

No. 656,919.

Patented Aug. 28, 1900.

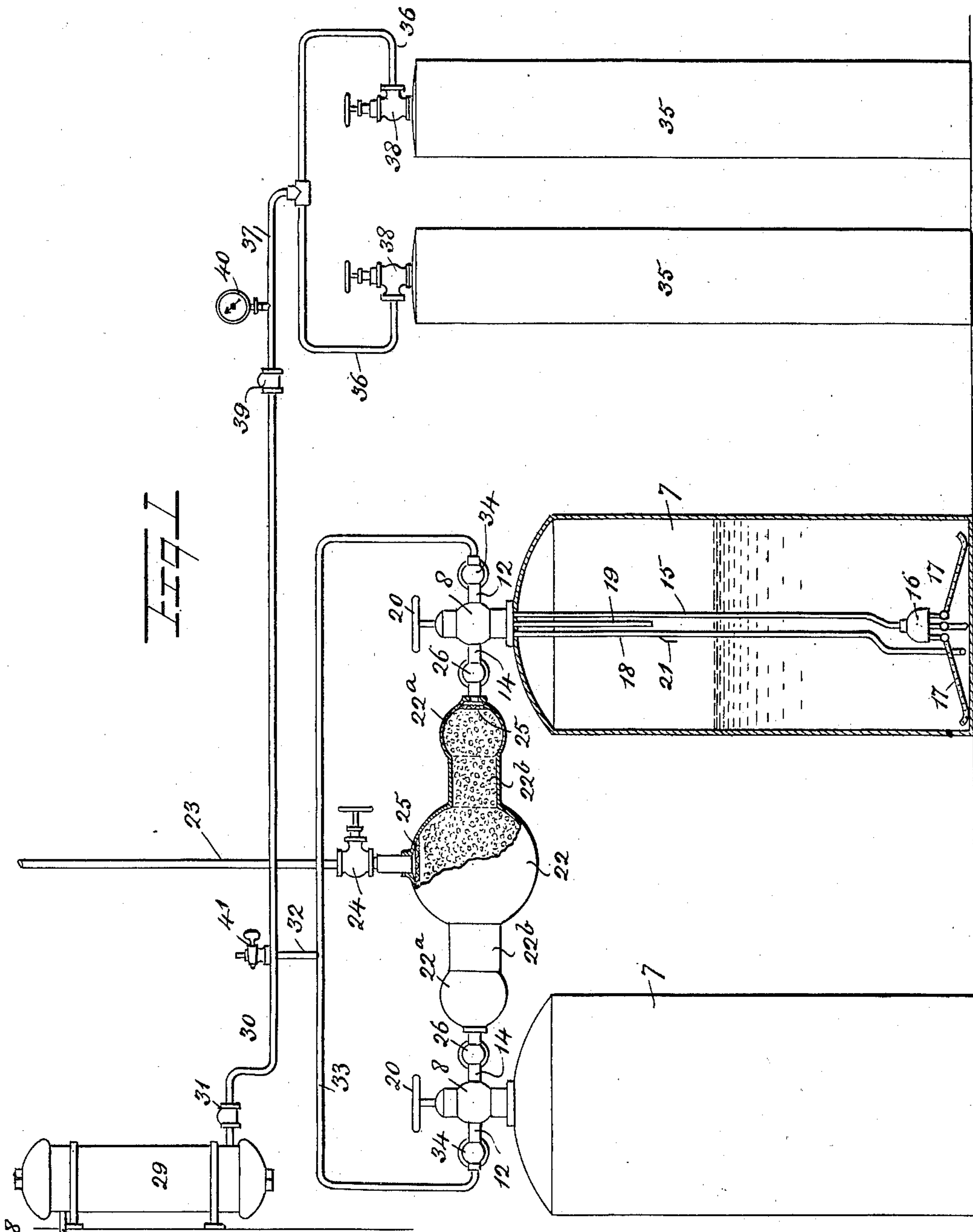
E. C. WORN.

