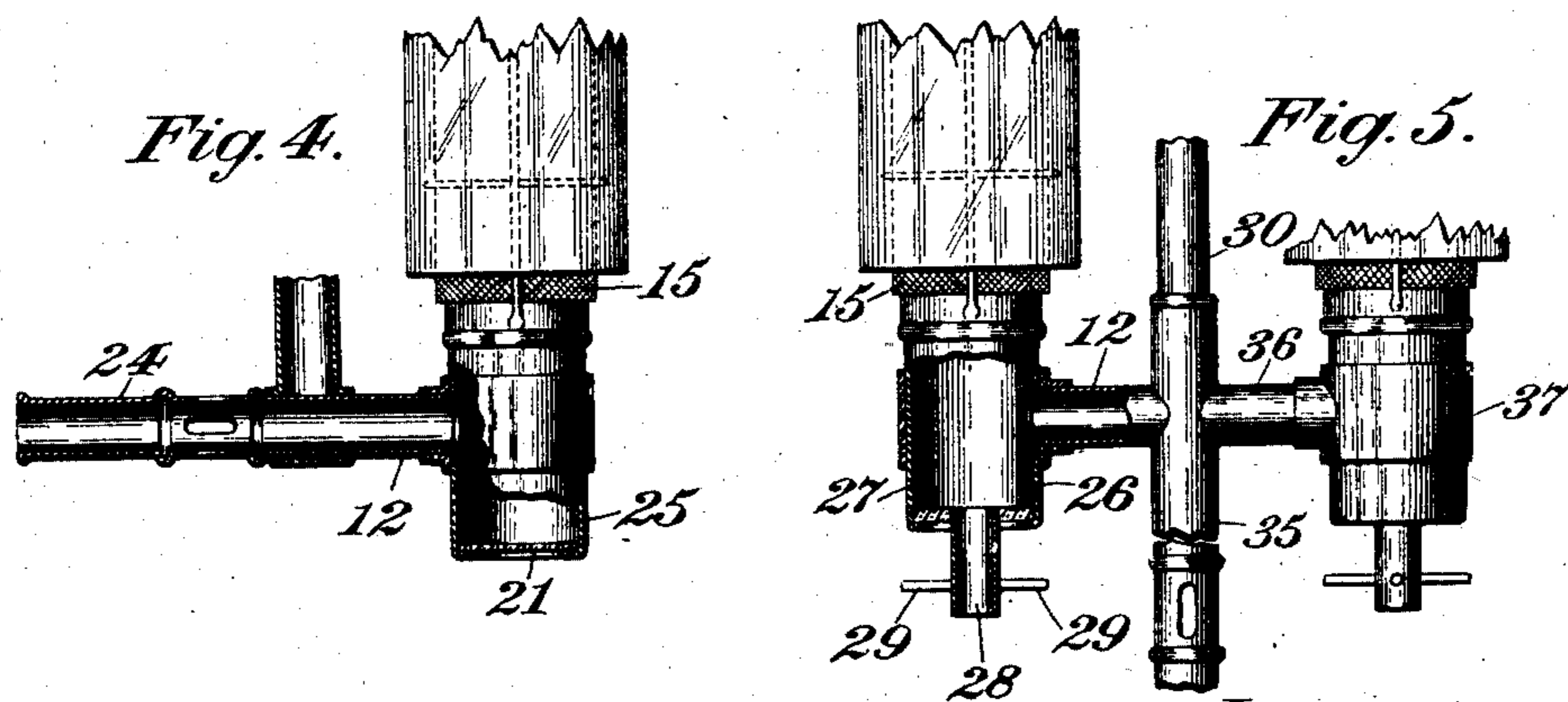
