

No. 806,473.

PATENTED DEC. 5, 1905.

D. H. KENT.
AUTOMATIC GAS REGULATOR.
APPLICATION FILED JUNE 29, 1905.

Fig. 1.

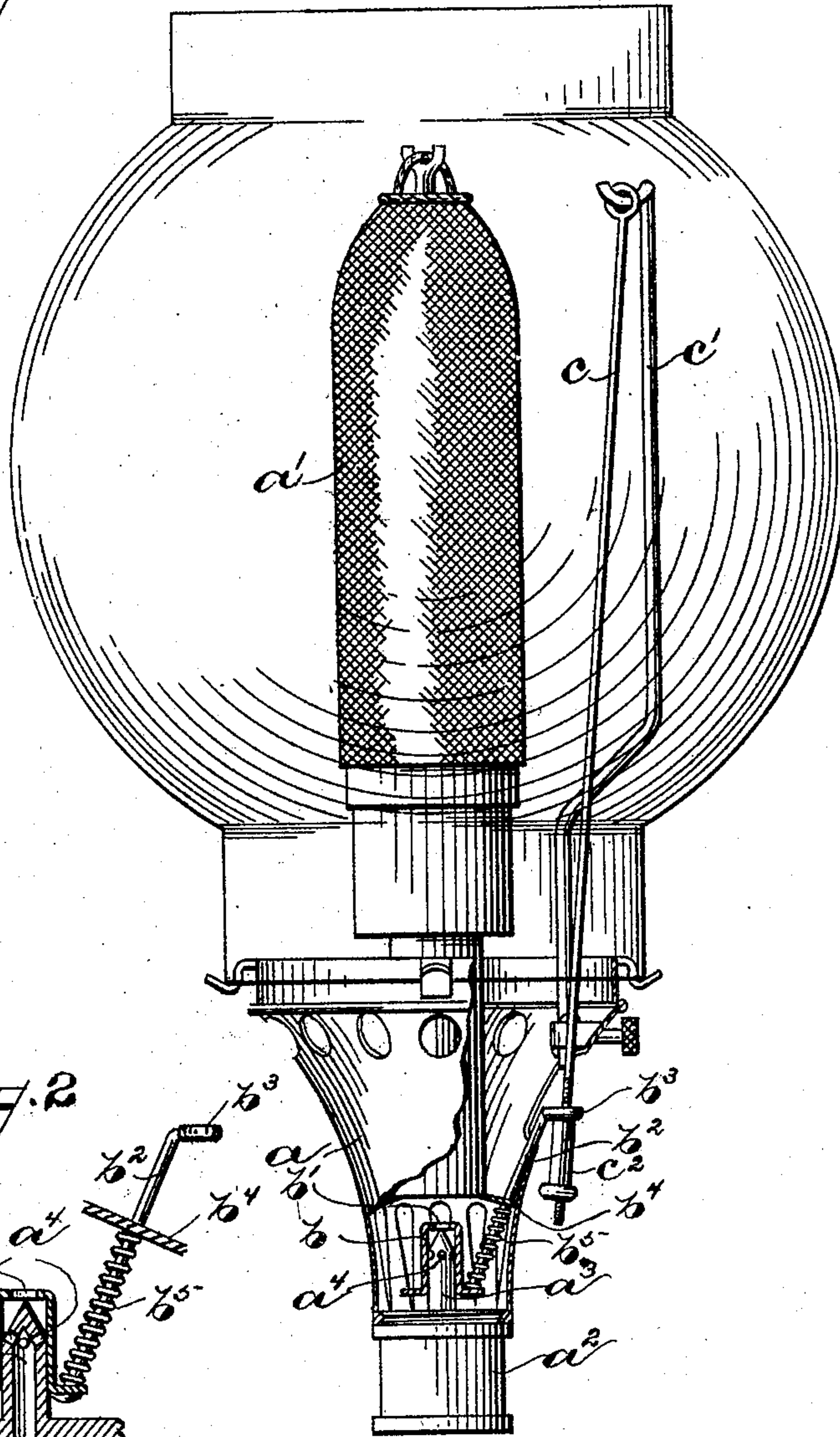
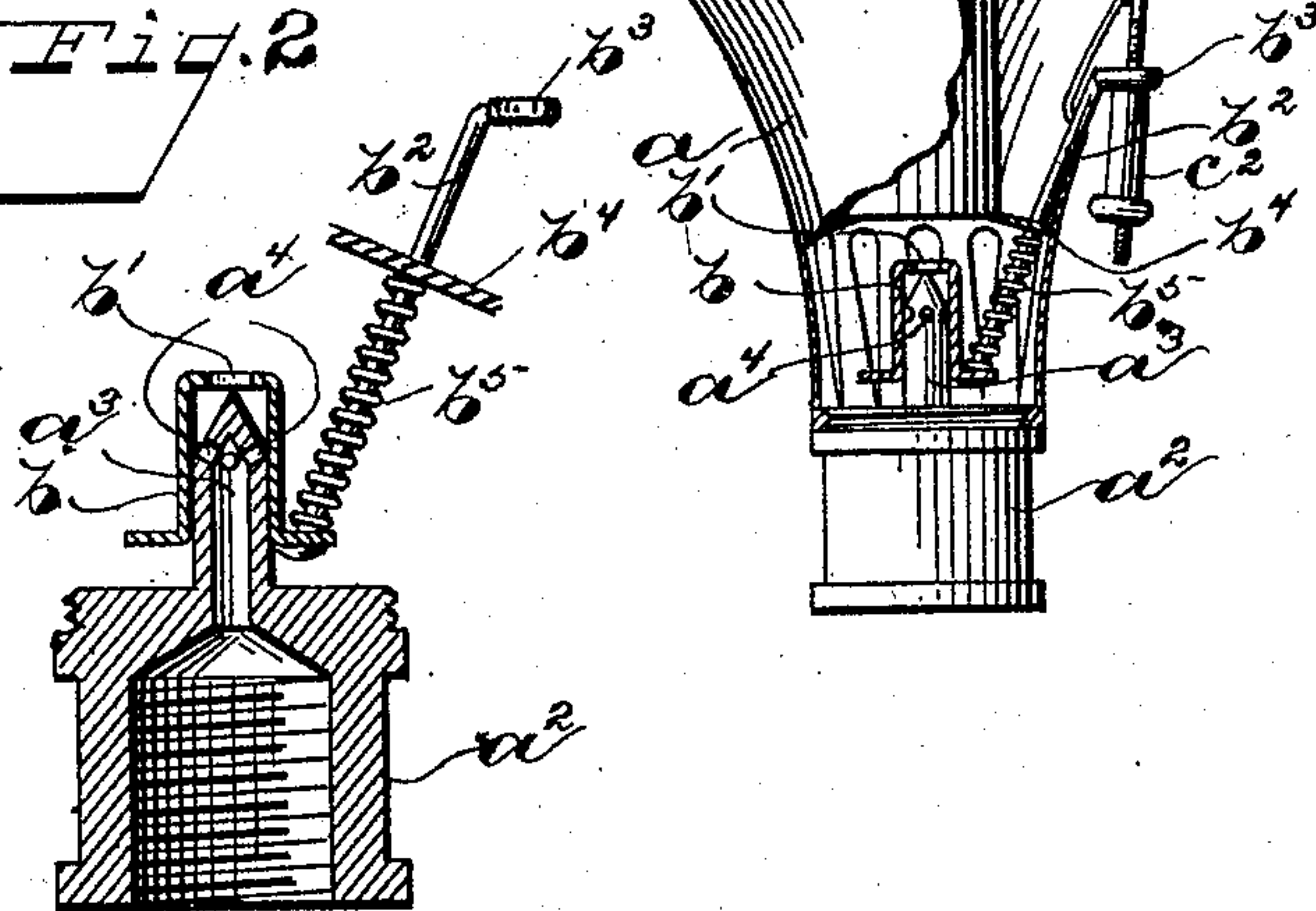