APPARATUS FOR IMPREGNATING WATER WITH GAS.

(Application filed Mar. 22, 1897.)

(No Model.)

2 Sheets—Sheet I.



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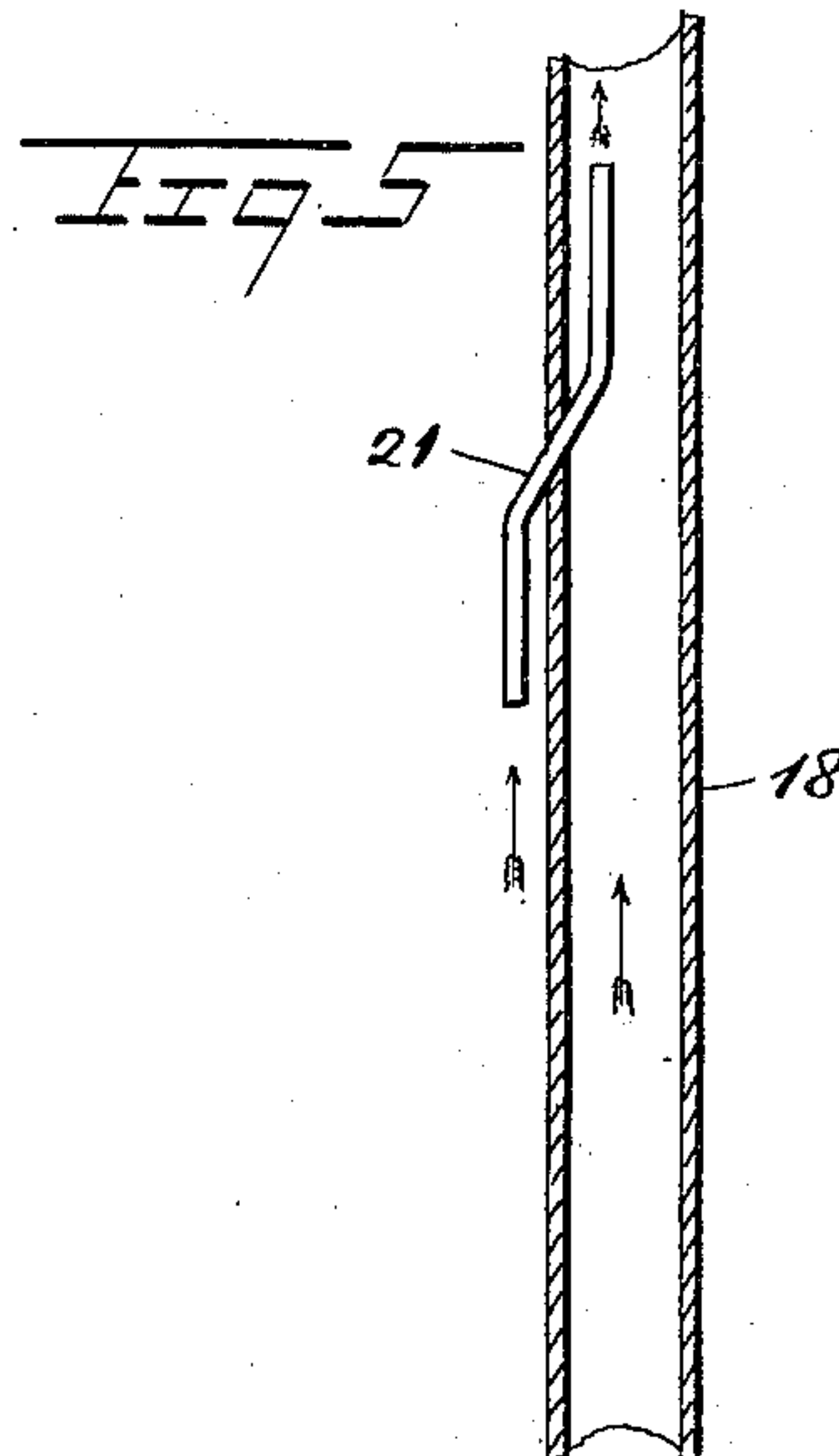
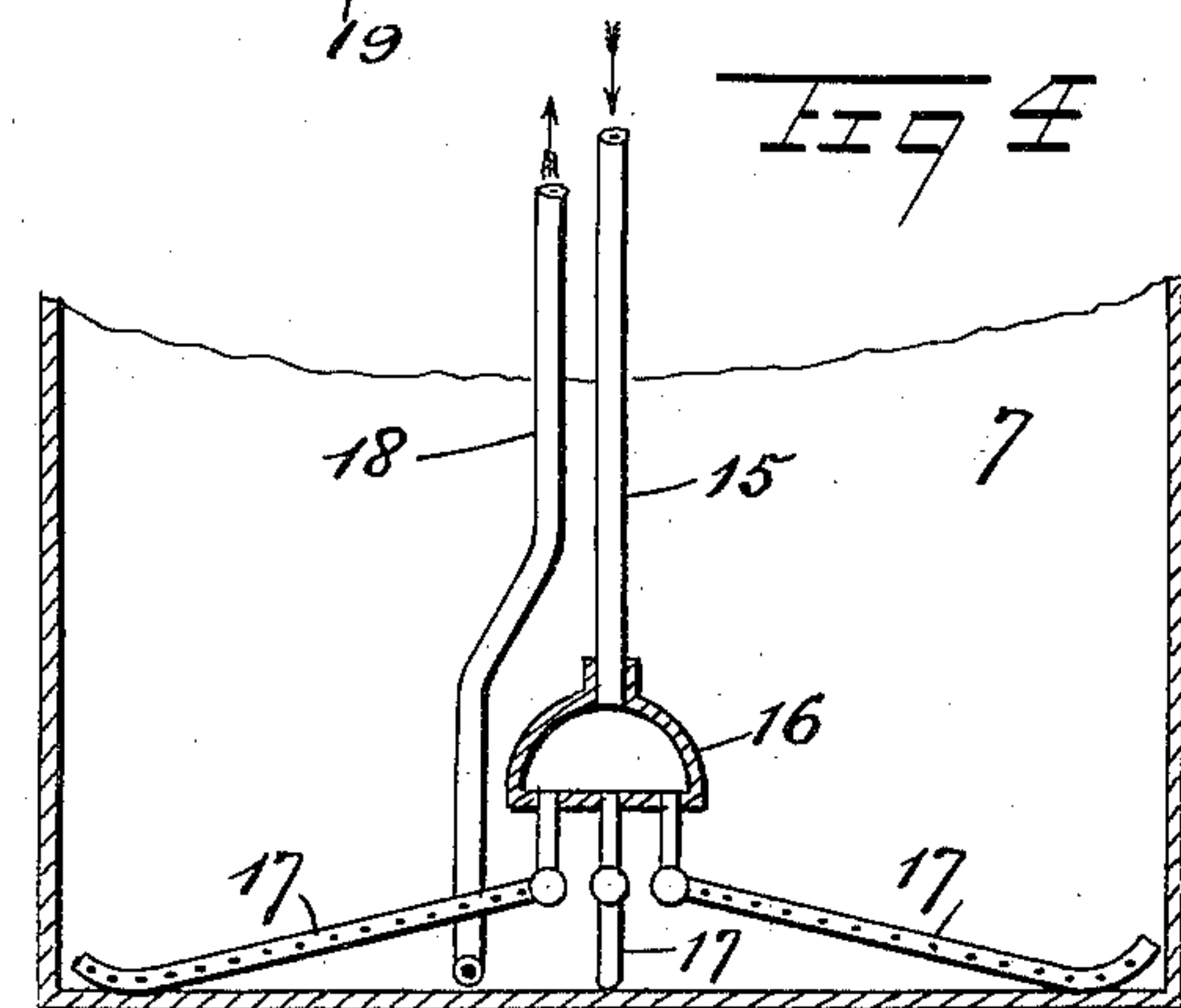
