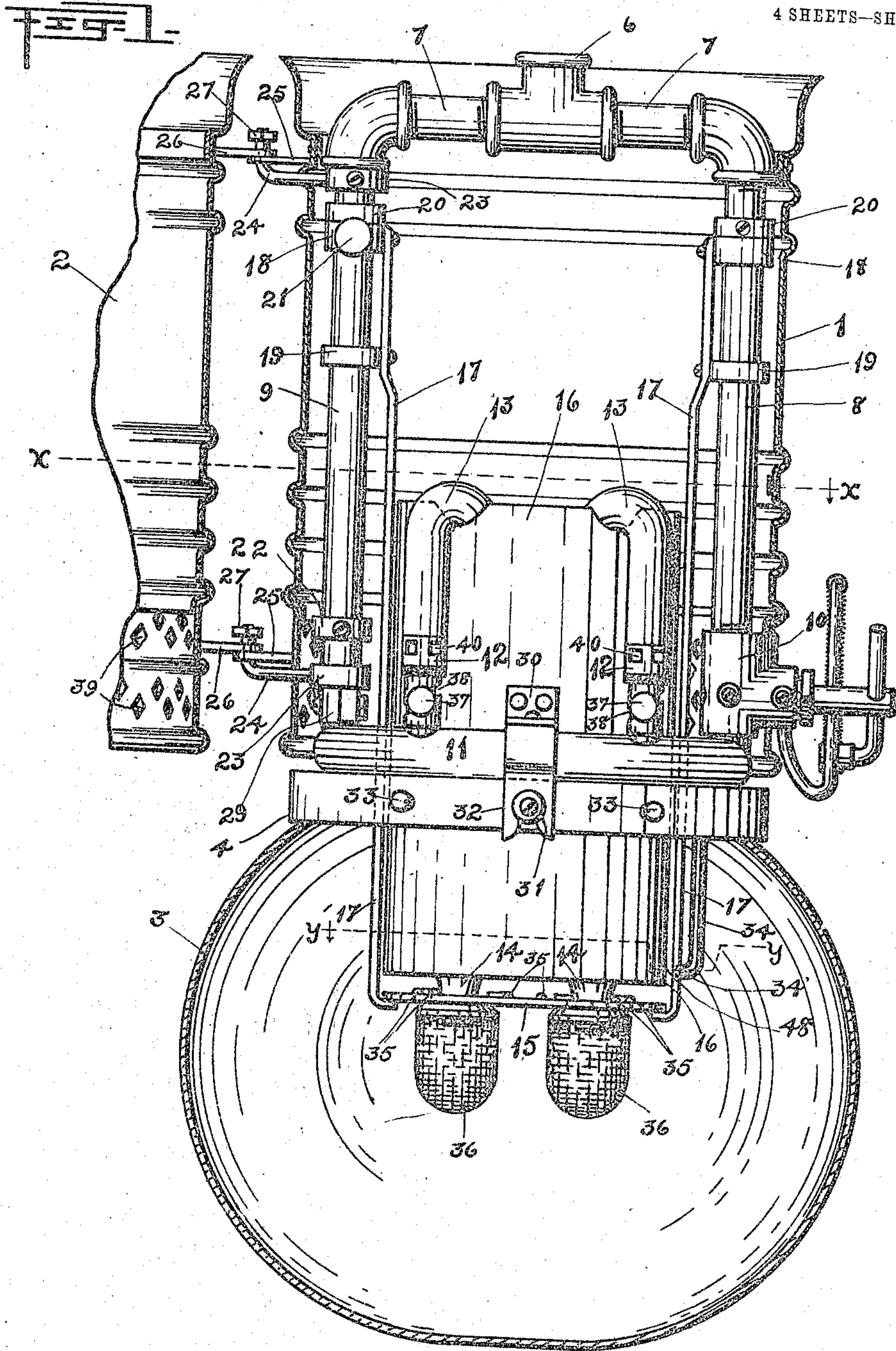


J. MAAS.
GAS LIGHT FIXTURE,
APPLICATION FILED MAY 21, 1908.

900,031.

