

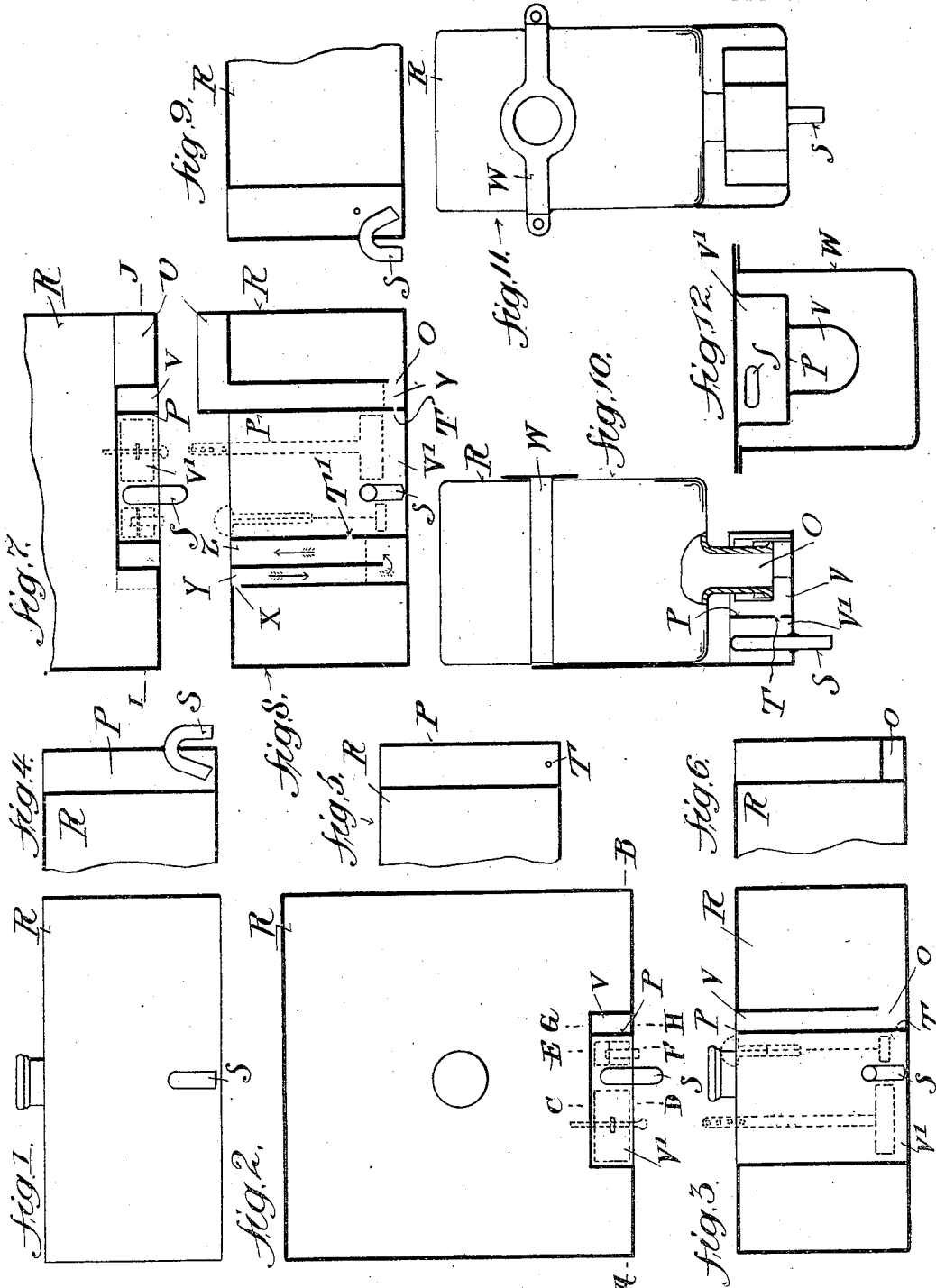
A. C. SNELL.  
FLUSHING APPARATUS.

APPLICATION FILED OCT. 5, 1907. RENEWED OCT. 19, 1909.

Patented Dec. 14, 1909.

2 SHEETS—SHEET 1.

942,978.



Witnesses:  
W. M. Dugan  
Joseph Klein.

