

No. 654,669.

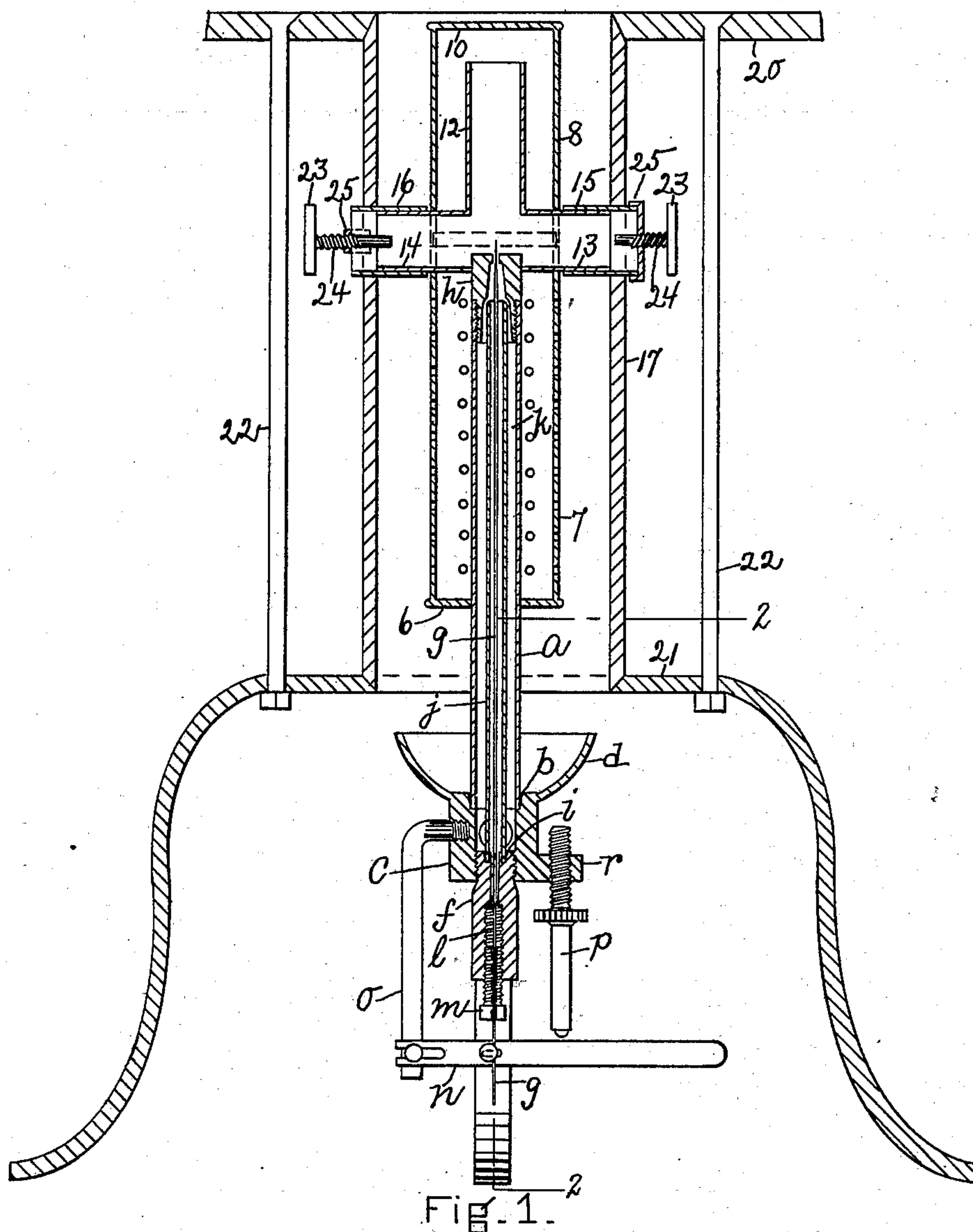
Patented July 31, 1900.

C. PERILLAT.
HYDROCARBON BURNER.

(Application filed Feb. 8, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.
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J. Murphy.

