

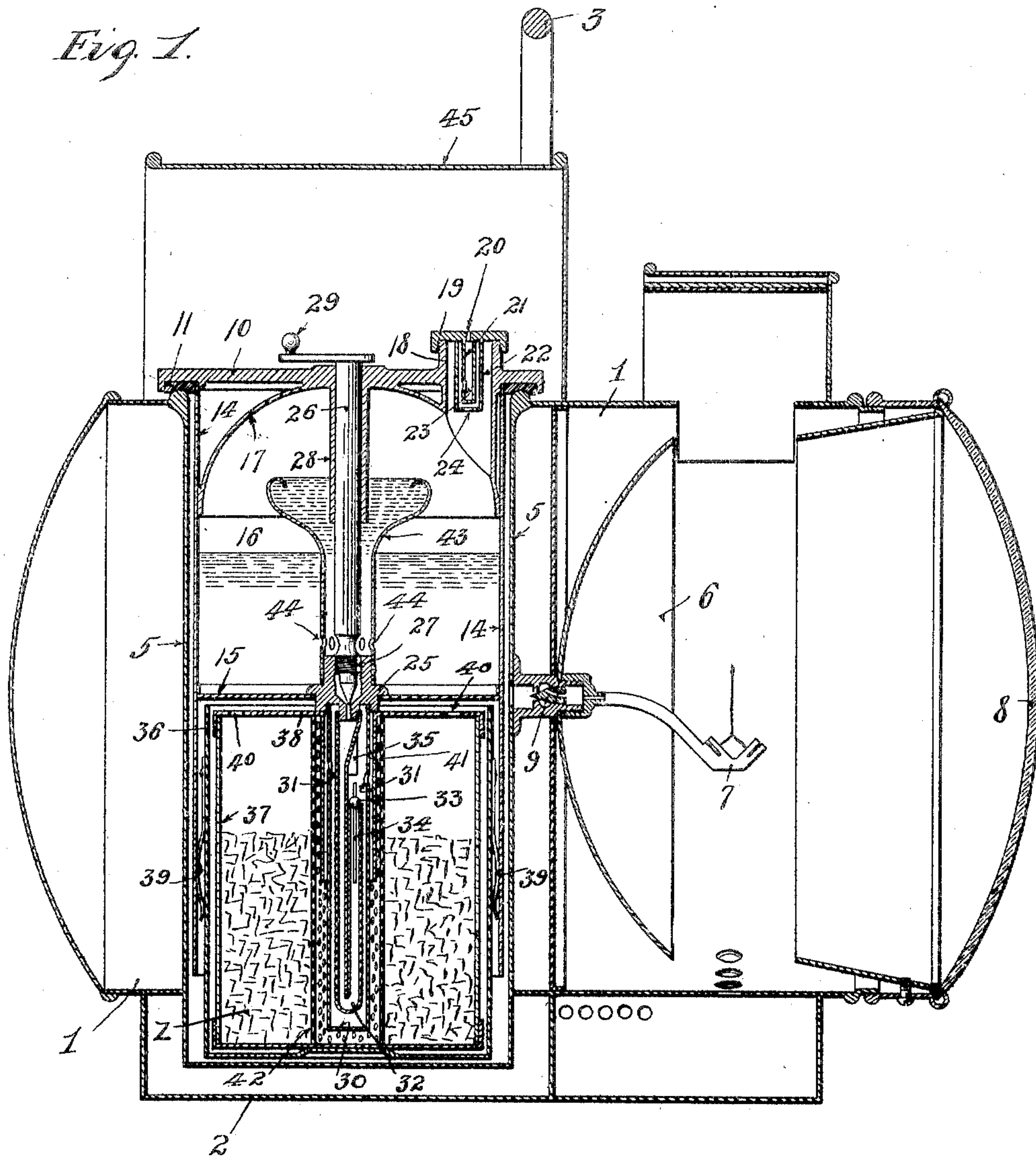
No. 794,077.

