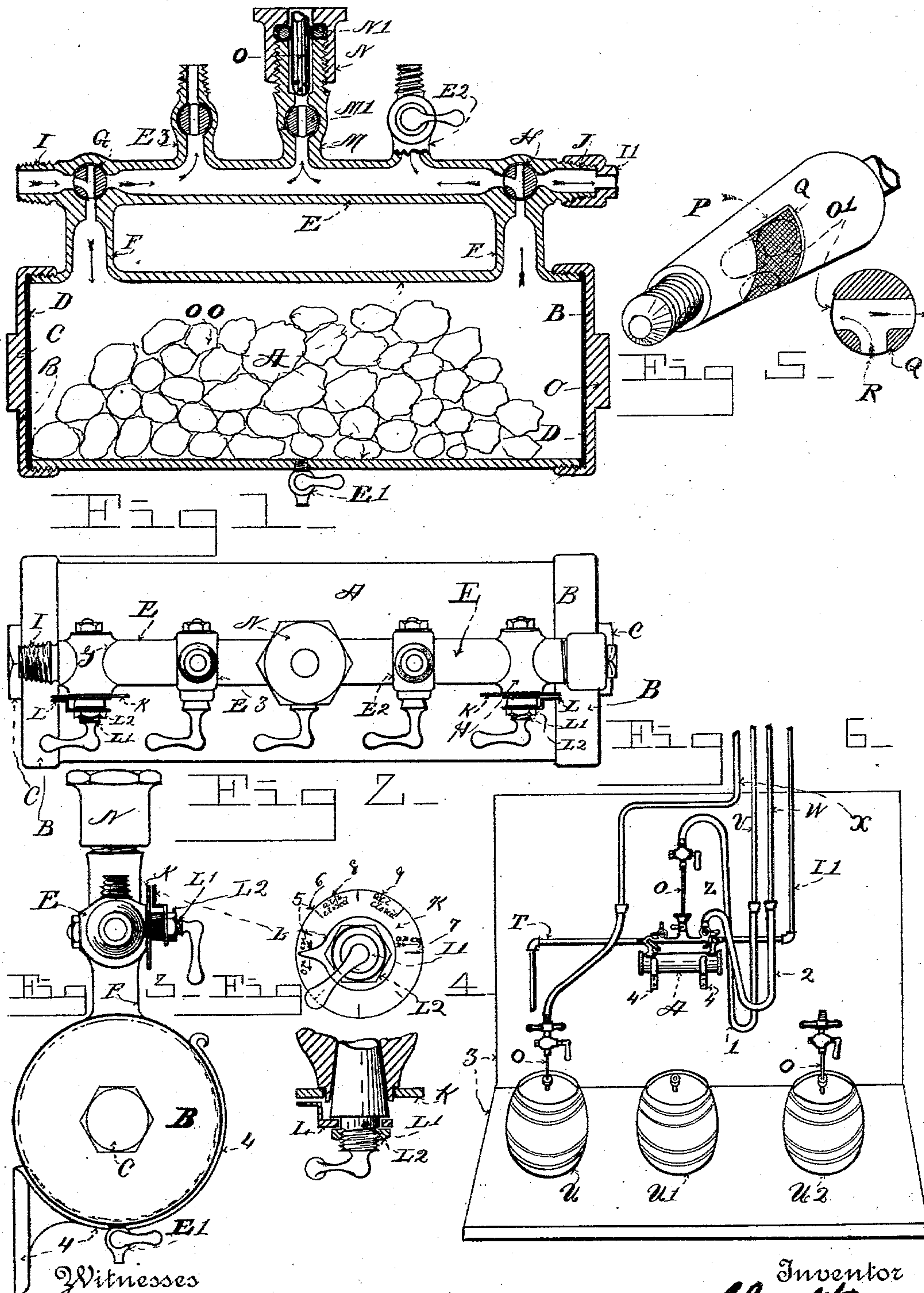


(No Model.)

C. ROAT.
BEER PIPE CLEANING DEVICE.

No. 553,019.

Patented Jan. 14, 1896.



Witnesses
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BEER-PIPE-CLEANING DEVICE.

SPECIFICATION forming part of Letters Patent No. 553,019, dated January 14, 1896.