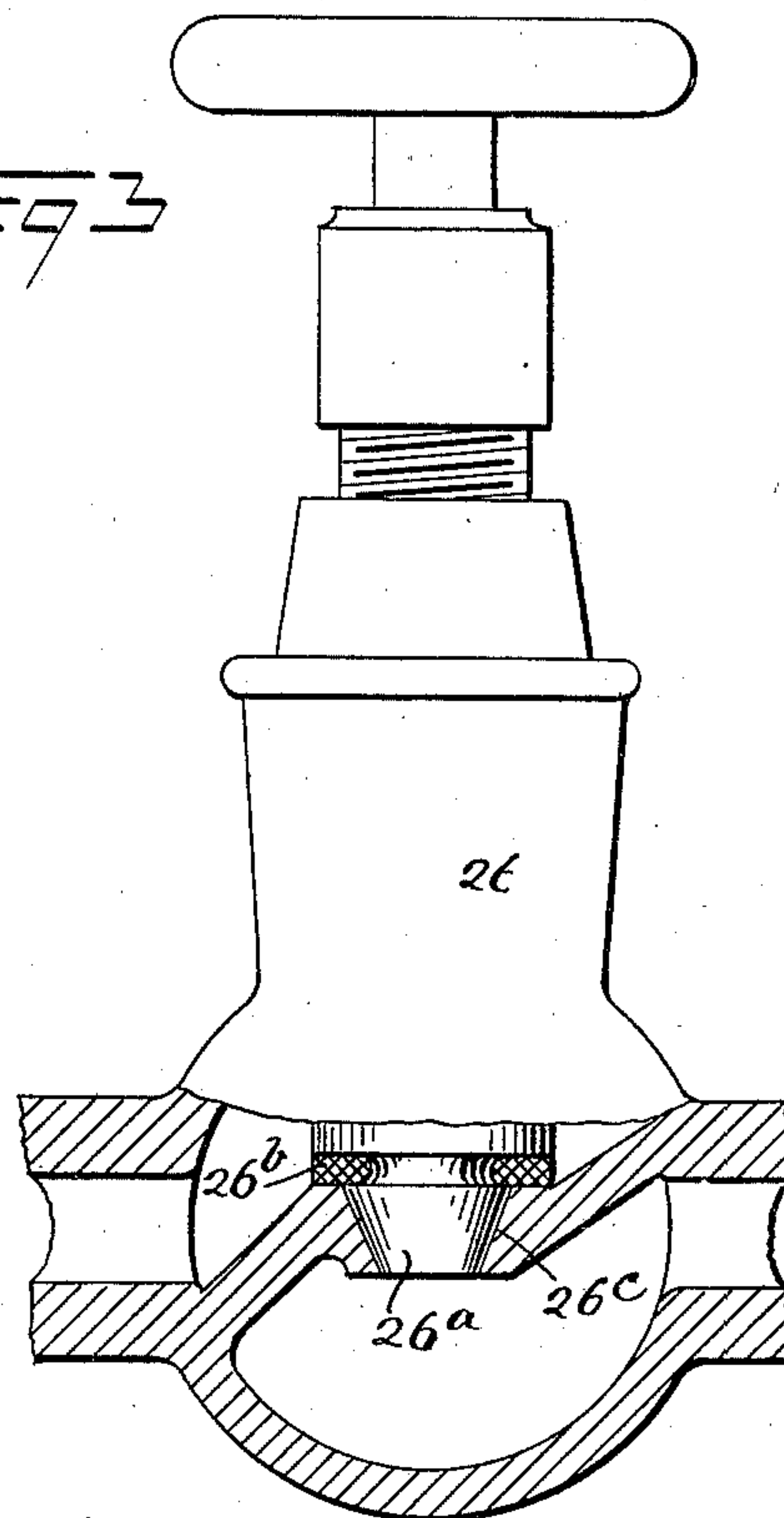
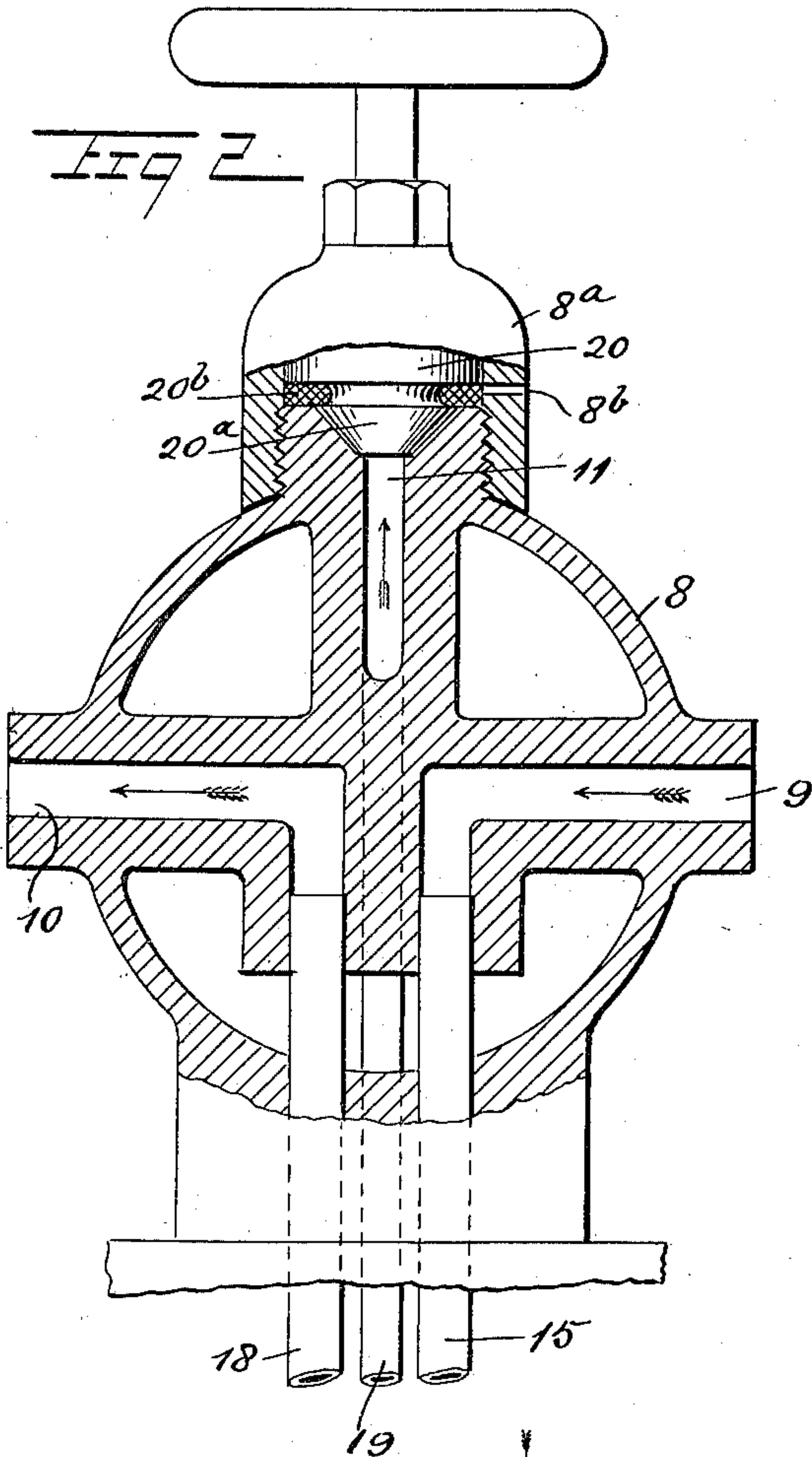
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