No. 611,756. Patented Oct. 4, 1898.

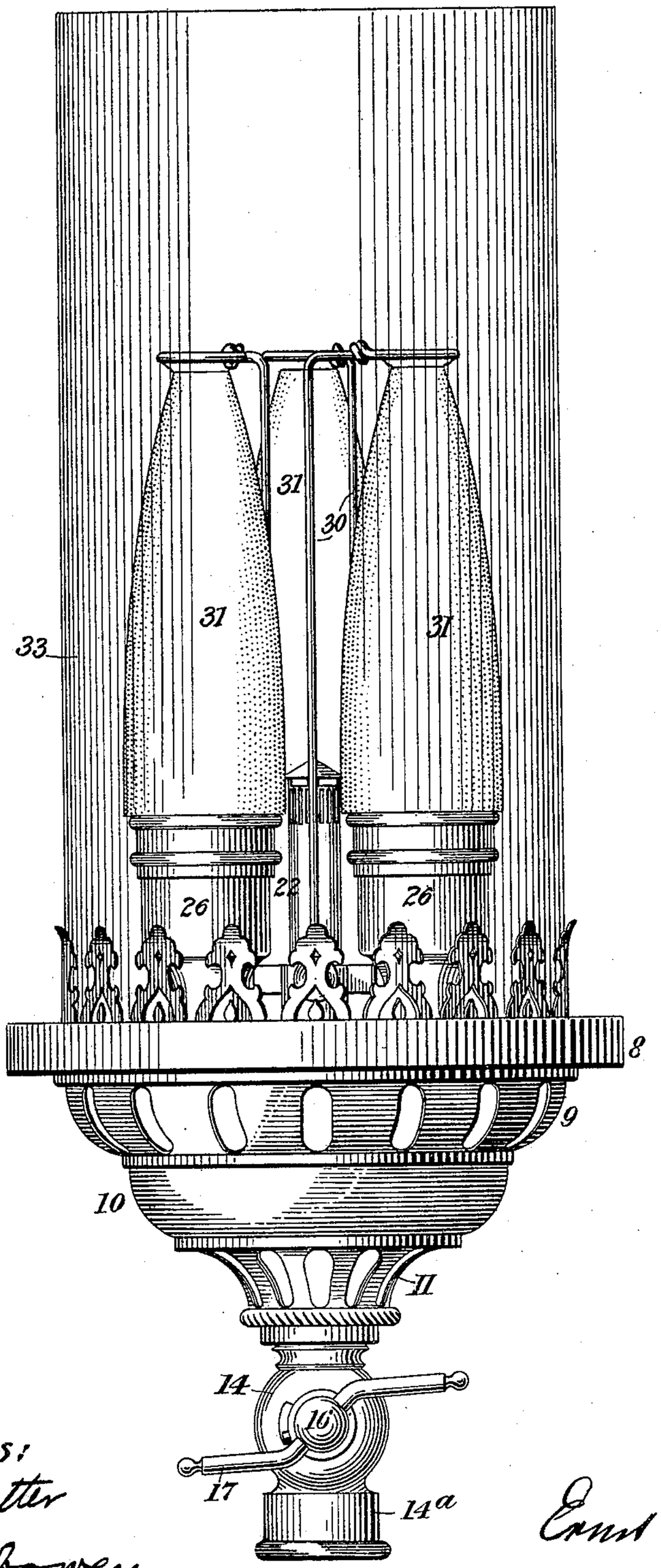
E. LINDNER.

MULTIPLE INCANDESCENT GAS BURNER.

(Application filed May 15, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1



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Inventor:
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(No Model.) 2 Sheets—Sheet 2.