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

DON HENRY KENT, OF URBANA, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE AMERICAN AUTOMATIC LIGHT COMPANY, OF URBANA, OHIO, A CORPORATION OF OHIO.

AUTOMATIC GAS-REGULATOR.

No. 806,473.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed June 29, 1905. Serial No. 267,502.

To all whom it may concern:

Be it known that I, DON HENRY KENT, a citizen of the United States, residing at Urbana, in the county of Champaign and State of Ohio, have invented certain new and useful Improvements in Automatic Gas-Regulators, of which the following is a specification.

My invention relates to improvements in automatic regulators for gas-burners, and is particularly adapted for use with incandescent burners, in which the intensity of the light and the life of the incandescent mantle depend upon the proper regulation of the gas-supply.

The object of my invention is to provide a comparatively cheap and simple device which will automatically control the supply of gas, thus effecting a saving both in gas and in incandescent mantles as well as securing a more perfect and efficient light.

A further object is to provide a device which will maintain a uniform supply of gas to the burner by automatically closing or opening the gas-supply outlet as the gas-pressure increases or decreases, respectively, to compensate for the varying pressure.

With the above primary and other incidental objects in view the invention consists of the construction, parts, and combination thereof or their equivalents hereinafter described, and set forth in the claims.

In the drawings, Figure 1 is a side elevation of an incandescent gas-burner, partly broken away, embodying the invention. Fig. 2 is a sectional detail view of the gas-control valve.

Like parts are indicated by similar characters of reference in both views.

The invention has been illustrated as applied to an incandescent burner; but it is obvious that it may be employed with various forms of burners now in common use.

