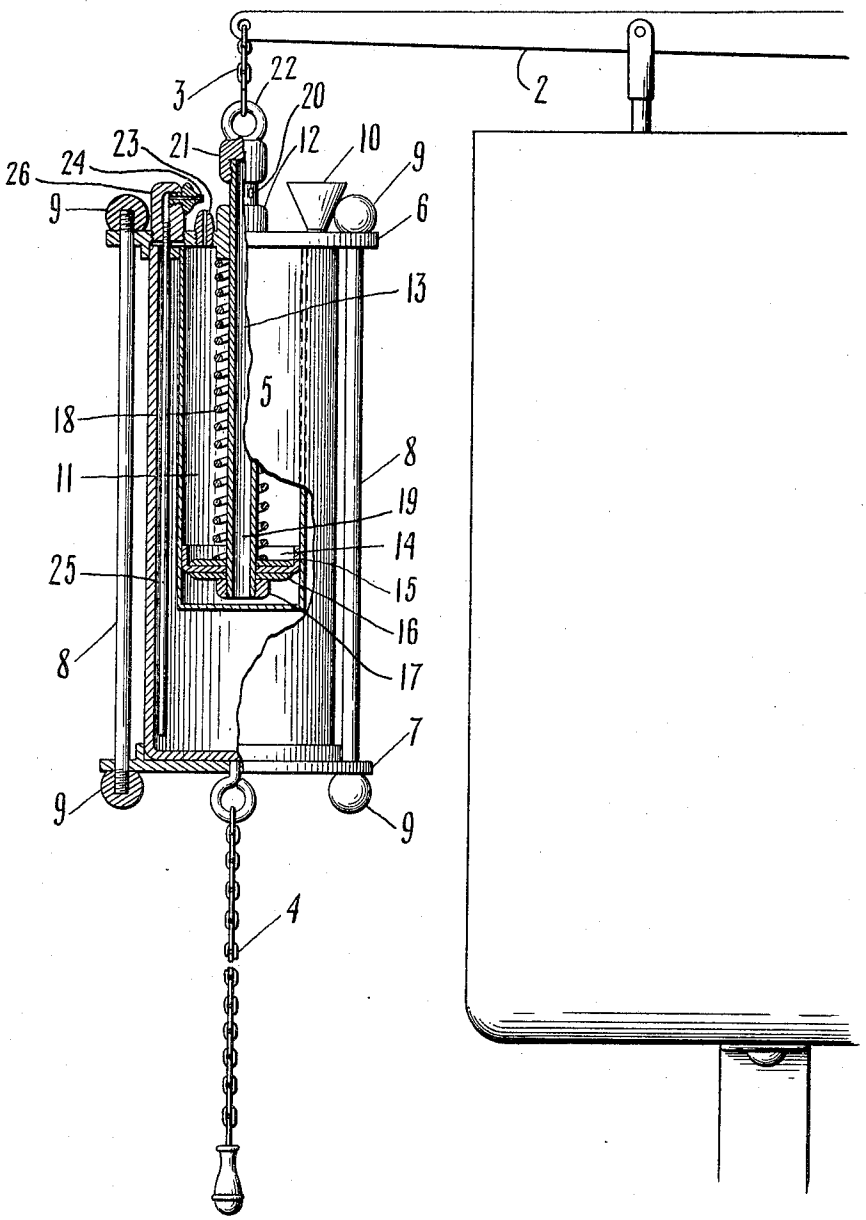
W. J. SMART.

ATOMIZER.

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1,110,653. **Patented Sept. 15, 1914.**



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ATOMIZER.

1,110,653. Specification of Letters Patent. **Patented Sept. 15, 1914.**

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To all whom it may concern:

Be it known that I, WALTER J. SMART, a citizen of the United States, residing in the city of New York, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Atomizers, of which the following, taken in connection with the accompanying sheet of drawings, is a full, clear, and concise description.

