

J. KIDD.

CARBURETING LAMP.

No. 396,041.

Patented Jan. 8, 1889.

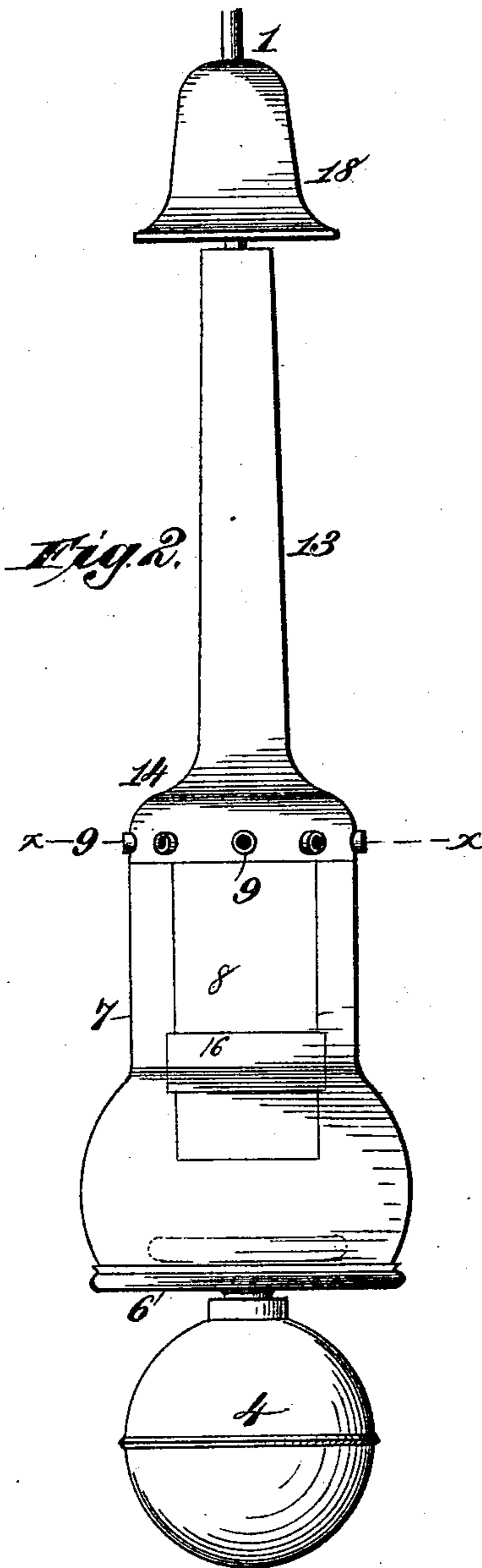
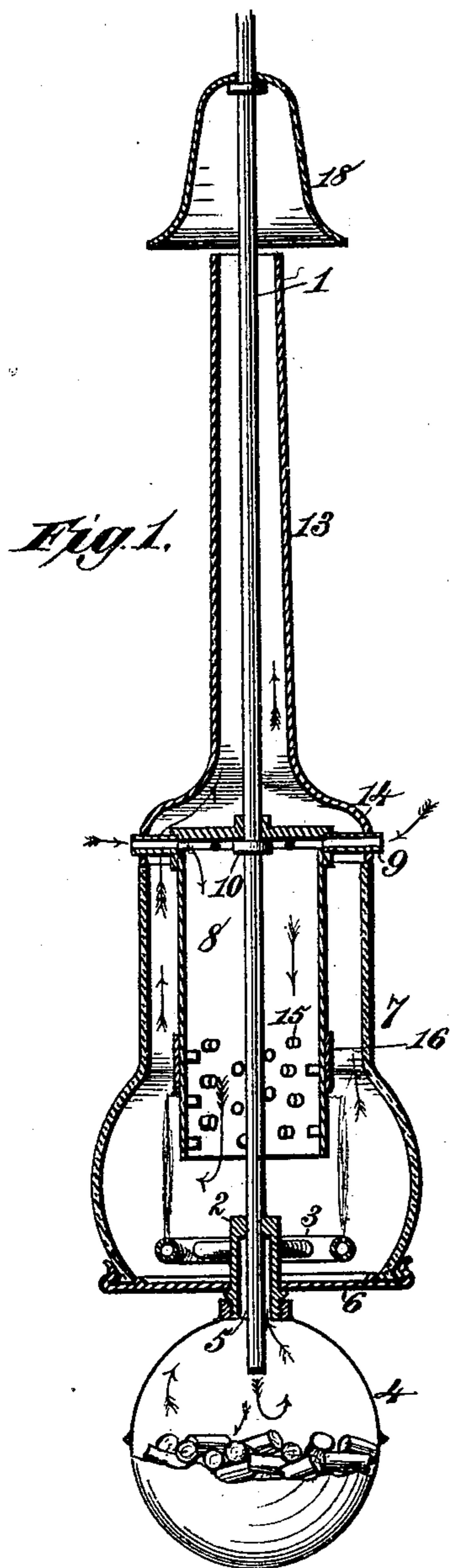
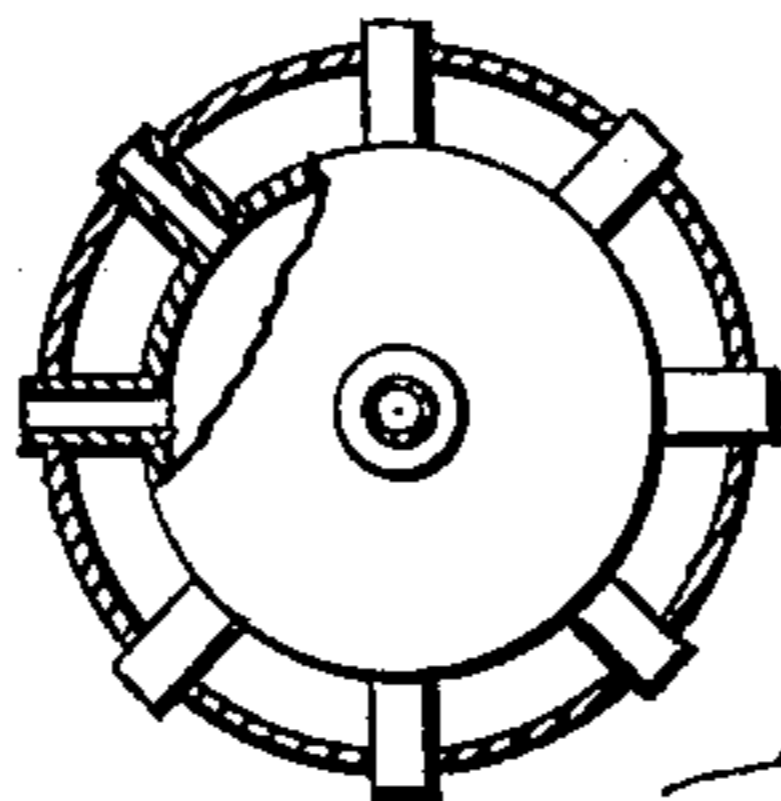


