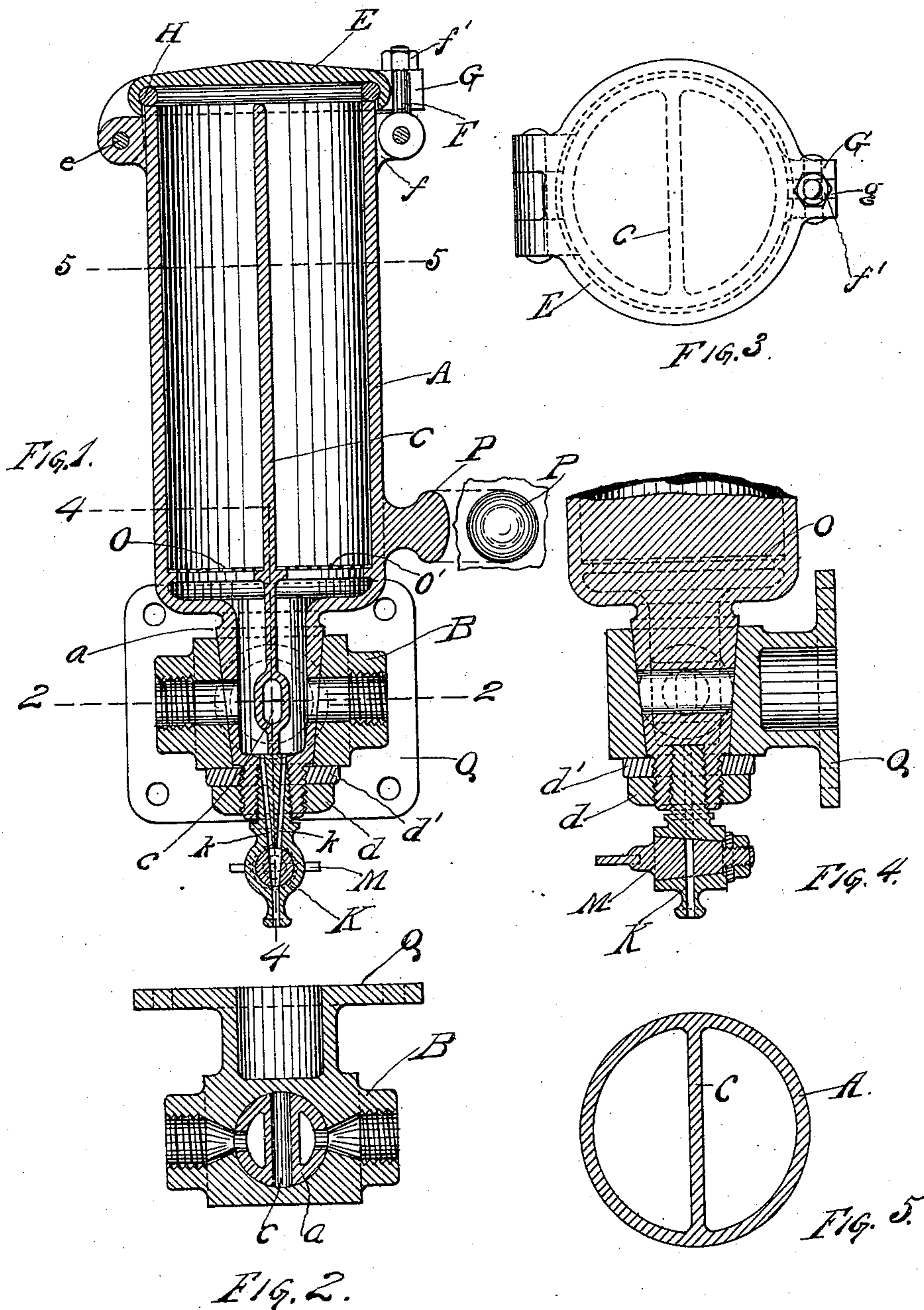


(No Model.)

H. W. FORSLUND & A. P. RUMELY.
TUBE CLEANING DEVICE.

No. 558,553.

Patented Apr. 21, 1896.



WITNESSES:

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HUGO W. FORSLUND AND ANDREW P. RUMELY, OF CHICAGO, ILLINOIS;
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TUBE-CLEANING DEVICE.

SPECIFICATION forming part of Letters Patent No. 558,553, dated April 21, 1896.