Fig. 2

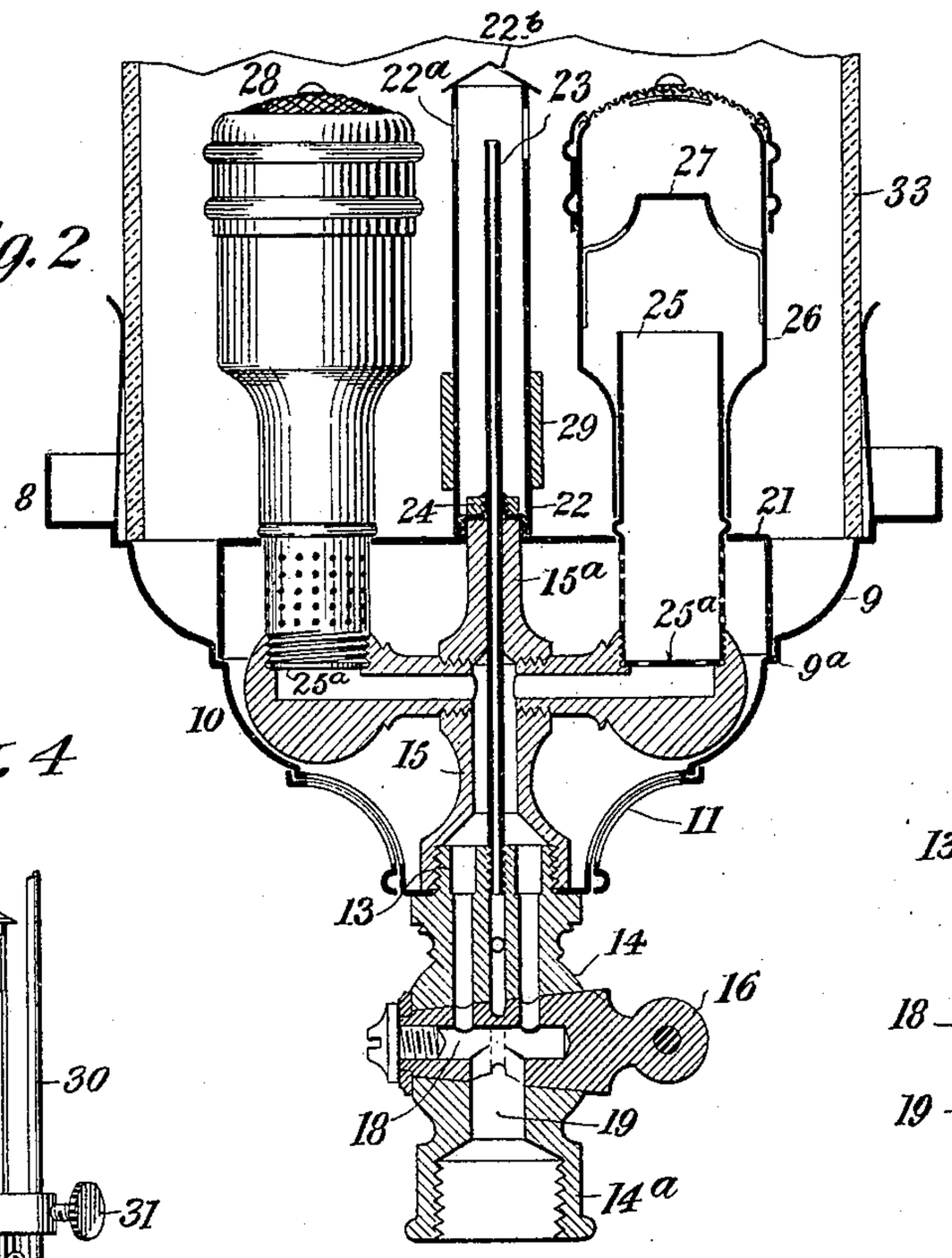


Fig. 6

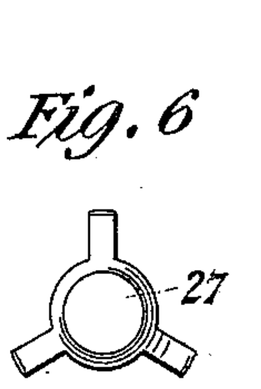


Fig. 7

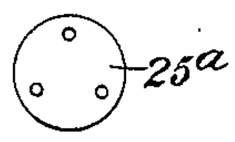


