

No. 683,988.

Patented Oct. 8, 1901.

J. RODGERS.
GAS REGULATOR.

(Application filed July 22, 1901.)

(No Model.)

FIG. I.

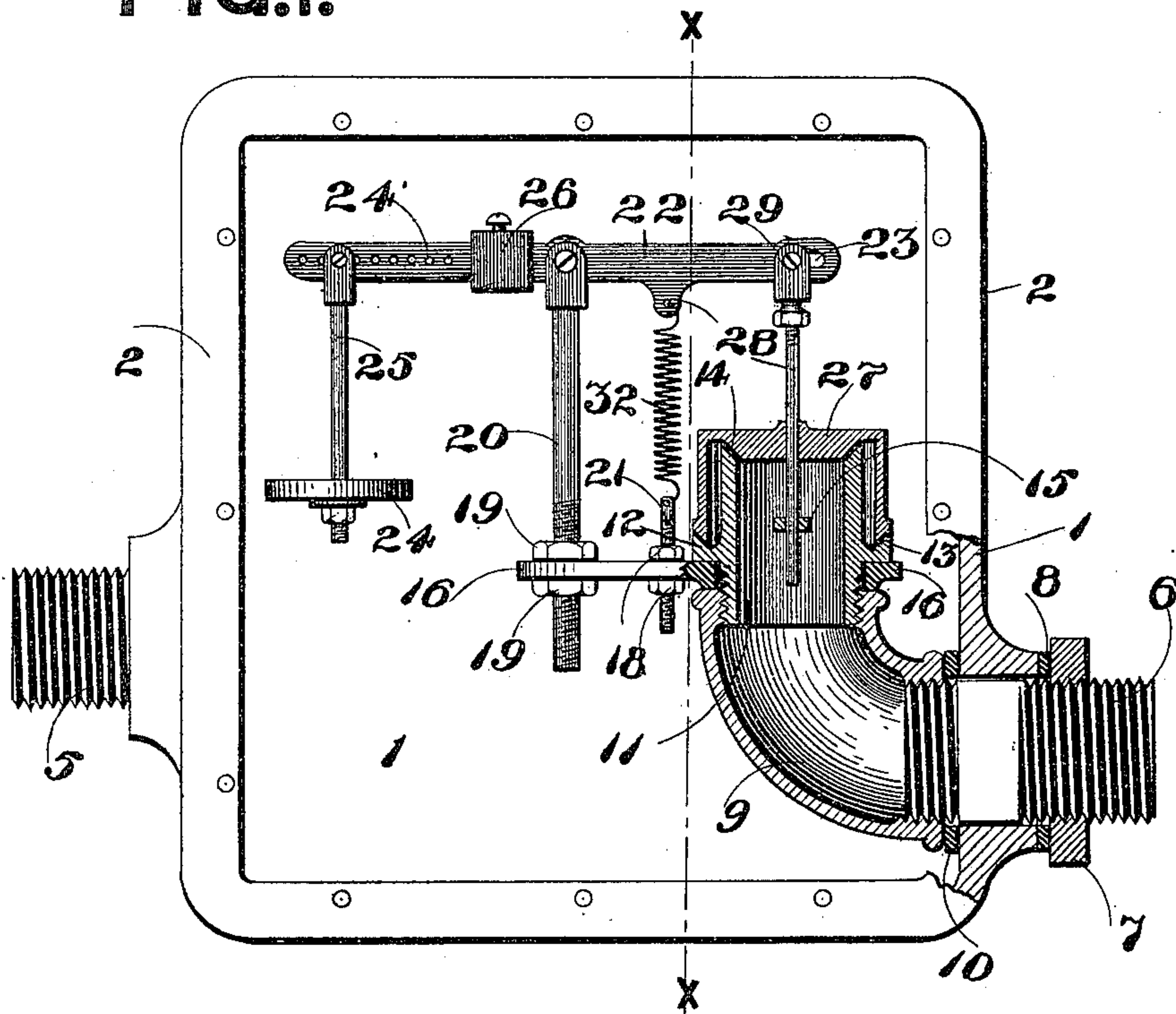


FIG. II.

FIG. III.

