

No. 762,734.

PATENTED JUNE 14, 1904.

H. MARSHALL & J. MATON.  
CARBURETING LAMP.

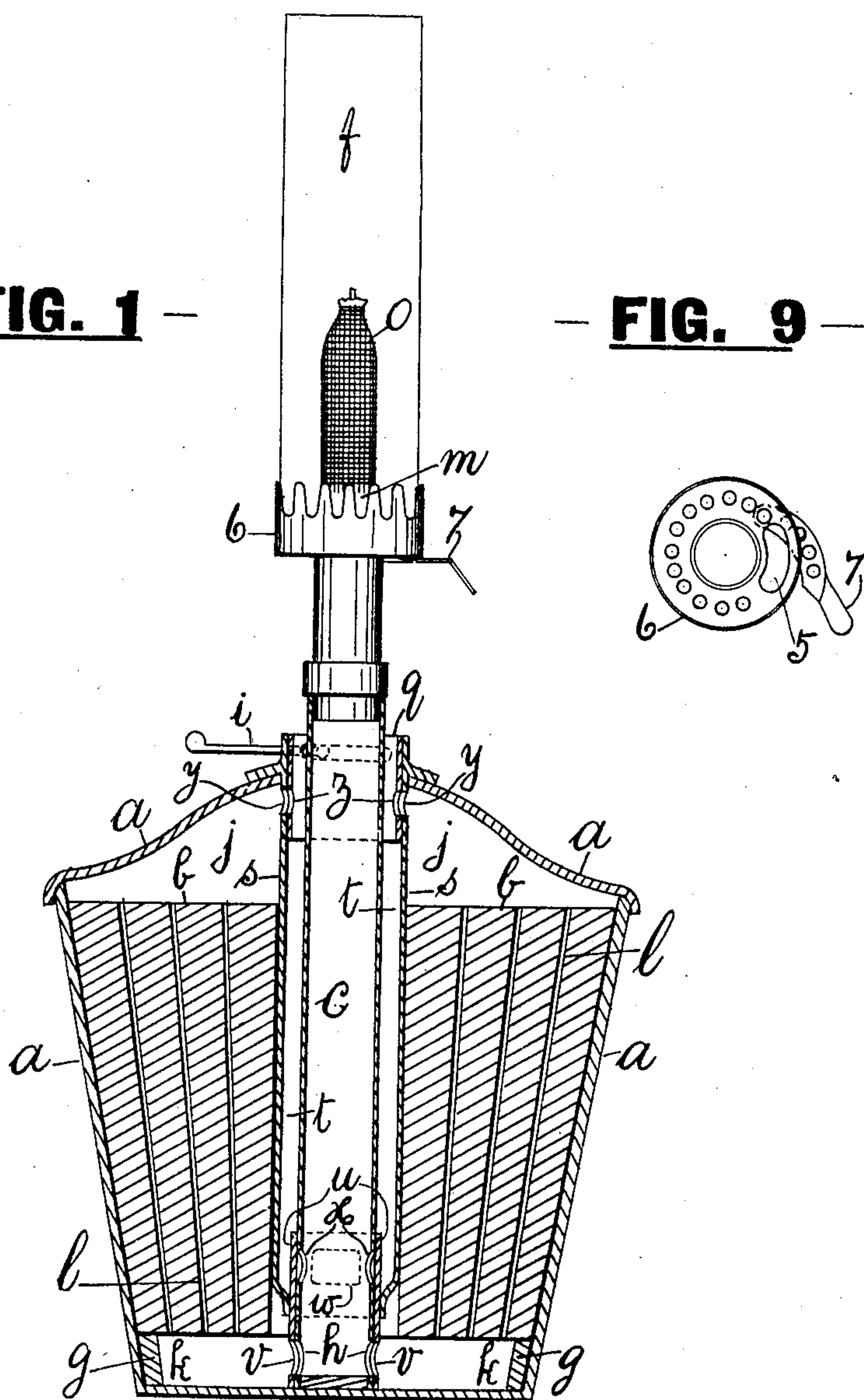
APPLICATION FILED FEB. 27, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

— FIG. 1 —

— FIG. 9 —



Witnesses.

George Frederick Gadd.

Arthur Gadd.

Inventors.

Hugh Marshall and Joseph Maton

Per William Gadd.

