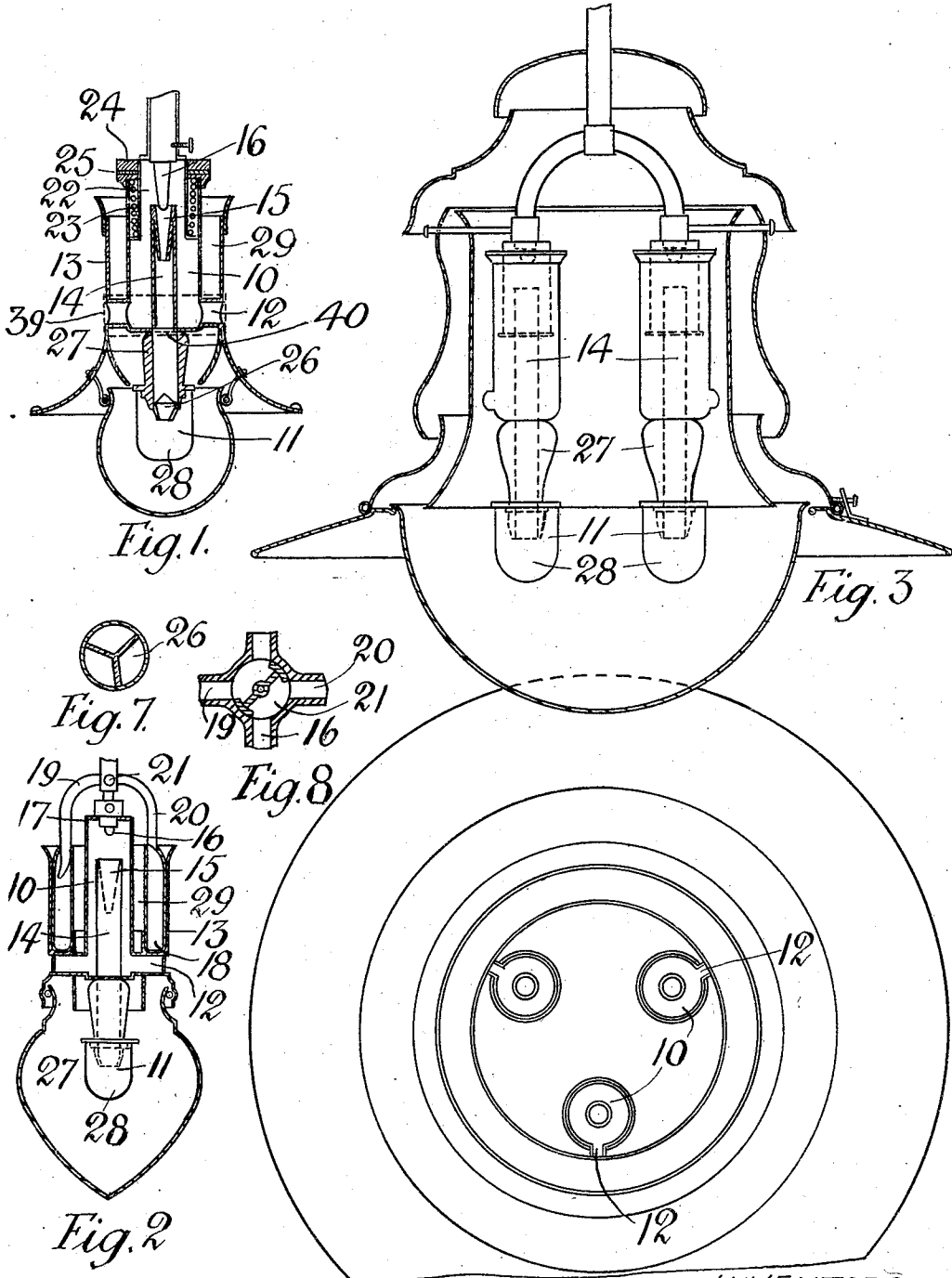


W. & H. ANDERSON.
 INVERTED INCANDESCENT BURNER.
 APPLICATION FILED FEB. 18, 1908.

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Patented Oct. 19, 1909.