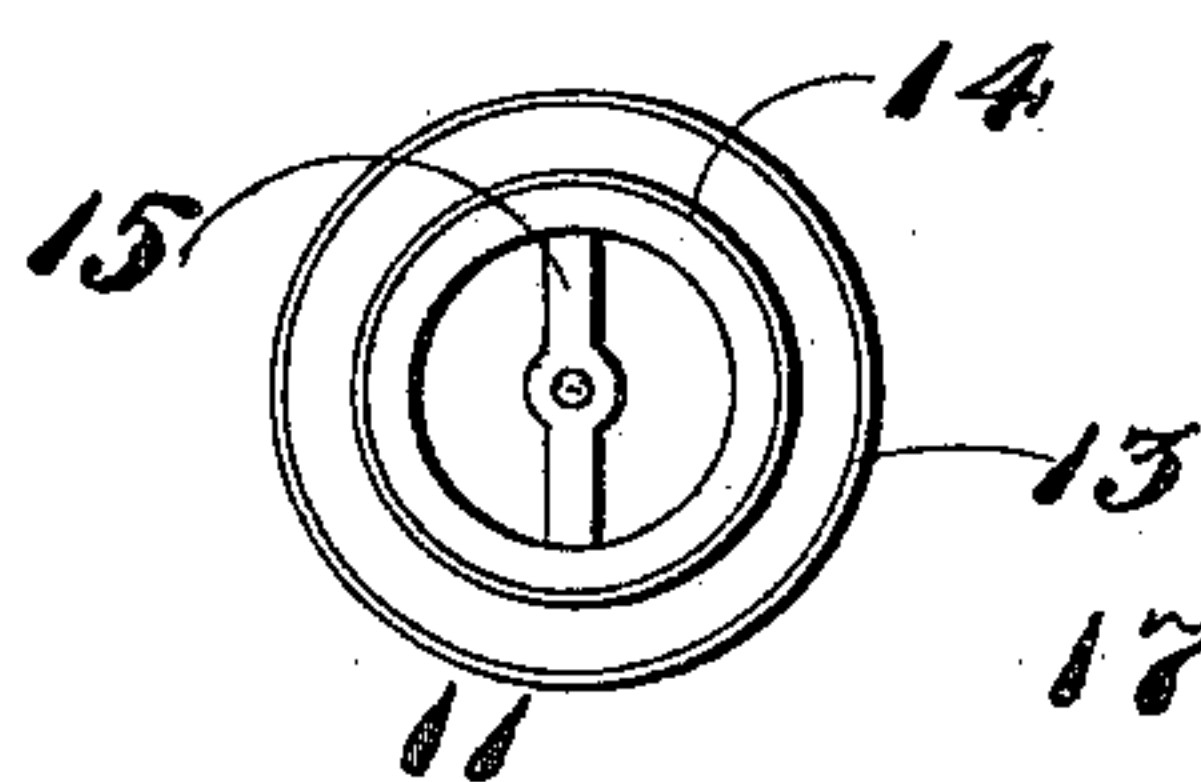
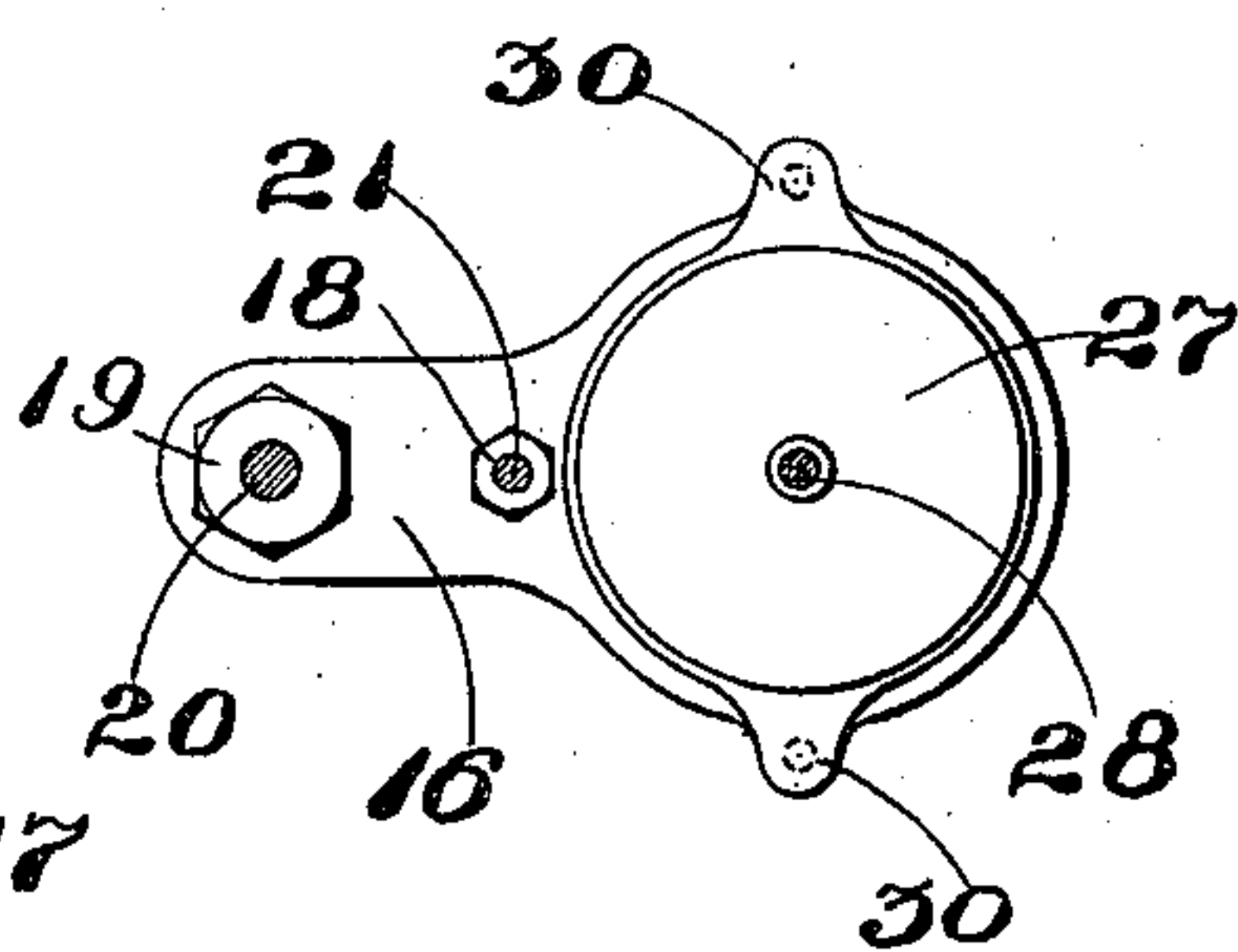


