

No. 773,677.

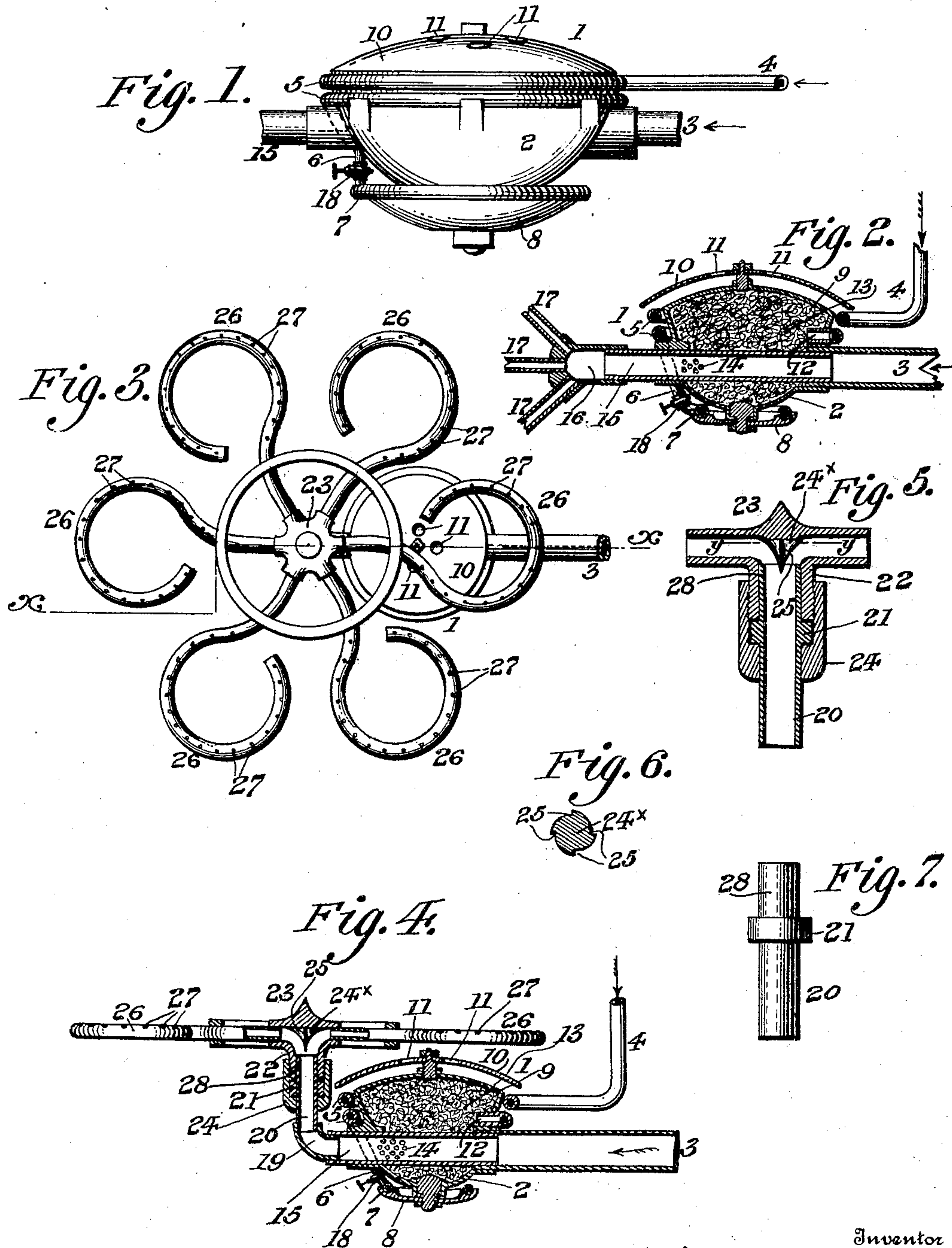
PATENTED NOV. 1, 1904.

P. REINHALTER.
BURNER.

APPLICATION FILED SEPT. 8, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Inventor

Peter Reinhalter.

Witnesses

P. H. Taggart
L. Howville.

By Niederheim & Co. Bankers

Attorneys

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2 SHEETS—SHEET 2.

Fig. 8.