Fig. 4

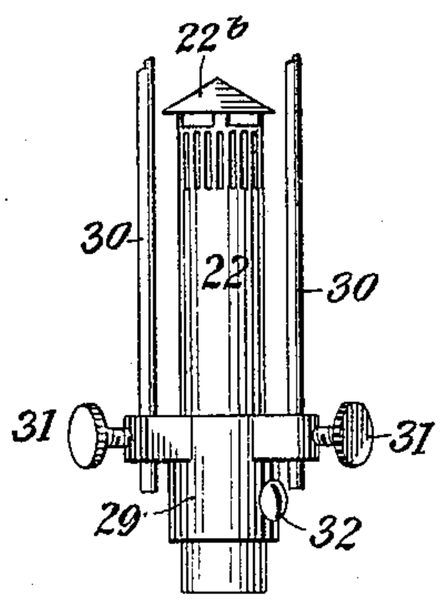


Fig. 5

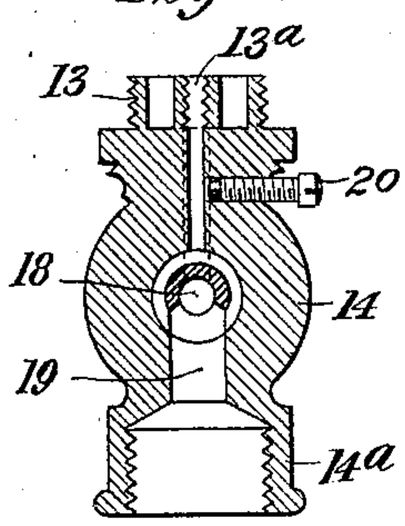
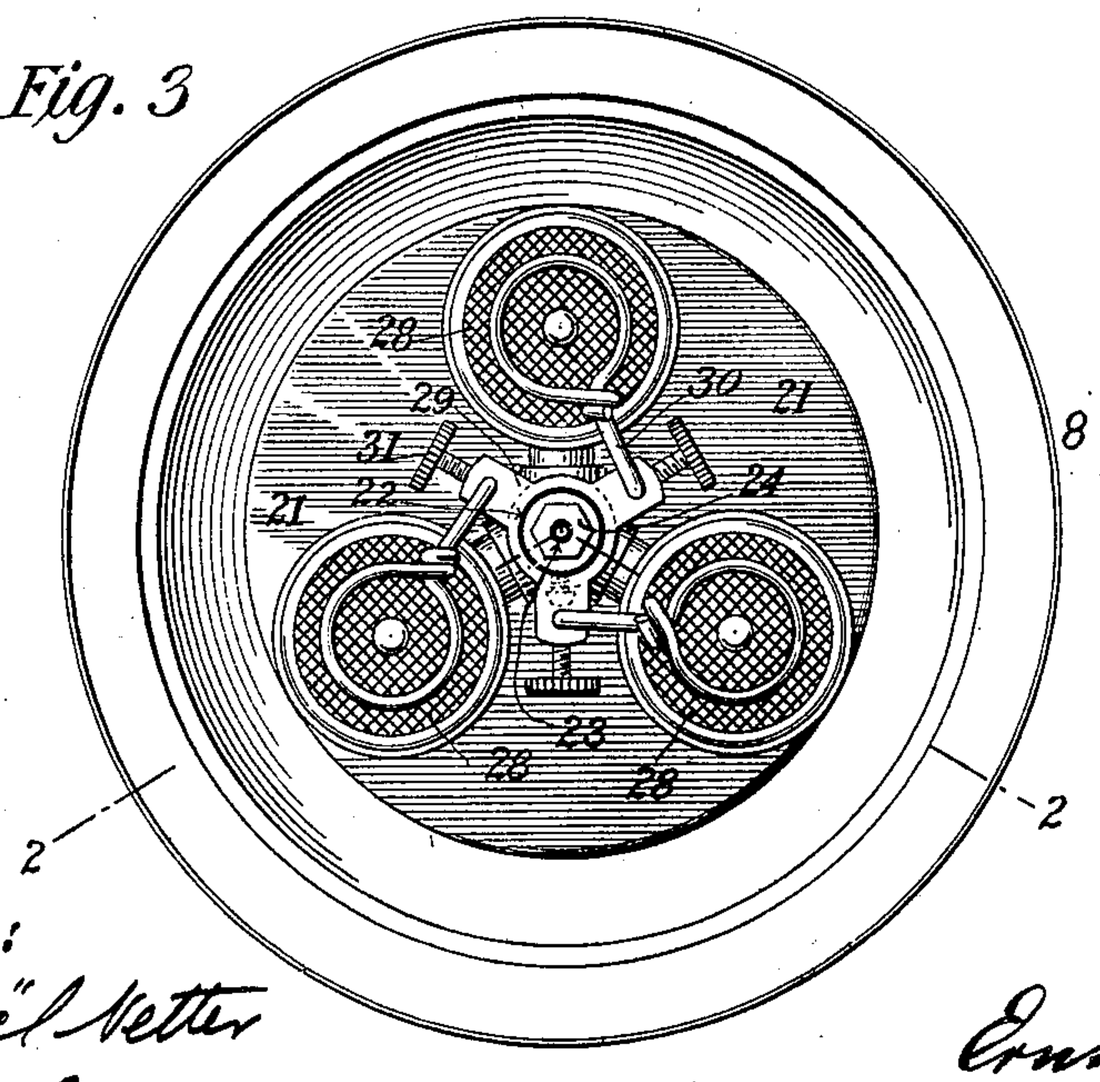


