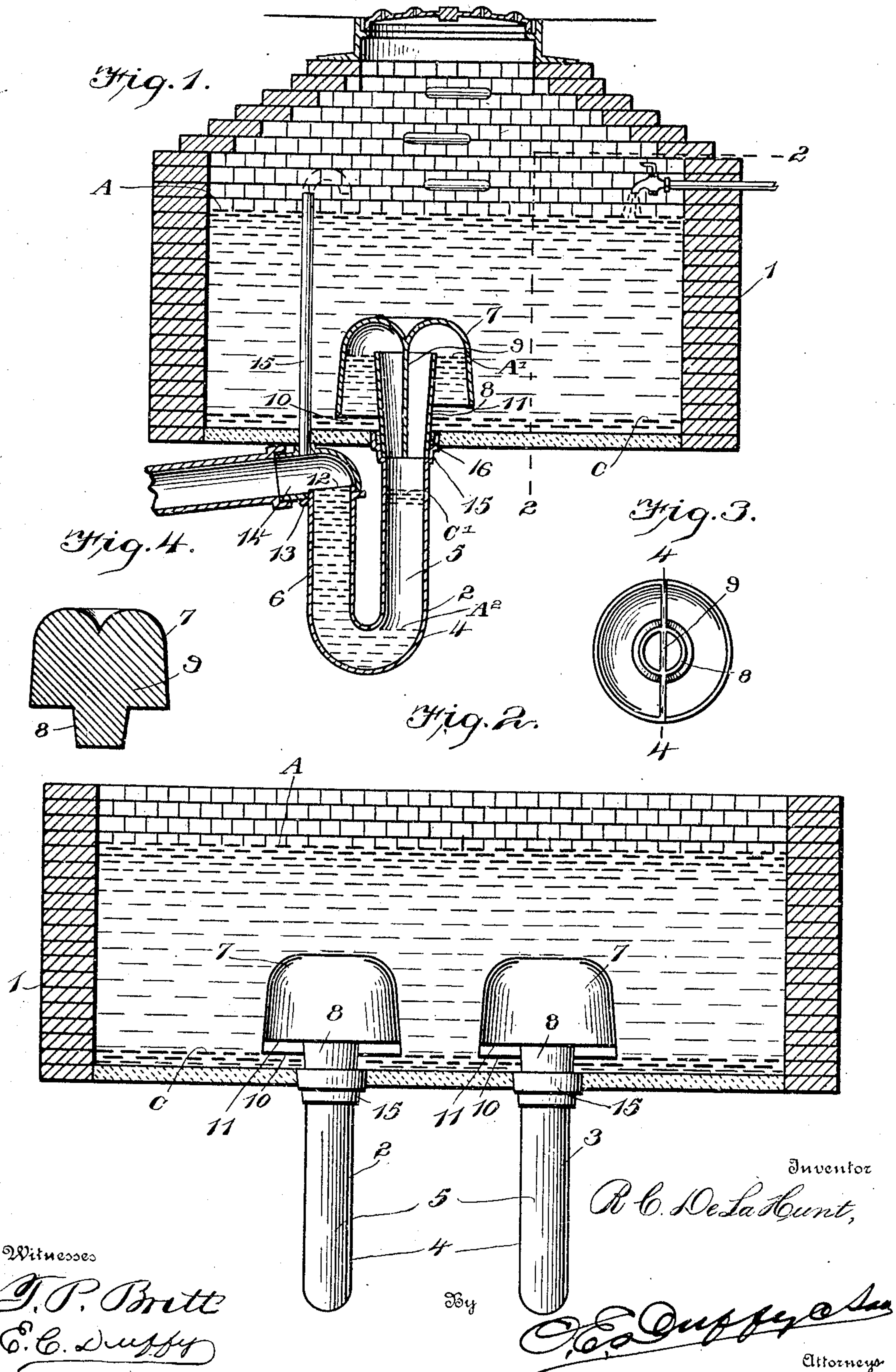


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PATENTED OCT. 29, 1907.

R. C. DE LA HUNT.
ALTERNATING SIPHON.
APPLICATION FILED FEB. 18, 1907.



UNITED STATES PATENT OFFICE

REVERDY CLEMENT DE LA HUNT, OF CEDAR RAPIDS, IOWA.

ALTERNATING SIPHON.

No. 869,482.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed February 18, 1907. Serial No. 358,108.

To all whom it may concern:

Be it known that I, REVERDY CLEMENT DE LA HUNT, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Alternating Siphons; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to flush siphons, but more particularly to alternating siphons for flush tanks, and my invention has for its object to provide an arrangement of the siphons whereby the refilling of the trap seal to the normal level is insured and air is freely admitted to the siphon to break the siphonage and revent the siphon.

A further object of my invention is to provide alternating siphons which will operate with precision and reliability without the use of auxiliary devices, such as blow-off traps, feed pipes, external charging tanks, wells, etc.

A further object of my invention is to provide a siphon of cheaper construction than those heretofore, composed of a minimum number of parts and arranged in such manner that a smaller flask, less molding sand and less labor is required in their manufacture.

A further object of my invention is to provide means for restoring the seal of the trap when it is exhausted by the discharge of the siphon, and to insure alternating discharge by weakening the seal of the idle siphon during the process of discharging the active one.

With all these objects in view my invention consists in constructing the intake or bell rigid with the trap, in such manner that a much lighter intake or bell can be employed than was heretofore possible.