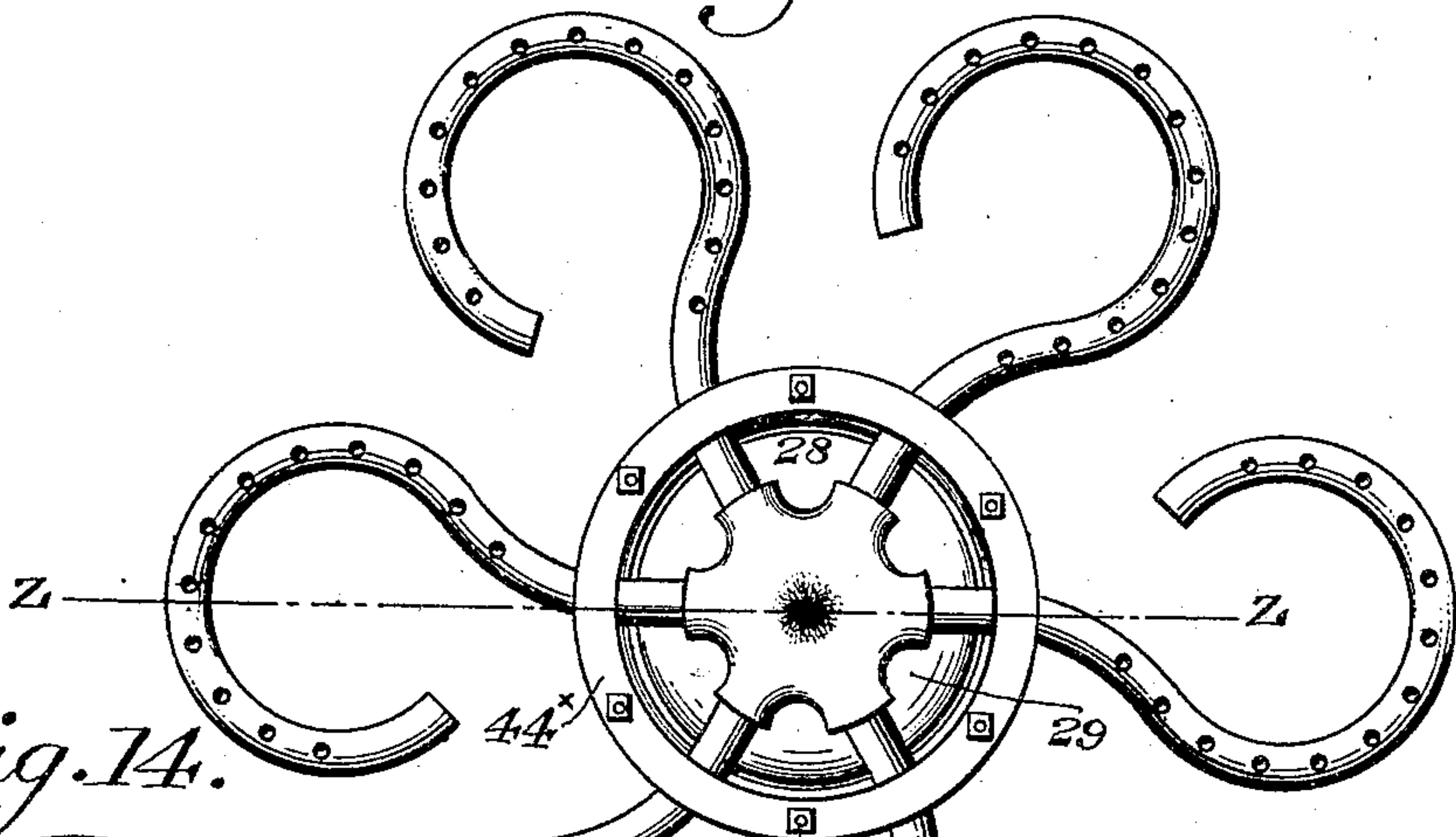


Fig. 14.

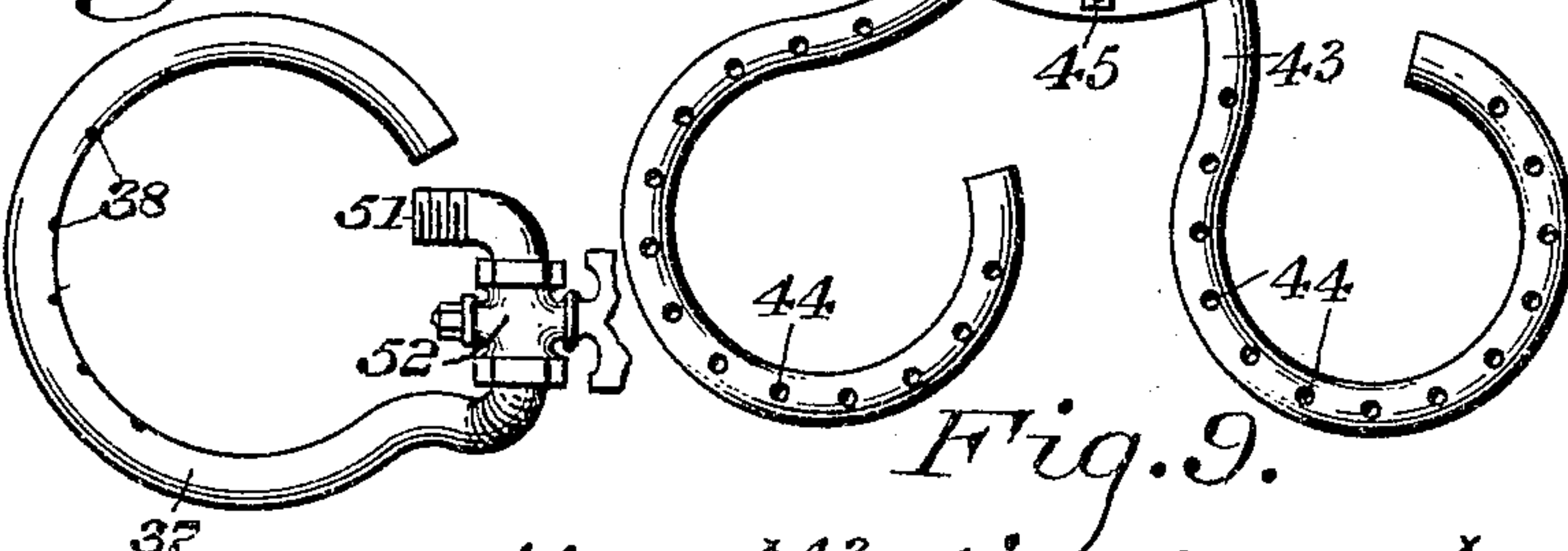


Fig. 9.