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To all whom it may concern:

Be it known that I, CHARLES ROAT, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Pipe-Cleaning Devices; 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a device for cleaning the beer-conducting pipes and the beer-keg air-tubes of beer-tapping systems from the sediment which settles in them from the beer.

The objects of my invention are, first, to provide a simple, durable, and effective pipe-cleaning device in which an alkali solution is formed and driven through the pipe system, which can be set either at the bar or in the cooler above or below the bar-room floor; second, to provide a device to which the beer-tapping system is connected at intervals and by means of which an alkali solution is driven by water under pressure through said system and which is arranged to be instantly changed from the solution to clear water in order to rinse out the solution from the pipes, and which is also arranged with one pipe line and coil to supply ice-water at the bar, thereby concentrating in one device three different functions. I attain these objects by the mechanism illustrated and described in the accompanying drawings and specification, in which—

Figure 1 represents a longitudinal section of my improved pipe-cleaning device. Fig. 2 represents a plan view of the same. Fig. 3 represents an end elevation of the same. Fig. 4 represents two views of fragments illustrating the indicator for determining the position of the valve-ports. Fig. 5 represents a perspective view of the two-way valve at the exit-passage of the solution-cylinder into the auxiliary cylinder, as denoted by the arrows. Fig. 6 represents in elevation a frag-

ment of a beer-tapping system illustrating the application of my device to it.

Similar letters and figures of reference refer to similar parts throughout the several views.

Referring to Fig. 1, A designates a cylinder, preferably round. It is closed at both ends by threaded caps B, one of which may, if preferable, form an integral part of it. A wrench-receiving hub C is formed in the center of each cap, by means of which two wrenches may be applied and one end unscrewed with one, while the cylinder is held from turning by the other. In the caps B, I place washers D, which are adapted to contact with the ends of the cylinder when the caps are screwed up and make the joint water-tight. In the bottom of the cylinder I place a drip-valve E' to drain the cylinder after the water has been shut off, as water standing in it dissolves the soda and makes a very strong lye, which passes through the pipe and out of it the next time the water is turned on without doing much good.

At each end of the cylinder a hollow projection F connects it to an auxiliary cylinder which preferably forms with the said projections an integral portion of the main cylinder. This auxiliary cylinder is smaller in diameter than the main cylinder. It is preferably arranged in the vertical center of the main cylinder and it is placed a short space above it in order that the handles or wheels, if wheels are used, of the valve-stems will have sufficient room in which to be manipulated. At each end of the auxiliary cylinder is a threaded pipe-connecting projection I and J. At the junction of the passages leading to the auxiliary and main cylinder I place a two-way valve G and H.

I is the inlet to the device and the valve G is arranged to control this inlet, so that the water is guided either into the main or auxiliary cylinder, while the valve H is arranged to direct the solution from the main cylinder A into the body of the cylinder E or to its end outlet J. As it is very easy to get the proper rotary movements of these valves confused with respect to the passages which they control, it is necessary that some means be employed to indicate the position of the valve-

ports in relation to said passages in order that they may be instantly and unfailingly registered to direct the inflowing water and outflowing solution in the desired direction. I preferably carry out this feature of my invention in the following manner: Upon that end of the valve-plug adjacent to the handle I secure a dial K, as shown in Figs. 2, 3, and 4, which is graduated into quarters and eighths of its circumference. At these points arrows or letters, or both, indicate the direction of the passages, as will be more fully hereinafter explained. To the plug of the valve I secure in any suitable manner a pointer L, which turns with it. In Fig. 4, where two views are shown of the dial and pointer, I illustrate the pointer secured on a step L' of the plug by a nut L². By these means I am enabled to open or close either one or both passages at both ends of the cylinder. Intermediate of the ends of the cylinder E and projecting vertically I form several pipe or tube connecting projections E², each of which contains a valve E³ by which its passage can be opened or closed. I also form one or more projections M, which is also an outlet and contains a valve M' by which it is controlled. The end of the projection is threaded and a gland N is threaded to fit it. A chamber in the gland contains packing N'. The opening into the gland and projection as far as the valve is adapted to receive and hold with a tight joint the bung-tubes O of the beer-kegs, while the others secure only the ends of the rubber tubes which connect the ends of the conduct-pipes with the external ends of the said bung-tubes. I can consequently attach the bung-tubes to the device either separated from the rubber tubes or attached to them and the supply-pipe.