Attorney

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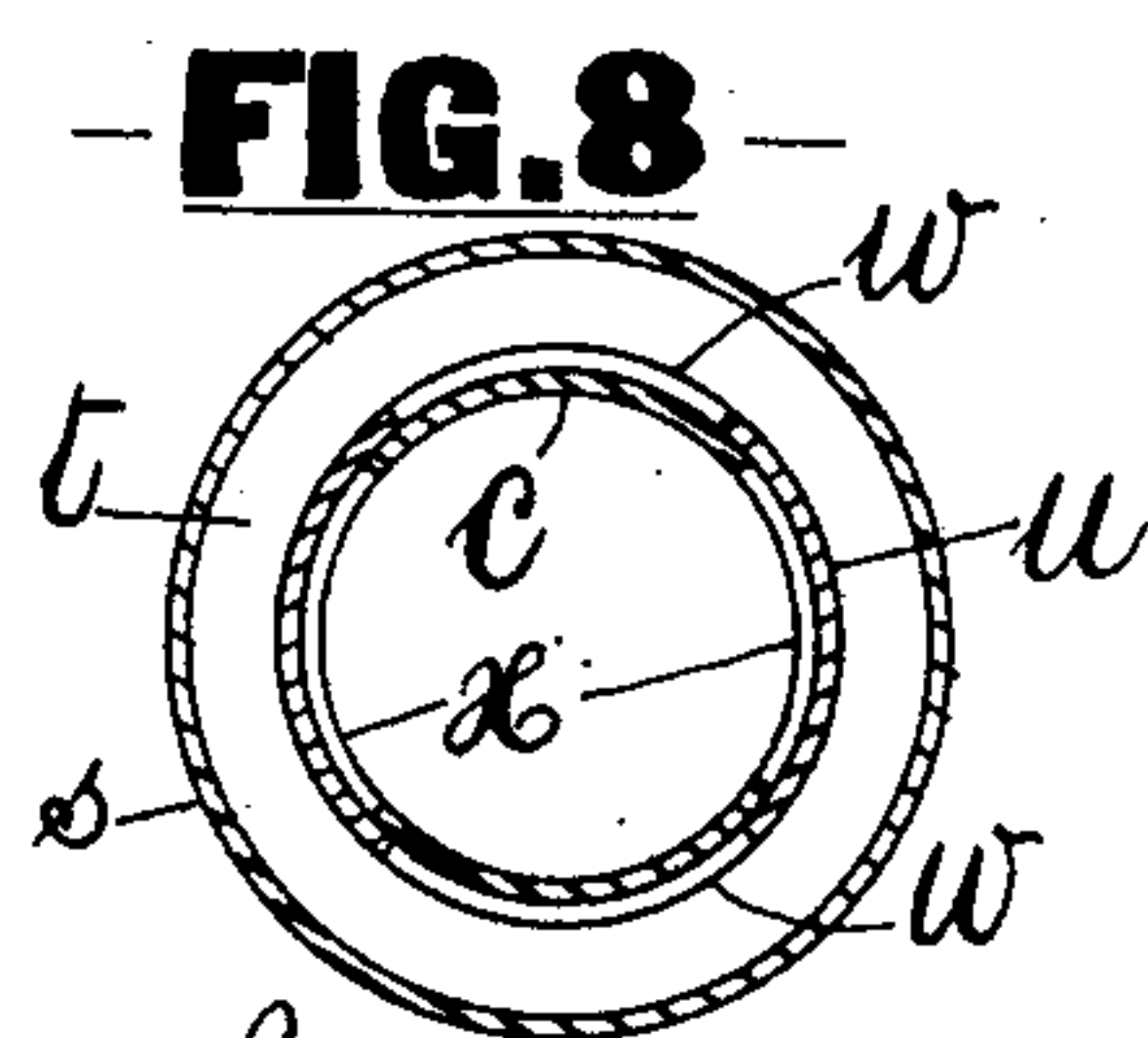