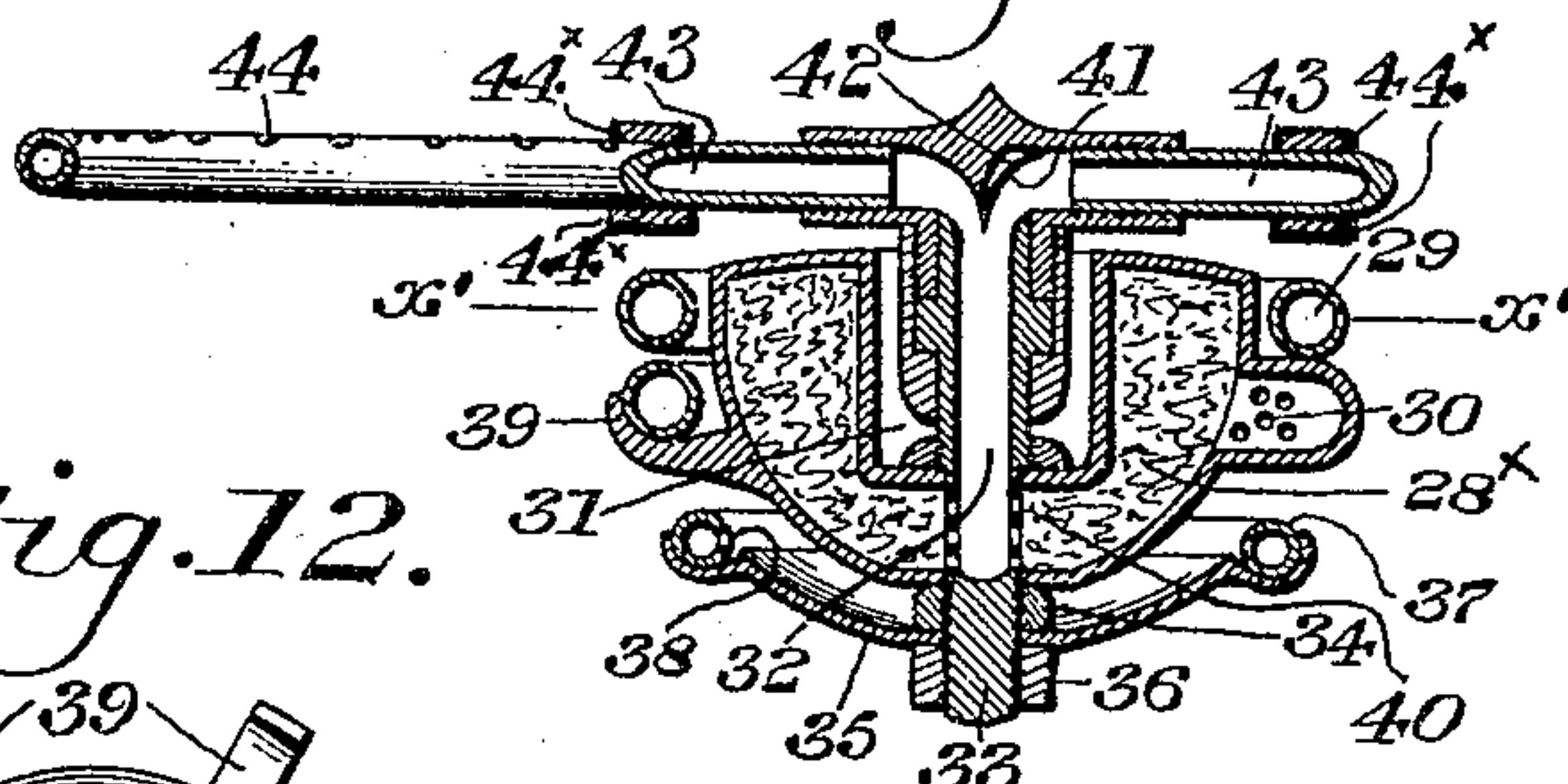


Fig. 12.