Patented Sept. 29, 1908.

4 SHEETS—SHEET 1.



WITNESSES:
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FIG. 2.

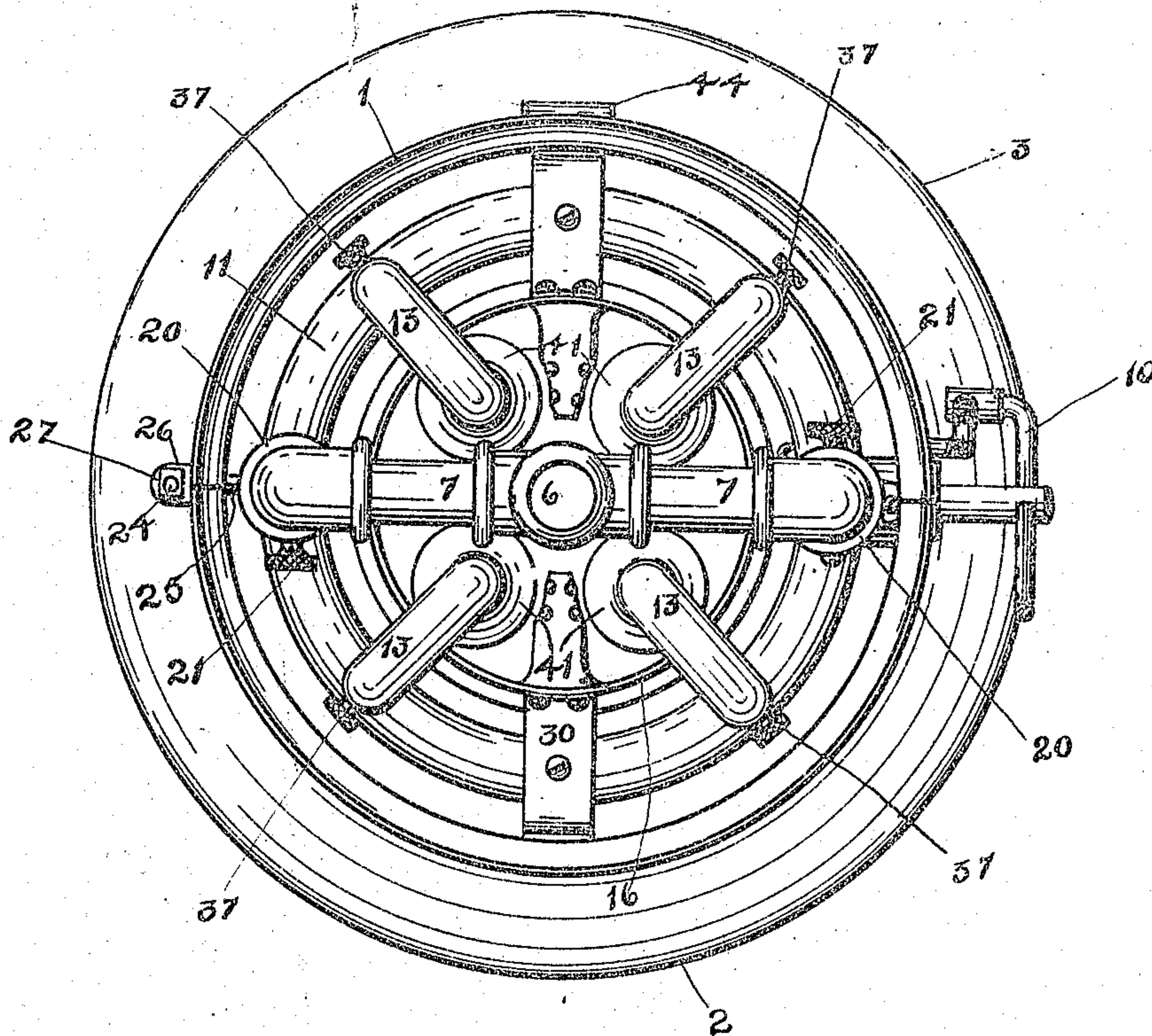
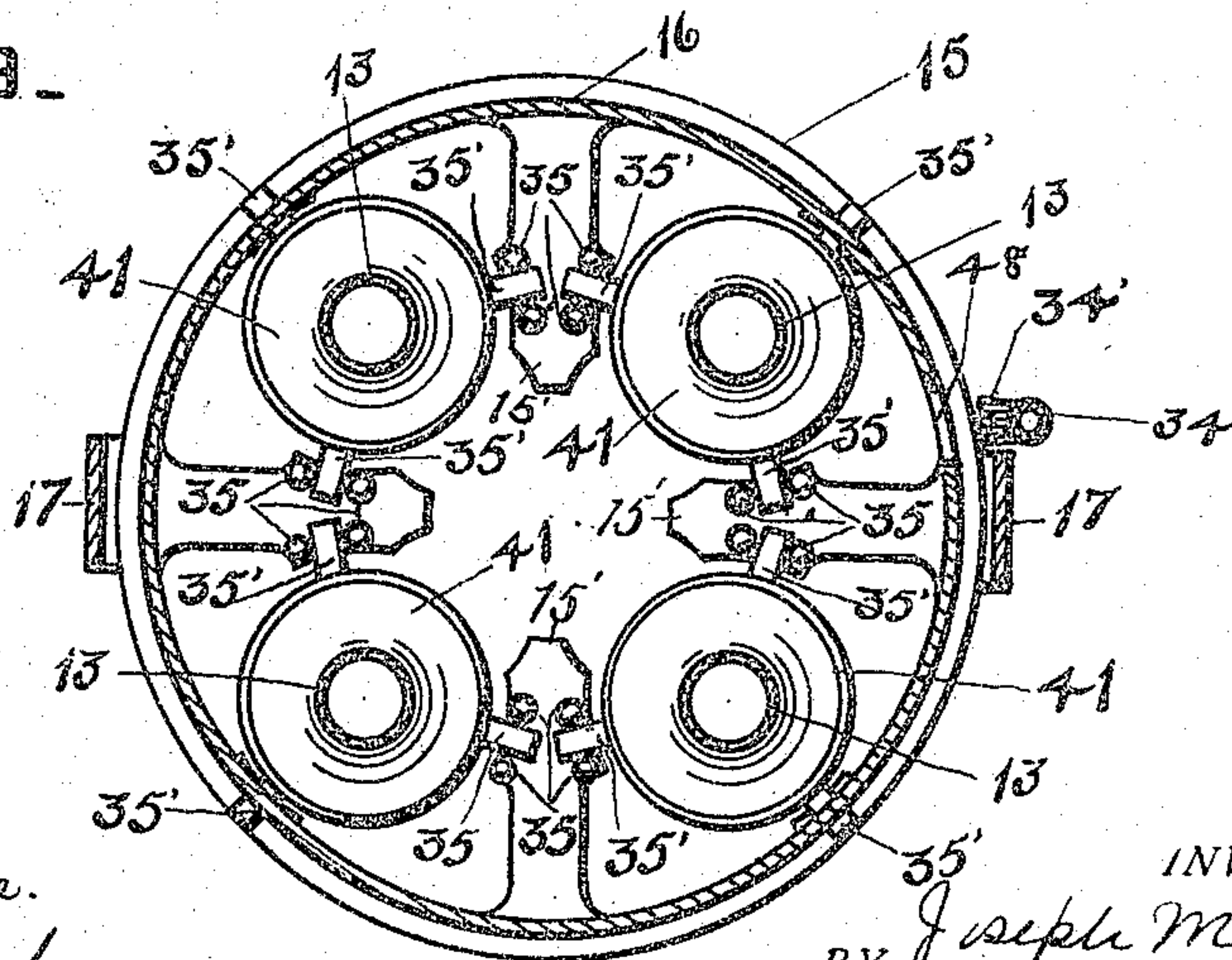


