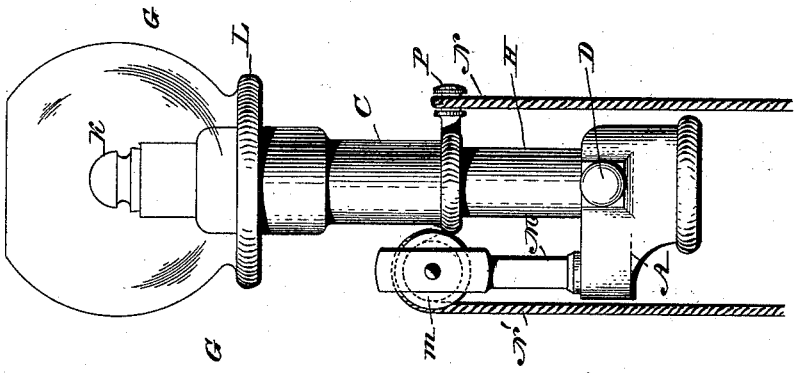


Fig. 2.

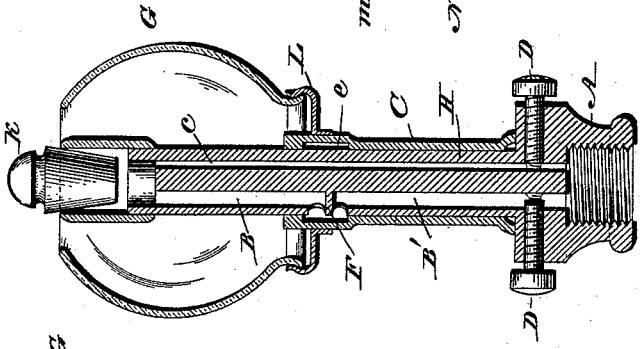


Fig. 3.

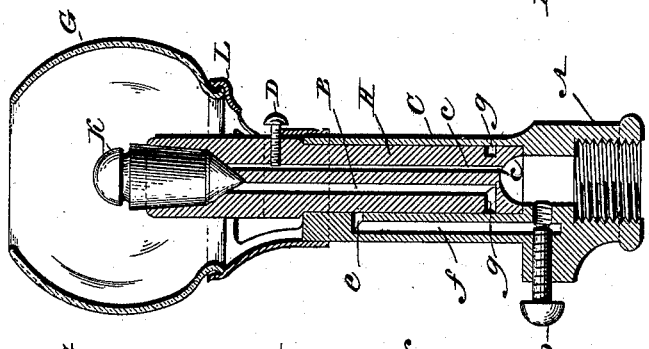
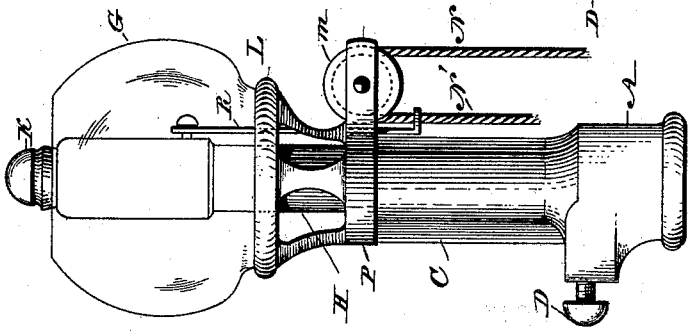


Fig. 4.



WITNESSES:
C. W. Beck.
John Tolan.

INVENTOR
Thomas Gordon
BY A. J. Fuller
ATTORNEY

UNITED STATES PATENT OFFICE.

THOMAS GORDON, OF PHILADELPHIA, PENNSYLVANIA.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 421,924, dated February 25, 1890.

Application filed April 22, 1889. Serial No. 308,094. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GORDON, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Gas-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to gas-burners of that class in which a small jet is kept constantly burning; and it consists of two sliding cylinders, one within the other and with valve-ports between them, the central cylinder being annexed to or communicating at the base with a gas-nozzle and having at the top a burner-tip, two passage-ways of large and small diameter, respectively, bored through the central cylinder, and means for raising and lowering the sliding cylinder or sleeve, respectively.

In the accompanying drawings, representing my invention, Figure 1 is a front elevation of such a gas-burner in which the outer cylinder is a sliding sleeve, and the gas-globe is mounted thereon and showing the said sleeve and globe raised and means for elevating and lowering the same. Fig. 2 is a vertical section of the device shown in Fig. 1, showing the outer sliding sleeve and gas-globe lowered, the central cylinder, its gas-passages, and the valve between the inner cylinder and outer sleeve. Fig. 3 is a vertical section of a modification of the device, in which the outer sleeve is stationary, as also the globe supported thereon, and the inner cylinder slides within it, and Fig. 4 is a front elevation of Fig. 3, showing means for raising and lowering the inner cylinder within the outer sleeve and the gas-globe.

In burners of this character, the sole purpose of the globe is to protect the constantly-burning small jet of gas from being extinguished by currents or drafts of moving air, and its normal position is therefore surrounding the burner-tip.