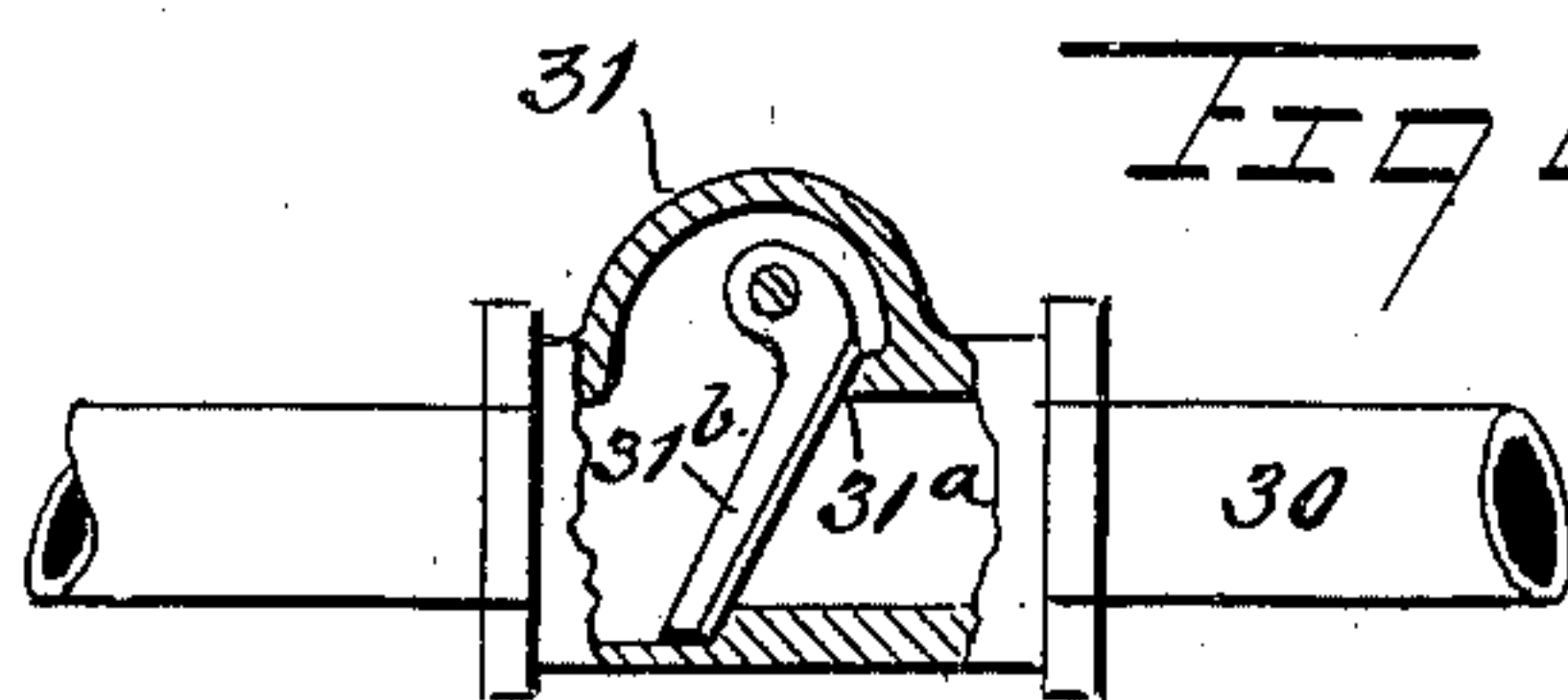
(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN C. WORNIS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
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APPARATUS FOR IMPREGNATING WATER WITH GAS.

