

(No Model.)

3 Sheets—Sheet 1.

M. WHITSON.

APPARATUS FOR PURIFYING AND CHARGING LIQUIDS.

No. 582,608.

Patented May 11, 1897.

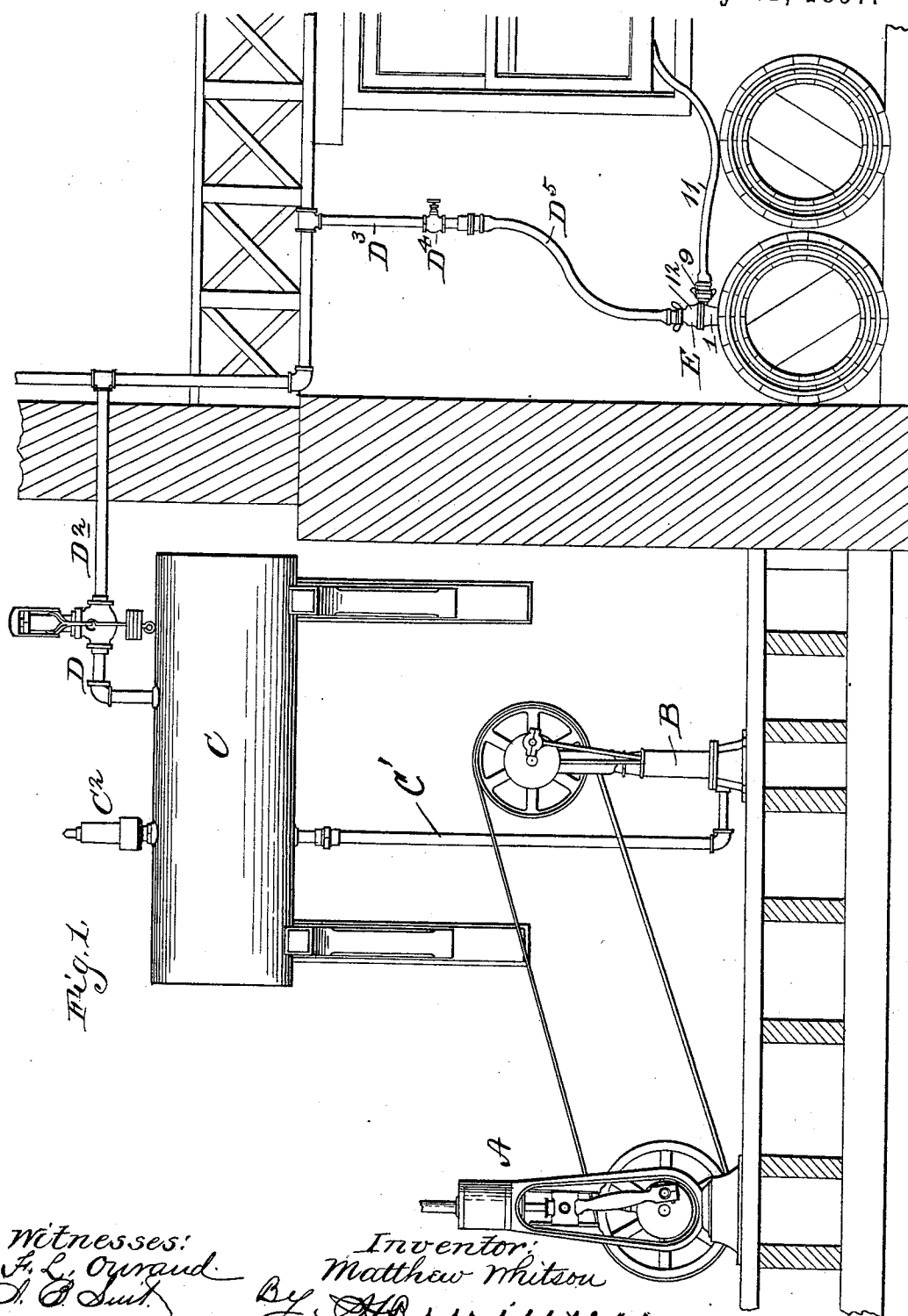


Fig. 1.