FIG. 3.



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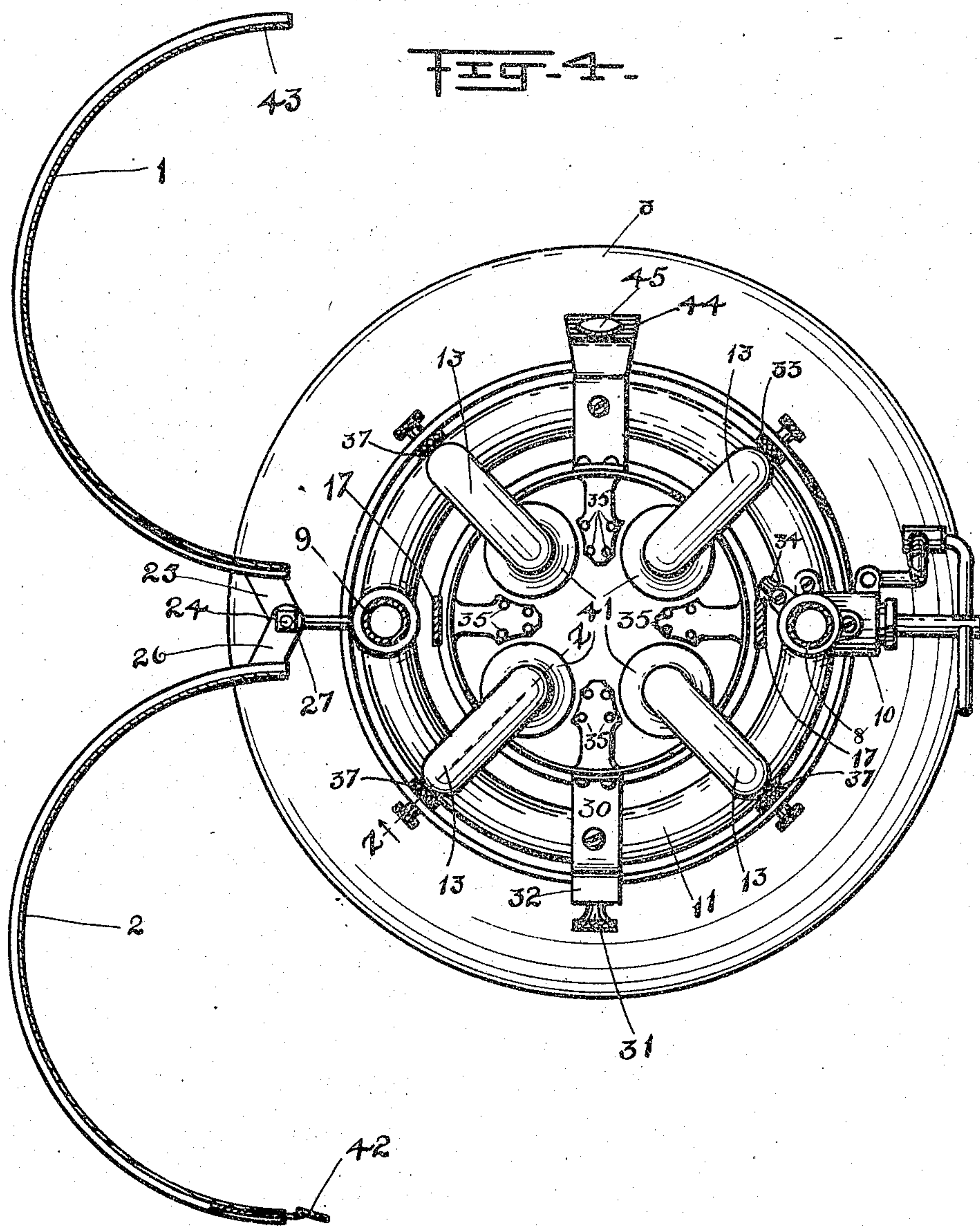
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