SPECIFICATION forming part of Letters Patent No. 656,919, dated August 28, 1900.

Application filed March 22, 1897. Serial No. 628,743. (No model.)

To all whom it may concern:

Be it known that I, EDWIN C. WORNIS, a citizen of the United States, and a resident of New York, county and State of New York, have invented a new and useful Improvement in Double-Action Carbonators with Automatic Siphon and Filter Attachments, of which the following is a specification.

This invention relates to an apparatus for impregnating water with gases and for dispensing aerated waters.

This specification is the disclosure of one form of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an elevational view of my invention with parts in section. Fig. 2 is an enlarged section of the head of one of the reservoirs. Fig. 3 is a partial section of one of the valves employed. Fig. 4 is an enlarged section showing the piping in the bottom of one of the reservoirs. Fig. 5 is an enlarged section of the outlet-pipe of one of the reservoirs, and Fig. 6 is a sectional view showing one of the check-valves.

The waters to be aerated are contained in two reservoirs 7, provided with heads 8, each head having, as shown in Fig. 2, an inlet-passage 9, an outlet-passage 10, and an overflow-passage 11. The passage 9 communicates with a pipe 12 and the passage 10 communicates with a pipe 14. (See Fig. 1.) The water and gas are led to the reservoirs by means of pipes 15, which communicate with the inlet-passages 9 of the heads 8, the pipes passing downward to the bottom of the reservoirs, where they communicate with chambers 16, in turn communicating with a number of perforated pipes 17, radiating outward from the chamber 16 toward the sides of the reservoir. These perforated pipes cause the waters and gases to be equally distributed throughout the lower portions of the reservoirs for a purpose which will more fully appear hereinafter. The aerated waters are discharged from the reservoirs by means of pipes 18, which lead upward to the heads 8 and communicate with the outlet-passages 10. An overflow-pipe 19 is located in the upper portion of each reservoir and passes upward into communi-

cation with the overflow-passage 11 of the head 8. This passage is commanded by a valve 20, having a ground plug 20^a and a flexible gasket 20^b. The cap 8^a of the head 8 has an orifice 8^b, through which the discharge from the passage 11 passes, it being understood that the plug 20^a and gasket 20^b serve effectually to close this orifice 8^b. As indicated best in Fig. 5, the outlet-pipes 18 are provided at points above the normal water-line in the reservoirs 7 with tubes 21, which have bores sufficiently minute to take off a portion of the gases which are under pressure in the upper portions of the reservoirs, thus causing the waters dispensed to be accompanied by a large portion of gas, as will be fully described hereinafter.

The discharge-pipes 14, leading from the passages 10 of the head 8, respectively pass into the approximately-spherical end portions 22^a of the auxiliary aerating-chamber 22, the end portion of which communicates with the end portion 22^a by means of extensions 22^b. This auxiliary aerating-chamber 22, with the end portions 22^a and extensions 22^b, is filled with gravel or the like, so that the water in passing into and through the chamber 22 will be effectually broken up by the pebbles and delivered in a more thoroughly-aerated state. The water is dispensed from the chamber 22 via a pipe 23, commanded by a valve 24. For the purpose of holding the pebbles in the chamber 22 and its end portions 22^a I provide screens 25, located adjacent to the pipes 14 and 23, as indicated in Fig. 1. The pipes 14 are commanded by valves 26, which, as shown in Fig. 3, are similar to the valve 20 shown in Fig. 2—that is to say, the valves 26 have ground plugs 26^a and gaskets 26^b, working with a seat 26^c. The valve 24 is of a similar construction.

A pipe 27 leads from the water-supply and is commanded by a valve 28. This pipe 27 leads to a filter 29, from which passes a pipe 30, in which is placed a check-valve 31, opening outward from the filter, so as to permit the water to pass from the filter, but to prevent the water from returning thereto. This check-valve, as shown in Fig. 6, has a seat 31^a, on which works a clack 31^b. The pipe 30 communicates with a short pipe 32, in turn communicating with pipes 33, which pass in opposite directions from the pipe 32 and re-

spectively communicate with the pipes 12 to lead the water to the passages 9 of the head 8 of the reservoirs. The pipes 12 are commanded by valves 34, similar to the valves 26, above described. It will thus be seen that by opening the valves 28 water may be passed through the filter 29 and pipes 30, 32, and 33 to the reservoirs. The reservoirs may be filled simultaneously or independently by working the valves 34, as will be understood.