Application filed October 5, 1895. Serial No. 564,799. (No model.)

To all whom it may concern:

Be it known that we, HUGO W. FORSLUND and ANDREW P. RUMELY, citizens of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Tube-Cleaning Devices, of which the following is a full, clear, and exact description, and which are fully illustrated in the accompanying drawings, which form a part of this specification.

The invention relates to that class of beer-pipe cleaners in which the cleansing agent is a current of water, and in which means are provided for charging the water during the first part of the operation with an alkali of some kind. The difficulty in such devices has been to wholly cut off the connection between the alkali-receptacle and the current of water during the latter part of the operation, so that there will be no possibility of leaving any of the chemical in the pipes.

The object of this invention is to provide simple and efficient means for charging the water with the alkali, and a positive and complete cut off of the chemical from the water-pipe when a sufficient quantity of it has been used.

The invention consists in providing a device of the class named with a peculiar form of valve, by which the current of water may, at the pleasure of the operator, be caused to pass directly through the chemical-tank, or to pass by it without contact with any passage opening from the tank.

It consists in further details of construction, as hereinafter set forth.

In the accompanying drawings, we show in Figure 1 a central longitudinal section through the chemical-tank, the valve, and a section of the water-pipe; Fig. 2, a plan section on the line 2 2 of Fig. 1; Fig. 3, a plan view of the tank; Fig. 4, a sectional view on the line 4 4 of Fig. 1; Fig. 5, a detail plan section on the line 5 5 of Fig. 1.

The chemical-tank is preferably cylindrical in form, and is provided with a stem *a*, which forms the valve in the water-tube, a section of which is shown at B. The valve *a* is tapering in form, and extends entirely through the pipe-section B and is drawn tightly to its seat

by a nut *d*, screwed upon its end, a washer *d'*, preferably of Babbitt metal, being placed under the nut *d*.

The body of the valve *a* is chambered, the chamber opening directly into the interior of the tank A. A longitudinal partition C, which is best formed integral with the tank, divides the chamber of the latter and of the valve *a* into two compartments.

The valve *a* is ported, so as to open the two compartments of the tank, the ports being opposite each other and so placed as to coincidentally register with the interior of the pipe-section B.

The top of the tank A is closed by a cap E, hinged at *e* to the tank and locked by means of a swinging bolt F, pivoted to a boss *f*, formed upon the tank A, and adapted to enter a recess *g* in an ear G, projecting from the cap E. The end of the bolt F is threaded and a nut *f'*, turned down upon it against the top of the ear G, forces the cap E firmly against the open end of the tank. An annular gasket H is interposed between the cap E and the end of the tank to make a tight joint. This gasket is preferably round in cross-section, and is held within a pendent flange of the cap E, the ring being of such diameter that it must be forced into its seat within the flange.

When the cap E is closed and the valve is so turned that the ports to the interior of the tank register with the pipe-aperture, water passing through the pipe is diverted through the tank, passing over the top of the partition C and back into the pipe.

That part of the partition C which is located within the valve *a* is thickened, and a port *c* is cored in this thickened portion, passing entirely through the valve and being so located as to register with the aperture of the pipe-section B, so that when the valve is turned to open this port to the pipe the water is wholly cut off from the tank and finds a straight way through the pipe.

Drainage of the tank is provided by drilling into the end of the valve *a*, tapping the aperture, and screwing a nipple K into the same. This nipple is transversely apertured to form a seat for a simple two-way cock M. A single duct leads from this valve-seat

through the end of the nipple, and two ducts *k k* lead upwardly from the valve-seat through the inner end of the nipple, so as to communicate one with each of the compartments of the tank. The aperture through the valve *K* is large enough to open both of the ducts *k k* simultaneously, as indicated in Fig. 1.

Perforated screens *O O'* are placed across the compartments of the tank, one near the bottom of each compartment, serving as a support for the chemical. This arrangement not only prevents the chemical from being carried into the pipe system in solid form and being thereby wasted, but it also prevents it from settling back into the water-pipe through the induction-port of the valve and being thence carried into the pipe system when the straightway passage of the valve is opened, and thus contaminating the pure water and possibly collecting in the beer-pipes, to the great detriment of the beverage served through them.

An attaching-plate *q* is formed upon the pipe-section *B*, by means of which the device may be secured to a wall or other convenient support.