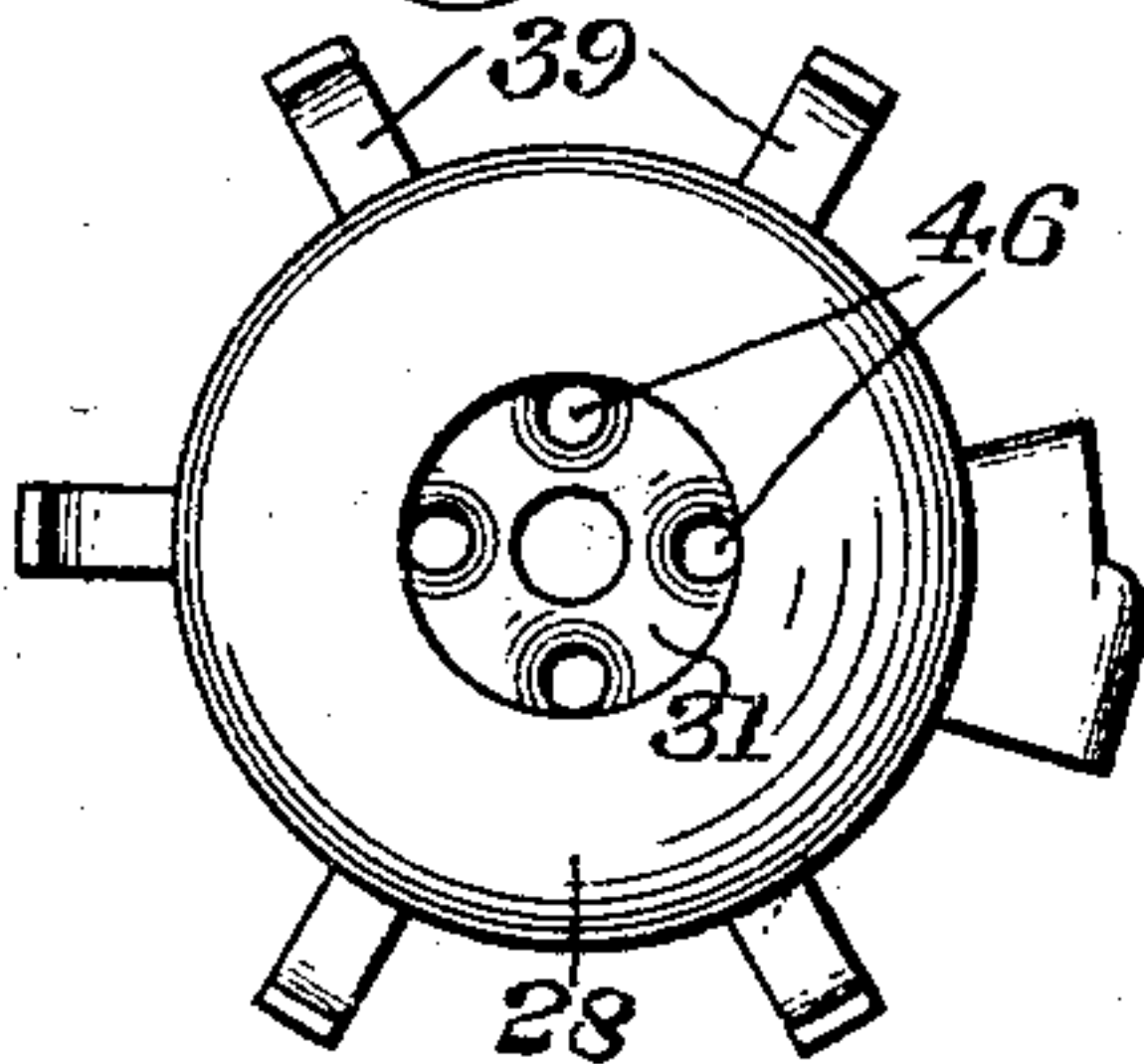


Fig. 13.