Fig. 3.



Witnesses.
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

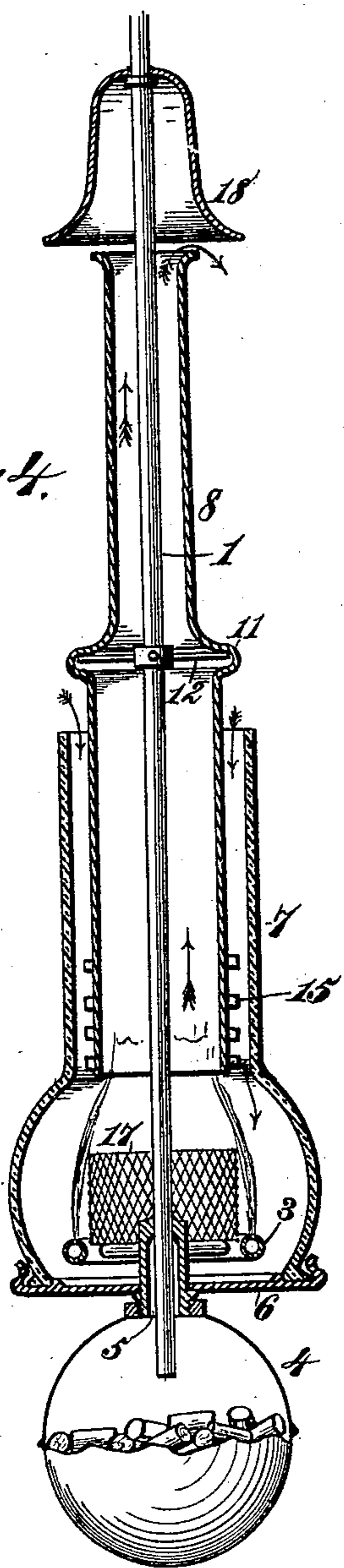


Fig. 5.

