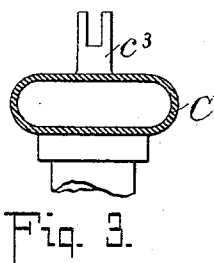
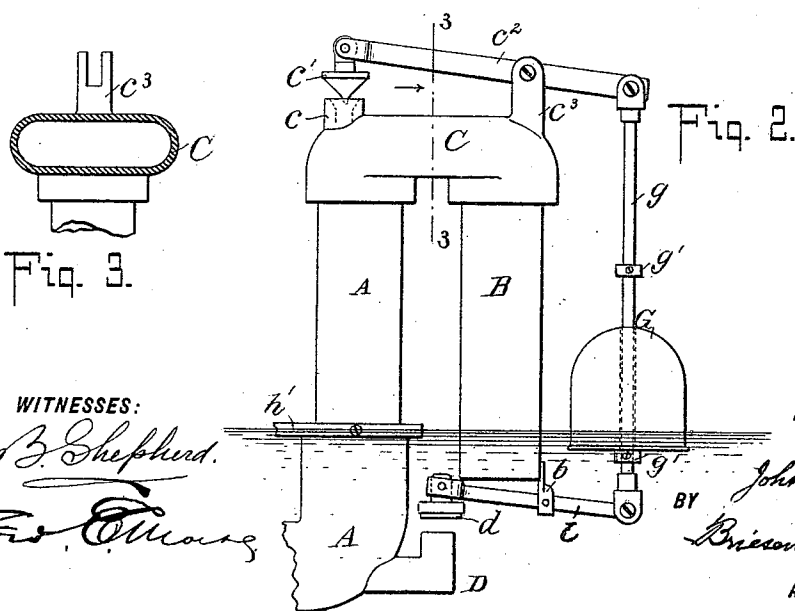
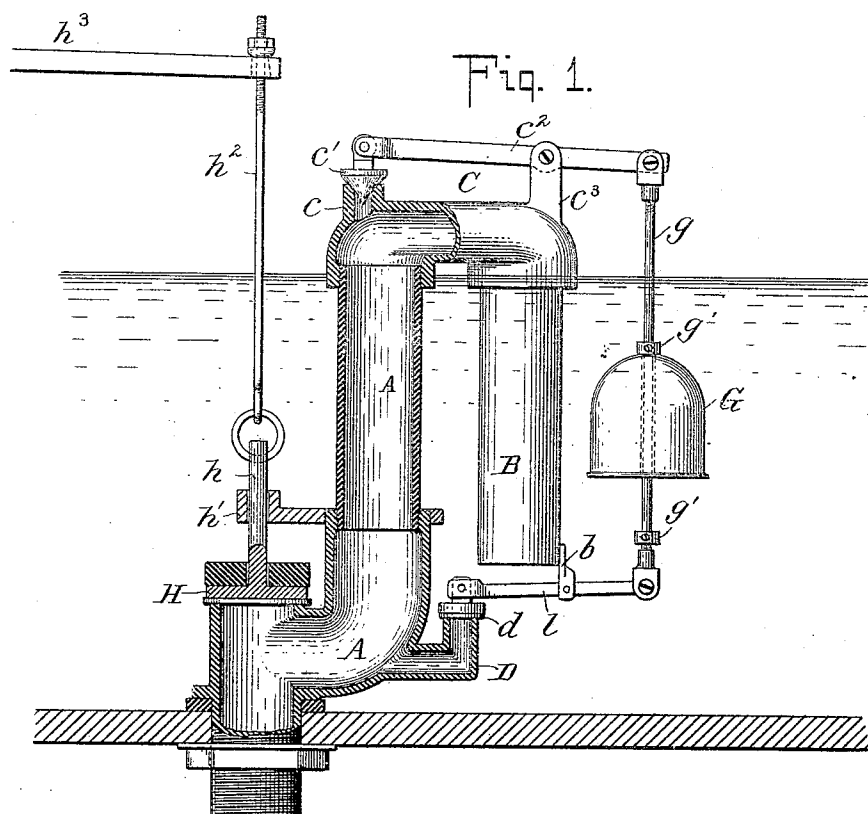


(No Model.)

J. N. SANGER.
SIPHON MECHANISM FOR WATER CLOSETS.

No. 529,466.

Patented Nov. 20, 1894.



WITNESSES:

W. B. Shepherd.
Geo. E. Moore.

INVENTOR

John N. Sanger
BY *Brisson & Smith*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN N. SANGER, OF BROOKLYN, NEW YORK, ASSIGNOR TO FRED ADEE,
OF SAME PLACE.

SIPHON MECHANISM FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 529,466, dated November 20, 1894.

Application filed June 29, 1894. Serial No. 516,063. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. SANGER, a resident of Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Siphon Mechanism for Water-Closets, of which the following is a specification.

