

(No Model.)

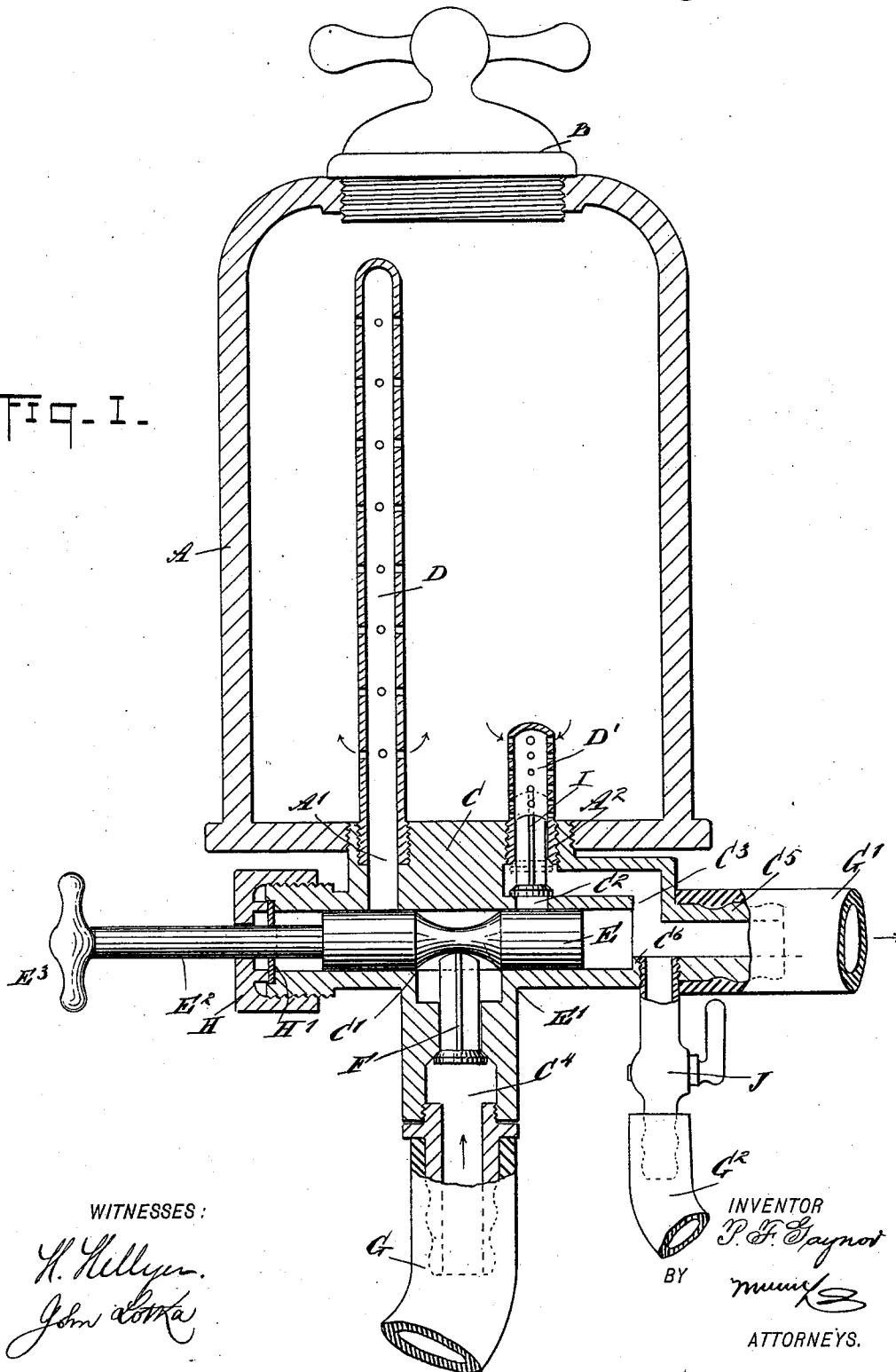
2 Sheets—Sheet 1.

P. F. GAYNOR.
BEER PIPE CLEANER.

No. 588,418.

Patented Aug. 17, 1897.

FIG. I.



WITNESSES:

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(No Model.)

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BEER PIPE CLEANER.

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FIG. 2.

