

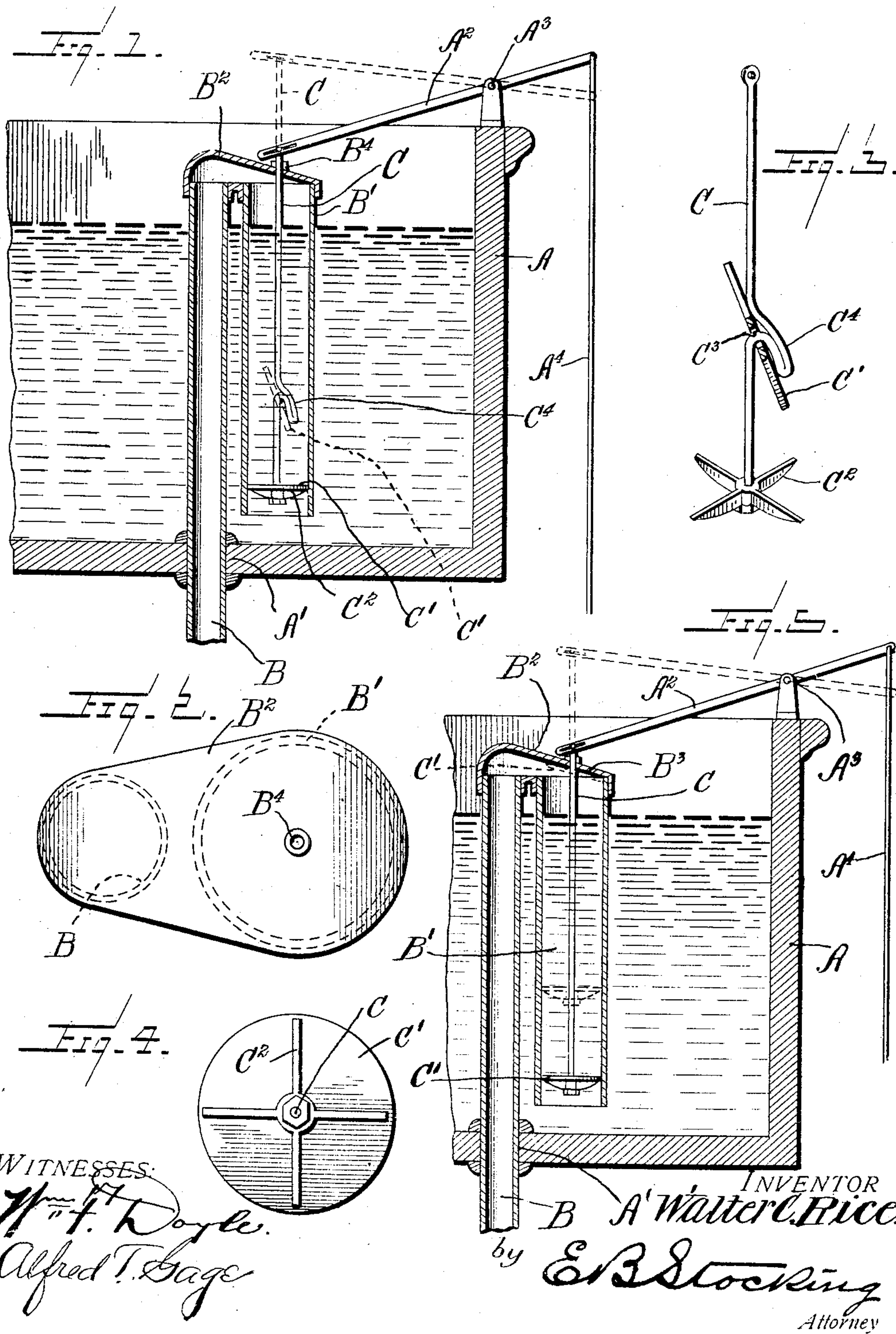
No. 771,790.

PATENTED OCT. 4, 1904.

W. C. RICE.
TANK SIPHON.

APPLICATION FILED MAR. 12, 1904.

NO MODEL.



UNITED STATES PATENT OFFICE.

WALTER C. RICE, OF PROVIDENCE, RHODE ISLAND.

TANK-SIPHON.

SPECIFICATION forming part of Letters Patent No. 771,790, dated October 4, 1904.

Application filed March 12, 1904. Serial No. 197,792. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. RICE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Tank-Siphons, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a tank-siphon, and particularly to a valved piston for use in raising a column of water for starting the siphonic action.

The invention has for an object to provide a piston-rod disposed within one leg of the siphon, having thereon a slidably-mounted valve-disk and means for tilting said disk at an angle to its normal position, so as to permit the unobstructed flow of liquid through the siphon after the action thereof has been started.

A further object of the invention is to provide a piston-rod carrying means to engage one edge of the disk, which is slidably and tiltably mounted thereon, so that the disk is capable of lying at a right angle to the rod or substantially parallel thereto in the flow of water through the siphon.