My invention further consists in combining integrally the intaking limb or bell with the upper end of the long leg of the trap and in providing a partition within the intaking limb, dividing the intake equally and thereby forming a double or compound siphon.

My invention further consists in providing the mouth of one of these inlets longer than the other, in such manner that it will project downwardly some distance below the other and thus continue in action for a short time after siphonage ceases in the other intake.

My invention also consists in certain other novel features of construction and in combinations of parts, all of which will be first fully described and afterwards specifically pointed out in the appended claims.

Referring to the accompanying drawing: Figure 1 is a vertical section taken through a flush tank and illustrating one of the alternating siphons in operative po-

sition. Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1. Fig. 3 is a bottom plan view of the intake or bell and integral intaking limb, and Fig. 4 is a vertical sectional view taken on line 4—4 of Fig. 3.

Like numerals of reference indicate the same parts throughout the several figures in which;—

1 indicates the flush tank which may be of any desired size or construction.

2 and 3 indicate the alternating siphons which comprise a trap 4 having a long leg 5 and a short leg 6.

7 indicates the intake or bell which, as shown in Figs. 1, 3 and 4, is formed integral with the intaking limb 8, said intaking limb being tapered as shown in Figs. 1 and 3.

Arranged vertically within the intake or bell 7 and extending centrally through and entirely across the intaking limb 8 is a partition 9, and it will be seen by referring to Fig. 1 that the mouth 10 of the intake or bell 7 projects downwardly some distance below the mouth 11 of the intake or bell on the opposite side of the partition 9.

As shown in Fig. 1 the end 12 of the short leg 6 of the trap 4 is cut at a slight angle and is provided with an annular bead 13 upon which the elbow 14 rests at a slight angle as shown, and a small vent pipe 15 may be connected to said elbow 14 and extend upwardly to a point above the surface of the water in the flush tank, said vent being provided, if desired, with a return arm as shown in dotted lines in Fig. 1.

Referring to the long arm 5 of the trap 4 it will be seen that a top socket 15 is provided at the upper end thereof within which the intaking limb of the bell or intake extends. This construction is then made tight and rigid by filling of suitable cement 16.

Having thus fully described the several parts of my invention its operation is as follows: A, A¹ and A² represent the levels of the liquid in the tanks and siphons at the time the liquid seals in the siphons will be forced out and the siphon brought into siphonic action. C and C¹ represent the normal levels of the liquid in the tank and trap after the tank has been emptied to the point that siphonage ceases. As the liquid is emptied from the tank and falls below the mouth 11 of the bell or intake siphonage ceases in that portion of the bell or intake, but continues in the opposite portion of the bell or intake on the opposite side of the partition 9 until the water reaches the level C, thus insuring the refilling of the trap seal to a normal level, and also insuring the drawing out of the liquid from the tank until its level is below the mouth of the shorter intake, thereby freely admitting air, breaking the siphonage and reventing the siphon.

This positive construction for providing a complete restoration of the seal in the trap, when exhausted by the discharge of the siphon, overcomes the defect in

operation brought about by the filling of the long and short legs with the liquid when siphonage is broken, so that the inertia of the subsiding column of liquid in the long leg causes its level to fall below the top of the short leg, thus exhausting and weakening the seal of the discharge siphon equally with that of the idle siphon. The result of such a defect is that the siphons, instead of discharging alternately as intended, come into action any number of times consecutively; for the reason that in the operation of alternating siphons the seal of the idle siphon must be weakened during the process of discharging the active one; otherwise consecutive discharge of the same siphon may result, and unless provision is made to fully restore the seal in the active siphon after siphonage ceases, said active siphon will be weakened equally with, or even more than the idle siphon.

By means of my construction about described and illustrated in the accompanying drawing a complete and full restoration of the seal is effected in the active siphon after siphonage ceases, thereby securing siphonic action in the fellow siphon during the next of consecutive emptying of the tank.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a siphon, the combination of a trap having one long and one short leg, of an intake or bell, an intaking limb formed integral therewith, a partition in said intake or bell and extending centrally through said integral intaking limb, the mouth of said intake or bell being lower

on one side of said partition than on the other, substantially as described.

2. In a siphon, the combination of a trap, an intake or bell, an intaking limb formed integral with said intake or bell, a partition in said intake or bell and extending through said integral intaking limb, the mouth of said intake or bell being lower on one side of said partition than on the other, substantially as described.

3. In a siphon, the combination of a trap, an intake or bell, an intaking limb associated with said intake or bell, a partition in said intake or bell and in said intaking limb, the mouth of said intake or bell being lower on one side of said partition than on the other, substantially as described.

4. In a siphon, the combination of a trap, an intake or bell, an intaking limb associated with said intake or bell, a partition in said intake or bell and in said intaking limb extending entirely across the same, and means for restoring the seal in the trap after siphonage ceases, substantially as described.

5. In a siphon, the combination of a trap, an intake or bell associated therewith, a partition in said bell or intake extending entirely across the same, and means for causing siphonic action to continue on one side of said partition after it ceases on the other, substantially as described.

6. In a siphon, the combination of a trap, an intake or bell, an intaking limb formed integral with said intake or bell and a partition extending entirely across said intake or bell and across said intaking limb, substantially as described.

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

REVERDY CLEMENT DE LA HUNT.

Witnesses:

B. TAIT,

C. G. FOSTER.