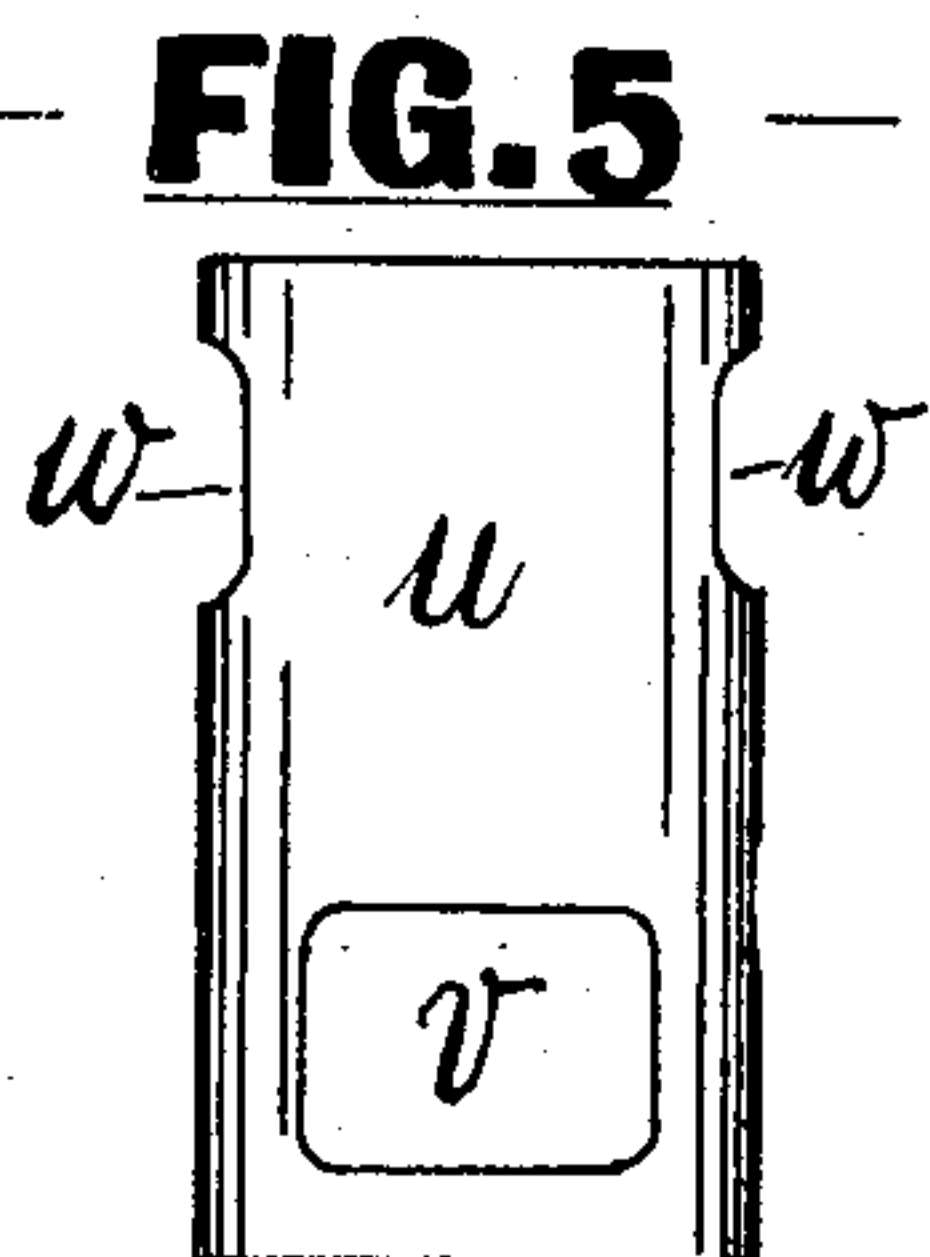
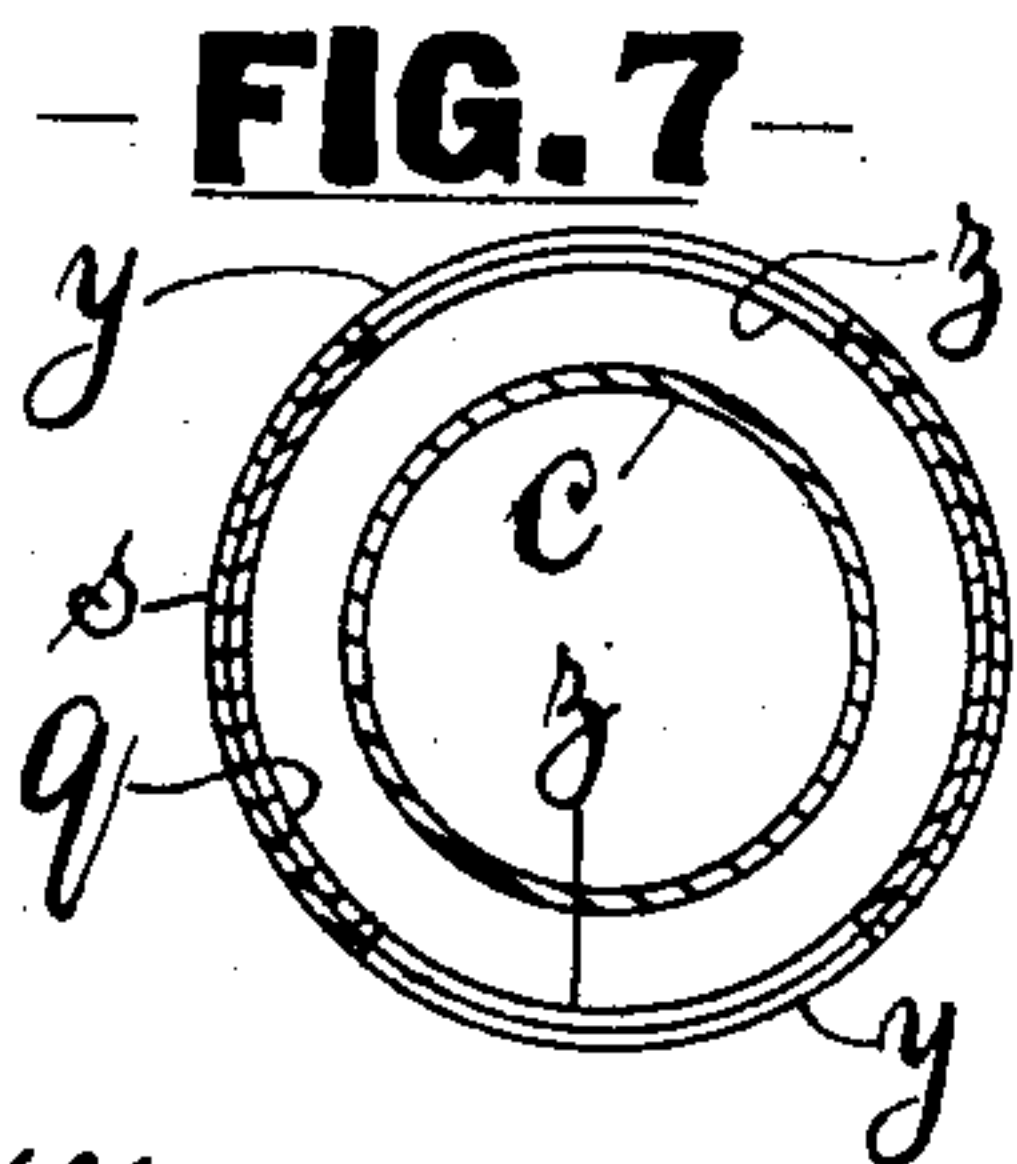