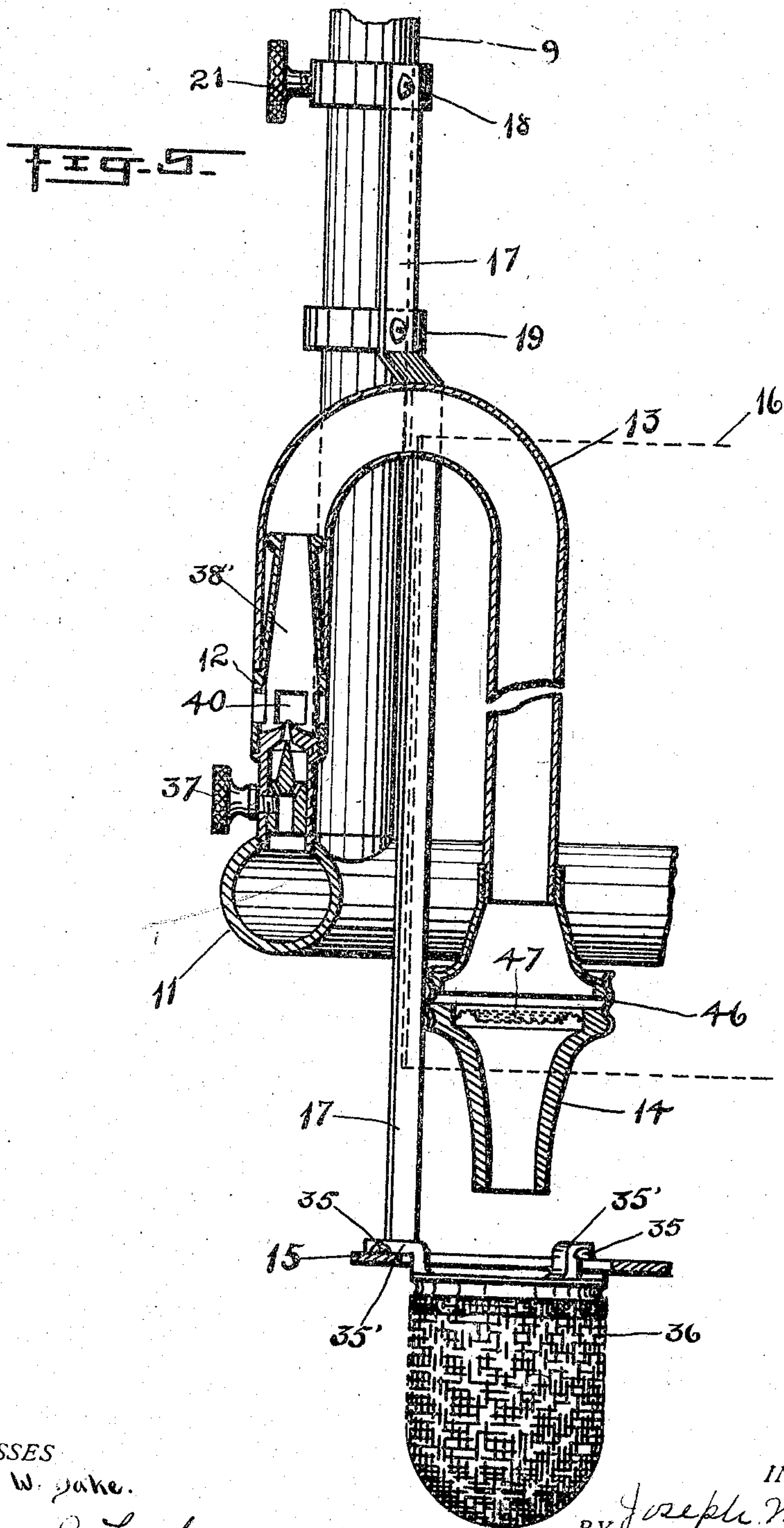
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4 SHEETS—SHEET 4.