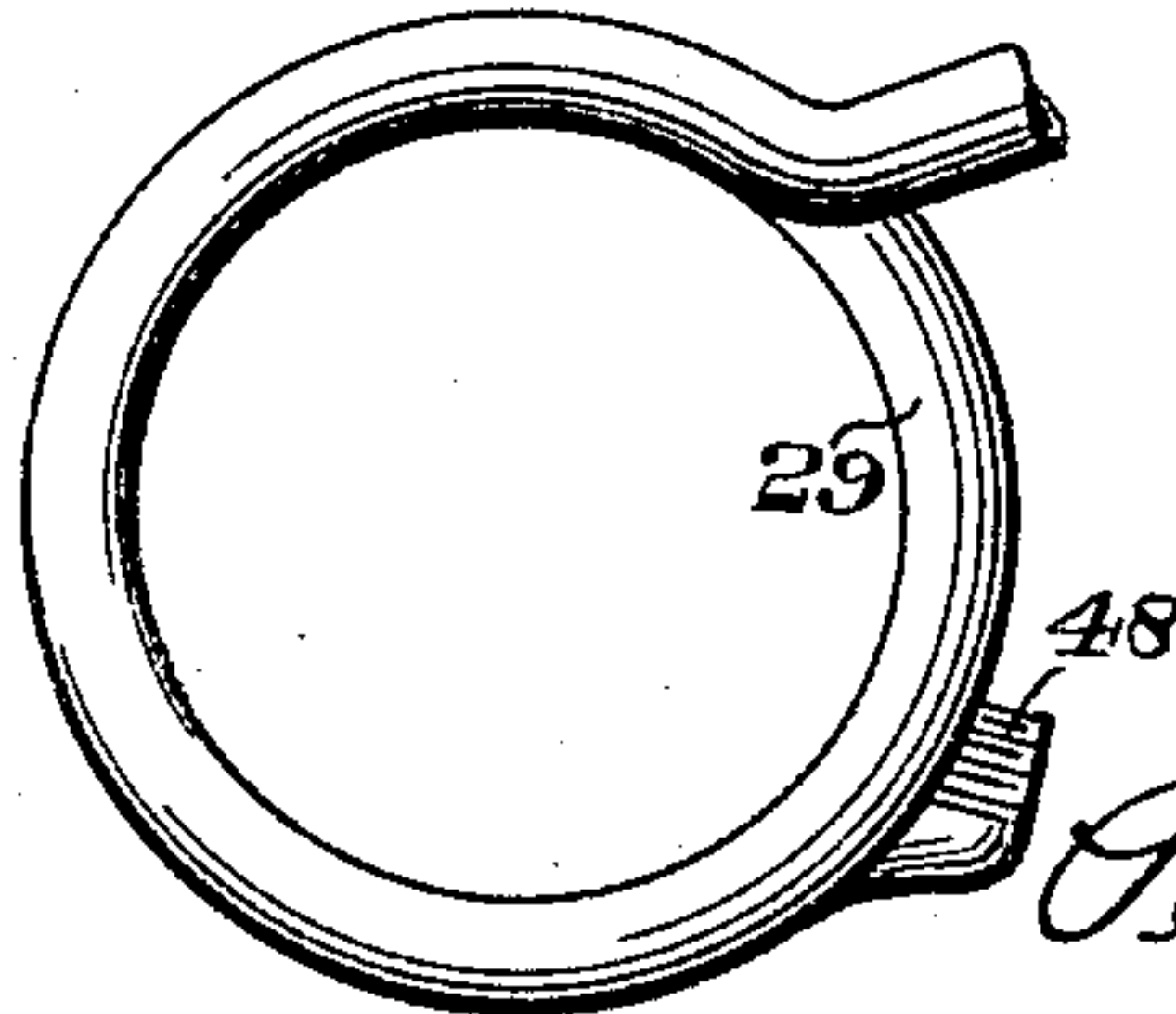


Fig. 10.