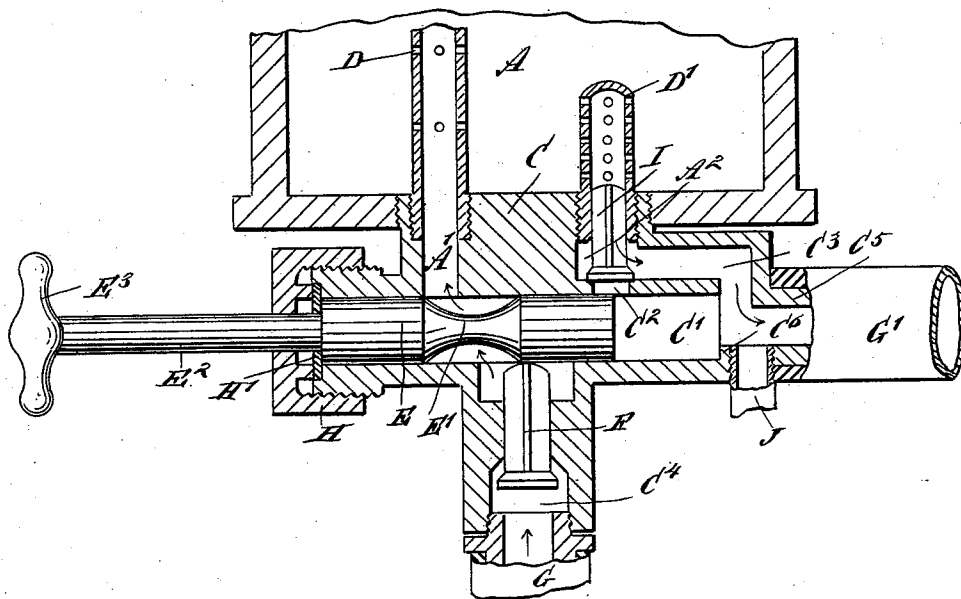
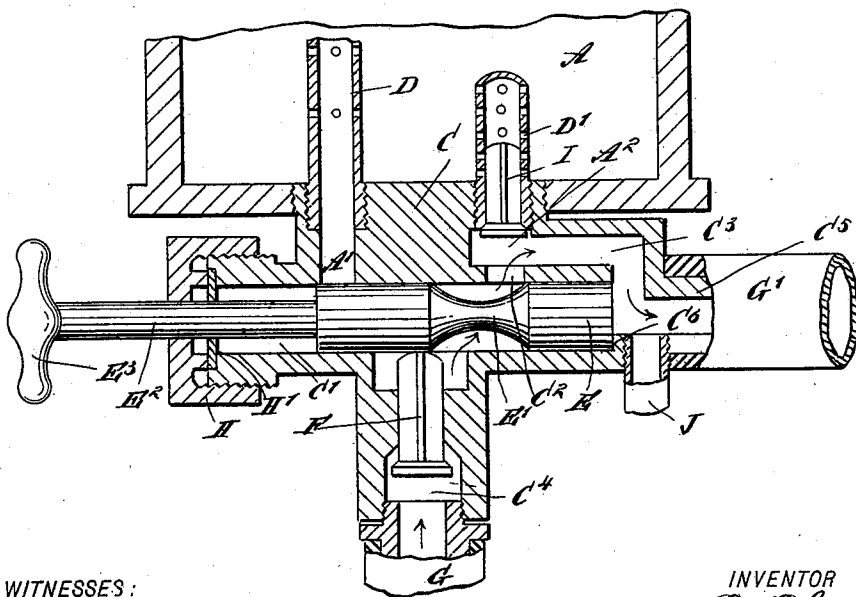


FIG. 3.



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UNITED STATES PATENT OFFICE.

PETER F. GAYNOR, OF GREENBUSH, NEW YORK.

BEER-PIPE CLEANER.

SPECIFICATION forming part of Letters Patent No. 588,418, dated August 17, 1897.

Application filed April 5, 1897. Serial No. 630,757. (No model.)

To all whom it may concern:

Be it known that I, PETER F. GAYNOR, of Greenbush, in the county of Rensselaer and State of New York, have invented a new and useful Beer-Pipe Cleaner, of which the following is a full, clear, and exact description.

My invention relates to apparatus for cleaning pipes, such as beer-pipes, and has for its object to so construct an apparatus of the above-indicated class that the operator may at will send through the pipes a solution of a suitable chemical, such as sal-soda, or a stream of pure water.