FIG. III.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES RODGERS, OF ALLEGHENY, PENNSYLVANIA.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 683,988, dated October 8, 1901.

Application filed July 22, 1901. Serial No. 69,196. (No model.)

To all whom it may concern:

Be it known that I, JAMES RODGERS, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Regulators; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

In the employment of gas as an illuminating agent, especially "natural gas," considerable annoyance is occasioned by failure of the regulator to perform its functions in maintaining proportionate consumption and consequent size and intensity of flame in the burners regardless of the number of burners in or out of service.

The object of my invention is to provide a regulator capable of operating with either natural or artificial gases, whereby proper equality is established and maintained in each and every burner.

In the accompanying drawings I have by different views illustrated an operative regulator, in which my objects can be successfully carried into effect, wherein—

Figure I is a side elevation of the regulator, having its chamber-lid removed to disclose its interior mechanism and wherein parts of said chamber and mechanism are sectionally shown. Fig. II is a vertical end view of the same with the chamber-lid attached, said chamber and interior mechanism being sectionally shown as on line X X of Fig. I. Fig. III is a plan view of one of the valve members disconnected and removed from the chamber. Fig. IV is a plan view of both valve members and the supporting-plate removed from the chamber and operatively connected.

In order to fully and clearly make the apparatus understood, I shall first proceed with and separately describe the detail parts of construction and then set forth the operation and effect.

Reference again being made to the several views of the drawings, the numeral 1 designates a chamber of suitable form to confine the mechanism and is provided with a continuous inwardly-extended flange 2 for at-