Fig. 3



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UNITED STATES PATENT OFFICE.

ERNST LINDNER, OF NEW YORK, N. Y.

MULTIPLE INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 611,756, dated October 4, 1898.

Application filed May 15, 1897. Serial No. 636,614. (No model.)

To all whom it may concern:

Be it known that I, ERNST LINDNER, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented a certain new and useful Multiple Incandescent Gas-Burner, of which the following is a specification.

The present invention relates to incandescent gas-burners designed more particularly for lighting public parks and streets and large audience-rooms, such as churches, lecture-halls, &c.

The object of the invention is to devise a multiple incandescent gas-burner wherewith there is combined a single air-chamber, a single by-pass cock for supplying gas to the pilot-tube, whereby a small flame may be constantly maintained for automatically igniting the gaseous mixture the flame of which heats the mantles of the several burners, and a single chimney inclosing the series of burners, with their mantles.

An advantage of my present invention is that it enables me to provide for the proper operation of a series of burners by the employment of a single air-chamber and a single by-pass cock. By inclosing the series of burners, with their mantles, within a single chimney the effect is produced when the burners are lighted of a single light as distinguished from a number of independent lights in a cluster, the result of which is better illumination for a given number of burners, besides a more pleasing appearance. The symmetry of the burner structure is also greatly improved over those incandescent cluster burners making use of separate air-chambers and by-pass cocks for each burner of the cluster.

Some of the improvements embodied in my application for patent for incandescent gas-burner filed April 13, 1897, Serial No. 631,913, are also incorporated in the present structure, but are not specifically claimed herein.

In the accompanying drawings, forming a part of this specification, similar parts are indicated in the several views by the same numerals of reference.

In the drawings, Figure 1 is a view in elevation of my multiple incandescent gas-burner. Fig. 2 is a sectional view on the line 2 2 of Fig. 3, one of the burners being shown, however, in full lines. Fig. 3 is a top plan view. Fig. 4 is a detail of the pilot-tube cylinder and the mantle-supporting rods. Fig. 5 is a vertical section through the casing of the by-pass cock. Fig. 6 is a plan view of the shield within the extension-chamber above the mixing-tube of the burner, and Fig. 7 is a plan view of the disk at the bottom of the mixing-tube.

Referring to the drawings, 8 indicates the support for the chimney and the burners, having the perforated portion 9, by which air is admitted at the bottom of the chimney, the closed part 10, and below the latter the air-shutter 11, the parts 10 and 11, with the interior cap, constituting the air-chamber. Through the bottom of the air-chamber passes the screw-threaded top 13 of the by-pass cock 14. Within the air-chamber the fitting 15, having as many branches as there are burners to be employed in the structure—in this instance three—is screw-threaded internally at its lower end, by which means it is screwed onto the top 13 of the by-pass cock within the air-chamber, thus securing the by-pass cock to said fitting 15, as well as to the bottom of the air-chamber. Each branch of fitting 15 is in communication with its central duct, which communicates with two of the channels of the casing of the by-pass cock.