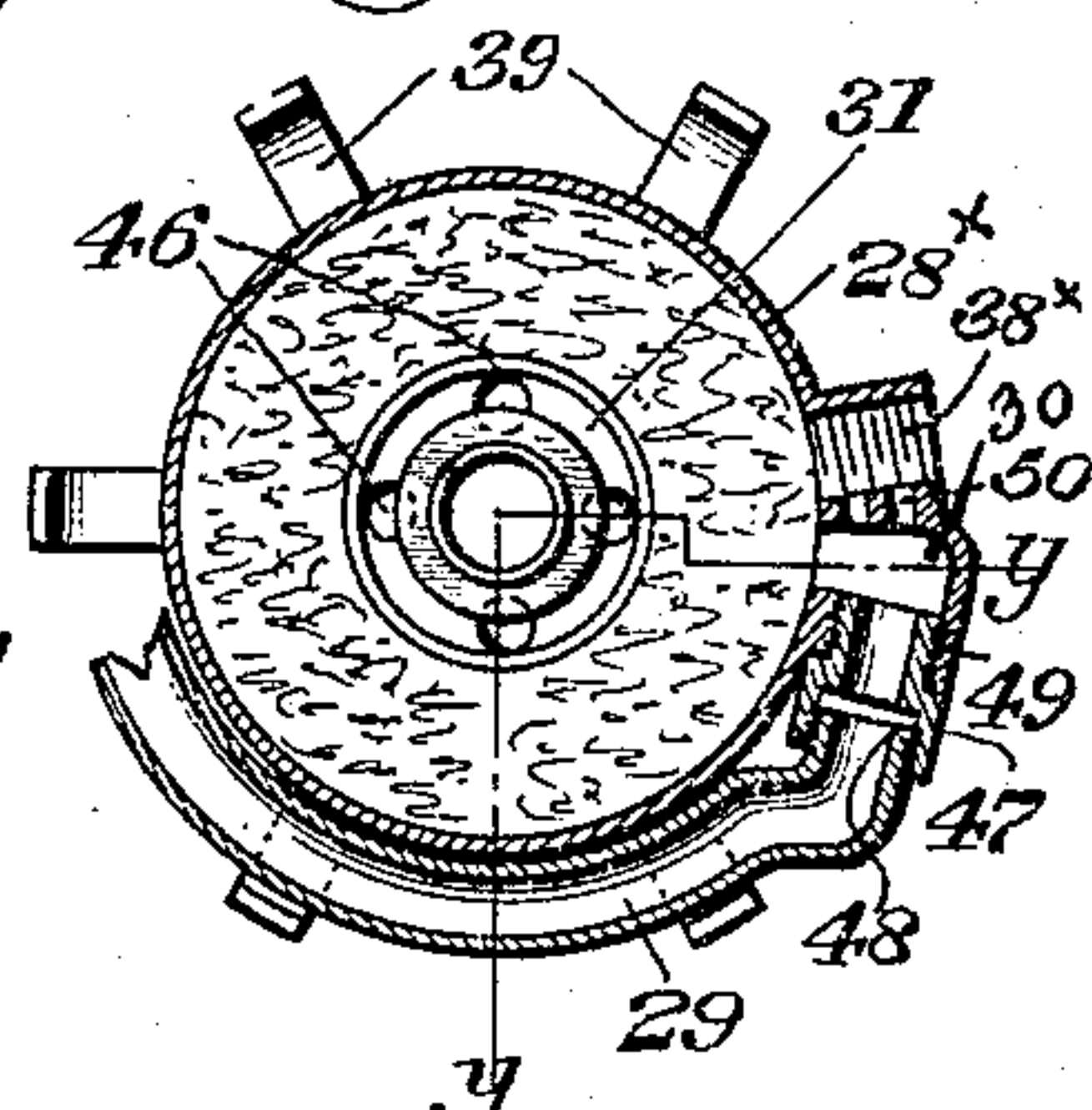
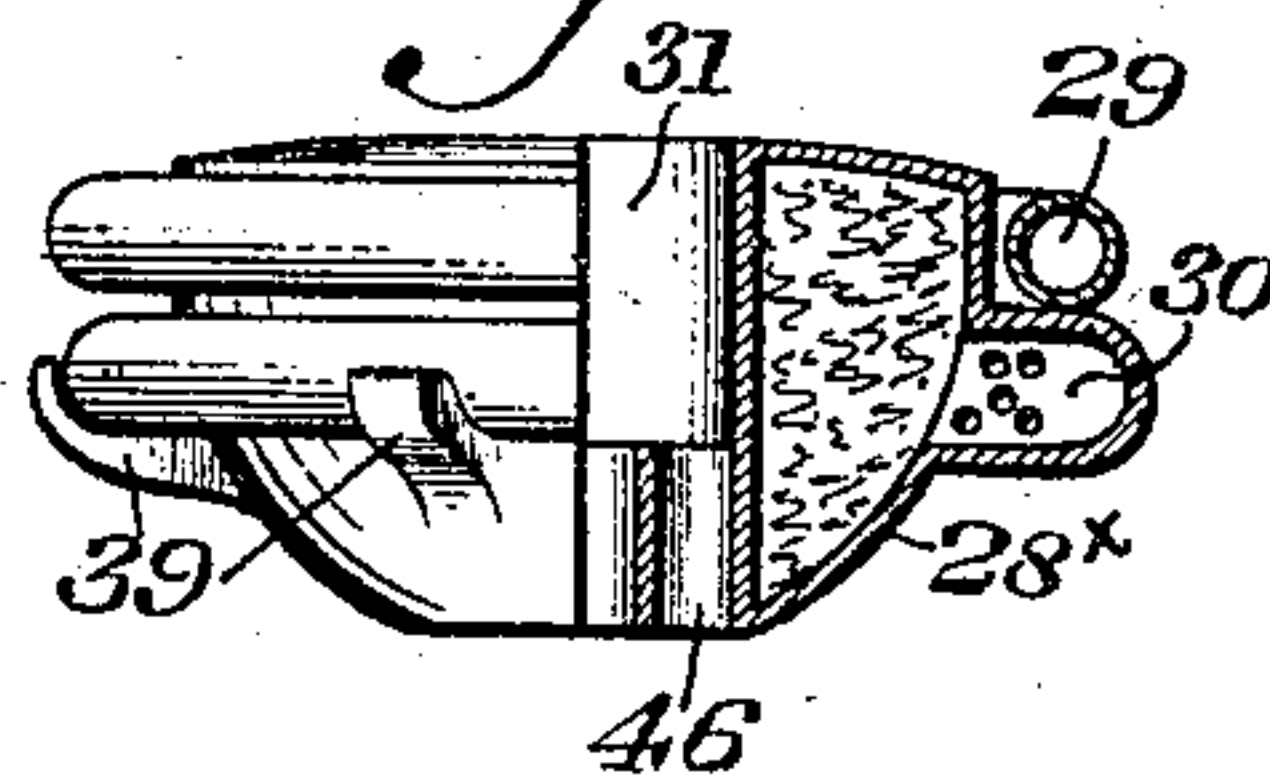


Fig. 11.
31



Witnesses

P. J. Hagler.

H. Kennedy.

Inventor

Peter Reinhalter

By

Niedersheinische Bank.

Attorneys

UNITED STATES PATENT OFFICE.

PETER REINHALTER, OF PHILADELPHIA, PENNSYLVANIA.

BURNER.

SPECIFICATION forming part of Letters Patent No. 773,677, dated November 1, 1904.

Application filed September 8, 1902. Serial No. 122,506. (No model.)

To all whom it may concern:

Be it known that I, PETER REINHALTER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Burners, of which the following is a specification.

My invention consists of a new construction of a hydrocarbon or other burner wherein a hydrocarbon is heated and volatilized in a novel manner and afterward commingled with steam or compressed air, which latter or both combined may be utilized to rotate the burner proper, if desired.