It is just as essential that the bung-tubes be cleaned as the conduct-pipes, but it often happens that the pipes need cleaning before the keg is empty, in which case the rubber tube is separated from the top of the bung-tube and attached to one of the pipe-connecting projections. The sediment which coats the pipes collects faster in the beer-conducting pipes, which are made of blocked tin, than in the bung-tubes, which are made of brass. Consequently they require to be cleaned oftener.

In order to prevent foreign material of any kind from passing the valve H from the chamber A into the chamber E and from it into the pipe system, I find it necessary to either screen the valve-ports or the passage between the two chambers at some point, which would preferably be at the exit of the chamber into the passage, but as the valve-ports can be easily reached and cleaned from the exit J if covered with a screen, I preferably arrange the screen over them covering the ports leading from the main to the auxiliary cylinder.

In Fig. 5 I show a piece of fine-meshed screen O' suitable to stop pieces of cotton waste, &c., which is much used around these

fixtures for cleaning purposes, and more or less of which is apt to get into the cylinder in refilling them and cleaning them out. In this figure two views are shown, a section in line with the arrow P and a perspective of the valve-plug. In order to secure the screen flush with the surface of the plug it is necessary to place it in a recess Q which I mill in the plug. This recess extends around the plug only to the farthest limits of the ports following the arrow R, as these ports control the passage between the cylinders. This screen is best secured in the recess by brazing it to the plug.

The operation is as follows: In Fig. 6 I illustrate my pipe-cleaning device connected to a bar tapping system of three kegs capacity, but I illustrate only such portion of the system as will suffice to demonstrate its application. T designates a city water pressure supply-pipe. It is connected to the inlet I. This clear-water supply is continued from the device from the end J to the bar through the pipe I', where it passes through a coil embedded in ice, which is not shown, and is drawn at the bar as ice-water. U, U', and U² designate kegs of beer. V, W and X are beer-conducting pipes leading to the bar. They are connected to the top of the bung-tubes O by the rubber tubes Z, 1 and 2. The beer is driven through the tubes and pipes to the bar usually by air-pressure, which application I do not show. The beer deposits in the pipes a glutinous sediment which increases very rapidly, and not only tends to close the openings through them, but gives the beer a bad taste and smell. I secure the device against the back of the cooler 3, of which I only show a fragment, the floor, and the rear side by brackets 4. (Shown in Fig. 3.) I then remove one end of the cylinder and place a quantity of sal-soda O O in the same, or a can of concentrated lye. If the latter is used a few holes should be made in the can before it is inserted. The cap is then replaced. Water is then turned into the device through the inlet I, and the valve G is opened by turning its pointer to that part of the dial marked "Open," where the arrow points downward, indicating that the valve is open downward into the main cylinder. This allows the water to run into the main cylinder and over the soda or lye, which dissolves, forming an alkali solution. The valve H is then opened by turning its pointer to the same point of the dial secured to its valve-body. The solution then flows into the cylinder E. When it is desired to clean a pipe independent of the bung-tube the rubber tube is disconnected from the bung-tube and connected to one of the pipe connections of the cylinder. Its valve then being opened, the solution is driven by water-pressure through the pipe and discharges through the bib at the bar into the sink.

Better results are obtained in cleaning out the pipes by reducing the pressure of the flow of water by partially closing the valve-ports

of both valves. This is accomplished by moving the pointer of both valves to the line 5 intermediate of the eighth, line 6, and the quarter marked "Open" on the dial. A sluggish flow gives the solution time to penetrate and cut the glutinous deposit and does not waste it. As soon as the pipe is cleaned the valve is turned until the pointer registers with the opposite mark 7, the arrow at this point indicating that the passage directly into the chamber E from the inlet I is open, which movement closes the down passage. The opposite valve H must be closed against both passages, which requires that its pointer be turned to the mark "8" or "9" of its dial. This position of either valve effectually closes it against both passages. The clear water then flows in the inlet through the valve G and through the pipe to the bar, thoroughly rinsing or washing the solution out of it. By then turning valve H to the point "7" of its dial, as shown in Fig. 2, the clear water is conveyed to the bar and drawn as ice-water, as before stated. The pipe-line valves, however, must first be closed.