INVENTOR.
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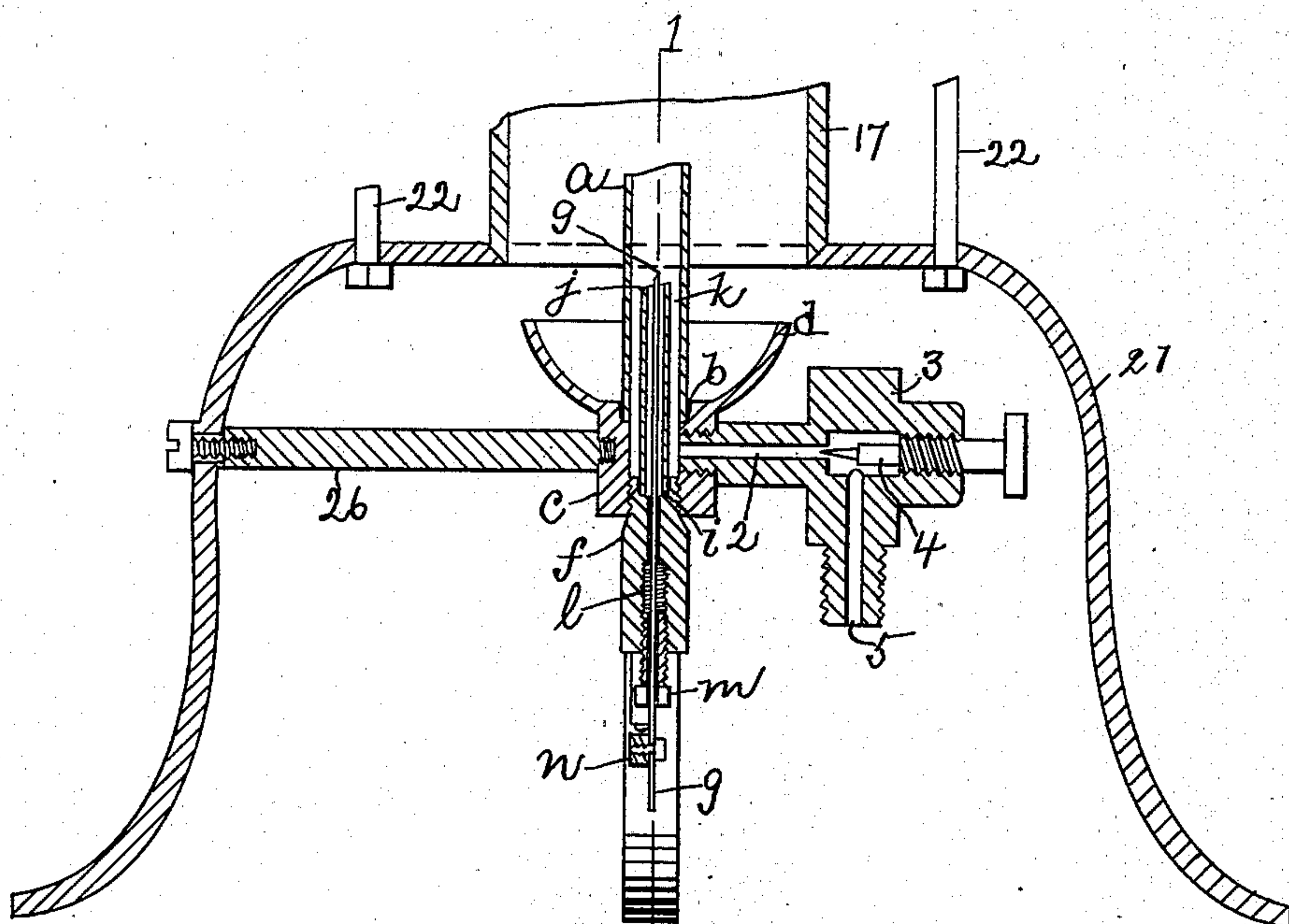


Fig. 2.