The gases with which the water is to be impregnated are contained in bottles 35, communicating by pipes 36 with a pipe 37. Valves 38 command the bottles 35, and the pipe 37 passes into communication with the pipe 32. The pipe 37 has a check-valve 39, similar to the valve 31, and a pressure-indicator 40, as shown. When the water has been entered into the reservoir 7 and fills the same to the proper height, as indicated in Fig. 1, the valve 28 should be closed and one or both of the valves 38 opened. The check-valve 39 being adjusted to open outward from the bottles 35 the gases will thus flow through the pipe 37 into the reservoirs by way of the pipes 32, 33, 12, and 15, taking the same course that was taken by the water. The gases in passing down the pipe 15 enter the chamber 16 and are delivered into the reservoir through the perforations in the pipes 17, thus passing completely through the water and rising to the top of the reservoir, so as to exert on the water sufficient pressure to force it out through the pipes 18. When it is desired to withdraw the aerated water, the valves 34 are closed and the valves 26 are opened. This permits the waters to pass into the auxiliary aerating-chamber 22, and then by manipulating the valve 24 the waters may be dispensed by way of the pipe 23. The pressure of gas in the tops of the reservoirs forces the water out. At the same time a portion of these gases are withdrawn through the pipes 21. It will be understood that these pipes being of small bore will not take off all the pressure, nor will they sufficiently reduce the pressure of the gases in the reservoirs to interfere with the proper delivery of the waters. At the junctures of the pipes 30, 32, and 37 a petcock 41 may be provided, if desired.

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

1. In an apparatus for aerating or carbonating waters, the combination of a reservoir adapted to contain water and gas under pressure, an outlet-pipe leading from the reservoir and extended below the water-line, and a gas-pipe located above the water-line and communicating with the outlet-pipe, the gas-pipe having a bore reduced sufficiently to permit the escape of a portion only of the gas in the reservoir, thus dispensing the waters with a large proportion of gas without destroying the operating pressure within the reservoir.

2. In an apparatus for aerating or carbonating waters, the combination with a reservoir

adapted to contain water and gas under pressure, of an outlet-pipe leading from below the water-line, a gas-pipe located above the water-line and passing into the outlet-pipe, the gas-pipe having a minute bore to take off only a portion of the gases, and a valved overflow-pipe leading from the reservoir at a point above the water-line.

3. In an apparatus for carbonating or aerating waters, the combination of two reservoirs adapted to contain the water and gas, an auxiliary aerating-chamber situated between the reservoirs and having enlarged end portions communicating respectively with the reservoirs, the chamber also having an enlarged middle portion with extensions communicating with the end portions, and means for carrying the water off from the middle portions of the chambers.

4. An apparatus for containing aerated or carbonated waters, the apparatus comprising a reservoir adapted to contain the water and gas under pressure, and means for carrying off the water, such means comprising a pipe leading downward below the water-line and having an orifice therein above the water-line, said orifice admitting a portion of the gas within the reservoir to pass out through the water.

5. In an apparatus for carbonating or aerating waters, the combination of a reservoir adapted to contain water and gas, an auxiliary aerating-chamber forming an outlet-passage for the waters from the reservoir and having an enlarged end portion communicating with the reservoir, the chamber also having a contracted extension communicating with the reservoir, and an enlarged portion opposite the said enlarged end portion and communicating with the extension, such auxiliary aerating-chamber serving to carry fragmentary material and offering an alternately enlarged and contracted passage for the aerated waters.

6. An apparatus for dispensing carbonated or aerated waters, the apparatus comprising means for conducting the aerated waters to the point of discharge, and a gas-supply device communicating with said means and serving to supercharge with gas the aerated waters therein.

7. An apparatus for dispensing aerated or carbonated waters, the apparatus comprising a reservoir in which the waters are aerated, means serving to conduct the aerated waters from said reservoir, and a gas-supply device communicating with the reservoir and with said means, and serving to supercharge with gas the waters in said conducting means.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 20th day of March, 1897.

EDWIN C. WORNES.

Witnesses:

WILLIAM E. TRIBLE,
WM. HENRY FOLSOM.