The by-pass cock 14 is screw-threaded internally at its bottom 14^a (though it may be externally screw-threaded) for attachment to the gas-supply pipe. The plug or key 16 of the cock is provided at its outer end with bars 17, to which may be secured suitable chains for operating the cock. The by-pass cock is of such construction that a supply of gas always passes to the pilot-tube, presently mentioned, while the gas is admitted to the mixing-tubes of the series of burners when desired. The tapered plug 16 of the cock is provided with a chamber 18, having an opening adapted to register with the inlet-opening 19 in the casing 14. Said plug is also provided with two small openings which communicate with the interior of the plug, and is also provided with a channel extending circumferentially from the edges of that opening in the plug which is adapted to register with the inlet 19 of the casing of the cock. In the top portion of the casing 14 there are

three channels, (see Fig. 2,) which are adapted to register with the openings in the plug when the latter is adjusted to admit gas to the mixing-chambers of the burners, the middle one of said channels supplying the pilot-tube. When the plug is adjusted to shut off the supply of gas to the mixing-chambers of the burners, the pilot-tube is, nevertheless, supplied with gas to keep it ignited through the circumferential channel in the plug, which is always in register with the gas-inlet at the bottom of the casing.

The screw 20 passes through the side of the casing 14 and is for the purpose of regulating the size of the pilot-flame. The by-pass cock 14 is more fully described in my other application, heretofore referred to, and for that reason is not described with the same particularity here.

Within the portion 9 of the structure is fitted the cap 21, seated in the ledge 9^a and having the upper central member 15^a of the fitting 15 projecting centrally through it. That portion of part 15^a of the fitting 15 extending outside of cap 21 is screw-threaded and receives the lower end of the pilot-tube casing 22, which, being screwed down upon the cap 21, assists in holding the latter in its place. The pilot-tube is indicated at 23. It is screw-threaded at its lower end and, being passed through the central member 15^a of the fitting 15, is screwed into the central channel 13^a at the top of the casing of the cock. That part of the pilot-tube 23 immediately above the portion 15^a of the fitting 15 is screw-threaded, as seen in Fig. 2, to receive a nut 24, which, being screwed down against said member 15^a, secures a gas-tight joint at that point. The pilot-tube 23 extends to near the tops of the burners and up to the perforations 22^a in the casing 22. Supported above said perforations 22^a by suitable arms is the shield 22^b, which serves to protect the pilot-flame from drafts down the chimney.

The cap 21 is provided with a series of openings corresponding in number to the number of burners made use of, and said openings are immediately over the respective branches of the fitting 15. Through these openings the Bunsen or mixing tubes 25 are passed, the lower ends of the same screwing into the branches of fitting 15 against perforated disks 25^a, the said disks being clamped gas-tight beneath the bottom edge of said mixing-tubes. The perforated disks 25^a, being interposed between the gas-outlets of the fitting 15 and the bottoms of the mixing-tubes, prevent sudden influx of gas into said mixing-tubes, which is an advantage in the operation of the burner. The parts of the mixing-tubes 25 which extend within the cap 21, which forms the top of the air-chamber, are finely perforated, as shown in Fig. 2, in order to prevent flash-backs when igniting the gaseous mixture, a further object of said feature being to prevent insects, &c., being drawn into the mixing-tube, all as more fully explained in my aforesaid application, Serial No. 631,913.

Over the mixing-tubes 25 are arranged extension-chambers 26, within which are placed at proper distance above the top of the mixing-tubes the diaphragms 27, which have a solid center and a series of flexible arms by which said diaphragms are held in place. The diaphragms 27 serve as deflectors and prevent clogging of the gaseous mixture immediately below its place of ignition and insure a better distribution of the gaseous mixture, serving also to prevent the perforated diaphragms 28 at the tops of the burner from being burned out from direct impingement of the gaseous mixture thereon.

On the pilot-tube casing 22 there is adjusted the coupling or holding ring 29, which carries the supports 30 for the mantles 31, composed of a suitable refractory material. The supports 30 are adjustably held in the coupling 29 by the screws 31, and the coupling itself is adjustably held on casing 22 by the set-screw 32. The chimney is indicated at 32 and, as will be seen, incloses the entire series of burners.