Witnesses:
J. L. O'neal
J. C. Smith

Inventor:
Matthew Whitson
By *A. H. Wilson*
Attorney

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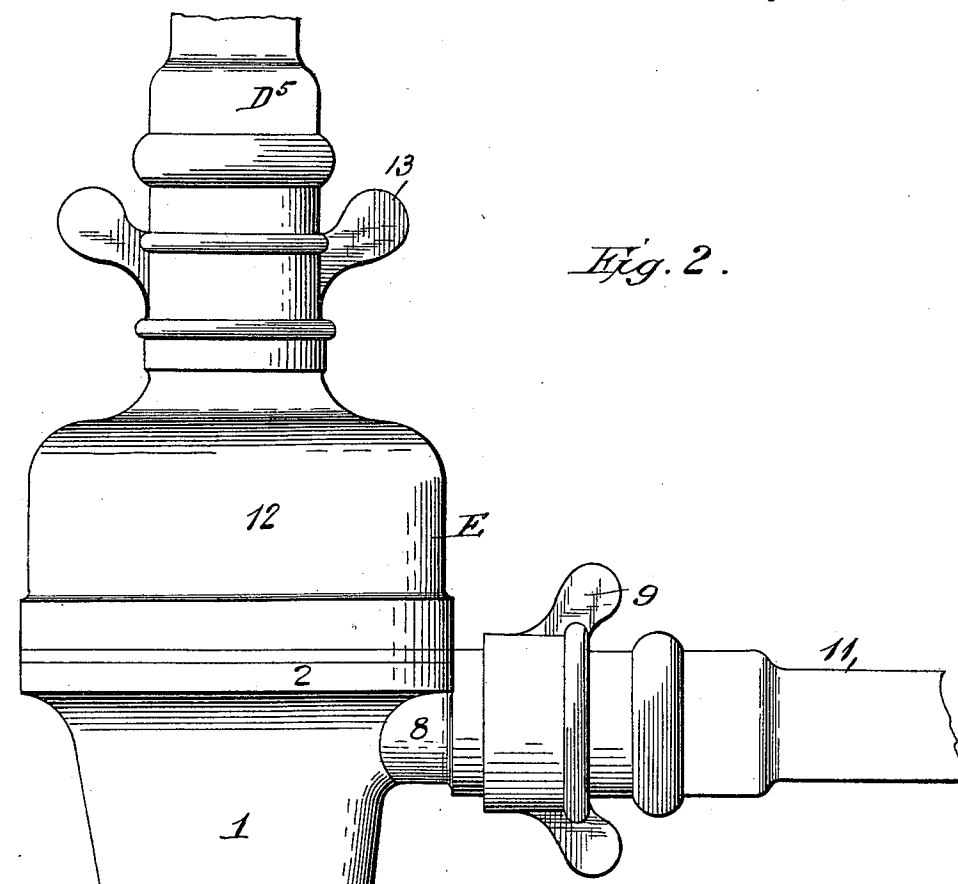


Fig. 2.

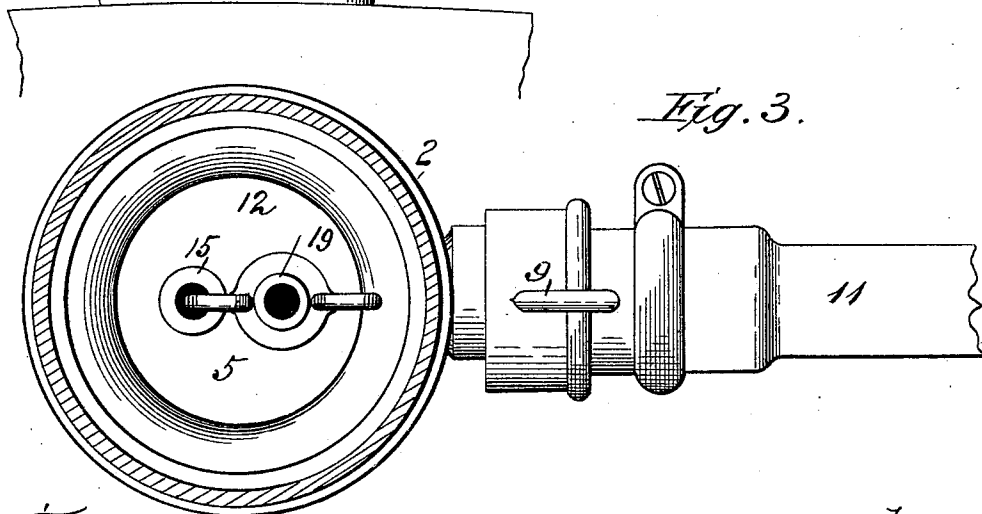


Fig. 3.

Witnesses,
F. L. O'Rand
A. B. Smith

Inventor
Matthew Whitson
By *A. B. Smith*
attorney.

(No Model.)