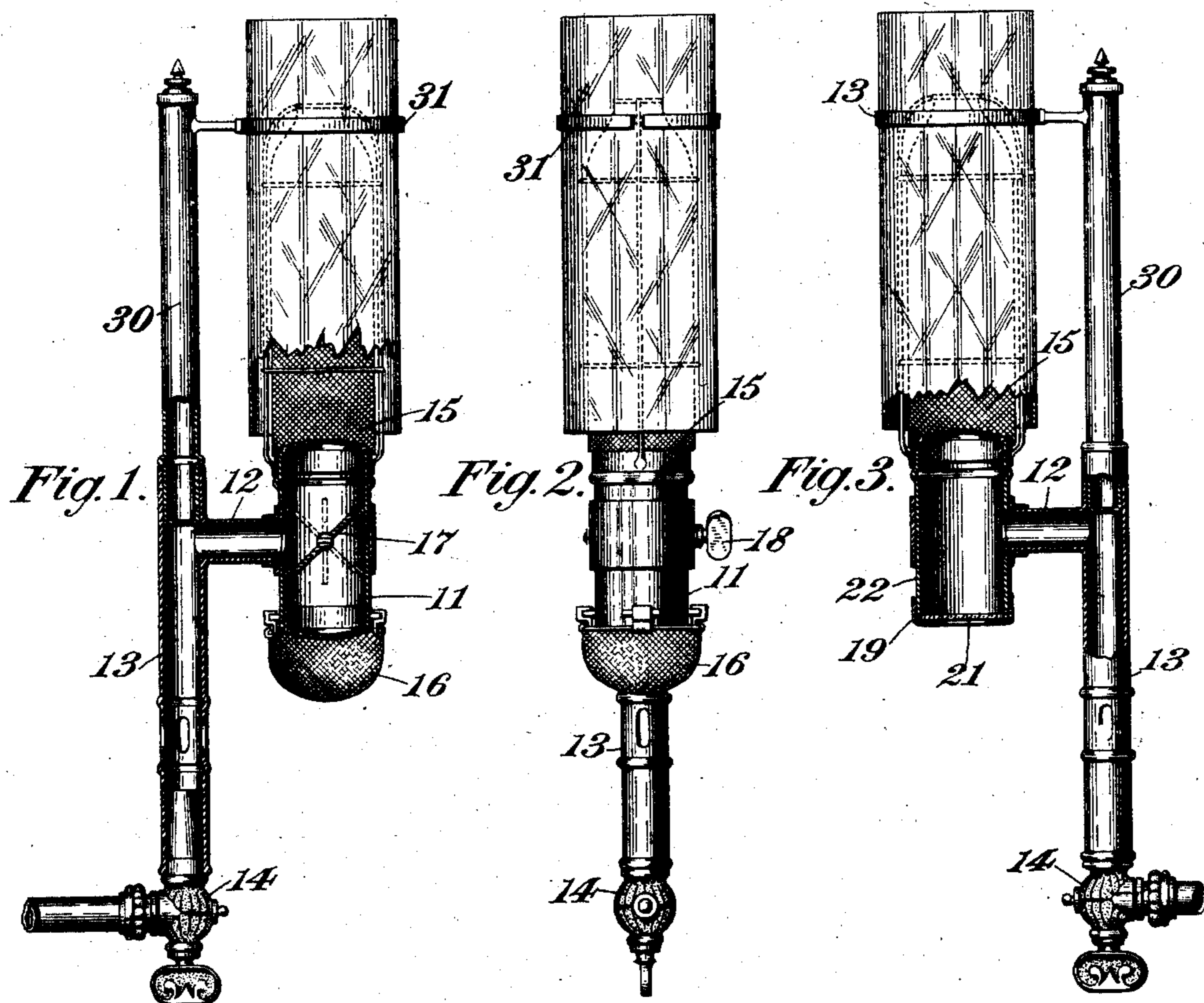