Another object of my invention is to provide a simple arrangement of parts whereby the apparatus will be held in the closed or inactive position by the pressure of the water and whereby the operator will be enabled to readily adjust the apparatus to the several positions used in practice.

Other features and advantages of my invention will appear from the detailed description following hereinafter.

The novelty of the invention will be defined in the appended claims.

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 figures.

Figure 1 is a sectional elevation of my improved beer-pipe cleaner, the parts being adjusted to close the water-inlet, so that the apparatus is inactive; and Figs. 2 and 3 are partial vertical sections showing, respectively, the adjustment of parts for cleaning the pipes with the soda solution or other chemical and for sending only water through the said pipes.

The apparatus comprises a receptacle A, which may be bell-shaped, as shown, and provided in its top with a screw-plug B to afford an easy access to the interior of the receptacle when required. The receptacle has an inlet-port A' and an outlet-port A², which may be formed in a valve-casing C, screwing into the bottom of the receptacle A.

A perforated tube D may be arranged within the receptacle above the inlet-port A', and a similar tube D' may be fitted over the outlet A². The latter is connected by means of a channel C³ to the discharge-passage of the apparatus, and from the channel C³ a port C² leads to the longitudinal bore C' of the casing

C, said port being controlled by the piston-valve or slide-valve E.

Between the ports A' and A² is arranged the main inlet-port C⁴, controlled by an inwardly-seating check-valve F. This inlet is adapted for connection with a tube or hose G, through which water is supplied. Similarly there is a nipple C⁵ at the end of the valve-casing C adjacent to the outlet A², said nipple being adapted to receive a hose G', which leads to the pipes to be cleaned.

The piston-valve E consists of two sections of uniform diameter, (cylindrical, as shown,) with a section E' of reduced diameter between them. The walls of said central section E' are preferably inclined relatively to the axis of the valve, for a purpose more particularly stated hereinafter. The valve has a stem E², passing through a stuffing-box H, and the stem is provided with a handle E³ to operate it. The stuffing-box H or the washer H' therein limits the outward movement of the valve. Its inward movement may be limited by a shoulder C⁶ or equivalent stop in the bore C'.

In the outlet A² is arranged a valve I, which may close the port C², as shown in Figs. 1 and 2, or the outlet A², as shown in Fig. 3.

The bore C' at its outlet end connects with the bore of a cock J, adapted for connection with a hose G², whereby compressed air from a tank or other source may be admitted into the apparatus for purposes described hereinafter.

The operation is as follows: In Fig. 1 the supply of water is cut off from the apparatus, as the reduced portion E' of the piston-valve E allows the valve F to be pressed against its seat by the liquid in the supply-hose G. The port C⁴ therefore is closed. The ports A' and C² are covered by the cylindrical parts of the piston-valve. Moreover, the port C² is closed by the outlet-valve I, which is held in its lower position by its own weight. The receptacle A is filled with sal-soda or other suitable chemical. It will be observed that owing to the central portion E' of the piston-valve being inclined or flared outwardly toward each end the pressure on the inlet-valve F has a tendency to hold the piston-valve in a central position, and the operator will therefore readily feel when the valve is in such posi-

tion, as there will be some resistance to moving the valve out of the central position. Also, in case the operator should release the handle E³ before the piston-valve is fully centered relatively to the inlet-valve F, the pressure on the latter will be sufficient to slide the piston-valve in the casing until it is in the position illustrated by Fig. 1. The pressure will in a like manner return the piston-valve to its central position in case it should accidentally be moved slightly out of such position. It will therefore be seen that the inlet-valve F practically forms a lock for the piston-valve E.