PATENTED JULY 4, 1905.

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ACETYLENE GAS GENERATOR.

APPLICATION FILED FEB. 6, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

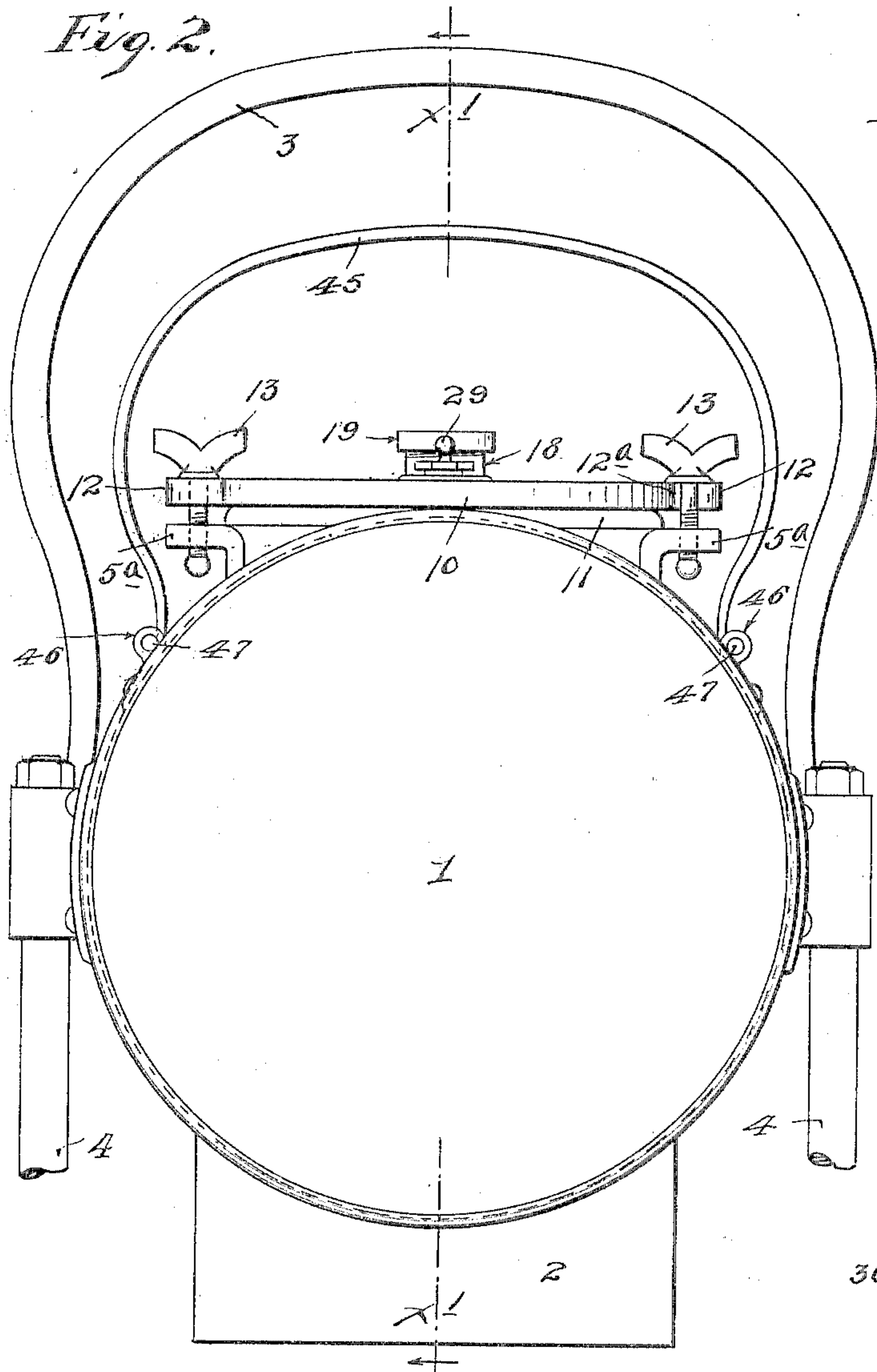


Fig. 3.