To cut the sediment out of the bung-tubes they are simply removed from the bungs and placed in the stuffing-box and projection. The gland is then tightened, which forces the packing to make a water-tight joint around the tube. Then by proper manipulation of the valves H and G, and by closing the others, if pipe systems are not connected to them, and opening the valve in this projection the solution is driven through the holes in the end of the bung-tube and through the pipe-line to which it is attached, or they can be cleaned by themselves by disconnecting them from the rubber tubes and allowing the solution to run out at the top, in which case a suitable trough should be placed under the device to convey the waste solution away.

It is obvious that three pipe-lines can be cleaned at a time with the device as shown, and that they can be made of any capacity and to accommodate any desired number of conducting-pipes.

The device is simple and effective, and a valuable acquisition to any bar, as it performs three independent and necessary functions essential to the proper operation of bar tapping systems. If the cooler and kegs are located on the same floor as the bar, with a little additional piping the device can be located at the bar.

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

1. A pipe cleaning device comprising two horizontally arranged cylinders, one of which is preferably smaller than the other and connected together at the sides adjacent to their ends by tubular portions forming preferably an integral part of each, a cap threaded to one end of the larger cylinder, a rigidly secured cap or integral portion at the opposite end, a hollow projection at each end of the

smaller cylinder threaded for pipe connection and adapted for a water inlet and outlet, passageways between the two cylinders in the tubular connecting portions, a two-way valve arranged to control each passageway between the cylinders, means for indicating the position of the ports of each valve in relation to said passageway, one or more valve controlled pipe or tube connecting projections on said smaller cylinder and one or more valve controlled projections comprising a stuffing box and gland arranged on the projection, a hole through said projection and gland adapted to receive beer keg bung tubes, and a packing chamber and packing in said gland adapted to receive and pack said bung-tube in the projection against leakage, substantially as described.

2. In a pipe cleaning device the combination of a horizontally arranged cylinder adapted to hold an alkali salt and having a threaded cap at one or both ends thereof, a second cylinder arranged above said first named cylinder and connected thereto adjacent to its ends by tubular integral portions, a pipe connecting inlet projection on one end of said second named cylinder, a similar outlet on the opposite end, a two-way valve arranged to control said inlet and passages into both cylinders, a second similar two-way valve arranged to control the exit from the first named cylinder into the second named cylinder and its said outlet, and having a wire screen arranged preferably over the valve ports leading from the first named cylinder to the second, substantially as described.

3. In a pipe cleaning device the combination of two horizontally arranged cylinders joined together at their sides adjacent to their ends by tubular pieces, pipe and bung-tube projecting outlet connections, valves arranged to control said outlets and two two-way valves arranged in said cylinders to control the passages leading into and from them, substantially as described.

4. In a pipe cleaning device the combination of the main cylinder having one or more detachable threaded caps on the ends, the drip-valve, the auxiliary cylinder having the horizontal inlet and outlet valve, water supply connecting projections, and having a plurality of valve-controlled pipe-connecting outlet projections, and one or more bung-tube connections constructed substantially as herein shown, the connecting tubular portions between said cylinders, and the two-way valves in the auxiliary cylinder adjacent to said inlet and outlet, and adapted to control the passages into said cylinders, substantially as described.

5. In a pipe cleaning device the combination of a main and auxiliary cylinder separated but integrally connected together through their sides and adjacent to their ends by tubular portions, detachably threaded end caps on said cylinder threaded thereto, a projecting threaded water inlet and outlet on opposite

ends of said auxiliary cylinder, valve controlled pipe and bung-tube outlet connections on said auxiliary cylinder, a two-way valve in each end of said auxiliary cylinder adapted to
5 control the passages to each cylinder, a screen over the valve ports controlling the exit from the main cylinder to the auxiliary cylinder, and means substantially as herein shown and described for determining the relation of the

valve-ports to said passages, all arranged as is herein set forth.

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

CHARLES ROAT.

Witnesses:

JACOB DESSERICH,
JOHN W. HELBIG.