A knob or handle *P* is cast upon the side of the tank *A*, by means of which the valve *a* may be operated by turning the tank.

By the construction described it will be seen that the chemical-tank is formed within the stem or handle of the valve. A cross-valve is formed, one of whose passages leads through the tank, and the other is a straightway across the valve, the two passages being in no way connected, so that when communication is opened between the water-pipe and the tank all of the water passes through the tank, and when the straightway passage is opened all communication with the tank is cut off.

The device is complete in itself in that the valve is adapted to be so set as to close all of its ports and thereby cut off the connection between both the water supply and the chemical-chamber and the pipe system without the use of an intermediate valve.

In use one end of the pipe-section *B*—it is immaterial which end—is connected with a water-service pipe and the other end with the system of pipes to be cleaned. Sal-soda or other suitable alkaline substance is placed in both compartments of the tank *A*. The valve *a* is turned to bring the chamber of the tank into communication with the pipe and the water passes through it and becomes charged with the alkali. After the pipe system has been flushed with this solution, and the latter has been allowed to remain therein a sufficient length of time to entirely disintegrate the matter that has formed upon the inner surface of the pipes, the valve *a* is turned to cut off the connection between the tank and the pipe and open the straightway port *c*, so that pure water enters the pipe system, which may now be thoroughly flushed, washing out the foul matter and all trace of the alkali. When the

tank becomes emptied of the sal-soda, it is easily refilled by turning back the cap *E*, the liquid contents of the tank being drained off through the cock *M*.

While we prefer the form of construction shown, in which the chemical-chamber is formed within the stem of the valve, we do not wish to be limited to this specific form, for the reason that we believe we are the first to make a device of this character in which the full head of water may be turned through the chamber or may be switched around or past it without passing any open port or passage leading from this chamber.

We claim as our invention—

1. The combination with a pipe and a tank, of a plug or rocking valve located in the pipe and having a straightway passage and two oppositely-disposed ports independent of the straightway passage, both of such ports being in communication with the tank, substantially as described and for the purpose set forth.

2. In a tube-cleaning device the combination with a water-pipe, of a valve for controlling such pipe and having a chambered stem or handle and independent and disconnected cross-passages, one of its passages leading into and discharging from such chamber, and the other and direct passage allowing the uninterrupted passage of the water through the pipe, and being wholly disconnected from the chamber, substantially as described, and for the purpose specified.

3. In a tube-cleaning device the combination of a water-pipe with a chemical-tank having a longitudinal partition, the compartments of the tank being in communication at one end of the partition, a rock-valve seated across the water-pipe and having a straightway passage for permitting the uninterrupted flow of the water through the pipe, and a pair of oppositely-disposed ports adapted to register simultaneously with the aperture of the pipe, such ports leading to different compartments of the tank, and being wholly disconnected from the straightway passage, substantially as described and for the purpose specified.

4. In a tube-cleaning device the combination with a pipe-section, *B*, transversely apertured to form a valve-seat, a chambered valve, *a*, adapted to the seat, a tank, *A*, formed integral with the valve and having a longitudinal partition extending to the bottom of the chamber of the valve and allowing communication between the two compartments of tank at its opposite end, such partition and the walls of the valve being apertured to form a straightway wholly disconnected from the tank-chamber and adapted to register with the pipe-aperture, and the valve having additional ports oppositely disposed and adapted to register with the pipe-aperture, such ports leading to different compartments of the tank, substantially as described and for the purpose specified.

5. In a pipe-cleaning device the combination with a water-pipe and with a chemical-tank having two compartments and with means for connecting the tank-chamber with the pipe-aperture, of a drain-cock, and ducts leading from each of the tank-compartments to the drain-cock, substantially as described and for the purpose specified.

6. In a tube-cleaning device the combination of a water-pipe, with a chemical-tank, a plug or rocking valve seated across the water-pipe and having a straightway passage for permitting the uninterrupted flow of the water through the pipe, and a pair of oppo-

sitely-disposed ports adapted to register simultaneously with the aperture of the pipe, such ports being in communication with the tank, and being wholly disconnected from the straightway passage, substantially as described and for the purpose set forth.

In testimony whereof we have hereunto set our signatures in the presence of two witnesses.

HUGO W. FORSLUND.
ANDREW P. RUMELY.

Witnesses:

LOUIS K. GILLSON,
SPENCER WARD.