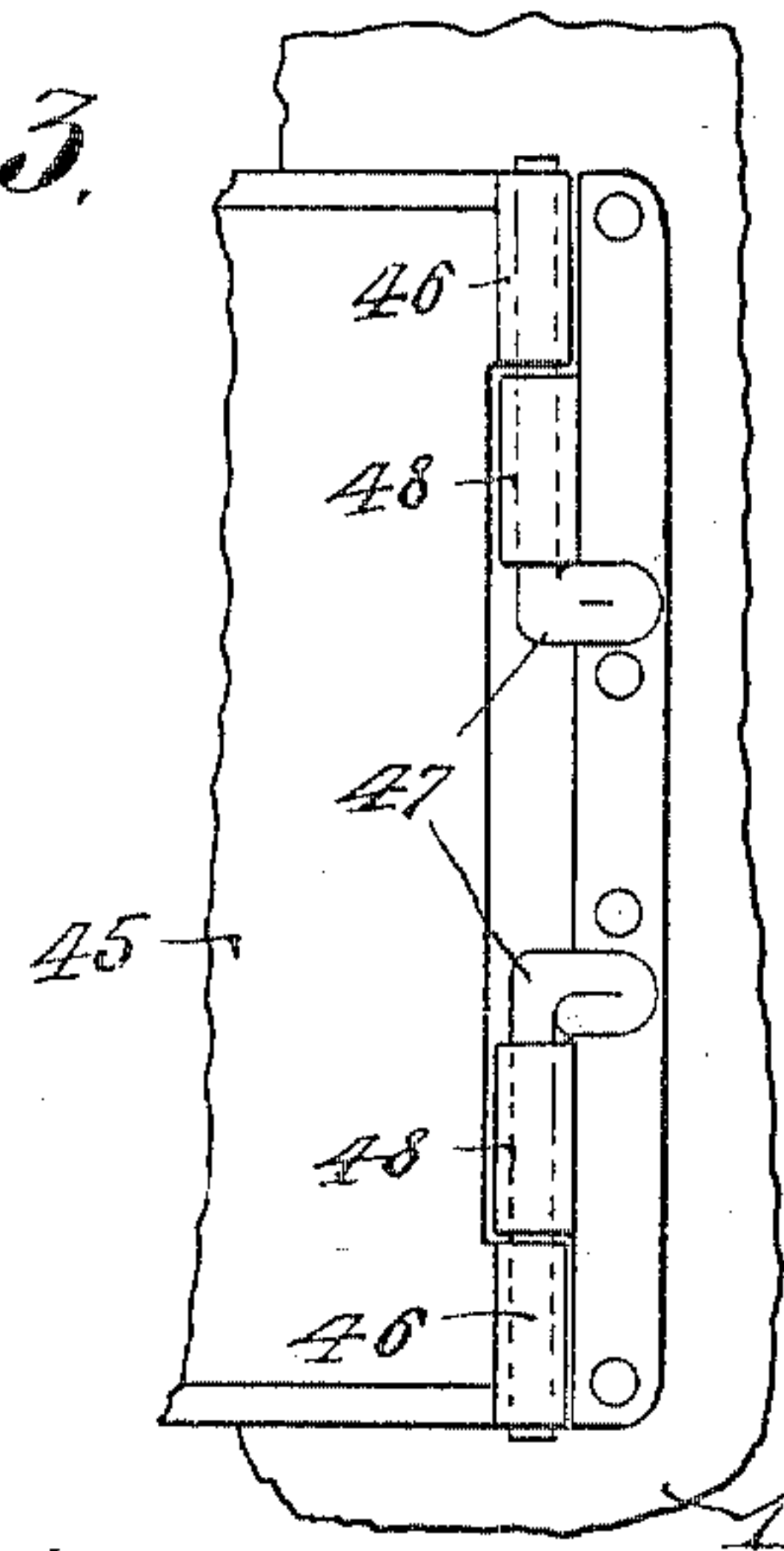


Fig. 5.