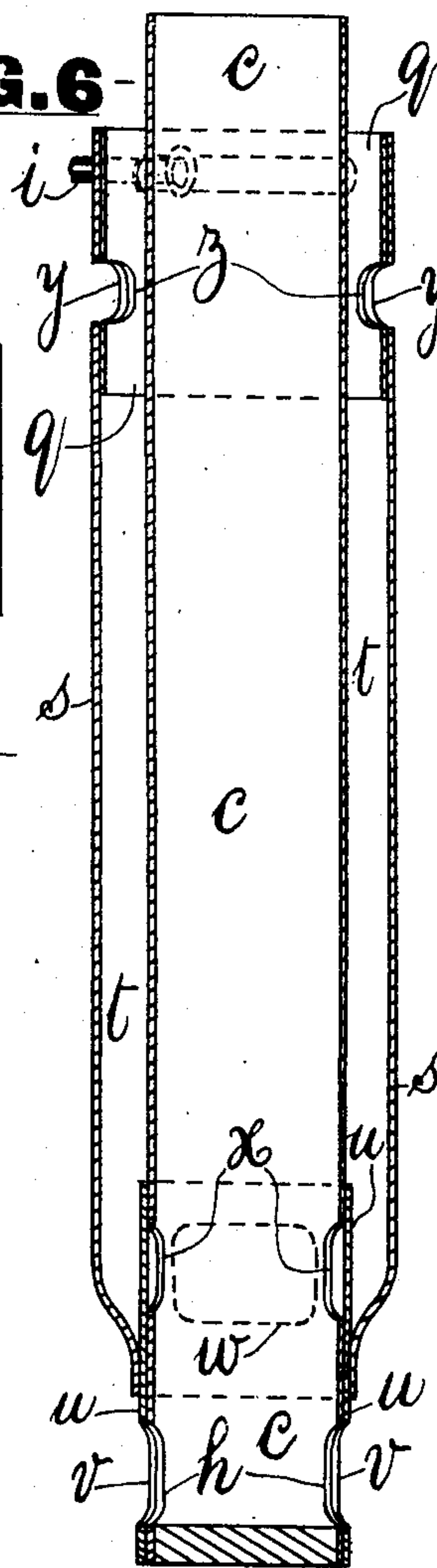
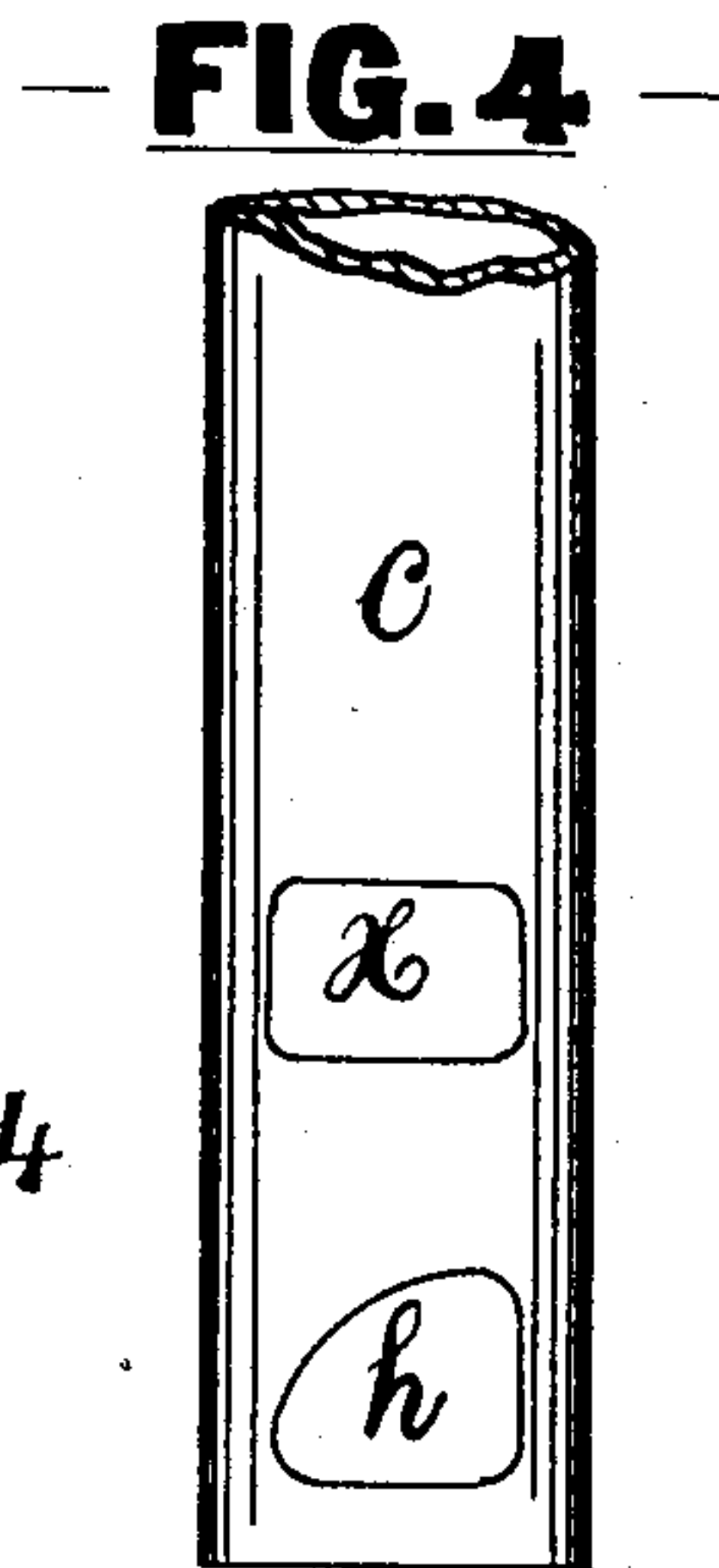