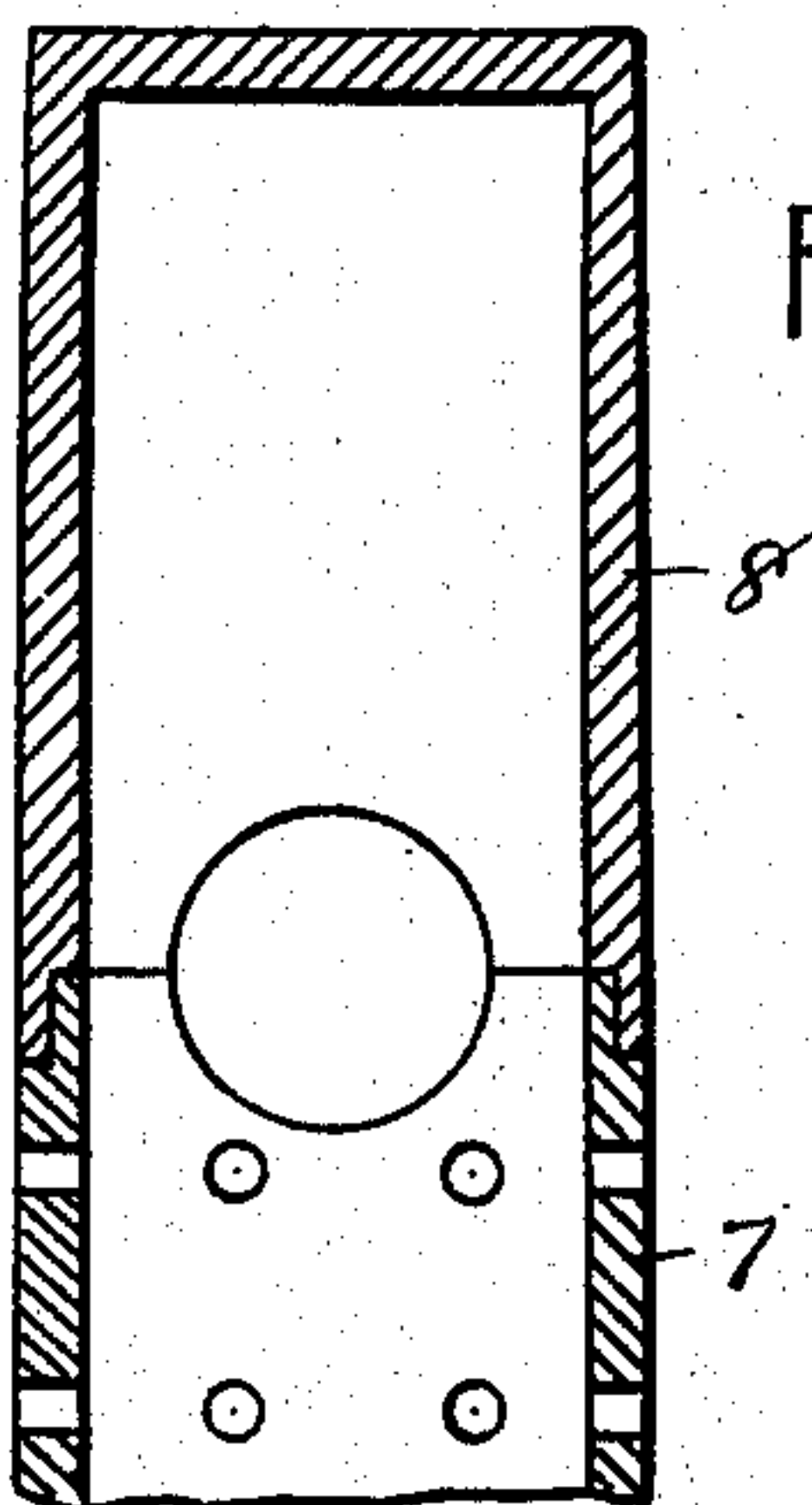


Fig. 3.

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UNITED STATES PATENT OFFICE.

CHARLES PERILLAT, OF BOSTON, MASSACHUSETTS.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 654,669, dated July 31, 1900.

Application filed February 8, 1900. Serial No. 4,501. (No model.)

To all whom it may concern:

Be it known that I, CHARLES PERILLAT, a citizen of France, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Hydrocarbon-Burners, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to a hydrocarbon-burner especially designed and adapted for heating purposes, but which may also be employed for lighting.

The invention has for its object to provide a simple and efficient burner of the class described which is practical, easily accessible, readily cleansed, and with which an intense heat may be obtained with a minimum consumption of fuel. For this purpose I employ a perforated or foraminous jacket surrounding a vaporizing tube or chamber and communicating with a mixing-chamber, into which the vapor from the vaporizing-tube is discharged and admixed with air and from which the heated mixture of air and vapor descends into the foraminous jacket and is consumed on the outside thereof. The foraminous jacket and mixing-chamber are preferably surrounded by a cylinder or casing forming a combustion-chamber, and which also serves as a chimney to concentrate the heat, as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a vertical section of a hydrocarbon-burner embodying this invention; Fig. 2, a sectional detail on the line 2 2, Fig. 1; and Fig. 3, a sectional detail, on an enlarged scale, to be referred to.