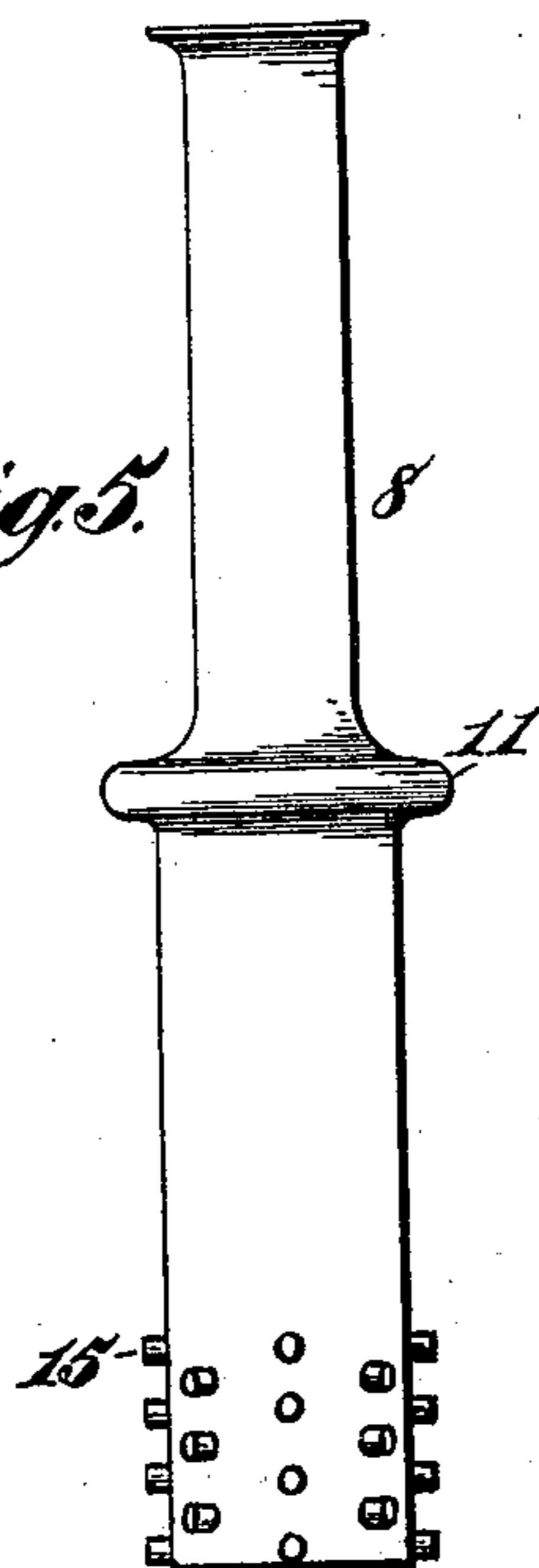
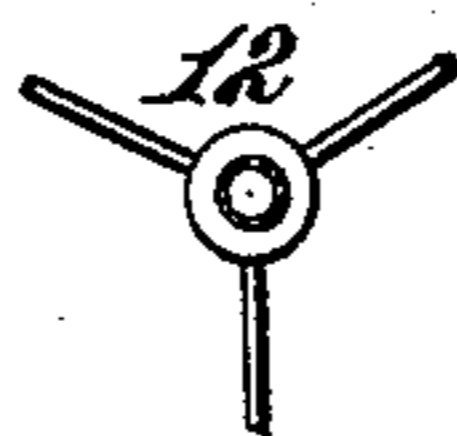


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSHUA KIDD, OF NEWARK, NEW JERSEY; JAMES KIDD (ADMINISTRATOR OF SAID JOSHUA KIDD, DECEASED) ASSIGNOR TO WALTER I. KIDD, OF SAME PLACE.