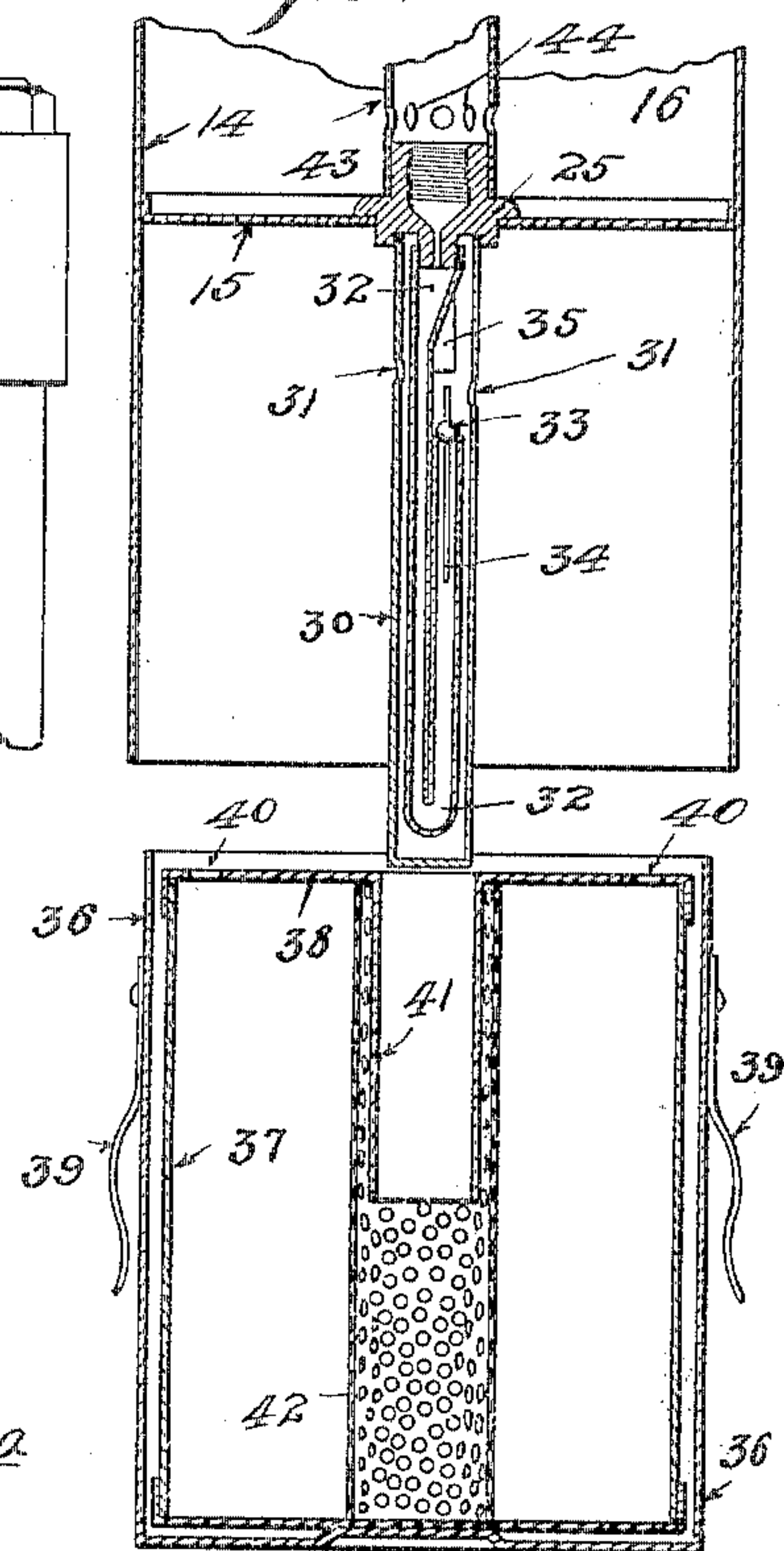