Referring to Fig. 1, *a* represents the vaporizing tube or chamber, which is secured liquid-tight by brazing *b* or otherwise securing to a fitting *c*, having attached to its upper end a shallow vessel or cup *d*, which surrounds the vaporizing-tube *a* and is designed to contain alcohol to start the burner in operation. The fitting *c* has its bottom closed by a screw-threaded plug *f*, having a central bore or opening through which is extended a needle *g*, adapted to clean the vapor-outlet orifice in a cap *h*, inserted into the upper end of the

tube *a*. The plug *f* has secured to it liquid-tight by brazing *i* a small tube *j*, extended up into the vaporizing-tube *a* to near the upper end thereof, the tube *j* forming within the tube *a* a liquid-tight chamber *k* and preventing leakage of oil out of said chamber through the bottom of the fitting *c*, thereby enabling the needle-valve *g* to be removed when broken or when desired without danger or leakage of oil through the hollow plug *f*. The central bore or opening in the plug *f* may be enlarged to form a chamber *l* for the reception of packing, (not shown,) but which surrounds the needle and prevents escape of vapor through the hollow plug, the said packing being retained in the chamber *l* by a hollow screw *m*, through which the needle extends and is secured, as herein shown, to an actuating-lever *n*, pivotally secured to a bracket or arm *o*, depending from the fitting *c*, the said lever cooperating with an adjusting-screw *p*, carried by a lug *r* on said fitting. The fitting *c* has communicating with it an oil-inlet passage 2 in a valve-fitting 3, provided with a valve 4, controlling the admission of the oil into the chamber *k*, the valve-fitting 3 having an inlet-passage 5 connected to a suitable source of supply. (Not herein shown.)

The vaporizing-tube *a* is extended up through the bottom 6 of a jacket or cylinder 7 of perforated or foraminous material, which has its upper end extended into a cylinder or casing 8 (see Fig. 3 and dotted lines, Fig. 1) and brazed or otherwise secured thereto. The casing 8 is closed at its upper end 10 and forms a mixing-chamber for vapor and air. The casing 8 has extended up into it to near its closed upper end 10 a vertical tube or pipe 12, having horizontal branches 13 14 extended through said casing and perforated jacket, and, as herein shown, into pipes 15 16, projecting through an outside cylinder or casing 17, the branches 13 14 constituting air-supply pipes for the burner. The tube 12 and its branches 13 and 14 are fitted into suitable semicircular notches in the upper edge of the jacket 7 before the casing 8 is fitted onto the said jacket.

The cap *h* of the vaporizing-tube *a* preferably extends through an opening in the air-supply pipes in line with the vertical pipe 12, so that the vapor discharged through

the orifice in said cap may pass directly up into the pipe 12 and draw through the branch pipes 13 14 a supply of air, which is thoroughly commingled with the vapor in the tube or pipe 12 and also in the mixing-chamber 8, down through which it descends into the foraminous jacket, from which it issues through the perforations or meshes thereof and is ignited within the casing 17, from which the flame issues at the center of support 20, which may be a spider or open frame, and which is secured to a base 21 by stay-bolts 22. The quantity of air admixed with the vapor may be regulated by suitable disks or valves 23, having threaded stems 24, extended through threaded openings in cross-bars 25, secured to the pipes 15 16. The upward current of air and vapor is arrested by the closed end 10 of the casing 8, thus assisting in thoroughly mixing the air and vapor.

The needle *g* may be raised and lowered by means of the lever *n*, and the amount of vapor issuing from the vaporizer may be regulated by limiting the upward movement of said lever, which is effected by the adjusting-screw *p*.

The alcohol-cup *d* surrounds the lower part of the vaporizing-chamber and is readily accessible, as is also the needle, the screw *m*, and the hollow plug *f*, so that these parts may be readily removed. The fitting *c* is supported from the base 21, as shown, by a bracket 26.