No. 879,249.

PATENTED FEB. 18, 1908.

A. G. FELL.
INCANDESCENT BURNER.
APPLICATION FILED MAY 7, 1907.

2 SHEETS—SHEET 1.



Witnesses:

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H. D. Penney

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2 SHEETS—SHEET 2.

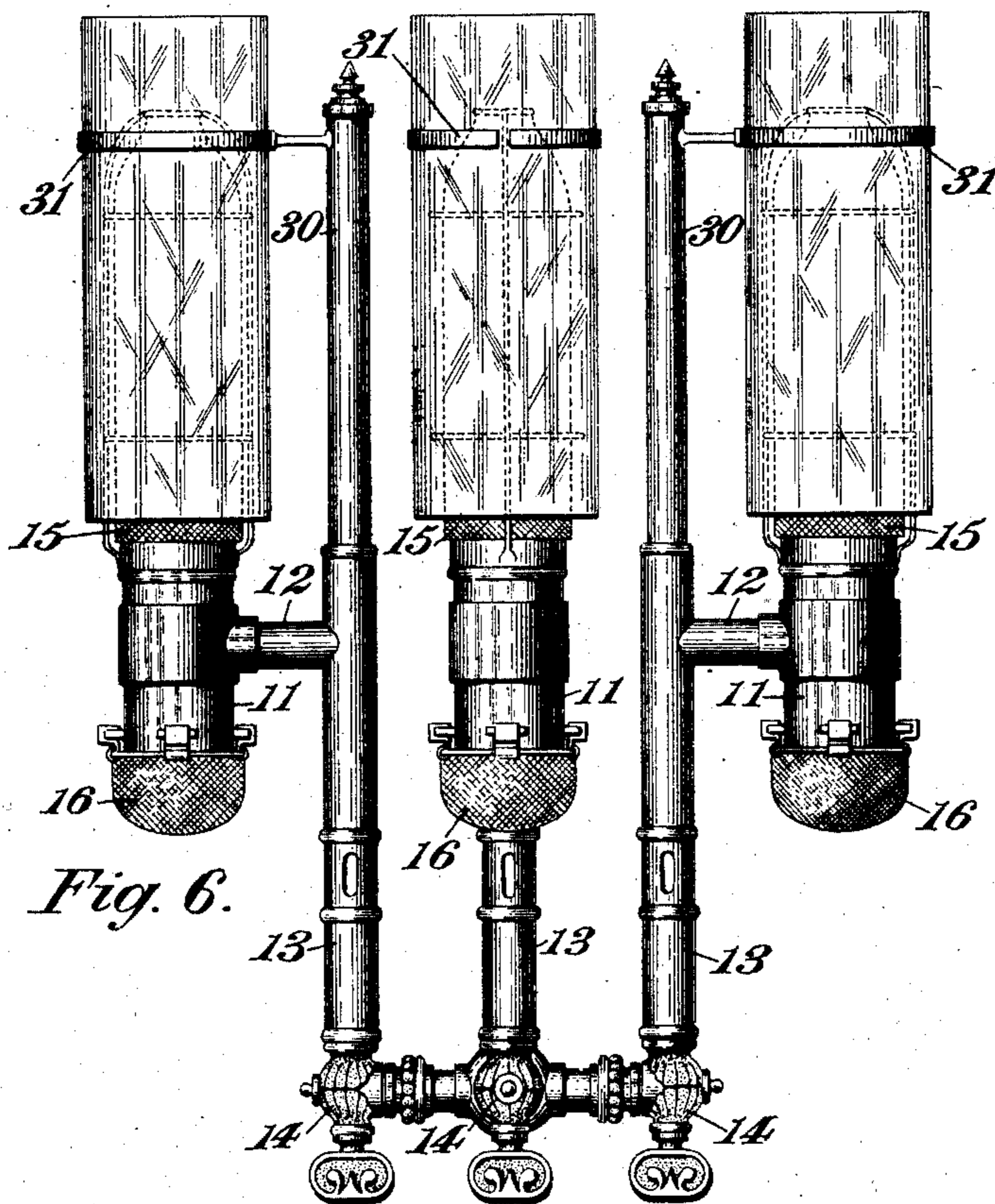


Fig. 6.