Inventor  
Alfred C. Snell  
By his Attorney  
Samuel E. Darby

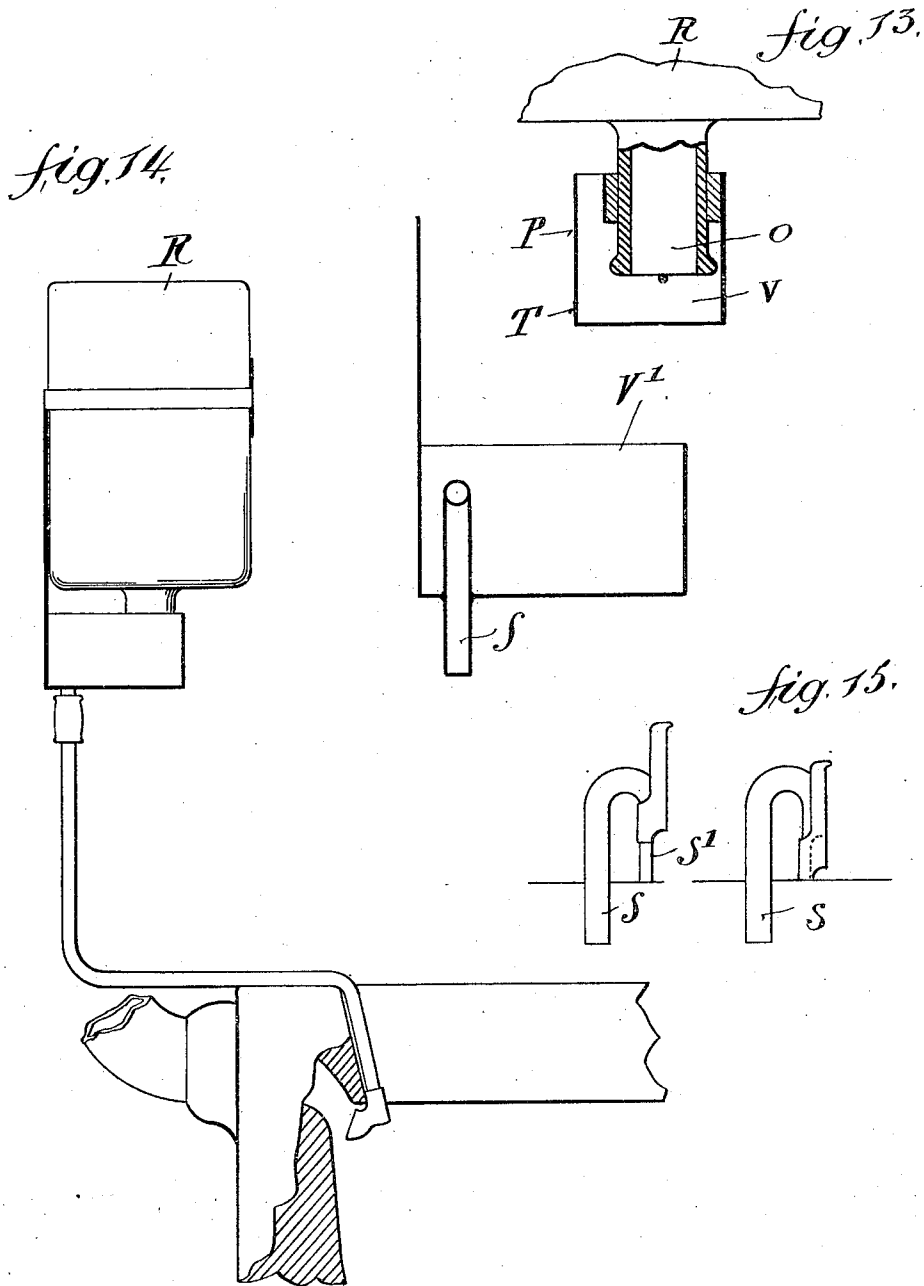
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W. Benjamin  
Joseph Klein

Alfred Cannon Snell Inventor  
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Samuel E. Darby

# UNITED STATES PATENT OFFICE.

ALFRED CAUNAN SNELL, OF SALTASH, ENGLAND, ASSIGNOR TO WILLIAM HATFIELD DODGE, OF MONTCLAIR, NEW JERSEY.

## FLUSHING APPARATUS.

942,978.

Specification of Letters Patent. Patented Dec. 14, 1909.

Application filed October 5, 1907, Serial No. 396,006. Renewed October 19, 1909. Serial No. 523,429.