WITNESSES
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UNITED STATES PATENT OFFICE.

JOSEPH MAAS, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO AMERICAN GAS LIGHT COMPANY,
OF KALAMAZOO, MICHIGAN, A CORPORATION.

GAS-LIGHT FIXTURE.

No. 900,031.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed May 21, 1908. Serial No. 434,047.

To all whom it may concern:

Be it known that I, JOSEPH MAAS, a citizen of the United States, residing at Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented new and useful Improvements in Gas Light Fixtures, of which the following is a specification.

This invention relates to new and useful improvements in gas light fixtures, and its object is to provide an economical and efficient construction for a cluster of inverted incandescent mantles.

In the drawings Figure 1 represents a side plan view of the fixture with the casing swung open and with the globe in cross-section. Fig. 2 is a top plan of the fixture with the casing closed. Fig. 3 is a horizontal cross-section of the inner portion of the fixture looking down from line $y-y$ in Fig. 1. Fig. 4 is a horizontal cross-section with the casing open and looking down from line $x-x$ of Fig. 1. Fig. 5 is a detailed plan, partly in cross-section on line $z-z$ of Fig. 4, showing the location and operation of the burner tubes and mantles.

The numerals 1 and 2 represent the casing which surrounds a portion of the structure. I construct the same in two parts so that one part or both may swing open for access to the interior, as hereinafter described.

3 is the mantle-surrounding globe of suitable size and shape.

4 is the globe-supporting ring carried by the framework and preferably by the gas ring hereinafter described and said globe supporting ring is itself detachable from the globe.

6 is the gas supply pipe, and 7, 7 are the horizontal arms extending therefrom, one of which should be hollow and furnish an extension conduit for the entering gas. These horizontal arms are developed into depending hanger arms 8, 9. The arm 8 leading to the valve, should also be a gas conduit, while the arm 9 is intended to operate only as a support.

10 is a valve interposed at a suitable point in the gas conduit and operated in any usual or suitable manner. As the details of the valve form no part of this invention, I have not completely shown such details, nor indicated them by reference numerals upon the drawing. The valve should provide for supplying gas to a pilot light in the usual manner.

11 is an annular gas conduit or ring connected with one of the exit ports of the valve 10 and conveying the gas to the various points of exit from the ring. This gas ring, upon one side, is firmly fastened to the valve or attached part, and upon the other side is firmly fastened to and supported by the hanger arm 9 by any suitable means, such as clamp 29.

12, 12 are revolving shutters, operating to regulate the air openings 40 leading into the mixing chamber 38 for the Bunsen tubes.

13, 13 are burner tubes of the curved or goose neck form shown, and passing from the mixing chamber up and over the wall of the chimney and then down upon the inside to the vicinity of the mantles.

14, 14 are burner nozzles at the discharge end of the burner tube.

15 represents the horizontal skeleton plate or frame having inwardly projecting arms 15' which may support and carry the mantles.

16 is the chimney or flue.

17, 17 are oppositely placed hanger arms outside of the chimney walls and supporting and carrying at their lower ends the mantle frame 15. At their upper ends they are provided with sleeves 18, 19 vertically sliding upon the hanger arms 8 and 9 and fixable at any desired elevation by the set screw 21. 20, 20 are collars upon these hanger arms 8, 9, held at the required position by any suitable means and serving as stops, preventing the arms 17 from being raised too far.

22 is an adjustable collar for limiting the downward motion of the sleeve 19 and thereby stopping the plate 15.

23, 23 are collars upon the hanger arm 9 and they respectively carry arms 24 which are turned upward and developed into pivots for carrying the hinge arms 25, 26 of the parts 1 and 2 of the casing. The nut 27 permits the entire removal of these parts when desired.

The globe ring 4 is hinged to the frame in any suitable manner. I have shown a hinge and lock 44 and 45 and a catch strap 30 with the open slot at 32 and sliding lock bar 31, all arranged and operating as particularly described in my Patent No. 886,712, and therefore not particularly described here.

33, 33 are set screws passing through the globe ring and engaging a suitable flange upon the upper edge of the globe.

35, 35 are lugs upon the upper surface of

the frame 15 adapted to engage against lateral or rotary movement the hook arms 35', 35' of the mantle rings 41, 41, which carry the mantles 36, 36.

5 37, 37 are set screws serving to operate the needle valves in the angling slots 38, 38, which valves and slots are fully described in another application by me, now pending, Serial No. 360,456, and form no part of this invention.