Referring to the form of my invention shown in Figs. 1 and 2, the base A of the device is bored out and internally screw-threaded to form a gas-nozzle, and arising therefrom is an inner cylindrical or other form of burner-pillar H, on which slides a hollow sleeve C, of about one-half the height of the former. This sleeve is provided with an internal annular recess *e* near its top. Said inner cylinder H, about twice the length of the outer sleeve C, fits snugly within the same, gas-tight, but capable of permitting the sleeve to slide up and down freely. Said cylinder is provided at its top with a burner K and with a longitudinal gas-passage *c* of small diameter, extending uninterruptedly from the base of the device to the base of the burner-tip. Two other longitudinal gas-passages B and B′ of about equal length are bored in said cylinder H, with a thin lateral wall F between them, said parts being so constructed and arranged relatively to each other that when the gas is flowing fully through the device the wall F of the inner cylinder shall be on a central line with the annular recess *e* of the outer sliding sleeve C. Set-screws D D through screw-holes in the base of the device connecting, respectively, with the passages *c* and B′, further regulate the supply of gas to both. A small globe G is supported by a frame L, secured to the outer sleeve C, and is made of skeleton form or bored with holes to admit the requisite quantity of air to the globe to support the flame.

Means are provided for raising and lowering the sliding sleeve and its globe, as shown in Fig. 1, by a cord N, attached to a circular rim P at the lower end of the sliding sleeve. A pillar M is supported upon the base A and affords a bearing for a pulley-wheel *m*, over which passes a second cord N′, attached by one end to said rim P. Other means for raising and lowering may be employed, however, without changing the other parts of the device.

The operation of the burner is as follows: The globe in its normal position surrounds the burner-tip, which is at all times supplied with a jet of gas passing upward through the gas-passage of small diameter C. As the wall F in the normal position of the parts constantly separates the larger gas-passages B and B′, a lowering of the globe and outer sliding sleeve C to the base of the device will bring said wall F within the inner annular recess *e* of the sliding sleeve, thus leaving an

annular passage-way between the said passages B and B′, whereupon a large flow of gas to the burner-tip immediately follows, and by the said lowering of the sleeve the globe is carried down with it, leaving the burner-tip K exposed, so that the large flame therefrom will not impinge against the small globe.

In the modification of the apparatus shown in Figs. 3 and 4 the means delineated in Fig. 4 for raising and lowering the cylinders one within the other do not differ materially from that shown in Fig. 1; but in Fig. 3 the outer sleeve C is stationary and supported from the base A, forming the gas-nozzle, while the inner cylinder H slides up and down within it, and the internal annular recess *e* in the sleeve is supplemented by a gas-passage *f*, leading to the gas-nozzle in the base of the device, and the passage B′ is dispensed with, and for the wall F is substituted an external annular recess *g*, communicating with the passage B at or near the bottom of the cylinder H, said recess *g* being so arranged relatively to the recess *e* that when the cylinder H is raised to bring the burner-tip to a point above the top of the globe the annular recesses *e* and *g* will coincide and afford a continuous passage for a large flow of gas from the nozzle to the burner-tip. In this form of the device the supporting-frame upon which the globe rests is composed of arms or is in skeleton forms, in order to permit the passage of a rod R from the raising and lowering device to the upper end of the inner cylinder H, to which it is secured and whereby the latter is raised and lowered.

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

1. The combination, with a supporting gas-nozzle, of a hollow sleeve supporting a globe, a cylinder within the same provided with a gas-passage closed at its lower end by contact with the interior of said sleeve when the parts are in normal position, means for sliding said cylinder and sleeve one within the other, a gas-port between the same coinciding with said gas-passage upon such movement of the said cylinder and sleeve, and a passage through said cylinder independent of said movement, whereby a constant supply of gas is maintained at the burner-tip, said parts being constructed, combined, and arranged substantially as and for the purpose set forth.

2. The combination, with a cylinder provided with two longitudinal gas-passages and a burner-tip communicating therewith, of a sleeve surrounding said cylinder arranged to slide one within the other, an annular recess forming a gas-valve between said sleeve and cylinder and coinciding with said larger gas-passage on sliding the said parts to their full extent, a gas-globe mounted on said sleeve, and a supporting gas-nozzle, said parts being constructed and combined substantially as described.

3. The combination, with a gas-burner composed of a gas-nozzle, a hollow sleeve, a burner-pillar having two longitudinal passages communicating with the gas-nozzle, a gas-port between said sleeve and burner-pillar arranged to coincide with one of said gas-passages of the burner-pillar on a sliding of the parts, of raising and lowering mechanism consisting of the rim P, secured to one end of said sleeve, a pulley *m*, supported in the same plane therewith, and cords attached to said rim at opposite points in the periphery thereof, substantially as described.

4. The combination, with a gas-burner composed of a gas-nozzle, a hollow sleeve, a burner-pillar having two longitudinal passages communicating with the gas-nozzle, a gas-port between said sleeve and burner-pillar arranged to coincide with one of said gas-passages of the burner-pillar on a sliding of the parts, of raising and lowering mechanism consisting of the rim P, secured to one end of said sleeve, a pulley *m*, supported in the same plane therewith, and cords attached to said rim at opposite points in the periphery thereof, and a rod R, connecting one of said cords with the burner-pillar, substantially as described.

5. The combination of the following parts constituting a gas-burner, viz: a supporting gas-nozzle A, a hollow sleeve C, provided with an annular recess *e*, a central cylinder H, provided with two longitudinal gas-passages B and *c*, of large and small diameter, respectively, one communicating directly with said nozzle and the other communicating therewith through a gas-port formed by said annular recess *e* on a sliding of the sleeve and cylinder one within the other, a gas-globe supported on said hollow sleeve, and means for distending the said sleeve and cylinder, substantially as described.

In testimony whereof I have hereunto affixed my signature this 16th day of March, A. D. 1889.

THOMAS GORDON.

Witnesses:
H. T. FENTON,
C. W. BECK.