It will be understood from the foregoing description that gas constantly passes through the by-pass tube, so that at its top a small flame will be constantly burning to serve to automatically ignite the gaseous mixture when the cock is adjusted to turn on the full supply of gas, and serving also to maintain the mantles and the burner structure in a warm condition, so as to prevent the breaking of the mantles by the sudden ignition of the gaseous mixture. The amount of gas consumed by the pilot is so little as not to be objectionable on the score of expense.

While I have shown in the drawings a multiple incandescent gas-burner adapted to be secured to the top of a pillar or to a side bracket, which pillar or bracket forms or contains the gas-supply pipe, it is evident that the burner may be mounted upon a gas-supply pipe otherwise supported or upon other forms of gas-fixtures. In my application Serial No. 659,196, filed May 19, 1897, a similar burner is shown and claimed in combination with a gas-pipe, from the lower end of which the burners are suspended, and such combination is not specifically claimed herein.

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

1. A multiple incandescent gas-burner comprising a single air-chamber, a series of burners with their support, said burners having air and gas mixing tubes or chambers distinct from the said single air-chamber but in communication therewith, and a single chimney inclosing said burners.

2. A multiple incandescent gas-burner comprising a single by-pass cock, a pilot-tube centrally located between said burners, a single air-chamber, a series of burners and their support, said burners having air and gas mix-

ing tubes or chambers distinct from the said single air-chamber but in combination therewith, and a single chimney inclosing said burners.

3. In a multiple incandescent gas-burner, a single air-chamber inclosing a fitting and a series of burners extending into said air-chamber and connected to the outlets of said fitting, said burners having air and gas mixing tubes or chambers distinct from the said single air-chamber but in communication therewith, and a single gas-cock secured to said fitting at the bottom of the air-chamber.

4. In a multiple incandescent gas-burner, an air-chamber, a fitting inclosed within said air-chamber and provided with a series of gas-outlets, a series of burners extending into said air-chamber and connected to the outlets of said fitting, a by-pass cock connected to the bottom of said fitting and to the air-chamber, and a pilot-tube extending through said fitting and connected to the casing of the by-pass cock.

5. In a multiple incandescent gas-burner, an air-chamber, a fitting inclosed within said air-chamber and having a series of gas-outlets, a series of burners extending into said air-chamber and connected to the outlets of said fitting, a by-pass cock connected to the bottom of said fitting at the bottom of the air-chamber, a pilot-tube passing through said fitting and connected to the casing of the by-pass cock, and a casing surrounding the pilot-tube above the air-chamber and provided with a perforated upper end.

6. In a multiple incandescent gas-burner, the combination with an air-chamber, a gas-cock and a series of burners and their support, of a coupling adjustably secured on a suitable support secured to the top of the air-chamber in the space surrounded by the series of burners, and a series of mantle-supports fastened to said coupling.

7. The combination with an air-chamber and a gas-cock, of a fitting arranged within the air-chamber, connected to the gas-cock and provided with a series of gas-outlets, a series of burners passing through the top of the air-chamber and perforated at their lower ends and connected to the outlets of said fitting, and perforated disks at the bottoms of the burners over the outlets in the fitting.

8. The combination with an air-chamber and a by-pass cock, of a series of burners and their support, a pilot-tube connected to the by-pass cock and extending to near the tops of the burners, a casing surrounding said pilot-tube, perforated at its top and provided with a hood.

9. The combination with the air-chamber and its cap 21, of the fitting 15 having a series of branches suitably channeled and arranged within the air-chamber and provided with a bottom section suitably screw-threaded at its end, a gas-cock having its upper section screwed into the lower section of said fitting thus connecting the fitting and air-chamber together, and a series of Bunsen burners passing through the top of the air-chamber and connected to the outlets of said fitting.

10. In a multiple incandescent gas-burner, the combination with the air-chamber and by-pass cock, of a fitting inclosed within said air-chamber and provided with a series of suitably-channeled branches and connected with the by-pass cock, a pilot-tube connected to the by-pass cock and extending through said fitting outside the air-chamber and a series of Bunsen burners connected to the outlets of the channels in said fitting, and a single chimney surrounding the series of Bunsen burners.

Signed at New York, in the county and State of New York, this 10th day of May, 1897.

ERNST LINDNER.

Witnesses:

J. E. M. BOWEN,

M. C. PINCKNEY.