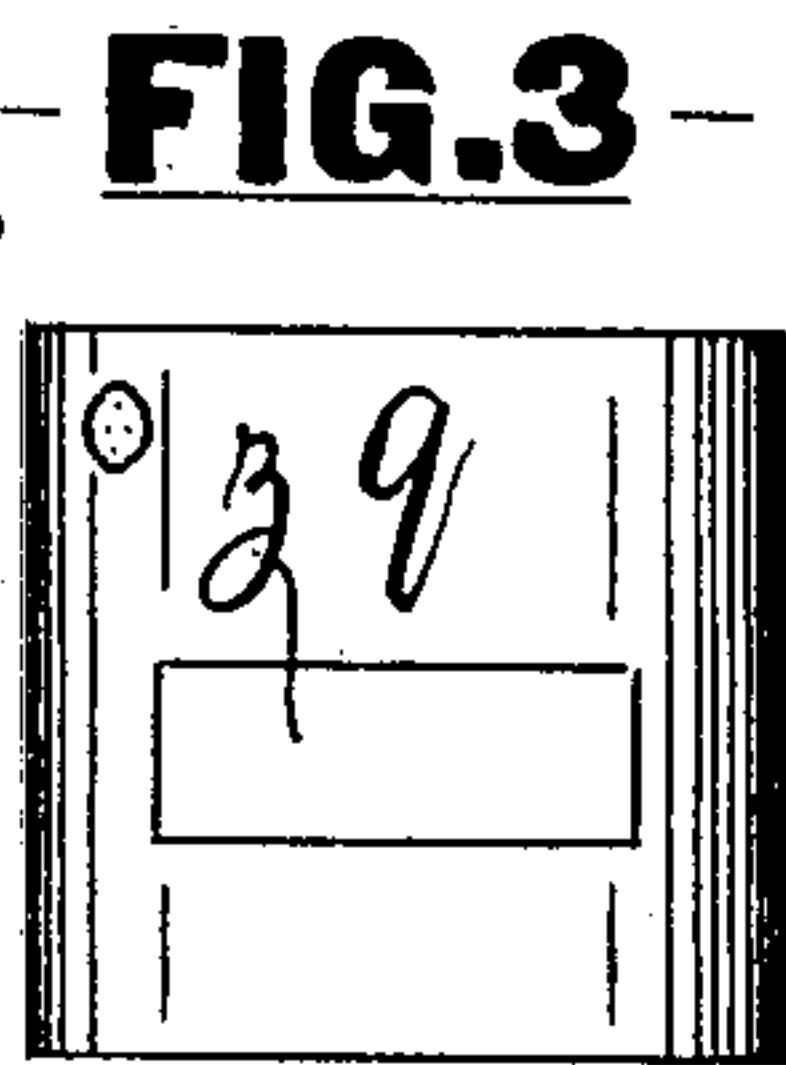
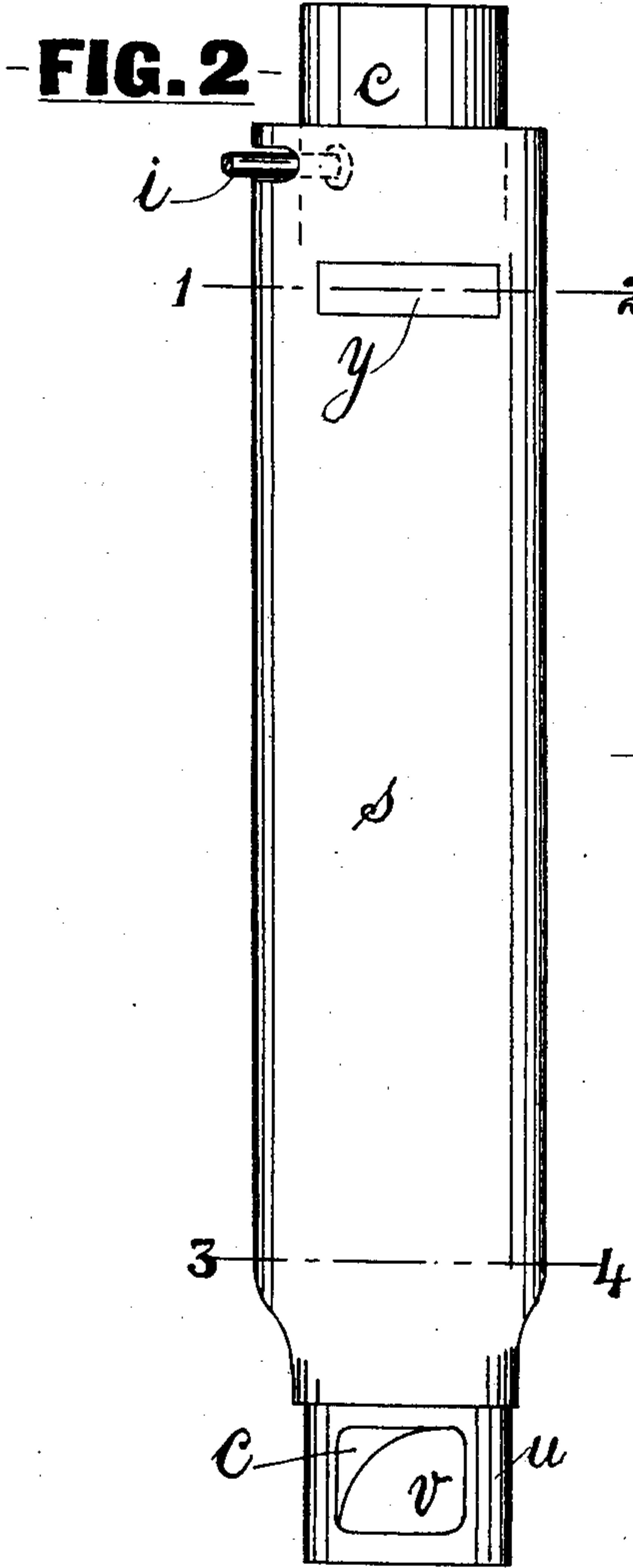
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CARBURETING LAMP.