*To all whom it may concern:*

Be it known that I, ALFRED CAUNAN SNELL, a subject of the King of Great Britain, residing at Culver Park, Saltash, in the county of Cornwall, England, have invented certain new and useful Improvements in Flushing Apparatus, of which the following is a specification.

The object of this invention is more especially to provide a means of discharging into a flushing cistern of a lavatory or into the pan of a water closet or the like, a desirable quantity of disinfecting or other liquid or fluid during or following the operation of flushing. To effect this, I employ the well known principle of the "bird drinking fountain" (which has been used before in supplying disinfectant to flushing cisterns) in constructing the reservoir; that is, it is constructed in such a manner that when containing a liquid, the same cannot flow therefrom unless air is previously admitted. The reservoir therefore has attached to it, or formed about, a receptacle, chamber or chambers, with which it is in such communication as to provide the necessary air inlet and liquid outlet, preferably by using one and the same aperture, a liquid can thus escape from the reservoir, into the said receptacle, chamber or chambers, until it rises therein sufficiently high to preclude the admission of air to the reservoir, thereby forming a seal which prevents further outflow. In conjunction with the receptacle, chamber or chambers is a siphon pipe which may be actuated by the flow of water or other suitable means as hereinafter described, and conveniently situated between the orifice of the siphon or suction pipe, and the outlet aperture of the reservoir is interposed a perforated partition or diaphragm or the like means of restricting the flow of liquid from the reservoir to the siphon, but which when the siphon is out of action, allows the liquid in the chambers or receptacle to maintain the necessary level to seal the reservoir, and submerge the orifice of the siphon.

The supply of liquid through the perforated partition, diaphragm or the like to the siphon, when in action would be less than the demand consequently the level of the liquid in the receptacle rapidly falls, breaking the seal of the siphon and destroying its suction. This discharge by lowering

the level of the liquid throughout the receptacle chamber or chambers, also breaks the seal of the reservoir, whereupon a further supply of liquid is given out by it in readiness for the next operation.

The amount of liquid discharged at each operation may be regulated by providing the end of the siphon or suction pipe connected with the receptacle, with an adjustable sleeve or collar or the like, by means of which the seal of the siphon may be broken at any predetermined level of the liquid in the receptacle, or a similar result may be obtained by employing an adjustable displacer in connection with the receptacle. The capacity of the receptacle depending upon the position of the displacer.

A "tell-tale" or float actuated by the liquid in the receptacle may be provided to indicate when the reservoir is empty.

When not desirable to use a movable lid or stopper for filling purposes the appliance is so constructed that it allows a liquid to enter the reservoir and the displaced air to escape therefrom, without destroying the seal or non-air-return.

The reservoir may for the sake of convenience or to suit certain requirements be made detachable from the receptacle, without in any way affecting the functions of the appliance or departing from the spirit of this invention. In the case of a detachable reservoir the receptacle would be constructed to hold or support or be supported by the reservoir when in place in such a manner that the same conditions as hereinbefore described prevailed. A bottle or the like for instance may be used as a reservoir in which case the receptacle would be provided with a means of retaining or holding the bottle in an inverted position, so that the liquid could flow therefrom into the receptacle, until it reached a level that would form a seal to the inlet of air to the bottle and thus hold in check a further outflow of liquid.

This appliance when in use in connection with a flushing cistern of a lavatory, should be placed on the top or conveniently near it and above the full water level and the free end of the siphon or suction pipe passed into the cistern in a dependent position to such an extent that it becomes well immersed in the water therein. It is obvious that the fall of the water level in the cistern, due to

the operation of flushing will then bring the siphon into action. Also the appliance may be actuated by placing it in a suitable position near the pan of the water closet and the free end or extremity of the suction pipe, which may be purposely formed with a bell mouth or otherwise shaped for this object, allowed to depend, inside the pan, preferable in close proximity to and facing the outlet of the cistern discharge pipe, but in such a position that water in the operation of flushing forces its way up the suction pipe to an extent, that its consequent reaction after the flushing has subsided, actuates the siphon, causing it to discharge the pre-arranged quantity of liquid direct into the pan of the water-closet.