CARBURETING-LAMP.

SPECIFICATION forming part of Letters Patent No. 396,041, dated January 8, 1889.

Application filed May 12, 1886. Serial No. 201,984. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA KIDD, a subject of the Queen of Great Britain, (but who has declared his intention to become a citizen of the United States,) residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Carbureting-Lamps, of which the following is a specification.

This invention has for its object, first, to utilize the heat hitherto wasted in a carbureting-lamp for the purpose of rendering incandescent a piece of platinum; second, to provide an extremely simple and efficient device for heating the air supplied to the already carbureted flames, and, third, to provide an improved construction for heating the gas for the purpose of vaporizing the naphthaline or other heavy hydrocarbon.

The object of my invention I accomplish by the construction and combination of devices, hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of my improved illuminating apparatus. Fig. 2 is an elevation of the same. Fig. 3 is a plan view, partly in section, on the line $x x$, Fig. 2, of the upper end of the short chimney illustrated in Fig. 1, showing also the radial air-inlet tubes attached to said chimney. Fig. 4 is a vertical longitudinal section of a modification in which the short chimney is external instead of internal and serves as a globe. Fig. 5 is an elevation of the long internal chimney illustrated in Fig. 4, showing the lateral studs or projections for increasing the heating-surface. Fig. 6 is a plan of the bracket or spider for supporting said internal chimney on the central gas-tube.

Referring to the drawings, the numeral 1 designates a gas-inlet pipe or supply-tube, which is preferably a straight vertical pipe, to which is attached a tube, 2, that supports an annular burner, 3, of the Argand class. The lower end of the tube 2 is open, and is externally screw-threaded for attachment of the internally-threaded neck of a detachable pendent carbureting-vessel, 4, into which the lower end of the gas-tube 1 extends, a passage,

5, being afforded between the gas-tube and the interior of the tube 2 for the flow of carbureted gas from the vessel 4 to the burner or burners.

To the tube 2 is securely attached a solid disk or circular plate, 6, for supporting the globe or outer chimney, 7, which is composed of glass or other transparent or translucent material. This plate or disk 6 is so formed as to closely embrace the lower edge of the globe or outer chimney, and thereby exclude the access of air at the lower part of the apparatus.

Suspended from the gas-tube within the globe or outer transparent chimney, 7, is an inner metallic chimney, casing, or heating device, 8. This inner chimney, 8, may be comparatively short, closed at the top, and provided with radiating air-inlet tubes 9, as shown in Figs. 1, 2, and 3, or may be of greater length and open at both ends, as shown in Fig. 4. The top plate of the short inner chimney, 8, (shown in Fig. 1,) is perforated for the passage of the gas-tube, and is supported thereon by a collar or nut, 10, as shown in Fig. 1, while the long inner chimney shown in Fig. 4 has a bead or annular corrugation, 11, by which it is supported on a spider, 12, attached to said gas-tube.

Above the short inner chimney, 8, is a metallic chimney or extension, 13, which forms a continuation of the glass chimney or globe 7, as shown in Fig. 1. This chimney 13 has an enlarged or flaring base, 14, which is perforated near its lower edge for engagement with the radial air-inlet tubes 9, a rigid connection being thus formed between the chimneys 8 and 13, so that both may be supported by the central gas-tube through the collar 10 at the top of the short inner chimney.

It will be seen that as the top of the chimney 8 is closed there is no direct communication between it and the chimney 13. The chimneys 7 and 13 communicate through the spaces between the radial tubes 9.

It will be observed that in the construction shown in Figs. 1 and 2 the upper edge of the globe or chimney 7 and the lower edge of the chimney 13 are fitted closely together, the air-supply being drawn through the radial tubes

9, and thence down through the short inner chimney, 8, to the interior of the annular flame by the upward draft through the chimneys 7 and 13, as indicated by the arrows in Fig. 1.

In the form of construction illustrated in Fig. 4 the inner chimney, 8, is elongated and open at both ends and the draft passes down through the top of the globe or chimney 7, and thence upward through the chimney 8, as shown by the arrows.

The gas-supply is conducted to the burners in the same manner through the tube 1, carbureting-vessel 4, and tube 2 in both forms of construction.