The heated mixture of vapor and air passes down from the mixing-chamber about the upper portion of the vaporizing-tube, thereby keeping the said tube sufficiently hot to vaporize the oil admitted therein through the inlet-passage 2, the flow of oil into the vaporizing-tube being regulated by the valve

4. The casing 17 serves to concentrate the flame, which may be drawn by the current of air passing up through said casing up above the top of the burner, thus heating the mixing-chamber 8; but while I may prefer to employ the casing 17 it might be omitted and an efficient burner obtained, in which case suitable side supports would be provided for the mixing-chamber and the foraminous jacket.

In hydrocarbon-burners of the class described it is desired to have the orifice in the cap for the vaporizing-tube substantially small, and in order to prevent the needle being forced up through this orifice, and thereby enlarging the same, the adjustable stop *p* is provided, which limits the upward movement of the lever *n*.

I claim—

1. In a burner of the class described, the combination with a vaporizing tube or chamber provided at its lower end with an oil-inlet and at its upper end with a substantially-small vapor-outlet, of a foraminous jacket or casing surrounding the upper portion of the said vaporizing tube or chamber, and means communicating with the vapor-outlet of the vaporizing-tube and with the said jacket to

cause the vapor issuing from the vaporizing-tube to pass backward outside of said vaporizing-tube and into the foraminous jacket, and an air-supply pipe communicating with said means near the vapor-outlet for the vaporizing-chamber, substantially as described.

2. In a burner of the class described, the combination with a vaporizing tube or chamber provided at its lower end with an oil-inlet and at its upper end with a substantially-small vapor-outlet, of a foraminous jacket or casing surrounding a portion of the said vaporizing tube or chamber, and means to cause the vapor issuing from the vaporizing-chamber to pass backward outside of said vaporizing-chamber and into the foraminous jacket, and a casing surrounding said foraminous jacket and separated therefrom, substantially as described.

3. In a burner of the class described, the combination with a vaporizing tube or chamber, of a foraminous jacket or casing surrounding a portion of the said vaporizing tube or chamber, a mixing-chamber located above and communicating with said foraminous jacket, and a mixing tube or pipe within said mixing-chamber and into which the vapor passes from the vaporizing-tube on its way to said mixing-chamber, substantially as described.

4. In a burner of the class described, the combination with a vaporizing tube or chamber, of a foraminous jacket or casing surrounding a portion of the said vaporizing tube or chamber, a mixing-chamber located above and communicating with said foraminous jacket, and a mixing tube or pipe within said mixing-chamber and into which the vapor passes from the vaporizing-tube on its way to said mixing-chamber, and an air-supply pipe communicating with the mixing tube or pipe within the mixing-chamber.

5. In a burner of the class described, the combination with a vaporizing tube or chamber provided at its lower end with an oil-inlet and at its upper end with a substantially-small vapor-outlet, of a jacket provided with a plurality of vapor-outlets in its side walls and up into which the upper end of the vaporizing-tube extends, means communicating with the discharge-orifice of the vaporizing-tube and with the said jacket to cause the vapor issuing from the vaporizing-tube to pass backward outside thereof, into the said jacket and out therefrom through the outlet-openings in its side walls, substantially as described.

6. In a burner of the class described, the combination with a fitting provided with an oil-inlet in its side, of a vaporizing-tube secured liquid-tight to said fitting above said inlet-opening, a screw-threaded hollow plug inserted into the bottom of said fitting, a tube secured liquid-tight to the upper end of said hollow plug and extended up into the said vaporizing-tube, a needle inserted through said hollow plug and the tube attached there-

to and normally projecting beyond the upper end of the said tube, a hollow screw inserted into a threaded opening in the hollow plug and through which said needle projects, and
5 means to which the lower end of said needle is secured, substantially as described.

7. In a burner of the class described, the combination with a fitting provided with an oil-inlet in its side, of a vaporizing-tube secured liquid-tight to said fitting above said
10 inlet-opening, a screw-threaded hollow plug inserted into the bottom of said fitting, a tube secured liquid-tight to the upper end of said hollow plug and extended up into the said
15 vaporizing-tube, a needle inserted through said hollow plug and the tube attached there-

to and normally projecting beyond the upper end of the said tube, a hollow screw inserted into a threaded opening in the hollow plug and through which said needle projects, a
20 pivoted lever to which said needle is secured at its lower end, and an adjustable screw or stop carried by the said fitting and cooperating with the said lever, substantially as described.
25

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES PERILLAT.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.