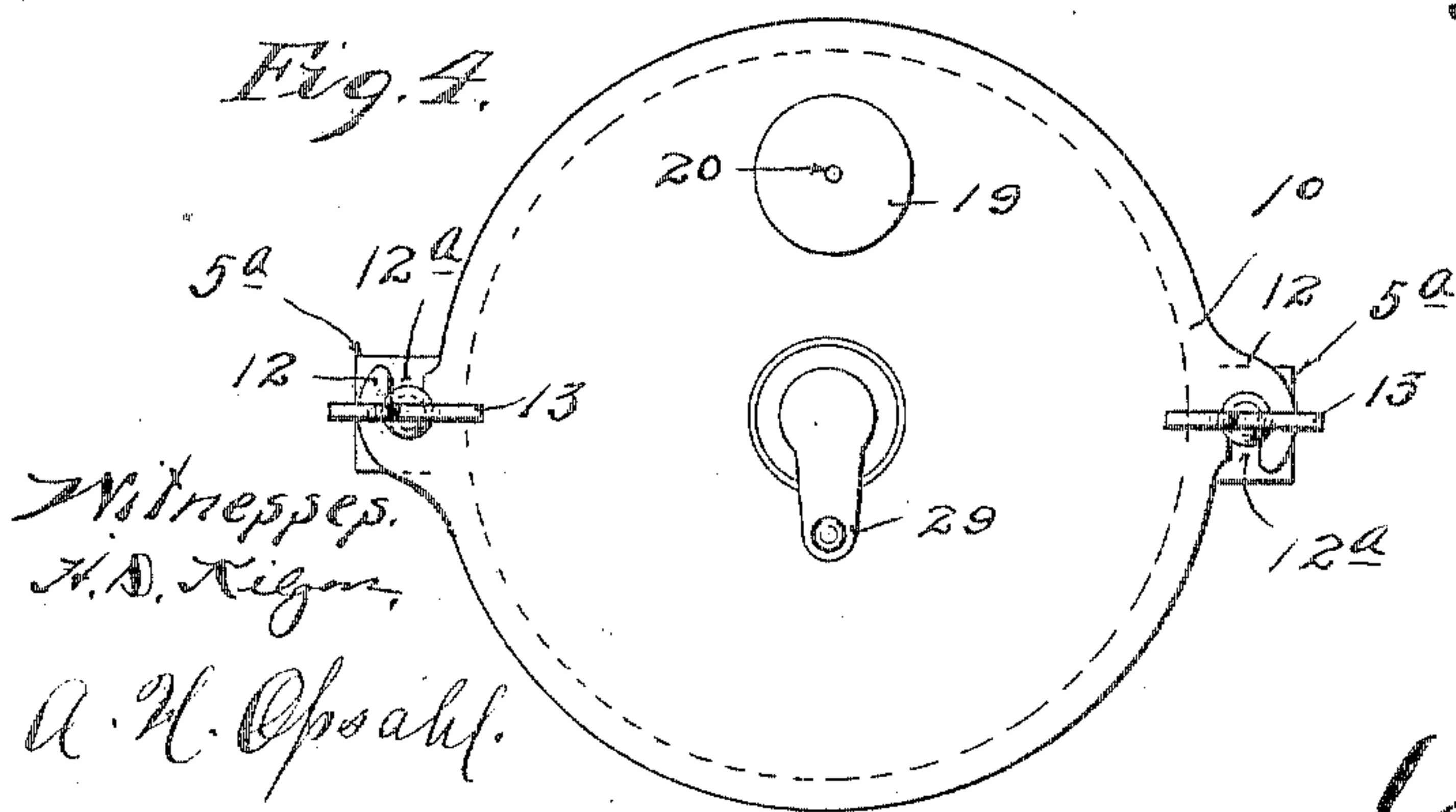