By providing the burner with chimneys that inclose or surround the gas-supply tube the heat of combustion is made to pass upward along the outside of said gas-tube, so as to considerably raise the temperature of the gas before it reaches the burner, thereby increasing the illuminating power of the gas-flame both by the heating of the gas and the vaporizing of the carbon by the heated gas. This effect may be still further promoted by increasing the heating-surface of the metallic chimney 8, either by disposing lateral studs or projections 15 on the interior of the short inner chimney, as shown in Fig. 1, or on the interior of the long inner chimney, as shown in Figs. 4 and 5.

The brilliancy of the illuminating-flame can be greatly enhanced by placing a piece of platinum-foil or wire-gauze, or other suitable substance coated with platinum, in such proximity to the flame as to be brought to a state of incandescence, either by direct or radiated heat. When platinum-foil 16 is used, I prefer to attach it to the lower part of the chimney 8, as shown in Fig. 1, either in the form of a band or otherwise. In addition to the band of platinum-foil, or instead thereof, a cylinder of platinum-gauze, 17, may be arranged within the flame of the annular burner, as shown in Fig. 4. It is obvious that a light of great brilliancy can be thus readily obtained.

To the gas-supply tube is secured a bell-shaped heat-arrester or heat-retaining casing, 18, which is closed at the top and which confines the heat in contact with the gas-tube, so as to heat the gas before it passes to the carburetor and burner. It will be noticed that this heat-arrester is bent outward at its lower edge, the flaring opening converging more heat upon the gas-inlet pipe or chamber.

It is obvious that the open tubular casing or chimney 8 may in some cases be dispensed with and the closed heat-arrester 18 used alone to serve the same purpose; but when the platinum is used to intensify the incandescence of the gas-flame the construction shown in the drawings is preferable.

By means of these improved illuminating devices a clear, steady, and brilliant light of great power and much superior to ordinary

gas-light can be obtained without increasing the consumption of gas.

I am aware that an oil-burning lamp has comprised an outer chimney supported and closed at its bottom by an imperforate plate, and its inner chimney open at its lower end below the burner and supported at such end by spring-fingers.

I am aware that a gas-heating chamber has been formed in the gas-inlet pipe to arrest or retain heat from the gas-flame for the purpose of heating the gas before it enters the carbureting-vessel, as I have shown such an arrangement in my previous Letters Patent No. 247,925.

I am also aware that devices have been employed for heating the air supplied to the burners to intensify the combustion of ordinary gas, and that platinum has hitherto been used to increase the illumination from ordinary gas.

Such features in themselves I do not claim. In my previous patent, No. 247,925, the gas-inlet pipe or heater was directly heated by the gas-flames. In the present construction the indirect heat from a body of heated air inclosed around the pipe is employed to heat the gas. The mechanism of the heating device being outside instead of inside, the pipe or chamber can be more readily attended to whenever such attention is necessary, and the use of a straight vertical gas inlet-pipe, instead of the more intricate gas-chamber of my former invention, enables ordinary gas-pipe to be employed, with a consequent economy and simplification of the device. It also enables any obstruction that might choke up a horizontal heating-chamber to be more readily driven out.

The use with a carbureting-lamp of devices for heating the air supplied to the burners and of increasing the illumination of already carbureted gas by means of platinum or some other platinized substance still further increases the brilliancy of the light.

By these means a great increase in illumination is obtained over the ordinary methods of carbureting gas, and at the same time a very efficient means is employed to both heat gas and vaporize the hydrocarbon.

What I claim as my invention is—

1. In a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, the combination of a gas-burner, a carbureting-vessel located below the gas-burner, a gas-inlet pipe communicating with the carbureting-vessel, and in which the gas is heated before entering said vessel, for the purpose of melting and vaporizing the hydrocarbon, and a heat-arrester closed at the top and placed about the gas-inlet pipe to retain the heat in contact with said pipe, substantially as described.

2. In a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, the combination of a vertical

gas-inlet pipe communicating with the carbureting-vessel, and in which the gas is heated before it enters said vessel, a gas-burner adjacent to the carbureting-vessel and the gas-inlet pipe, a tube surrounding the gas-inlet pipe and communicating with the gas-burner and the carbureting-vessel, a vertical tubular casing provided with a bell-shaped or flaring lower opening placed around the vertical gas-pipe to converge and retain the heat in contact with said pipe, and a carbureting-vessel detachable from the fixed part of the apparatus, substantially as and for the purposes described.