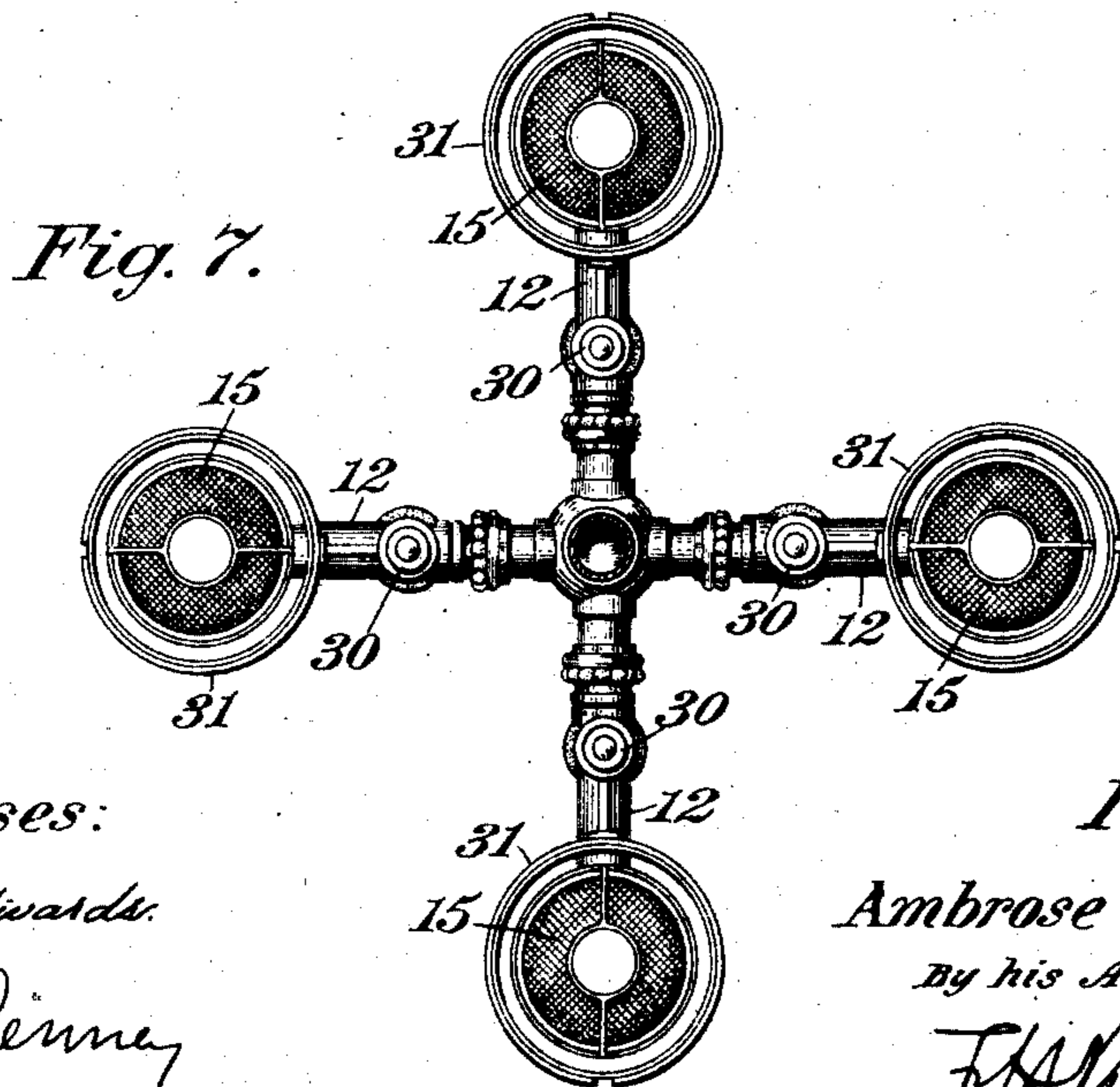


Fig. 7.

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UNITED STATES PATENT OFFICE.

AMBROSE G. FELL, OF NEW YORK, N. Y.

INCANDESCENT BURNER.

No. 879,249.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed May 7, 1907. Serial No. 372,439.

To all whom it may concern:

Be it known that I, AMBROSE G. FELL, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Incandescent Burners, of which the following is a specification.

This invention relates to lamps or burners for use with incandescent mantles, especially of the character known as Welsbach mantles, that become incandescent when heated by a Bunsen flame.

One of the objects of the invention is to provide an improved lamp or burner of this character in which rays of light will be transmitted practically unobstructed in a direction the opposite to that in which the gas flows to and through the mantle. In the case of the ordinary upright mantles, light will be permitted to be transmitted downward; and in the case of the so-called inverted mantle, light rays will be transmitted in the opposite direction, that is vertically upward.

A further object of the invention is to provide in such a device, means whereby a mantle can be attached to either end, permitting the use of the upright or the inverted type of mantle. The burner is also provided with means by which both forms of mantle can be used that are arranged in vertical alinement; the gas being deflected from the mixing tube to be partly transmitted to each end of the burner.

A further object of the invention is to provide a burner in which a member normally transparent, or one which becomes so when heated, is employed on the opposite end of the burner from the mantle, permitting the transmission of light rays in the opposite direction from the mantle.

A further object of the invention is to provide a construction of lamp in which the mixing tube itself leads directly into the burner that is employed for the inverted or the upright mantle or for both.

In the accompanying drawings representing embodiments of the present invention, Figure 1 is a side elevation partly in section of the lamp, with both the upright and the inverted mantle. Fig. 2 is an end elevation of the same. Fig. 3 is a view similar to Fig. 1, but showing the use of the upright mantle only, with means for transmitting the light

vertically downward. Fig. 4 is a modification of the lamp shown in Fig. 1 showing the mixing tube connected directly with two burner members. Fig. 5 shows another modification. Fig. 6 represents a group or cluster of lamps similar to the lamp shown in Fig. 1; and Fig. 7 is a plan view of the same.