My invention comprehends the construction of an atomizer adaptable for use in connection with a toilet cistern and one that is preferably operably associated with the flushing means thereof.

I arrange the atomizer so as to operate simultaneously with the flushing of the cistern and I have therefore illustrated in the accompanying sheet of drawings forms of the invention in which the atomizer is connected to the pull-chain suspended from the valve-operating lever of the flushing tank.

The purpose of the invention is to provide a means for deodorizing the atmosphere and disinfecting the same, and to insure the spraying of a deodorant or disinfectant, I arrange the atomizer so that its operation is dependent upon the operation of the flushing means.

It is apparent that the device could be adapted to operate in connection with a hand-engaging flushing lever equally as well as with the pull-chain illustrated in the accompanying sheet of drawings, in which drawings the figure is a view in elevation, partly broken away, and in section, showing the device in its operative position associated with the pull-chain and a portion of the flushing-tank-operating-lever.

In detail the numeral 1 indicates a portion of the flushing tank of a toilet cistern (not shown).

2 indicates the valve-operating lever for controlling the water in the tank.

3 and 4 indicate portions of the pull-chain having interposed and suspended therein the atomizer so constructed and arranged as to operate simultaneously with the operation of the flushing means when a pull is exerted on the chain.

The construction of the atomizer as illustrated in the figure comprises an outer cylindrical receptacle 5, the material of which is preferably of a transparent nature such as glass, so that the quantity of contents may be at all times visible. This receptacle is positioned between two metallic caps 6 and 7, which are connected together by the rods 8, and binding-nuts 9, which, when associated, form a cage for and confine the receptacle 5 therebetween. The lower or handle-portion of the pull-chain indicated at 4 is suspended from a loop connected to the bottom cap 7. The top cap 6 is provided with a funnel 10, by way of which the receptacle is filled with the atomizing liquid. This cap has also a pump-cylinder 11, depending therefrom into the interior liquid receptacle 5, and is preferably centrally located therein. Formed integral with the cap 6 is an enlargement 12, which serves as a bearing for a holow piston-rod 13, which is concentrically located within the pump cylinder 11. This holow piston-rod is provided at its lower end with a piston-head consisting of a cup-shaped washer 14, which is preferably of leather or other flexible material, held and clamped by suitable plates 15 and 16 and binding-nut 17, the latter having screw-thread connection with the end of the rod. Interposed between the bearing 12 and the plate 15 is a compression-spring 18, normally holding the piston-head at its lowermost position in the pump-chamber 11 and opposing the telescopic movement of the parts. The piston-rod 13 is provided with an interior bore or channel 19, open at its lowermost end and in communication with the pump-cylinder 11 and opened at a point adjacent its upper end through a small bore or opening 20, which serves as a passage to the atmosphere. The top end of the piston-rod 13 is closed by a screw-cap 21, having an eye 22, connected to and suspended from the portion 3 of the pull-chain.

The cap 6 is provided with a nozzle 23, which provides an outlet for compressed air from the pump-cylinder 11 during the operation of the device. Adjacent to the nozzle 23 and projecting horizontally above it, is another nozzle 24, which serves as an egress for the liquid to be atomized from the liquid receptacle 5, which is passed thereto through a depending pipe 25, which is connected to the nozzle at the upper end by means of a coupling 26. The lower end of the pipe 25 terminates at a point near the bottom of the liquid-receptacle 5, in order that it may serve to convey substantially

the entire contents of the receptacle before requiring refilling.

The operation of the device is thought to be apparent. Assuming that the receptacle 5 has been filled with a deodorant or other liquid to be atomized and the apparatus is associated with the pull-chain as illustrated, a pull on the handle suspended to the chain 4, will cause the liquid-receptacle 5 and the parts fixedly connected thereto, to move down or lower. A proportion of the force exerted to cause this movement is transmitted to lever 2, which operates the flushing-valve. The transmission of this force is through the spring 18, and the piston 13 and upper portion of pull-chain 3.