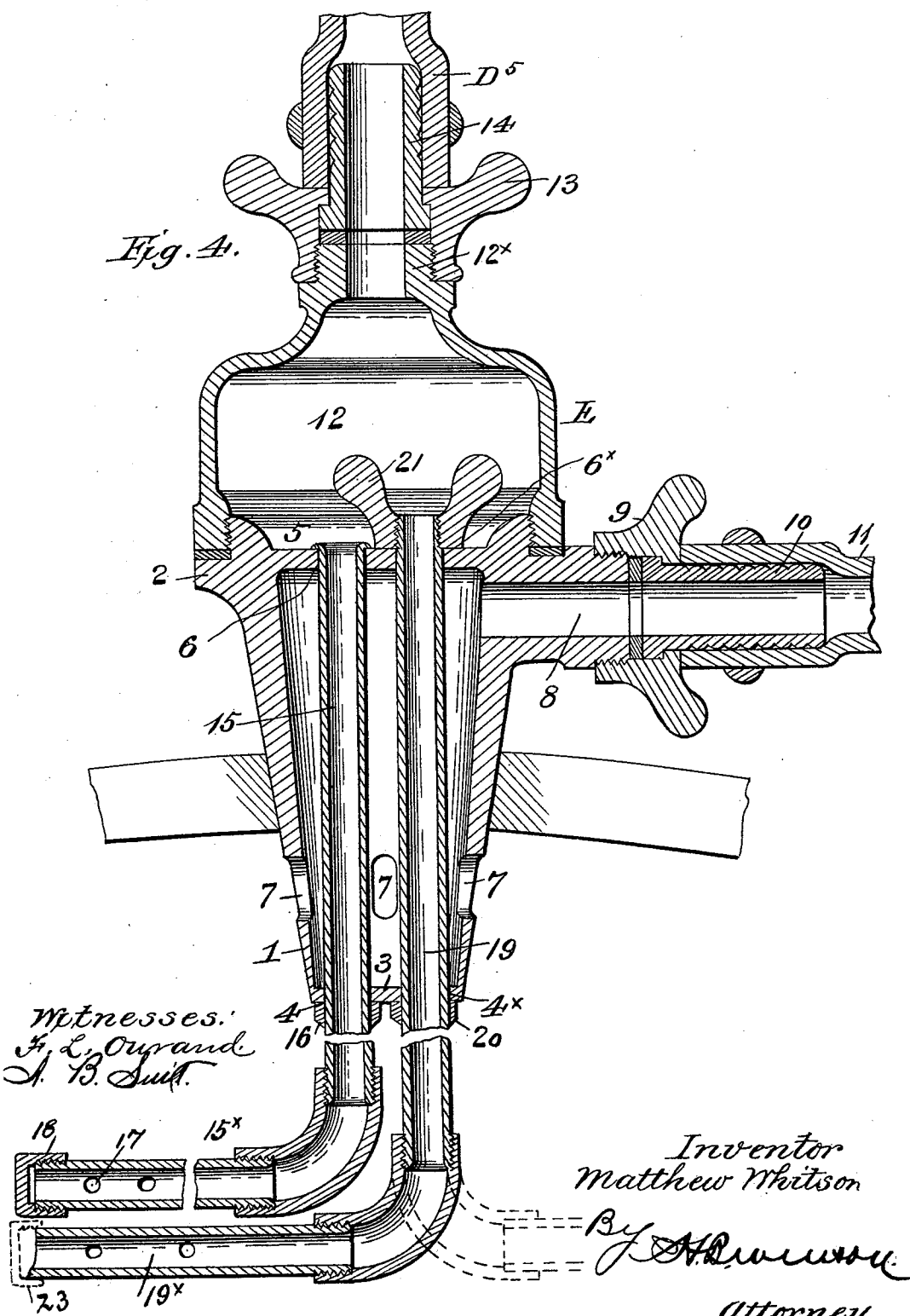
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UNITED STATES PATENT OFFICE.

MATTHEW WHITSON, OF SALINA, KANSAS.

APPARATUS FOR PURIFYING AND CHARGING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 582,608, dated May 11, 1897.

Application filed April 7, 1896. Serial No. 586,601. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW WHITSON, a citizen of the United States, residing at Salina, in the county of Saline and State of Kansas, have invented certain new and useful Improvements in Apparatus for Purifying and Charging Liquids; and I do 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 invention has relation to apparatus for purifying and charging liquids; and the object is to utilize compressed air to charge a liquid in a vessel for purification through the agency of the escaping air or to charge a liquid with air charged with a flavoring or disinfecting ingredient.

I accomplish the object of my invention by the means illustrated in the accompanying drawings, forming a part of this specification, and wherein—

Figure 1 is a diagrammatic view showing the complete apparatus, comprising an engine, an air-pump, a tank for compressed air, a pressure-regulator, conduit-pipes, the barrel-tap, and distributor. Fig. 2 is a side view in elevation of the barrel-tap and air-distributor. Fig. 3 is a transverse section on the line *xx* of Fig. 2. Fig. 4 is a vertical central section through the barrel-tap and air-pipes therein.