Fig. 4.



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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 794,077, dated July 4, 1905.

Application filed February 6, 1904. Serial No. 192,346.

To all whom it may concern:

Be it known that I, LEROY S. BUFFINGTON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Acetylene-Gas Generators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to acetylene-gas generators, and especially to those having burners combined therewith and adapted to be carried and shaken about without interference with the generating and burning actions.

The invention has for its particular object the provision of an acetylene-gas lamp or bull's-eye adapted for use in connection with automobile and other vehicles.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a vertical section taken through the improved lamp or bull's-eye on the line $x' x'$ of Fig. 2. Fig. 2 is a front elevation of the said lamp. Fig. 3 is a detail view showing the manner of securing a hood to the lamp-body. Fig. 4 is a detail view in plan, showing the means for securing the top cap of the generator-chamber to the body thereof; and Fig. 5 is a vertical section corresponding in the line of its section to Fig. 1 and showing the carbide-holder and a portion of the generator, said parts being drawn apart and some parts being broken away.

The body of the lamp illustrated is afforded by a horizontally-disposed cylindrical shaft 1, which has a rectangular base 2, a yoke-like handle 3, and is adapted to be supported from the vehicle by rods 4 or in any other suitable way. The generating-chamber is

afforded by a vertically-disposed cylinder 5, which depends diametrically through the shell 1 and is closed at its bottom.

The light-font of the lamp, as shown, involves a concave deflector 6, a burner 7, and a concavo-convex lens 8. The deflector 6 and lens 8 are disposed in the usual way, and the usual air-draft passages are of course provided. The burner 7, which is preferably of the two-pronged type, is located slightly below the axis of the deflector, so that the most intense portion of its flame will be approximately at the said axis of the deflector. The tube of the said burner leads from the generating-chamber 5, and mounted therein is a small conical choke-valve 9, which is adapted to be variably set, so as to limit the size of the discharge-passage through the said tube.

The upper end of the generating-chamber 5 is normally tightly closed by a head 10, between which and the rounded upper edge of said chamber is interposed pliable gasket 11 for forming a tight joint. The head 10 is provided with peripheral lugs 12, located at diametrically opposite points and formed with reversely-extended open slots 12^a. Thumb-screws 13, which work with screw-threaded engagement through lug projections 5^a on the sides of the upper end of the generating-chamber 5, cooperate with the slotted lugs 12 to detachably hold the head 10 in working position. As is evident, when the thumb-screws 13 are loosened up the said lugs 12 may be engaged with or disengaged from the said thumb-screws by a slight rotary movement of the said head 10.

The head 10 is provided with the depending cylinder 14, which telescopes loosely into the generating-chamber and is provided at its intermediate portion with a horizontal partition 15, which affords a bottom for a water-chamber 16, formed in the upper portion of the said cylinder 14. The head 10 is further provided with a semispherical flange 17, which affords a dome-like top to the water-chamber 16. A sleeve 18 opens vertically through the head 10 and flange 17 and when opened affords a passage for the introduction

of water through the chamber 16. A cap-nut 19 approximately closes the upper end of the sleeve 18, but is provided with a small vent-hole or air-passage 20. Said cap 19 is further provided with depending concentric-ally-located tubes 21 and 22, having air-passages 23 and 24.