During the downward movement of the receptacle 5, the piston is caused to compress the air within the pump-cylinder 11 and force it out through the nozzle 23; said air being directed at an angle to the nozzle 24 and in line with its orifice, will suck the air out of the tube 25 and create a vacuum therein, causing the liquid to be drawn therethrough and atomized from the orifice of the nozzle 24. When the chain has been released the device rises to its initial position under the action of the lever 2, which is usually weighted, and the upward movement of the receptacle 5 is facilitated under the expansive action of the spring 18, which had been compressed during the operation of the device.

The purpose of providing the vent to the lower side of the piston is to destroy any vacuum that would otherwise exist and hinder the operation of the device.

It will be apparent from the foregoing that I have provided a very simple and convenient atomizer adapted to be operated simultaneously with the flushing means of a toilet cistern by a common operating means.

While I have illustrated and described a preferable embodiment of my invention, I do not limit or restrict myself to the specific structural arrangements as the same might readily be altered and still be within the scope and tenor of my appended claims.

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

1. In combination with a flushing mechanism of a toilet cistern including a pull-chain, an atomizer comprising a pair of concentric cylinders, one constituting an atomizing liquid container and the other a fluid pressure cylinder, a piston operably associated with the fluid pressure cylinder, means for connecting the liquid container and said piston with the pull-chain of said mechanism, a discharge pipe for said liquid container provided with a discharge nozzle and a discharge nozzle for said fluid pressure cylinder, said nozzles being angularly disposed with respect to each other.

2. In combination with the flushing mechanism of a toilet cistern, an atomizer comprising a liquid container, a fluid pressure cylinder concentrically disposed with respect to said liquid container, connected head and base members supporting and holding said liquid container and fluid pressure cylinder in proper relative position, a piston mounted with respect to said head, a spring interposed between said head and piston normally holding the piston in its retracted position, an outlet provided with a discharge nozzle for said liquid container, a juxtaposed discharge nozzle for said fluid pressure cylinder, and means for connecting the piston rod and the base member with the flushing mechanism.

3. In combination, an atomizer comprising a liquid container, a fluid pressure cylinder concentrically disposed within the liquid container, a top member for the liquid container and fluid pressure cylinder, a base member for the liquid container, connecting means for said top and base, a piston provided with a hollow piston rod affording communication between the fluid pressure cylinder and the atmosphere, telescopically mounted with respect to said top, a compression spring interposed between the top and the piston normally holding it in its inoperative position, a discharge outlet for the liquid container comprising a pipe with its inlet near the bottom of the container, a discharge nozzle for said outlet, a juxtaposed discharge nozzle for said fluid pressure cylinder angularly disposed with respect to the discharge nozzle of the liquid container, and connecting means for the piston and base member for operating the mechanism.

4. In a device of the character described, the combination of a liquid receptacle provided with an outlet nozzle, a pull-chain connected thereto, an air chamber provided with an outlet nozzle depending within the liquid receptacle, a piston for said air chamber, means connecting said piston for suspending it in operative position, and a spring within said air chamber between the piston head and one end of the chamber for retracting the parts to normal position preparatory to their atomizing operation.

5. In a device of the character described the combination of a movably mounted liquid receptacle provided with a discharge nozzle, an air cylinder fixed to the said receptacle and provided with a discharge nozzle in juxtaposition to the discharge nozzle of the liquid receptacle, a piston within the air cylinder, a piston rod connected to said piston and telescopically mounted with respect to said air cylinder, a spring coöperatively associated with said piston and tending normally to resist telescopic movement of said rod, and means coöperatively associating the device with the flushing mechanism of a toilet cistern, said means includ-

ing a connection between the piston rod and the said flushing mechanism whereby air pressure may be created upon the movement of the liquid receptacle and cause a simultaneous discharge of air and liquid from the device.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER J. SMART.

Witnesses:
ALFRED W. SMART,
ANNA KANE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."