APPLICATION FILED FEB. 27, 1904.

NO MODEL

2 SHEETS—SHEET 2.



Witnesses.

George Frederick Gadd.

Arthur Gadd.

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Per William Gadd.

Attorney.



# UNITED STATES PATENT OFFICE.

HUGH MARSHALL AND JOSEPH MATON, OF EDINBURGH, SCOTLAND.

## CARBURETING-LAMP.

SPECIFICATION forming part of Letters Patent No. 762,734, dated June 14, 1904.

Application filed February 27, 1904. Serial No. 195,569. (No model.)

*To all whom it may concern:*

Be it known that we, HUGH MARSHALL, a subject of the King of Great Britain, residing at 12 Lonsdale Terrace, and JOSEPH MATON, a citizen of the United States of America, residing at 388 Morningside road, Edinburgh, in the county of Edinburgh, Scotland, have invented new and useful Improvements in Carbureting-Lamps, (for which we have made applications for patents in the following countries: Great Britain, No. 11,789, bearing date May 23, 1903; Austria, filed December 29, 1903, and Hungary, filed December 31, 1903,) of which the following is a specification.

This invention relates to a carbureting-lamp where the air is automatically and continuously carbureted by being made to pass in a downward direction through a receptacle charged with an absorbent material saturated with light hydrocarbon, such receptacle being immediately below the burner, after the style of an ordinary paraffin oil lamp or stove, and the carbureted air being raised through a tube direct to the burner from the absorbent material by the heat of combustion within the chimney or funnel.

The present invention is to provide means whereby we may simultaneously and by one operation control the air-inlet to the carbureter. The carbureted air exits from the carbureter to the burner-tube and the air-supply to the burner-tube.

We will proceed to describe our invention with reference to the accompanying drawings, wherein—

Figure 1 shows a sectional view of one form of apparatus arranged and provided in accordance with our improvements, and Figs. 2, 3, 4, and 5 are elevations of details hereinafter to be described. Fig. 6 is a vertical section of Fig. 2; and Figs. 7 and 8 are cross-sections on lines 1 2 and 3 4, respectively, of Fig. 2. Fig. 9 is a plan view of a chimney-gallery provided as hereinafter described.

*a* is the receptacle containing a perforated absorbent block *b*, the perforations *l* running from top to bottom thereof. *j* and *k* are chambers above and below such block, and *g* are supports for the block. The absorbent is saturated with light hydrocarbon oil, the excess

being drained off. Air enters at the top of the reservoir, as hereinafter described, and becomes impregnated with the hydrocarbon vapors, the resulting gaseous mixture (being heavier than atmospheric air) descending through the perforations *l* or through passages made in the absorbent and collecting in the space *k* at the bottom of the reservoir.