At the central portion of the horizontal partition 15 is a valve-seat casting 25, having a capillary feed-passage adapted to be opened and closed at will by a needle-valve 26. This needle-valve has screw-threaded engagement with the valve-seat casting 25, its threads being slotted at 27 to permit the water to pass to the conical point of said valve. The upper end of said valve works through a depending sleeve-like hub 28 of the head 10 and at its extreme upper end is provided with a crank or finger-piece 29, by means of which it may be turned. The upper end of the water-distribution tube 30 is rigidly secured to and depends from the valve-seat casting 25. The lower end of this tube is closed, and at a point near its upper end it is provided with one or more water-escape passages 31. Within the tube 30, depending from the casting 25, with its upper end in communication with the valve-equipped passage thereof, is a small feed-tube 32, which extends nearly to the bottom of said tube 30 and is then turned abruptly and vertically upward and terminated at a point below the lowermost perforation 31. In the upturned delivery end of this feed-tube 32 is a gravity-seated check-valve 33, which is adapted to be opened by the upward pressure of water thereon, but is adapted to be closed to cut off the water-supply whenever the pressure in the generating-chamber equals or exceeds the pressure of the feed-water. This valve 33 is preferably in the form of a ball having a small stem 34, that projects downward into said tube 33 and projects slightly upward above said ball. A stop-lug 35 on the receiving end of the tube 33 overlies the upper end projection of the valve-stem 34 and prevents the said valve 33 being forced out of position by the upward pressure of water thereon. To remove the said valve from said tube 32, it is necessary to spring its stem laterally out of line with said stop-lug 35.

In the open chamber formed in the removable cylinder 14 below the horizontal partition 15 is a carbid-holder, shown as made up of a cylindrical cup 36, an interior cylinder 37, and heads 38. The cup 36 has spring-fingers 39, which engage with the interior of said cylinder 14 to frictionally hold the carbid-holder within said cylinder and to cause said carbid-holder to be removed therewith. The heads 38 telescope frictionally on the end of the interior cylindrical section of the carbid-holder, and the upper head is provided with perforations 40, through which the gas may escape from the carbid-holder into the gener-

ating-chamber. The said upper head 38 is also preferably formed with a depending sleeve 41, which surrounds the upper portion of the water-distributing tube 30. Again, also preferably placed within the carbid-holder is a perforate cylindrical sleeve 42, which loosely surrounds the depending sleeve 41 and holds the carbid out of contact therewith and with the depending distributing-tube 30.

In my present invention, as in my companion application, Serial No. 192,345, filed of even date herewith, I place within the water-chamber an open-topped elevated water-feed cup 43; but in the present instance the said feed-cup is formed near its bottom with leakage perforations 44 for an important purpose, which will hereinafter appear. This feed-cup 43 surrounds the lower portion of the valve 26 and is rigidly secured to the valve-seat casting 25, so as to direct the water to the valve-equipped feed-passage thereof. The upper portion of said feed-cup 43 is so disposed with respect to the dome-like top 17 that water will be continually splashed into the said cup under vibratory movements given to the lamp when the vehicle to which it is attached is in motion. Hence it is evident that as long as the vehicle is in motion the said cup 43 will be kept full of water and a constant maximum head of water, and consequently a maximum pressure of gas, will be maintained. When, however, the vehicle is at a standstill and the water is not agitated, the leakage-passages 44 permit the water in the feed-cup 43 to come to the level of the body of water within the water-compartment, thus giving a reduced head of water and causing the gas to be generated under less pressure than when the vehicle is in motion. This has the effect of automatically turning down, as it were, the burning flame when the vehicle is at rest, at which time a maximum of light is not desired. The valve-stem 26 and the sleeve 28 afford an abutment located axially of the opened-top cup 43, against which the water splashed about in the water-compartment will strike and over which the water will run down into said cup.