Referring to Fig. 1 of the drawings, A designates an engine of any suitable construction and motive power. B designates an air-pump operated by the power of the engine through suitable connections. C designates an air-compression tank of such size and capacity as may be required and having connection with the air-pump by a pipe-connection C'. The tank C is provided with a safety-valve C² of suitable construction. D designates a pressure-regulator interposed in the discharge-pipe D', leading from the tank to an air-conduit pipe D², substantially as shown. In the pipe D² are fixed any desired number of pipes, as D³, provided with stop-cocks D⁴, and having the ends formed to suitably connect air-tight with the flexible tubes D⁵, having connection to the barrel-taps and air-distributors.

Referring particularly to Fig. 4 of the draw-

ings, E designates the air-distributor, also constituting the barrel-tap. This device or apparatus is of particular construction to adapt it to the purposes intended, and consists of the following aggrouped elements or parts: 1 designates the lower part, consisting of a tapering shell made preferably to fit the standard bung-holes of barrels and kegs and formed with an annular flange 2 adjacent to its upper end, the part extending above the flange being provided with screw-threads. The bottom 3 is formed integral with the shell and has two apertures 4 4^x therein, through which the air-pipes are projected, substantially as shown. Adjacent to the upper end of the shell is a partition 5, having apertures 6 6^x in alinement with the apertures 4 4^x in the bottom of the shell. At the lower portion of the taper of the shell are formed a plurality of ports 7, opening into the vessel, and intended as escapes for the gases and escaping air evolved by the action of the process. Adjacent to the upper end of the shell is formed a pipe-nipple 8, having exterior screw-threads, on which a coupling-nut 9 engages, a loose coupling-sleeve 10 being arranged in the head of the coupling-nut, on the projecting end of which is secured the escape-pipe 11, leading to any desired location. On the top of the shell is secured by a threaded connection the cap 12, having a threaded neck 12^x, on which engages a threaded coupling-nut 13, in which is disposed a coupling-sleeve 14, to which is connected the lower end of the flexible air-pipe D⁵, substantially as shown.

In the apertures 6 and 4 is fitted air-tight and fixed an air-pipe 15, the upper end being suitably sealed in the partition 5 and at the point of projection from the bottom of the shell provided with a collar 16, brazed to the pipe and to the bottom of the shell. The pipe 15 extends down to the desired distance and is directed horizontally, as at 15^x, the horizontal extension being provided with a plurality of small apertures 17, through which the air is forced into the liquid. The end of the pipe is closed by a screw-cap 18. Another air-pipe 19 is snugly but rotatably arranged in the apertures 6^x and 4^x, sealed at the point of leaving the shell by a collar 20 and having the upper end projecting above the partition 5

and provided with a thumb-nut 21, by which the pipe extension in the barrel may be turned to project oppositely to the extension of the other pipe, as shown in dotted lines in Fig. 4 of the drawings, to cause the air to act over an extended portion of the contents or to turn the pipe so as to bring the extension parallel with the extension of the fixed pipe, as shown in full lines, and to permit the pipes to be inserted through the bung-hole of the vessel. As shown in the drawings, the pipe 19 has a horizontal extension 19^x, perforated as shown and closed at the end by a screw-cap 23.

The operation of the apparatus is as follows: The action of the engine operates the air-pump to fill the air-tank with compressed air, and then, the proper turning-plugs being opened, the air rushes into the liquid in the vessel, producing agitation and eliminating noxious gases and purifying the contents, the escaping air carrying with it through the discharge-pipe the gases and other deleterious properties combining therewith.

It will be perceived that my apparatus is applicable for eliminating ordinary impurities which have affinity to unite with air, such as noxious gases, and volatile oils, and thus may be used to purify malt and spirituous liquors, and in the process of agitation to impart the flavor of acquired age to them.

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

1. In an apparatus for purifying liquids by

the introduction of compressed air, a tapering shell adapted to fit an aperture in the containing vessel, and having a closed top and bottom, a fixed air-pipe in the shell, having a perforated horizontal section below the shell, a second air-pipe arranged in the shell to turn therein and formed with a perforated horizontal section below the shell, a pipe to lead the air into the shell and into the said air-pipes, and an escape-pipe to discharge the air from the shell, substantially as described.

2. In an apparatus for purifying liquids by the introduction of compressed air, an air-distributor E, comprising a tapering shell 1, having an annular flange 2 adjacent to the top thereof, a bottom 3 formed with apertures, a partition 5 having apertures, and having ports 7, and a pipe-nipple 8, an escape-pipe 11 connected thereto, the cap 12 detachably secured on the top of the tapering shell, and having a threaded neck, the compressed-air pipe D⁵ connected to the neck of the cap, the fixed air-pipe 15 secured in the shell and formed or provided with the perforated horizontal section 15^x, the air-pipe 19 rotatably secured in the shell and formed or provided with the perforated horizontal section 19^x, substantially as and for the purpose specified.

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

M. WHITSON.

Witnesses:

E. E. FORGEUS,

CHAS. D. FALCONER.