3. In a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, the combination of a gas-burner, a carbureting-vessel located below the gas-burner, a central gas-inlet pipe adjacent to the gas-burner and communicating with the carbureting-vessel, an inner tubular casing open at the lower end and provided with air-inlet tubes at the upper end and placed about the gas-inlet pipe to converge the heat and bring it in contact with said pipe, and an outer glass chimney surrounding the gas-inlet pipe and the inner tubular casing to cause a circulation of air about the flame, substantially as and for the purposes described.

4. In a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, the combination of a carbureting-vessel, a gas-burner communicating with the carbureting-vessel, a central gas-inlet pipe adjacent to the gas-burner and communicating with the carbureting-vessel, an outer casing located around the gas-burner and the central gas-inlet pipe, an air-heating device suspended within the outer casing and surrounding the central pipe, a solid plate or disk located below the gas-burner for supporting the outer casing and closing its lower end, and a piece of platinum located in proximity to the gas-burner, so as to be brought to a state of incandescence by the heat, substantially as described.

5. In a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, the combination of a carbureting-vessel, a gas-burner communicating with the carbureting-vessel, a gas-inlet pipe also communicating with said vessel, a gas-heating device formed on or attached to said pipe and adjacent to the gas-burner, and a piece of platinum or other similar substance capable of being raised to a state of incandescence by the heat from the flame and located in proximity to the gas-burner, substantially as and for the purposes described.

6. The combination, in a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, of a gas-burner, a carbureting-vessel located below the gas-burner, a straight vertical gas-inlet pipe adjacent to the gas-burner and communicating with the carbureting-vessel, and a heat-retaining casing placed about the inlet-pipe to bring the heat from the gas-flame in contact with said pipe, substantially as described.

7. The combination, in a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, of a gas-burner, a straight vertical gas-inlet pipe adjacent to the gas-burner and communicating with the carbureting-vessel, a casing placed about the inlet-pipe to bring the heat from the gas-flame in contact with said pipe, and a carbureting-vessel detachable from the fixed portion of the apparatus, substantially as described.

8. The combination, in a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, of a carbureting-vessel, a gas-burner connected with said vessel, a gas-inlet pipe adjacent to the burner and communicating with the carbureting-vessel, and an air-heating device consisting of two or more vertical casings, one within the other, the outer casing surrounding the gas-burner and closed at its lower end, and the inner casing having its lower end above the gas-burner, substantially as described.

9. The combination, in a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, of a gas-burner, a carbureting-vessel, a central gas-inlet pipe located above the gas-burner and communicating with the carbureting-vessel, and a glass chimney surrounding the burner and inlet-pipe to intensify the combustion of the flame and to increase the heat on said pipe, substantially as described.

10. The combination, in a carbureting-lamp for enriching gas by the vapor of naphthaline or other heavy hydrocarbon, of a carbureting-vessel, a gas-burner, a straight vertical gas-inlet pipe in which the gas is heated before entering the carbureting-vessel, a tube communicating with the gas-burner and the carbureting-vessel and located around the inlet-pipe, and a heat-arresting casing placed around the inlet-pipe to bring the heat from the gas-flame in contact with said pipe, substantially as and for the purposes described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOSHUA KIDD.

Witnesses:

J. A. RUTHERFORD,
GEO. W. REA.

It is hereby certified that the name of the assignee in Letters Patent No. 396,041, granted January 8, 1889, upon the application of Joshua Kidd, of Newark, New Jersey, for an improvement in "Carbureting-Lamps," was erroneously written and printed "Walter I. Kidd," whereas said name should have been written and printed *Walter J. Kidd*; and that the said Letters Patent should be read with this correction therein that the same may conform to the corrected files and records of the case in the Patent Office.

Signed, countersigned, and sealed this 19th day of February, A. D. 1889.

[SEAL.]

D. L. HAWKINS,
Assistant Secretary of the Interior.

Countersigned:

BENTON J. HALL,
Commissioner of Patents.