38', 38' are mixing chambers at the head of the Bunsen tube receiving gas from the needle valve and air through the opening 40.

39, 39 indicate openings in the casing for the admission of air which may pass downward into the globe between the globe ring and the chimney.

42 and 43 are the interlocking catch members of the two halves of the casing.

20 46 is a screw collar which may attach the burner nozzle to the burner head.

47 is a screen inserted in the burner nozzle.

34 is the pilot light tube supplied with gas from the valve 10 in the usual manner.

25 This tube terminates in a lateral tip 34' located outside the chimney and opposite the opening 48 in the chimney wall. I prefer to use the form of tip shown in my Patent No. 886,712, and which I therefore do not show here in detail.

The general operation of my fixture will be clear from the construction. The gas enters through the conduit, as regulated by the valve, and comes into the gas ring. It passes out of this ring into nipples inserted in the usual way, and in these nipples are needle valves of any suitable construction. By locating these needle valves wholly outside of the gas ring, it is kept free from any obstruction. The gas passes through the properly adjusted needle valve into the mixing chamber 38' and then on through the burner tube. The burner tube curves over the top of the chimney, and, for convenience of alignment, it may be located at any desired spot by suitable means carried by any of the parts, as by the notches in the top of the chimney as indicated in Fig. 1. The burner tube is not attached to the mixing chamber, but rests removably thereon by the ordinary connection, which can be made gas-tight by forcing the parts together, as is customary with removable goose necks. Being in this way free at both ends and not passing through the wall of the chimney, the burner tube may be easily lifted and removed out of position for cleaning, or for any desired purpose, one or both halves of the ventilator casing having first been swung open. The mantle-carrying frame 15 may at the same time, if desired, be lowered for convenient access or for getting at the burner tip from below, and also by means of the vertically adjustable hanger arms 17 the mantle may be adjusted at the proper vertical distance from

the burner tip. Since no horizontal or rotary motion of this mantle-carrying frame is permitted, the proper vertical alignment between the burner tip and the mantle is always preserved.

The lugs upon the mantle-carrying plate hold the mantle ring arms in proper location and prevent the mantle from shifting by any jars and at the same time the mantle ring and mantle may be instantly lifted out of position and replaced. This method of hanging the mantles is the preferred one with this form of construction, but it is evident that I might with the same form of goose neck burner tube hang the mantles directly from the burner tip in any of the known ways and avoid the interposition of the mantle-carrying frame.

The pilot tube tip not being inside the chimney, is more easily accessible and may be more easily unscrewed from position. I have found that it is not necessary to locate this tip inside of the chimney and by using a suitable form of tip it will maintain itself lighted in the position shown in Fig. 3.

I find that by splitting the exterior casing the entire distance from the top to the bottom and allowing each half to open like a door, a specially easy and perfect access to the interior is permitted and the construction is more efficient and stronger than other shell-moving constructions with which I am familiar. I find, also, that the open space shown by Fig. 3 to exist between the lower edge of the side walls of the chimney 16 and the outside two-thirds of the adjacent mantle, is important. By this construction, the draft is regulated so that the air passes up on all sides of the mantle with substantial equivalency, while if such exterior air passage is not provided, there is a tendency for the air to carry the burning gas to the inside of the mantle, producing excessive carbonization on that side. These projecting portions of the plate or frame which carry the mantle supports are practically tongues projecting between the mantles and are described and claimed in my Patent No. 886,712, although by the present construction I give a greater degree of air space and a greater degree of efficiency. The chimney should also be capable of vertical adjustment. I have not shown such means of adjustment, inasmuch as the chimney may be attached in any well-known manner to any of the fixed portions of the framework. In this example of my device, I have shown the chimney carried by the gas ring through the construction illustrated in Figs. 1 and 2, to wit, by attaching the chimney to vertical extensions of catch strap 30 and hinge 44, which also support the globe ring from the gas ring, as hereinbefore explained.