2 SHEETS—SHEET 1.



WITNESSES:
 Edw. D. Spring
 W. P. Burr

INVENTORS
 Fig. 4 William Anderson
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 ATTY

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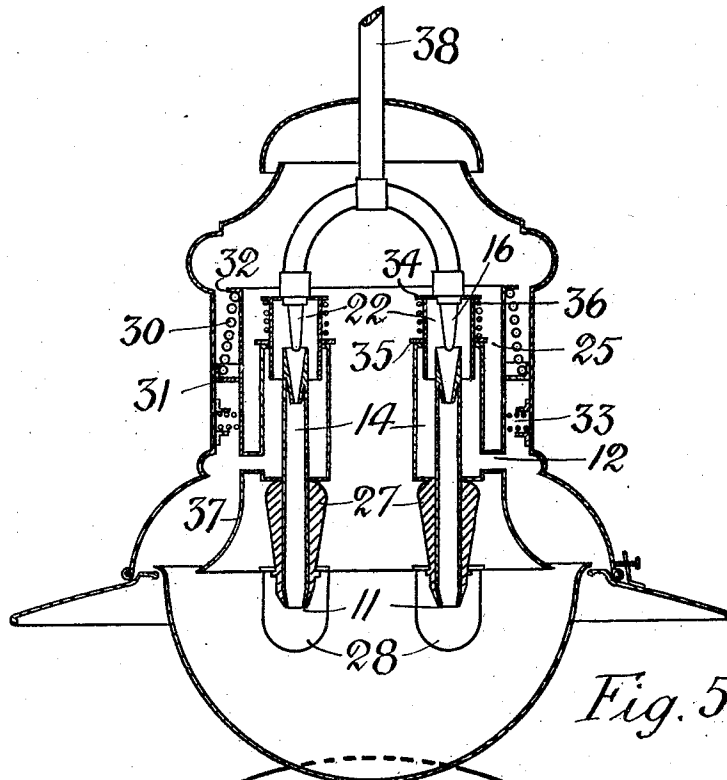


Fig. 5.

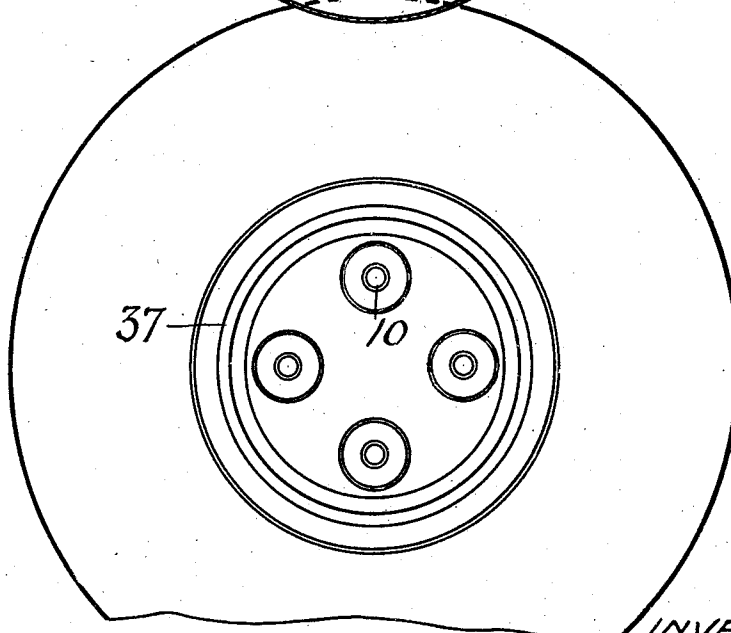


Fig. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM ANDERSON AND HENRY ANDERSON, OF EDINBURGH, SCOTLAND.

INVERTED INCANDESCENT BURNER.

937,571.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed February 18, 1908. Serial No. 416,630.

To all whom it may concern:

Be it known that we, WILLIAM ANDERSON and HENRY ANDERSON, subjects of the King of Great Britain and Ireland, residing at Edinburgh, Scotland, (whose post-office addresses are Scotsman Arcade, North Bridge, Edinburgh,) have invented new and useful Improvements in Inverted Incandescent Burners, of which the following is a specification.

This invention relates to inverted incandescent burners, the objects being to heat the air and the gas; to cause the gas and the air to mix more perfectly together before combustion and to decrease the vibration on the mantle.