Referring to the drawings Figure 1 is an elevation and Fig. 2 a plan of an apparatus constructed in accordance with my invention. Fig. 3 is a section through line A—B and shows the reservoir R with aperture O opening into a receptacle V, V<sup>1</sup> provided with a partition P perforated at T. S is the siphon or suction pipe and the dotted lines show a displacer and "tell-tale" float. Fig. 4 is a section through C—D. Fig. 5, a section through E—F shows perforation T in partition P, and Fig. 6 is a section through G—H showing aperture of reservoir O. Fig. 7 and Fig. 8 show in plan and section the appliance constructed in such a manner that the reservoir may be filled without using a lid or stopper for that purpose. The liquid being poured into the funnel U, enters the reservoir by aperture O, while the displaced air is forced through the opening X and descending the passage Y breaks through the seal at the bottom and escapes by means of passage Z. The outer wall of passage Z is perforated at T<sup>1</sup> allowing the liquid forming the seal to overflow at this point. Fig. 9 is a medial cross section of the construction shown in Fig. 8. Fig. 10 is a modification of the appliance in which the reservoir is made removable and shows it held in position by strap W. Fig. 11 is another view of the same and Fig. 12 is a plan with reservoir removed. Fig. 13 shows a means of utilizing a bottle or other movable reservoir. In this case the attachment shown affixed to the neck of the bottle R forms when placed in the receptacle V<sup>1</sup> an intermediate chamber, the wall P of which forms a partition and is perforated at T. Fig. 14 illustrates the appliance in position to be actuated by the flushing water and to discharge direct into the pan of the water closet. Fig. 15 shows the end of the siphon provided with a movable sleeve for controlling the amount of liquid discharge at each operation. Thus the orifice of the siphon opening into the chamber or receptacle, is enlarged vertically by means of an elongated slot S<sup>1</sup>. By

moving the sleeve up or down the area of the orifice is increased or decreased. In this way the level at which the liquid unseals the siphon can be regulated, and the quantity of disinfecting liquid discharged each time the cistern is flushed may be governed to suit requirements.

Similar letters refer to similar parts.

The reservoir R contains the special fluid and feeds into a divided receptacle chamber or chambers U, V<sup>1</sup>. Into this receptacle the reservoir feeds, until the rise of fluid preventing the inflow of air at the aperture O checks further outflow. Through the perforation or aperture T the fluid rises in V<sup>1</sup> immersing the end of the siphon tube S. The other end of the siphon tube may be immersed in the flushing cistern, or connected directly with the flushing pipe, or placed in the pan of the water closet facing the rush of water from the cistern. In the first case the special fluid is drawn simultaneously with the flushing water; in the latter the special fluid flows after the flush has ceased.

While I have described my invention as applied to flushing apparatus for cisterns water closets and the like I desire it to be understood that my invention is not to be limited or restricted in respect to the use to which the same is to be put as it is obvious that the construction shown and described is equally well adapted for use in any situation where it may be desirable to withdraw fluid in limited quantities from any suitable reservoir such as a bottle, cask, can or the like. It is also to be understood that the method of operating the siphon will vary according to the use to which the apparatus is to be put.

I do not bind myself to the exact construction described, which may be obviously modified without departing from the spirit of my invention.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a flushing apparatus, a reservoir adapted to contain a fluid, a distributing chamber and an intermediate chamber, means for sealing the reservoir by the rise of fluid in said intermediate chamber, a perforated partition separating said distributing intermediate chambers, and a siphon tube having one end immersed in the fluid in the distributing chamber, the other end of said tube adapted to connect with a flushing or similar tank.

2. In a flushing apparatus, a reservoir, an intermediate chamber communicating therewith said communication adapted to be sealed by the rise of fluid in the chamber, a distributing chamber communicating with the intermediate chamber, a siphon pipe having one end immersed in the fluid in the distributing chamber, the other end of said pipe communicating with a flushing or simi-

lar tank, and means carried by said pipe for  
adjustably regulating the depth of immer-  
sion of the end thereof in the fluid, thereby  
regulating the amount of liquid drawn  
5 therethrough at each operation.

3. In a flushing apparatus, a reservoir, an  
intermediate chamber communicating with  
the reservoir, said communication adapted  
to be sealed by the rise of fluid in the reser-  
10 voir, a distributing chamber communicating  
with the intermediate chamber, a siphon

tube having one end immersed in the fluid  
in the distributing chamber, and means co-  
operating with the other end of said tube  
for starting the siphon action. 15

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

ALFRED CAUNAN SNELL.

Witnesses:

H. D. JAMESON,  
F. L. RAND.