I find the special form and construction of the mixing chamber for the Bunsen tube

which is illustrated in Fig. 5, to be useful and to secure greater efficiency. The mixing chamber 38' is of the tapering or nozzle-shaped form shown, and the mixed air and gas pass out of this mixing chamber as a jet into the larger curved and hotter portion of the burner tube. Here, there is opportunity for expansion, and the shape and operation of the mixing chamber and its jet nozzle aid in causing or permitting the gas to make the reverse turn in direction which is given by the goose neck tube.

Having thus described my invention, what I claim to have invented, and desire to secure by Letters Patent, is—

1. In a gas light fixture, the combination of a gas supply pipe, a regulating valve interposed therein, a gas ring connected with said supply pipe, a chimney, a plurality of Bunsen tubes communicating with the gas ring and passing over the wall of the chimney and down the inside thereof, burner tips upon the lower ends thereof, and mantles supported below such burner tips.

2. In a gas light fixture the combination of a gas supply pipe, a regulating valve interposed therein, a gas ring connected with said supply pipe, a chimney, a plurality of Bunsen tubes communicating with the gas ring and passing over the wall of the chimney and down the inside thereof, burner tips upon the lower end thereof, and mantles supported below such burner tips, such burner tubes being removable from connection with the gas supply therefor.

3. In a gas light fixture, the combination of a gas supply pipe, a regulating valve interposed therein, a gas ring connected with said supply pipe, a chimney, a plurality of Bunsen tubes communicating with the gas ring and passing over the wall of the chimney and down the inside thereof, burner tips upon the lower ends thereof, and mantles supported below such burner tips, the chimney being provided upon its upper edge with means for vertically alining with the mantles the burner tubes passing over the chimney top.

4. In a gas light fixture the combination of a gas supply pipe, a regulating valve interposed therein, a gas ring connected with said supply pipe, a chimney, a plurality of Bunsen tubes communicating with the gas ring and passing over the wall of the chimney and down the inside thereof, burner tips upon the lower ends thereof, mantles supported below such burner tips, and means for vertically alining with the mantles the burner tubes passing over the chimney top.

5. In a gas light fixture, the combination of a gas supply pipe, a regulating valve interposed therein, a gas ring connected with

said supply pipe, a chimney, a plurality of Bunsen tubes communicating with the gas ring and passing over the wall of the chimney and down the inside thereof, burner tips upon the lower end thereof, a mantle-carrying frame below such burner tips, mantles carried by such frame and means for vertically adjusting the mantle-carrying frame.

6. In a gas light fixture for a cluster of inverted mantles, a supporting framework, means for supplying properly mixed air and gas to the mantles, a vertically adjustable frame having inwardly projecting tongues to support the mantles, lugs upon such tongues and hook arms carried by the mantles coöperating with said lugs.

7. In a gas light fixture for a cluster of inverted mantles, a gas supply pipe, a gas ring, a tubular chimney, a valve for supplying gas to a pilot tube, a pilot tube terminating outside the chimney, an opening in the chimney wall opposite such termination, and means for carrying, below the chimney, a cluster of inverted mantles, and means for supplying gas thereto from above.

8. In a gas light fixture, the combination of the gas supply pipe, a regulating valve interposed therein, a gas ring connected with said supply pipe, a chimney, a plurality of Bunsen tubes communicating with the gas ring and passing over the wall of the chimney and down the inside thereof to the gas nozzles located below such ring, mantles supported in such lower position, and tapering mixing chambers at the head of the Bunsen tubes provided with air inlets at the larger portion thereof and with jet orifices at the exits thereof.

9. In a gas light fixture, the combination of the gas supply pipe, a regulating valve interposed therein, a gas ring connected with said supply pipe, a chimney, a plurality of Bunsen tubes communicating with the gas ring and leading therefrom over the wall of the chimney and down the inside thereof to the gas nozzles located below such ring, mantles supported in such lower position, and tapering mixing chambers at the head of the Bunsen tubes provided with air inlets at the larger portion thereof and with jet orifices at the exits thereof, said Bunsen burner tubes being of goose neck form and extending from the gas ring upward and curving inward and extending downward inside the chimney.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH MAAS.

Witnesses:

JOHN L. HOLLANDER,
GLENN A. MEAD.