A metal or other tube *c* is sunk within the reservoir and through a hole made in the block or other absorbent and communicating with the chamber *k* at the bottom of the reservoir. A Bunsen, Argand, or other burner *m*, with glass or other funnel *f*, is fixed on the top of the reservoir in communication with this tube *c*. A draft is started by heating the air in the funnel, which may be done by applying a lighted taper at the bottom of the funnel through a suitable orifice. In the example shown at Fig. 9 this orifice is formed at 5 in the base of the chimney-gallery 6, such orifice being normally covered by a suitably-mounted cap 7, which is moved aside into the position shown for the purpose referred to. This draft draws up the gas from the reservoir and enables it to become ignited at the burner. After ignition the combustion of the gas within the chimney or funnel will itself produce the necessary current of air through the air-inlet, the absorbent material, and the central tube to the burner.

About the aforesaid tube *c* we place a larger tube *s*, an annular space *t* being left between one tube and the other. This tube *s* passes through the container-cover, to which it is secured, and is open at the top to the atmosphere, while at its lower extremity it is contracted to fit around a sleeve *u*, to which it is attached. This sleeve in its turn forms a socket for the inner tube *c*, which is capable of turning therein, and such sleeve projects for a distance within the annular space *t* and also extends along with the inner tube *c* below the extremity of the outer tube *s*. The tube *c* is closed at the bottom. The lower part of the sleeve *u* is provided with lateral openings *v*, through which the carbureted air passes from the chamber *k* into the inner tube *c*, which tube *c* is provided with corresponding openings *h*. In the drawings these openings *h* are shown



somewhat wedge-shaped, as it is thereby possible to obtain greater nicety in adjusting the quantity of carbureted air if the latter is very rich. The upper part of the sleeve *u* is provided with lateral openings *w*, corresponding with openings *x* in the tube *c*, by which means air may be drawn from the annular space *t* into the inner tube. These two sets of openings *h v* and *w x* are so arranged that when the carbureted-air openings *h v* are fully open the air-openings *w x* are completely closed, or if the lower set are only partially opened the upper set are similarly partially opened. Opening and closing are effected by rotating the inner tube.

The lateral openings *y* in the outer tube *s* for the admission of air to the carbureter are regulated by an inner movable sleeve *q*, provided with corresponding openings *z*. The sleeve *q* is rotated along with the inner tube *c* by means of any suitable device, such as the rod *i*, which works in a slot cut in the outer tube *s* and is connected to the said sleeve and inner tube.

The opening and closing of the air-inlet to the carbureter must be made to coincide with the opening and closing of the lower set of openings *h v*, leading from the carbureter into the inner tube.

The burner proper fits over the top of the inner tube *c* in such manner as not to obstruct the admission of air to the annular space *t*. When the lamp is in action, the draft from the chimney sucks air through the apparatus.

This air enters at the upper end of the annular space *t*, part thereof entering the top of the carbureter by the openings *y z* and passing down through the absorbent, where it becomes carbureted, afterward entering the inner tube by the lower set of openings *h v*.

Another part of the air passes down the annular space *t* to the middle set of openings *w x*, by which it enters the inner tube *c* and mixes with the carbureted air. By suitably regulating the proportions of carbureted air and ordinary air, this being effected by rotating the inner tube, a mixture is obtained suitable for the production of a flame such as is required for use with an incandescent mantle *o*.

The lamp or apparatus herein described and illustrated may be used for illuminating or heating purposes.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

A carbureting-lamp consisting of the following combination, namely: a receptacle *a*, situated below a burner *m*; said burner *m*; a perforated absorbent block *b*, within said receptacle; chambers *j*, *k*, above and below said block; an inner tube *c*, in communication with said burner, and capable of being rotated, and formed with openings *h*, *x*; an outer tube *s*, open at the top to the atmosphere, and formed with openings *y*, the said tube *s*, surrounding the said tube *c*, in such manner as to leave an annular space *t*, between the said tubes; a sleeve *u*, attached to the lower part of the said tube *s*, and formed with openings *v*, *w*; and a sleeve *q*, connected to the said tube *c*, and formed with openings *z*, all for the purpose and in manner substantially as herein shown and described.

HUGH MARSHALL.  
JOSEPH MATON.

Witnesses:

PATRICK ALEXANDER GUTHRIE,  
WILLIAM DAVIE.