In order that our said invention and the manner of putting the same into practice may be properly understood we have herewith appended two explanatory sheets of drawings in which the same reference numerals are used to indicate corresponding parts in the figures shown.

Figure 1 is a sectional elevation of a lamp as fitted with our improvements. Fig. 2 is a sectional elevation of a modified form of lamp. Figs. 3 and 4 are respectively a part sectional elevation and plan showing three of our lamps grouped together and Figs. 5 and 6 are modifications of the lamp illustrated by Figs. 3 and 4. Fig. 7 is a plan on an enlarged scale looking on the mouth of the burner. Fig. 8 is a cross section through the gas stop cock.

In carrying out our invention, as illustrated by Figs. 1 and 7 we heat the air in a chamber 10 which encircles the burner 11 the pure air being conducted into such chamber by one or more pipes 12 through the gallery 13, the products of combustion rising through the annular passage 29. The pipe 14 which carries the burner is screwed into the bottom of the air chamber 10 passing up within it until it is near the top. The upper or inlet end of this pipe is provided with a concave conical mouth 15 into which the gas supply cone or nipple 16 projects.

The anti-vibrator device consists of a tube 22 carried by or forming part of the gas supply pipe and its lower edge terminates in a flange upon which the spring 23 rests. The top of the vertical tube of the air chamber has also a flange and between these two flanges the spring operates. The top of the vertical tube of the air chamber 10 is closed by a flanged cover 24 whose under side is

faced with an asbestos ring 25, the asbestos making it gas or air tight, although allowing the cover to slide up and down on the gas pipe when the lamp vibrates.

When the lamp is in operation the gas passes out of the nipple 16 and down the tube 14 in its passage mixing with the heated air which is in the chamber 10 the cone 15 being introduced to assist in the mixing. In order to keep the gas from lighting back, the mouth of the tube 27 may be provided with a three leaf diaphragm 26 which divides the aperture into three.

39 and 40 are pieces of gauze for arresting dust.

The supply tube 14 ends in a porcelain tube 27.

28, is the ordinary inverted mantle.

In Figs. 2 and 8 is illustrated an arrangement whereby the gas may be heated before passing into the cone 15, by flowing into an annular chamber 18 through the gas supply pipe 19 while another pipe 20 from the opposite side rises up and then turns in being coupled to the gas supply cone or nipple 16. The stop cock 21 is of the two way variety thus permitting the gas to pass down the pipe 19 into the chamber 18 where it is heated, such heated gas then flowing up through the pipe 20 and out through the cone or nipple 16.

Fig. 8 shows the cock in position for the gas to flow in the direction above indicated. When it is desired to shut off the gas supply the cock is turned until the pipes 19 and 20 are closed. The air is heated by passing into the annular chamber 10, and the gas by passing through the chamber 18 the products of combustion rising through the annular passage 29.

Figs. 3 and 4 illustrate how a group of three lamps such as is shown by Fig. 1 can be arranged about a common central gas supply pipe.

Figs. 5 and 6 show how the anti-vibrator may be applied to a number of lamps in a group, the anti-vibratory spring 30 being common to the group. It rests in a flange 31 on the gallery and supports the group by a flange 32. 33 are side springs which tend to limit lateral motion. The tube 22 is closed at the top and is open at the bottom and has a flange 34. The top of each vertical tube of the air chamber has also a flange 35 and between these two flanges is an asbestos ring 25 and a spring 36 the asbestos ring fitting

closely around the tube 22, being kept against the flange 35 by the spring 36 thus making a gas tight joint for each lamp while permitting the frame 37 which carries such lamp to
5 move up and down relative to the fixed pipe 38 on which are the gas cones or nipples 16.

Having now described our invention what we claim as new and desire to secure by Letters Patent is:—

10 In a gas lamp, a supply pipe having a gas nipple therein, a gas and air eduction tube having a concave conical mouth into which the gas nipple injects, an annular chamber surrounding said tube for heating air, said
15 chamber having apertures leading to the at-

mosphere, an annular gas heating chamber closed to the air and communicating with the gas supply pipe, an outlet pipe connecting said gas heating chamber with the gas nipple, and a two-way cock for permitting
20 the gas to circulate in the heating chamber.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM ANDERSON.
HENRY ANDERSON.

Witnesses:

J. SIMPSON JACK,
FREDERICK PIATT.