As is evident, the generating action is started by opening up the valve 26, thereby permitting water to flow from the water-chamber into the carbid-holder. The water which flows into the receiving end of the feed-tube 32 flows downward and then upward through the said tube and then after it has lifted the check-valve 33 overflows and runs into the water-distributing tube 30 and fills said latter tube until it reaches the lowermost perforation 31 thereof, whereupon it runs downward over the outer side of said tube 30 and comes into contact with the carbid after having first passed through the perforations of the perforate sleeve 42. After the generating action has been started the

check-valve 33 will remain submerged in water contained within the tube 30. The stem 34 of said valve 33 loosely fits within the delivery end of the feed-tube 32, leaving
 5 a restricted water-escape passage, which will limit the maximum supply of water regardless of the position of the said check-valve and of the position of the needle-valve 26.

Preferably I provide the outside shell or
 10 body 1 of the lamp with a detachable hood or guard-plate 45, which overlies the cap 10 and is provided with lock-pin seats 46 at its ends. Sliding lock-pins 47 work through keepers 48 on the top of the shell 1 and en-
 15 gage the pin-seats 46, as best shown in Fig. 3, to detachably hold the said hood in position. This hood should be removed in order to permit the head 10, together with the parts se-
 20 cured thereto, to be removed from working positions.

From what has been said it is evident that by lifting up the head 10 and its cylinder 14 all of the generating mechanism of the lamp will be removed from working position. The
 25 carbid-holder must of course be placed in working position within the lower end of the cylinder 14 and be removed therefrom while the said cylinder is lifted out of working po-
 30 sition. The character α indicates carbid placed within the carbid-holder and with which the carbid-holder should be about two-thirds filled, so as to leave room for expan-
 35 sion of the products of decomposition—to wit, the pasty substance formed by the union of water with the decomposed carbid.

From what has been said it will of course be understood that the lamp described is ca-
 40 pable of a largerange of modifications to illustrate my invention, as herein set forth and claimed. The principal features of my pres-
 45 ent invention relate to the generation of gas, and hence it will be understood that such fea-
 50 tures may be incorporated in generators which are located at points distant from or not closely associated with the gas-burning device or light-font.

What I claim, and desire to secure by Let-
 ters Patent of the United States, is as follows:

1. A portable gas-generator of the charac-
 50 ter described having within its water-cham-
 ber a centrally-located open-topped feed-

cup projecting above the normal water-level, and so positioned with respect to the walls and top of said chamber that it will be filled with water splashed about within said cham- 55
 ber, said feed-cup having, at or near its bot-
 tom, one or more leakage-passages, substan-
 tially as and for the purposes set forth.

2. A portable gas-generator of the charac-
 ter described having within its water-cham- 60
 ber an open-topped feed-cup, so positioned
 that it will be filled with water splashed about
 within said chamber, and an abutment pro-
 jecting axially upward from said cup and as-
 sisting in directing the water into said cup, 65
 substantially as described.

3. In a generator of the character described,
 the combination with a generating-chamber
 and an overlying water-compartment, of an
 open-topped feed-cup in said water-compart- 70
 ment, projecting above the normal water-
 level thereof and adapted to be filled with
 water splashed about within said water-com-
 partment, said cup having communication, at
 its lower portion, with the said generating- 75
 chamber through a restricted passage, and a
 needle-valve coöperating with said restricted
 passage and projecting axially through said
 feed-cup, and through the upper portion of
 said water-chamber, substantially as de- 80
 scribed.

4. In a generator of the character described,
 the combination with a water-compartment
 and a generating-chamber, of a feed-passage
 in the bottom of said water-compartment, a 85
 water-feed tube 32 depending from said wa-
 ter-feed passage into said generator-chamber,
 the said tube being bent vertically upward
 upon itself within said generating-chamber,
 the valve 33 normally closing the upturned 90
 delivery end of said tube 32, and having a
 stem 34 depending into the same, and a stop
 35 on said tube, overlying said valve and pre-
 venting the same from being accidentally
 thrown out of operative position, substan- 95
 tially as described.

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

LEROY S. BUFFINGTON.

Witnesses:

ROBERT C. MABEY,
 F. D. MERCHANT.