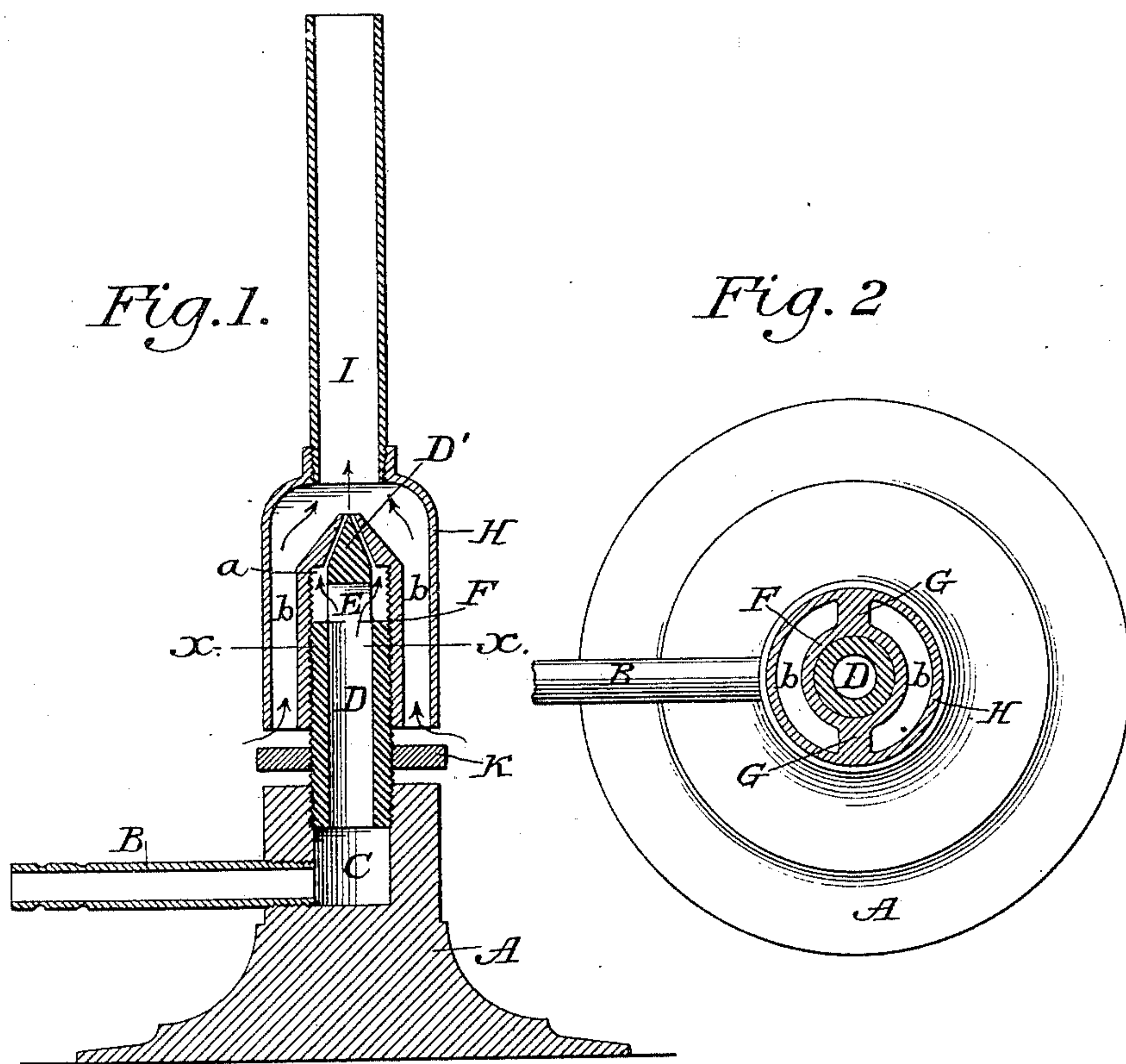


(No Model.)

T. BOYCE.
BUNSEN GAS BURNER.

No. 462,685.

Patented Nov. 10, 1891.



Attest:

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UNITED STATES PATENT OFFICE.

THOMAS BOYCE, OF NEW YORK, N. Y.

BUNSEN GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 462,685, dated November 10, 1891.

Application filed January 21, 1891. Serial No. 378,528. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BOYCE, of the city, county, and State of New York, have invented certain new and useful Improvements in Bunsen Gas-Burners; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to an improvement in Bunsen burners for controlling the admixture of gas and air and for adjusting the flame to variable pressures.