It also consists of a novel combination of a vaporizing device and a rotatable burner, the latter being caused to rotate by the impact of a portion of the vapor which is ignited upon issuing from the burner.

It also consists of a novel manner in mounting and supporting the rotatable burner.

It also consists of a novel construction of a vaporizing device.

It further consists of novel details of construction, all as will be hereinafter fully set forth, and described in the claims.

Figure 1 represents a side elevation of a vaporizing apparatus embodying my invention. Fig. 2 represents a vertical sectional view of Fig. 1. Fig. 3 represents a plan view of Fig. 4. Fig. 4 represents a section on line xx , Fig. 3. Fig. 5 represents a section on a portion of line xx , Fig. 3. Fig. 6 represents a section on line yy , Fig. 5. Fig. 7 represents a detached view of a hollow sleeve or nipple used as a bearing seen in Fig. 5. Fig. 8 represents a plan view of another embodiment of the principle of my invention. Fig. 9 represents a section on line zz , Fig. 8. Fig. 10 represents a section on line $x'x'$, Fig. 9. Fig. 11 represents a section on line $y'y'$, Fig. 10. Fig. 12 represents a plan view of Fig. 9, with a burner and its adjuncts removed. Fig. 13 represents a plan view of a portion of the generating-pipe. Fig. 14 represents a plan view of a portion of the piping employed.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a vaporizing device consisting of a chamber 2,

through which passes the pipe 3, into which is injected compressed air or steam.

4 designates a supply-pipe for oil or other hydrocarbon which passes around the upper portion of the vaporizer and has a convolution 5, from which depends the pipe 6, below which is the pipe 7, located above the saucer 8. Upon the upper portion 9 of the vaporizer 2 is supported a shield 10, which is provided with the openings 11. The function of the shield 10 is to economize and retain the heat generated by and through the saucer 8 and supply-pipe 5. One of the convolutions 5 discharges through the port 12 into the interior of the vaporizer-chamber 2, whereby the oil entering the port 12 flows through the asbestos 13 and discharges through the ports 14 into the pipe 15, which leads to the commingling-chamber 16 and thence to the nozzles 17.

It will be understood from the foregoing that in order to start the apparatus (seen in Figs. 1 and 2) a small portion of the oil entering the pipe 4 is permitted to flow down through the pipe 6, which latter may be provided with a valve 18, into the saucer 8, where it is ignited, whereby the oil contained within the asbestos in the vaporizer-tube will become vaporized and escape through the ports 14, where it is commingled with the steam or compressed air flowing through the pipe 3.

In the construction seen in Figs. 3 and 4 I have shown a vaporizer and oil-supplying device of the same character as already described with respect to Figs. 1 and 2; but in place of the employment of the nozzle 17 I have provided the pipe 15 with a branch or elbow 19, to which is secured the upright nipple 20, which has the shoulder or flange 21, upon the upper surface of which rests the branch 22 of the fitting 23, said branch 22 being held in position by means of a nut 24 or other suitable device. Depending from the top of the fitting 23 is the enlargement 24^x, which is provided with inclined, spiral, or similar-shaped grooves 25, so that the impact of the vapor will cause said fitting 23 and the burner-tubes 26, which are provided with the openings 27, to rapidly rotate upon the portion 28 of the nipple 20 as a bearing, whereby the flames will be evenly distributed

and practically made one flame upon the object or objects to be heated.

In Figs. 8 and 9 I have shown a modified construction of an apparatus wherein I employ a vaporizer 28^x, which has a hydrocarbon-supply pipe 29 coiled around it, the oil discharging at the point 30 into the interior of the vaporizer, which latter has a recess or chamber 31 in substantially its central portion, within which is supported the nipple 32, which corresponds to the part 20, already described. The nipple 32 has a threaded portion 33, which projects through the bottom of the vaporizer and is held in position by means of the nut 34.

35 designates a saucer which is held in position between the nut 34 and the nut 36, said saucer supporting the oil-supply pipe 37, which is in communication with the supply-pipe 29, whereby the oil is led from the point 38 into said saucer, where it is ignited. The supply-pipe 29 is supported upon the fingers or lugs 39, and it will be apparent that communication is had with the interior of the nipple 32 by means of the ports 40, whereby the oil which flows into the asbestos contained within the vaporizer is vaporized and permitted to discharge upon the head 41, which has the grooves 42 therein, similar to the parts 25 and 24^x, which have been already described.

The vapor or gas which flows through the passage or nipple 32 is discharged through the branches 43, which have the ports 44 therein, and is ignited, the said branches 43 and the straps 44^x and their adjuncts constituting the burner proper. The burner is rotatably supported within the chamber 31 in substantially the same manner as I have already described with respect to Figs. 4, 5, 6, and 7, and the construction will be apparent to those skilled in the art.

The straps or circular pieces 44^x serve to hold the branches 43 in rigid position with respect to each other and are held in position by means of the nuts, bolts, or other fastening devices 45.

46 designates the ports extending through the vaporizer 28, whereby the requisite circulation of hot gases is had, said ports being simply open-ended passages for draining off oil or any foreign substances which may enter from the top of the burner and pass into the saucer 35, whereby the burner is not liable to become clogged, but can freely rotate.