My invention relates to siphon mechanism for water closets, and has for its object to produce a device which will operate to refill the bowl after use after the siphon has been broken.

To this end my invention consists in providing a means for producing an after-fill in the bowl, the same being controlled by a valve, and providing a connection between the after-fill valve and the air inlet valve.

In the drawings forming part hereof—Figure 1 is a sectional elevation of a water closet siphon mechanism embodying my invention. Fig. 2 is an elevation thereof showing the operating parts in a different position; and Fig. 3 is a section on line 3—3 of Fig. 2.

In the drawings forming part hereof, A is the long leg of the siphon leading to the bowl. B is the short leg thereof, and C is the bend of the siphon.

Leading to the long leg of the siphon is an after-fill inlet pipe D which is closed by a valve *d*, hereinafter called the after fill valve. This valve *d* may be variously operated, but I prefer to mount the same on a lever *e* pivoted in a bracket *b* mounted upon the short leg of the siphon B.

In the bend of the siphon or other suitable location is an air vent *c* which is closed by a valve *c'*, hereinafter called the air inlet valve. This valve may be operated by any suitable mechanism, but is preferably operated by a rod *c²* pivoted in a bracket *c³* mounted upon the bend C of the siphon. The operating mechanisms for the valves *c'* and *d* are connected together in any suitable manner such as by means of a rod *g* which carries a float *G* which is movable along the length of the rod *g*, which rod is provided with adjustable stops *g'* in order to adjust the float *G* thereon. The stops may be adjusted upon the rod a considerable distance apart and the float may be allowed to slide on the rod and be limited in its motion thereon by the stops *g' g'*.

H is the main or starting valve which is located so as to start the flow. This valve may be of any suitable or ordinary construction, but is preferably carried by a valve stem *h* working in a bracket *h'* carried by the long leg of the siphon and operated by means of a suitable connecting rod *h²* and lever *h³*.

The cistern or tank within which the siphon mechanism is contained is provided with a suitable refilling cock of ordinary or preferred construction, preferably a ball-cock.

The operation of my device is as follows: The main or starting valve H, when lifted by a proper pull, starts the flow, and after the main valve is reseated the siphon will continue to discharge into the water closet basin until the sliding float *G* on the rod *g*, which connects the air valve *c* with the after-fill valve *d*, descends against the stop *g'* on the said rod and thereby opens both the last named valves. The siphon action is now broken, and the water, which was at the moment of opening the air inlet valve in the long leg of the siphon, descends into the bowl. At this stage the refilling cock for refilling the tank begins to refill the tank, but during the entire time that the water rises in the tank, the after-fill pipe D is open and continues to discharge into the long leg of the siphon a smaller volume of water than enters the tank by the refilling cock. When the water has risen sufficiently to elevate the float on the connecting rod between the air valve and the after-fill valve, the said float rises and striking the stop *g'* closes both the last mentioned valves, and the parts remain ready for another action. The stops on the rod on which the sliding float operates are made adjustable along the length of the rod in order to properly proportion the amount of water which flows into the bowl through the after-fill. In case the relative influx of water into the tank is proportionately much greater than the opening of the after-fill, the upper stop on said rod is moved up so as to require the sliding float to have an independent motion of its own before it becomes active, giving the after-fill an opportunity of receiving as much water as is contemplated for the purpose; but if the relation is different, the upper stop may be brought down directly against the float, in

which case only the movement of the float with the rod will be utilized for the purpose of closing.

In order to increase the efficiency of the apparatus I may enlarge or expand the upper bend of the siphon pipe. It will be observed by referring to Fig. 3 that this enlargement or expansion has been accomplished by flattening or laterally expanding the pipe. This flattening or lateral expansion I believe to be most efficient, in that the upper bend is brought down lower than it would be were it not flattened out. Hence the water in the tank or cistern need not rise so high as it would were the bend of the siphon not thus flattened or laterally extended.

I desire it to be understood that I do not specifically limit myself to the precise structure shown, but the same may be departed from in structural particulars without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a water closet flushing apparatus, the combination of a siphon provided with a re-

filling valve, an air inlet valve, a connection between the refilling valve and the air inlet valve, the said connection being provided with a float for operating the same and movable respectively to the connection.

2. In a water closet flushing apparatus, the combination of a siphon provided with a refilling valve and an air inlet valve, operating mechanism for each of said valves, and a rod connecting the operating mechanisms of the valves, and a sliding float on the rod, substantially as described.

3. In a water closet flushing apparatus, the combination of a siphon provided with a refilling valve and an air inlet valve, operating mechanism for each of said valves, and a rod connecting the operating mechanisms of the valves, a slide float on the rod, and adjustable stops upon the rod against which the sliding float acts, substantially as described.

JOHN N. SANGER.

Witnesses:

CHARLES E. SMITH,
GEO. E. MORSE.