It has for its object to simplify the construction of a burner of this class and to facilitate a regulation of the flow of gas and of the volume of air to be admitted for admixture with the gas.

It consists in the novel combination and arrangement of the gas-valve, in combination with an adjustable disk controlling a concentric air-passage, substantially as is hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a central vertical section of my improved Bunsen burner, and Fig. 2 a cross-section in line $x x$ of Fig. 1.

My burner consists of a base A, of any suitable form, provided with a lateral tube or nozzle B to receive the end of a flexible tubing, whereby to connect it in the customary manner with a gas-supply pipe. This lateral tube connects with a central chamber or bore C, extending to the upper end of the base and which is threaded to receive an externally-threaded tubular nipple D, which terminates at its upper end in a solid conical plug or point D', to operate, as hereinafter described, as a valve, and which is supported by one or more arms or bands E E axially over the open end of the nipple. The diameter of this conical plug or valve D' is reduced to correspond substantially with the internal diameter of the nipple, so as to leave a concentric space a around its base, between it and the inner periphery of an internally-threaded sleeve F, made to screw down upon the nipple. The upper end of this sleeve is closed in to form a conical seat, the counterpart of the solid conical plug or valve D' on the nipple D, and

its apex is perforated with a small opening, which, when the sleeve is screwed closely down upon the nipple, is completely closed by said valve D'. The parallel inclined faces of the valve D' and its seat permit of a very nice and close adjustment of the opening between them by the movement of the sleeve F upon the nipple D, whereby the supply of gas allowed to flow up from the base A through said opening may be completely controlled. The sleeve F is fitted and secured by means of radial lugs G G (see Fig. 2) within the lower end of a concentric tube H, which is reduced in diameter at a point above the upper end of the sleeve F and extended thence to form a burner I. The diameter of the encircling air-tube H is so much larger than that of the sleeve F as that it leaves a full and free air-passage b between the two, whereby a supply of air is admitted to admix with the supply of gas delivered into the burner I from the nipple D. To regulate and control this supply of air I fit a nut or threaded disk or washer K to run upon the threaded body of the nipple D, intermediate the lower end of the sleeve and the top of the base A. This disk is of a diameter equal to that of the air-tube H, and may be screwed up or down to adjust the interval or opening for the inflow of air between it and the lower end of said air-tube or to close it completely.

It is evident that various devices may be employed for connecting the gas-chamber C in the base A with a gas-supply pipe, and that also, if desired, the threaded nipple D may be formed in one piece with the base A.

In the use of my invention the supply of gas to the burner may be entirely cut off by simply turning the air-tube H or the connected burner-tube I until the internal sleeve F, attached thereto, is screwed down closely upon the conical valve D', and the disk K may also be screwed up against the lower end of the air-tube H, so that the supply of air will at the same time be wholly cut off. If now the air-tube be turned more or less to open the valve D', the air-passage b will be opened proportionately by the same movement, thereby admitting a definite volume of air with reference to that of the gas, and the relative proportion of the two will be main-

tained by the movement of the air-tube alone as it operates to open the gas-valve more or less.

5 If it be desired to vary the proportion of gas and air, it may be readily done by an independent movement of the disk K either to or from the lower end of the air-tube H, and when the desired proportion is established the regulation of the supply is automatically
10 adjusted, as above set forth, by a movement of the air-tube H alone.

When it is preferred to admit gas alone, this is readily effected by screwing up the air-disk K in connection with the air-tube H, so
15 as to keep them in contact while opening the gas-valve, and the proper supply of air may thereafter be admitted by screwing down the air-disk K, independently of the air-tube.

I claim as my invention—

20 The combination, in a Bunsen burner, with a gas-supply tube or nipple mounted upon a suitable base and having a conical valve-plug fixed centrally over its upper end with-

out obstructing it, and with an internally-threaded sleeve contracted at its upper end 25 to form a seat for said conical valve-plug and made to screw upon the nipple to open and close it, of an outer tube of enlarged diameter encircling and attached to said sleeve to leave a concentric air-passage between them, 30 a burner-tube connected with the upper end of said outer air-tube above the valve-sleeve, and a controlling-disk screwing upon the body of the nipple below the air-tube of a diameter to cover and close the lower end of 35 the latter when carried against it, all substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two sub- 40 scribing witnesses.

THOMAS BOYCE.

Witnesses:

A. N. JESBERA,
E. M. WATSON.