The manner of conducting the hydrocarbon into the vaporizer 28 will be readily understood from Figs. 10 and 13, and it will be apparent that various changes may be made by those skilled in the art other than that shown which will come within the scope of my invention.

It will be apparent from the foregoing that I have provided a very efficient construction of vaporizer and burner which can be cheaply manufactured and is not liable to get out of

order and wherein a maximum supply of the heat units is utilized.

It will be understood that in practice I prefer to screw the threaded end 48 of the oil-pipe 29 into the threaded bushing 47, which is screwed into the portion 49 of the vaporizer 28^x, communication being had with the outlet 38 by the ports 50. It will also be understood that in practice I screw the threaded end 51 of the pipe 37 into the part 38^x and that the valve 52 controls the flow of the oil to the burner-pipe 37 according to requirements. It will be further seen that the vaporizer or asbestos receptacle 2 or 28^x acts to purify the crude oil, and in operation the offensive oil odor of the burner, which is usually present in devices of this character, is not perceptible.

In the construction seen in Fig. 9 it will be apparent that I have located the burner-tube 37 so that the latter lies directly under the oil-supply pipe 29, so that the heat is imparted directly thereto and the oil therein vaporized to a high degree, as is evident, by the direct impingement of the heat.

It will be understood that the pipe 37 is used for conveying oil to the saucer in the initial starting of the device and that after vaporization has been attained a portion of the vapor will pass into the pipe 37 and burn as it escapes from the openings in the pipe, thus serving as subjects to maintain the heat in the vaporizer.

Having thus described my invention, what I claim as original and new, and desire to secure by Letters Patent, is—

1. In a burner, a vaporizing-chamber, asbestos therein, an oil-supplying pipe surrounding the upper portion of said chamber, said oil-supply pipe having an inlet leading to the interior of said vaporizing-chamber, a saucer supported below the latter, a connection from said oil-supply pipe to said saucer and a pipe extending through said asbestos in said vaporizing-chamber having ports leading from the interior thereof to a commingling-chamber.

2. In a burner, a vaporizing-chamber, asbestos therein, an oil-supply pipe surrounding the upper portion of said chamber and having an inlet leading to the interior of said vaporizing-chamber, a saucer supported below the latter, a connection from said oil-supply pipe to said saucer, a pipe extending through said asbestos and having connection with a commingling-chamber, a pipe for conducting compressed air or steam through said pipe to the commingling-chamber, the first-mentioned pipe having perforations affording communication between the same and the interior of the vaporizing-chamber.

3. In a burner, a vaporizing-chamber, asbestos therein, an oil-supplying pipe surrounding the upper portion of said chamber, the inlet

from said oil-supply pipe leading to the interior of the vaporizing-chamber, a saucer supported below the latter, a connection from said oil-supply pipe to said saucer, a pipe within
 5 the vaporizing-chamber having ports leading therefrom to the commingling-chamber, and a pipe for conducting compressed air or steam into said vaporizing-chamber, in combination
 10 with an upward extension supported by said vaporizing-chamber, and a rotary burner mounted upon said extension, said burner being provided with means whereby the impact
 15 of the hot gases upon the interior of said burner causes the rotation thereof.
 4. In a burner, a vaporizer consisting of a chamber, a nipple supported on said vaporizer
 20 and having ports communicating with the interior thereof, a burner rotatably mounted on said nipple and provided with means whereby
 the impact of the hot gases upon its interior causes it to rotate, an oil-supply pipe discharging
 25 into said vaporizer, means located beneath said supply-pipe and adapted to heat said pipe and said vaporizer.
 5. A rotatable burner comprising a plurality
 30 of branches, a plurality of circular pieces for holding said branches rigidly with respect to each other, a bearing on which said burner is mounted, means whereby the burner is rotated
 by the impact of the hot gases upon its interior, a vaporizer supporting said burner,

an oil-supply pipe leading to said burner and means located beneath said vaporizer and said oil-pipe and adapted to contain oil for heating.

6. In a burner, a vaporizer having a chamber provided with air-passages therefrom, an
 35 oil-supply pipe surrounding said vaporizer, a rotatable burner mounted above said oil-supply pipe and said vaporizer and rotatable by
 40 the impact of the hot gases upon its interior, and means for heating said pipe and vaporizer.

7. In a burner, a vaporizer having a chamber, a pipe affording communication with the interior of said chamber, means whereby compressed
 45 air and steam may be delivered to said pipe, an oil-supply pipe coiled about said vaporizer and arranged to deliver oil thereto, a saucer supported beneath said vaporizer,
 50 means for supplying oil to said saucer and a burner rotatably mounted above said vaporizer.

8. In a burner, a vaporizing-chamber, an oil-supply pipe surrounding the upper portion
 55 of said chamber and connecting with the interior thereof, a saucer below said chamber, a connection from said oil-supply pipe to said saucer and a burner rotatably mounted above
 said saucer.

PETER REINHALTER.

Witnesses:

JOHN A. WIEDERSHEIM,
 C. D. McVAY.