When it is desired to clean the beer-pipes connected to the hose G' by passing through them a solution of the chemical contained in the receptacle A, the operator pulls the piston-valve E out into the position shown in Fig. 2. The stem of the inlet-valve F being in engagement with the inclined face or shoulder E' is moved outwardly, unseating the inlet-valve, so as to admit water through the inlet C⁴ into the bore C' of the casing C. The reduced portion E' is in such a position as to establish a communication between the inlet C⁴ and the receptacle-inlet A', so that water passes into the receptacle. This water, taking with it some of the chemical contained in the receptacle, passes out through the tube D, outlet A², channel C³, and nipple C⁵ to the hose G' and the beer-pipe. The cock J is closed. The outlet-valve I remains upon its lower seat, closing the port C². It will be seen that no water can pass directly from the inlet C⁴ to the hose G'. When this operation has been continued a sufficient length of time and it is desired to further clean the beer-pipe, also to remove the sal-soda solution therefrom by passing only pure water through said pipe, the piston-valve E is pushed inward to the position shown in Fig. 3. The annular chamber around the reduced portion E' of said valve then establishes a communication between the inlet-port C⁴ and the port C² under the outlet-valve I. The pressure of the water causes the outlet-valve to rise and forces it against its upper seat, so that no water can enter or leave the receptacle A through its outlet A². The inlet A' is closed by the cylindrical end of the piston-valve E. It will be understood that the valve F is opened by the inclined portion of the valve E in the same manner as hereinbefore described. The water thus passes directly from the inlet-port C⁴ to the port C², channel C³, nipple C⁵, and hose G' without passing through the receptacle A.

After thus cleaning the pipes the water may be thoroughly expelled therefrom by opening the cock J, to which the air-hose leading from the supply of compressed air is attached. The air rushing through the beer-pipes will remove the water therefrom. Also, when desired, the air-hose G² may be cleaned in the same manner as the beer-pipes are cleaned. This is an important advantage of

my invention over the usual constructions. It admits of the air-hose being cleaned in the same manner as the beer-pipes are cleaned, it being understood that the air-hose is liable to become foul and needs cleaning as well as the beer-pipes. This cleaning is accomplished by simply opening the cock J, to which the air-hose is always attached.

When it is desired to refill the chamber A, the water must be let out therefrom. This is accomplished best by bringing the piston-valve E to its central position, Fig. 1, and then dropping the outlet-hose G' below the level of the water.

The connection of the outlet-hose G' to the beer-pipes may be made in any suitable manner.

I desire it to be understood that various modifications may be made without departing from the nature of my invention. The inlet-valve F, although it is very useful in preventing leakage and also presents the several advantages hereinbefore pointed out, is not absolutely necessary, since the apparatus will operate without it, the piston-valve E being sufficient to control the flow of the water in the manner described.

The piston-valve E is a cut-off valve, inasmuch as it controls the admission of water to the receptacle A. The path A' A² C³ C' G' is the regular channel for the liquid, while the port C² forms a by-pass enabling the liquid to reach the outlet-hose G' directly without passing through the receptacle A.

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

1. The combination of the receptacle having an inlet and an outlet, the valve-casing having a liquid-inlet and a bore communicating with the inlet of the receptacle, a cut-off valve controlling the connection of the liquid-inlet with the receptacle, the apparatus having a liquid-outlet having a connection to the outlet of the receptacle and also a direct connection to the bore of the valve-casing, and an outwardly-opening check-valve controlling the connection of the liquid-outlet with the outlet of the receptacle, substantially as described.

2. The combination of the valve-casing having inlet and outlet ports, the piston-valve movable in said casing and provided with a reduced central portion inclined relatively to the axis of the piston-valve, and the inlet-valve engaging the inclined surface of the piston-valve, substantially as described.

3. The combination of the valve-casing having inlet and outlet ports, the piston-valve movable in said casing and provided with a reduced central portion flaring toward the ends, and the inlet-valve arranged to move transversely of the piston-valve and to engage the reduced portion thereof, substantially as described.

4. The combination of the receptacle, the valve-casing having an inlet, the inlet-valve,

the piston-valve arranged in the casing and engaging the inlet-valve to operate the same, the casing having a channel or connection forming an inlet to the receptacle, and another connection leading to the outlet of the apparatus, the receptacle having likewise a connection to said outlet and a check-valve adapted to close the channel or connection from the receptacle to the outlet when the direct connection from the casing to the outlet is open, substantially as described.

5. A beer-pipe cleaner, or other apparatus, having a liquid-inlet and a liquid-outlet, a receptacle connected to the liquid-inlet and to the liquid-outlet, a cut-off valve controlling the connection of the receptacle with the liquid-inlet, the apparatus having a by-pass,

likewise controlled by the cut-off valve, through which the liquid may pass directly from the inlet to the outlet without entering the receptacle and a check-valve between the by-pass and the outlet of the receptacle, substantially as described.

6. The combination of the valve-casing having inlet and outlet ports, the manually-controlled main valve movable in said casing, and the separate inlet-valve movable transversely of the main valve and operated by the movement thereof, substantially as described.

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Witnesses:

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