The burner member comprises essentially a shell or tube having extended transversely therefrom a tube, through which the gas mixture is admitted to the burner from the Bunsen mixing tube. The latter tube may extend transversely to the said transverse tube or it may be a continuation therefrom, that is, practically the mixing tube itself. The burner tube is supported by the transverse tube so that the burner has its axis in a vertical position. At either, or both ends, of the burner tube, that is, at the top and at the bottom, means are provided for attachment of a mantle to be incandesced by the ignited mixture; or if one mantle only, the other end closed by a removable disk, or cap containing a disk.

In the construction shown in Fig. 1, the burner member comprises a tubular member 11 from one side of which extends a transverse tube 12 by which the tube 11 is supported in a vertical position. The tube 12 leads into an upright mixing tube 13 of the usual Bunsen type; which tube is shown as fitted on a valved bracket 14. Both ends of the burner 11 are open, and at the upper end, the usual upright mantle 15 is attached. At the other end of the burner 11, an inverted mantle 16 is attached that will transmit its rays downward as well as laterally. At the middle portion of the burner 11, is a valve 17, that may be made of transparent material such as a mica disk. When the valve is in a vertical position, the gas from the mixing tube will flow in from the transverse tube 12, part of it supplying each of the two mantles. The valve 17 is operated by a head 18 extending outside of the burner 11. But where it is desired to use only the upright mantle 15, the burner 11 is turned to the position shown in full lines in Fig. 1, and the inverted mantle 16 is removed, and a cap 19 shown in Fig. 3 is applied to the lower end of the burner 11. This cap contains a disk or diaphragm of transparent material, such as mica or suitable refractory glass. A similar construction is shown in Fig. 3 in which the valve 17 is omitted, and a

mica disk 21 is placed in the lower portion of
 the burner 22. From this it will be seen that
 the rays of light from the interior of the
 mantle are transmitted vertically downward
 without obstruction, as is the case with the
 Welsbach type of burners at present in use.
 Where a gauze disk is used at the top of the
 burner member to diffuse the gaseous mix-
 ture, and to prevent ignition of the gas be-
 low the mantle, a small portion of the light
 may be obstructed. But by using a fine
 wire for the gauze itself, relatively large
 apertures will permit the light to be readily
 transmitted therethrough, which will serve
 to illuminate objects below the mantle. In
 some forms of lamp at present in use, with
 this wire gauze disk or diaphragm, a disk of
 sheet metal such as copper is secured at the
 central part. But then the disk can be
 formed of mica, and the light would be trans-
 mitted through this cap from all sides of the
 mantle, and therefore the rays would di-
 verge to project downward in all directions
 possible through the interior of the burner
 tube. It will be further observed that the
 burner 11 is of less external diameter than
 the internal diameter of the mantle, the
 usual gallery for supporting the chimney
 being dispensed with, so that rays being
 transmitted downward in an inclined direc-
 tion at various angles from the outside of
 the mantle, will be transmitted downward
 at all angles up to practically the vertical.
 These rays are not obstructed except in the
 comparatively small zone occupied by the
 transverse tube 12 and its supporting mem-
 ber.

In Fig. 4 is shown a slight modification in
 which the mixing tube is an integral part of
 the transverse tube 12, in fact the mixing
 tube 24 in this case is directly connected
 with the burner member 25.

In Fig. 5 is shown a slight modification
 where the inverted mantle is used, in which
 the mica disk 26 at the bottom of the
 burner 27 has a central aperture, into which
 is fitted a tube 28 projecting downward and
 provided with lateral pins 29. These pins
 serve to support the inverted mantle. A
 cluster of lamps constructed on the principle
 of Fig. 1 is shown in Figs. 6 and 7. In this
 form of lamp, it is very advantageous to re-
 move the usual gallery or support for the
 chimney, that is located at the lower portion
 of the chimney adjacent the lower portion of
 the mantle, in order to prevent any obstruc-
 tion to the rays of light transmitted down-
 ward. To overcome such difficulty, means
 are provided for supporting the chimney at
 its upper portion, or above the burner. As
 shown in Figs. 1, 2 and 6, an upright support
 30 extends upward from the burner tube and
 carries an arm or ring 31 that engages the
 chimney at its upper portion, and by which
 the chimney is solely supported. Further-

more, such an arrangement of the chimney
 permits free access of the air to the outside
 of the mantle at its lower portion, and there-
 fore an even draft is provided and the mantle
 will burn uniformly.