Referring to Fig. 1, a represents a burner of the usual Bunsen type provided with a mantle a' , supported in the usual manner to receive the heat which renders the same incandescent. a^2 is the screw-threaded connection to be attached to the gas-jet or service-pipe. The connection a^2 terminates in a hollow pointed nozzle a^3 , having gas-exits a^4 therein. Slidingly mounted on the nozzle a^3 is a cap or thimble b , having an opening b' in the top thereof, the area of which is equal

to a cross-section of the pointed portion of the nozzle a^3 at a point above the gas-exits a^4 . As the thimble b is moved longitudinally on the nozzle a^3 the pointed end thereof will protrude more or less into the opening b' and obstruct said opening to a greater or less degree. Thus the flow of gas through the opening b' will be determined by the position of the thimble b in its relation with the point of the nozzle a^3 . Secured to the thimble b is an arm b^2 , terminating at its upper extremity in an eye b^3 . Coiled about the arm b^2 and interposed between the thimble b and a web b^4 , which forms a part of the support for the Bunsen tube, is a helical spring b^5 , the tendency of which is to force the thimble b downward until the aperture b' is entirely closed. It is to be understood that another part of the burner or a bracket especially adapted for the purpose may be substituted for the web b^4 to act as a bearing for the helical spring b^5 .

Adjacent to the incandescent mantle a' , upon a suitable support c' , is a thermostatic rod c . The lower end of the thermostatic rod c adjustably engages the arm b^2 by extending through the eye b^3 and being provided with an adjusting-nut c^2 . The support c' is preferably offset, as shown, so as to be farther removed from the action of the heat of the burner, and is preferably formed of material less susceptible to changes of temperature than the rod c . Inasmuch as the temperature is greater near the top of the burner, the rod c is preferably inclined, as shown, in order that the distribution of heat to said rod may be more even throughout its length.

In operation the gas is supplied to the burner through the usual key, which may be opened to the fullest extent and the burner ignited. The automatic valve is adjusted by turning the adjusting-nut c^2 until with a normal pressure sufficient gas will be permitted to pass through the aperture b' to supply the light or heat desired at the burner. In the event that the gas-pressure should be increased a greater amount of gas will be supplied, which will force the heat products in contact with the thermostatic rod c and cause same to expand and permit the thimble b to be moved, through action of the spring b^5 , to close the aperture b' . In event the service-pressure is reduced or the supply of gas to produce normal pressure is cut off the rod c

will retract and open the valve against the tension of the spring b^5 .

By the angular arrangement of the rod c and the arm b^2 , as shown, the power to move the thimble b is transmitted in a substantially straight line. The bearing of the spring b^5 on one side of the thimble and the strain incident to the angular arrangement of the arm b^2 will counterbalance each other and the thimble will move freely upon the nozzle a^3 in response to the slightest movement of the thermostatic rod c .

It will be seen that the construction is extremely simple and has proven sufficient for automatically regulating the supply of gas to retain the burner at normal intensity under the various fluctuations which may occur in the gas-pressure, thus producing not only a better light, but also effecting a saving of the gas and causing the burner to operate with greater efficiency.

I claim—

1. The combination with a gas-burner of a supply-conduit, a spring-actuated valve in said conduit, a thermostatic rod in proximity to said burner normally holding the valve open, and adapted to control the movement of said valve whereby the gas-opening of said valve will be increased upon the contraction of said rod, and decreased upon the expansion of said rod, substantially as specified.

2. The combination with a gas-burner of a supply-conduit leading thereto, a valve in said conduit, a spring normally closing said valve, a thermostatic rod supported adjacent to said burner and holding said valve open against the tension of said spring, and an adjustable connection between said rod and valve, substantially as specified.

3. The combination of a gas-burner, of a supply-conduit leading thereto, a nozzle terminating said conduit and having gas-exits therein, a sleeve slidingly mounted on said nozzle and regulating by its position on said

nozzle the amount of gas discharged from said conduit, a thermostatic rod connected to said sleeve, by which the sliding movement of said sleeve upon said nozzle is regulated, substantially as specified.

4. The combination of a gas-burner, a supply-conduit therefor, a valve in said conduit, a thermostatic rod obliquely arranged adjacent to said burner with its top portion farther removed from said burner than its lower portion, and a connection between said rod and said valve, substantially as specified.

5. The combination with a gas-burner of a supply-conduit leading thereto, a sliding valve regulating by its position the amount of gas discharged from said conduit, a thermostatic rod arranged in proximity to said burner and stationarily supported at one end, and attached at the other end to said valve, said rod being adapted by its expansion and contraction to control the position of said sliding valve, and thereby the flow of gas to said burner, substantially as specified.

6. The combination of a gas-burner, of a supply-conduit leading thereto, a pointed nozzle terminating said supply-conduit, gas-exits in said nozzle, a valve member slidingly mounted on said nozzle, an opening in said valve member adapted to be obstructed to a greater or less degree according to the position of said valve member upon the nozzle, a spring to move said valve member in one direction and a thermostatic rod arranged adjacent to said burner and adapted to move said valve member in the opposite direction against the tension of said spring, substantially as specified.

In testimony whereof I have hereunto set my hand this 24th day of June, A. D. 1905.

DON HENRY KENT.

Witnesses:

CHARLES H. DUNCAN,
T. T. BRAND, Jr.