taching a lid 3, said lid and flange having therebetween a suitable gasket 4. Openings are formed, preferably, in two opposite side walls of the chamber, one of which is fitted with a threaded outlet-nipple 5 and the other with a similar inlet-nipple 6, the latter nipple being provided with a jam-nut 7 and gasket 8. Secured to the inner end of said nipple 6 is the elbow 9, between the connecting end of which and the inner side wall of the chamber is arranged a gasket 10. Threadably attached to the upper end of said elbow is an open cylindrical valve member 11, having thereon the annular flange or shoulder 12, tapering valve-seats 13 and 14, and interior bridge 15. Engaging over the threaded extension of said valve member, between the flange thereof and upper end of the elbow, is the supporting-plate 16, having outwardly-extended lugs 17 thereon. Secured to said plate by nuts 19 is the vertical adjustable standard 20, having an upper forked end, and nearby this standard, at a point between the same and the said valve member, is secured by the nuts 18 an adjustable screw or pin 21. Pivotally mounted to the upper forked end of said standard is the longitudinal bar 22, which is provided at one end with an elongated slot 23 and at the opposite end with a number of closely-arranged openings 24 and slidable block 26. A circular weight or disk 24 is pivotally suspended from one end of said longitudinal bar by a forked rod 25. This weight or its supporting-rod is capable of being adjusted along said bar to any of the openings 24. An inverted-cup-shaped valve member 27, having tapered seats formed upon its interior and lower end to engage those of the other valve member, is provided. A vertical stem 28 projects down from the interior of said valve member a sufficient distance to pass through the bridge of the other member, thereby acting as a guide to center the member and insure proper seating. To the upper end of this stem is secured an adjustable forked nut 29 to pivotally connect the slotted end of the longitudinal bar. The interior diameter of the cup-shaped valve member being greater than the exterior of the other member forms an annular chamber therebetween.

To avoid possible friction between the

forked nut 29 of the valve-stem and the connecting end of the longitudinal bar, due to possible swaying of the cup-shaped member when in operation, a pair of lugs 30 is formed upon said member, from the under side of which extend the guide-pins 31, which pass through the aforesaid lugs 17 of the fixed member. A closed spiral spring 32 is connected to the longitudinal bar and adjustable screw or pin 21.

To install the apparatus, gas is shut off from the service-line and connections made at the nipples 5 and 6, and after the pressure has been determined and the weights and spring adjusted to suit such pressure acting upon the movable valve member the gas on being turned into the line will elevate the movable valve member from its seat, pass down through the annular chamber or space between the members, and out at the lower seat, filling the chamber and that part of the line extending to the burners, and when said chamber and line have been charged to full line-pressure the valve will close, owing to equalization of pressure on both sides assisted by the tension of the spring, and remain in such closed condition until service at the burners is required.

When the gas is turned on and lighted at any one of the burners, the escapement or supply of gas to such burner relieves the pressure in the chamber, and as the pressure in the line beneath the movable valve members is greater said pressure will act upon the member, slightly elevating the same and permitting the gas to flow therethrough proportionately or in accordance to the consumption. Should another or a number of other burners be lighted, the valve member will be further elevated and permit a proportionate supply to each.

Should it occur that the pressure in the service-line be suddenly increased, the valve will be prevented from quickly responding, owing to the broad surface of the weighted disk 24 offering resistance to sudden disturbance.

The spiral spring 32 has practically no tension upon it when the movable valve member is fully seated; but the tension will increase in accordance to the lift of said member or to the number of burners in service.

By the use of the slidable block 26, in connection with the weighted disk 24, the most minute adjustment may be attained. It will

also be noted that all essential parts of the apparatus are capable of adjustment.

By means of this device it can readily be seen that equality may be established and maintained in each and every burner. Furthermore, the device is simple in construction and will require no attention when installed.

I have specifically described the construction and relative arrangement of the detail parts contained in a practical apparatus to effect my objects; but I do not confine myself to any particular detail, as it may be possible to dispense with some of such details or substitute equivalents without departing from the principles involved.

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

1. A gas-regulator, comprising a gas-tight chamber having inlet and outlet connections, a cylindrical valve seating member arranged therein on said inlet, an inverted-cup-shaped valve member adapted to engage over and seat upon said cylindrical member leaving a space therebetween, a pivoted lever engaging at one end with the stem of said cup-shaped valve member, a spring for placing tension on said lever, an adjustable weighted disk suspended from the opposite end of said lever, and means of guiding said cup-shaped member to its seat and preventing swaying thereof.

2. A gas-regulator, comprising a gas-tight chamber having inlet and outlet connections, a cylindrical valve seating member arranged therein on said inlet, an inverted-cup-shaped valve member adapted to engage over and seat upon said cylindrical member leaving a space therebetween, a pivoted lever engaging at one end with the stem of said cup-shaped valve member, a slidable block carried by the opposite end of said lever, an adjustable weighted disk suspended from the same end of said lever, and means of guiding said cup-shaped member to its seat and preventing swaying thereof.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JAMES RODGERS.

Witnesses:

J. E. KREPPS,

RICHARD S. HARRISON.