In the arrangement shown in Fig. 5, the
 vertical mixing tube 35 has an addition to
 the connecting tube 12 supporting the
 burner 27, a second transverse tube 36 sup-
 porting a burner 37 similar to the burner 27.
 Obviously a greater number of burners
 could be connected with the upright mixing
 tube 35 projecting radially therefrom in the
 same manner. And the form of burner 22
 shown in Fig. 3 could be used for two or
 more lamps carried by a single mixing tube
 in the same manner as shown in this figure.
 Furthermore, the upright support 30 can be
 used with this upright burner as shown in
 Fig. 1, and a plurality of chimney supports
 31 would extend radially from the upright
 member 33 to support the chimneys in the
 same manner for each of the lamps.

Having thus described my invention, I
 claim:

1. A burner for an incandescing mantle comprising a mixing tube, a tubular mantle supporting member having the mixing tube transversely connected therewith by which the supporting member is supported in a vertical position, means for securing a mantle at one end of the vertical tubular member, and a transparent diaphragm supported at the other end of the vertical member whereby the light rays from the mantle at one end of the member are projected through the other end of the member.

2. In a burner for incandescing mantles, a mixing tube, a tubular member having the mixing tube transversely connected therewith by which the member is supported in a vertical position, each end of the member being provided with means for supporting a mantle, and a diaphragm of transparent material, each end of the member being arranged to have the diaphragm removably secured thereto.

3. A burner for an incandescing mantle comprising a mixing tube, a tubular member having the mixing tube transversely connected therewith by which the member is supported in a vertical position, means for securing a mantle at one end of the vertical tubular member, and a transparent diaphragm supported at the other end of the vertical member whereby the light rays from the mantle at one end of the member are projected through the other end of the member.

4. In a burner for incandescing mantles, a mixing tube, a tubular member having the mixing tube transversely connected therewith by which the member is supported in a vertical position, each end of the member being provided with means for supporting a mantle, and a diaphragm of transparent ma-

terial, each end of the member being arranged to have the diaphragm removably secured thereto.

5. A burner for incandescing mantles comprising a mixing tube, a tubular member having the mixing tube transversely connected therewith by which the member is supported in a vertical position, each end of the member being provided with means for supporting a mantle, and a valve of transparent material in the member in proximity to the transverse tube and organized to direct the gas mixture to either end of the tube or to both ends according to its position of adjustment.

6. A burner for an incandescing mantle, comprising a mixing tube, a tubular supporting member having a transverse tube connecting with the mixing tube by which the member is supported in a vertical position, means for securing a mantle at one end of the vertical tubular member, a transparent diaphragm supported at the other end of the vertical member whereby the light rays from the mantle at one end of the member are projected through the other end of the member, a supporting member extending upwardly and connected with the transverse tube, and a member carried by the supporting member engaging with the chimney at its upper portion to suspend the chimney at its upper part only, permitting free and unobstructed downward transmission of the light.

7. In a burner for an incandescing mantle comprising a tubular mantle supporting member having a transverse mixing tube connecting therewith by which the member is supported in a vertical position, means for securing a mantle at one end of the vertical tubular member, a transparent diaphragm supported at the other end of the vertical member whereby the light rays from the mantle at one end of the member are projected through the other end of the member, a supporting member extending upwardly and connected with the transverse tube, an upright support offset

from the lamp and a member carried by the support for engaging the chimney at its upper portion to suspend the chimney by its upper part only, permitting the free and unobstructed downward transmission of the light.

8. A burner for an incandescing mantle comprising an upright mixing tube, a tubular member, a tube transversely connecting the tubular member with the mixing tube by which the tubular member is supported in a vertical position, each end of the vertical member being provided with means for supporting a mantle, and organized to permit transmission of light entirely through the vertical tubular member.

9. In a burner for incandescing mantles, a mixing tube; a tubular member having the mixing tube transversely connecting therewith by which the tubular member is supported in a vertical position, each end of the member being provided with means for supporting a mantle, and an adjustable valve in the tubular member at its connection with the mixing tube organized to direct the gas mixture from the mixing tube to either end of the tube or to both ends of the tube according to its position of adjustment.

10. In a burner for incandescing mantles, a vertical mixing tube, a tubular member, and a tube connecting the mixing tube with the tubular member to support the tubular member in a vertical position, each end of the tubular member being provided with means for supporting a mantle, and an adjustable valve in the tubular member in proximity to said transverse tube organized to direct the gaseous mixture from the transverse tube, to either end of the tubular member or to both ends thereof according to its position of adjustment.

Signed at Nos. 9-15 Murray street, New York, N. Y., this 3rd day of May, 1907.

AMBROSE G. FELL.

Witnesses:

WILLIAM H. REID,
C. A. WEED.