Other objects and advantages of the invention will be hereinafter set forth, and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a vertical section showing the invention applied to a tank; Fig. 2, a top plan of the siphon; Fig. 3, a perspective of the piston and rod; Fig. 4, a bottom plan of the piston-cylinder, and Fig. 5 a vertical section showing a modified form of the invention.

Like letters of reference refer to like parts in the several figures of the drawings.

The letter A designates a tank, which may be of any desired construction or configuration, provided at its bottom with an opening A', through which the discharge-pipe B, forming one leg of the siphon, is adapted to extend. The opposite leg of the siphon is formed by the cylinder B', which is preferably of greater diameter than the discharge-pipe. This pipe and cylinder are connected at their upper por-

tions by a coupling B², merging from the greater diameter of the cylinder into the lesser diameter of the discharge-pipe, as shown in Fig. 2, thus providing a sufficient flow of liquid at all times to effect a perfect working of the siphon. The upper portion of the coupling is provided with an opening B⁴ to receive the piston-rod C, which is suitably packed at that point. This rod is provided at its lower end with a supporting-frame of any preferred construction—for instance, spider-arms C²—while slidably mounted upon the rod is a valve-disk C', which rests upon said frame when in its lowest position. The central aperture C³ of this disk is of greater diameter than the piston-rod, and therefore permits the piston to tilt on the rod in order to assume a position substantially parallel to the rod, as shown by dotted lines in Fig. 1, so as to offer the least possible resistance when the water is flowing through the siphon, and at other times it is guided in a straight path by the walls of the cylinder within which it reciprocates. The upper end of the piston-rod is connected to any desired operating means—for instance, a lever A², suitably pivoted at A³ upon the tank and carrying a pull connection A⁴ of any desired construction. The valve-disk may be of any suitable material, preferably light in weight, so as to be held in its tilted position by the water-pressure in the flow through the siphon, but of greater specific gravity than the water in order that it may drop upon the frame when the flow of water ceases, and thus be in a position to act as a piston in the subsequent operation of the siphon. For the purpose of effecting the tilting action various means may be used—for instance, a depending projection C³ at one side of the rod, as shown in Figs. 1 and 3, which when the disk is carried upward with the column of water engages one edge thereof and tilts the disk into the dotted-line position. In Fig. 5 a modified means for accomplishing this tilting is shown and comprises a flat diagonally-disposed portion B³ upon the face of the coupling B² at the upper end of the cylinder B'. In this instance the column of water passing through the siphon carries

the disk upward into contact with the flat face B³, and it is held there during the flow to prevent obstruction thereto.

In the operation of both forms of the invention herein illustrated it will be seen that when the parts are in the position shown by full lines in Fig. 1 and the operating-lever is actuated a body of water is raised within the cylinder and flows into the discharge-pipe, thus starting a siphonic action which continues the upward movement of a column of water through the siphon until the level within the tank is below the lower end of the cylinder. As soon as this siphonic flow begins the light valve-disk is carried by the body of the water into contact with the tilting means, by which it is turned or tilted, so as to permit the continued flow without material obstruction to the column of water. When the siphonic action ceases, the supporting liquid for the valve-disk being removed the same falls by gravity and rests upon the arms of the frame carried at the lower end of the valve-rod and in position for a future action. The larger diameter of the cylinder provides a continued flow of water through the discharge-pipe, and the construction of coupling prevents the formation of any air-cushion at the top, thus affording an efficient working construction and one so simple in character that it is not liable to injury or displacement in its continued practical operation.

Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a tank-siphon, a cylinder and discharge-pipe in communication with each other, a piston-rod disposed within said cylinder, a valve-disk slidably mounted upon said rod to tilt thereon, and means for tilting said disk.

2. In a tank-siphon, a cylinder and discharge-pipe in communication with each other, a rod disposed within said cylinder, a valve-disk slidably mounted upon said rod to tilt thereon, and means for tilting said disk during an upward movement thereof upon said rod.

3. In a tank-siphon, a cylinder and discharge-pipe in communication with each other, a piston-rod disposed within said cylinder, a valve-disk mounted to slide and to tilt upon said rod, and means carried by said rod to tilt said disk.

4. In a tank-siphon, a cylinder and discharge-pipe in communication with each other, a piston-rod disposed within said cylinder, a valve-disk mounted to slide and tilt upon said rod, and a depending projection at one side of said rod to engage an edge of said disk.

5. In a tank-siphon, a cylinder and discharge-pipe in communication with each other, a piston-rod extending through said cylinder and provided with a parallel downwardly-depending projection, a valve-disk having a central aperture of greater diameter than the piston-rod to permit a tilting action thereon disposed beneath said projection, and an operating means for reciprocating said rod.

6. In a tank-siphon, a piston-rod disposed in one leg thereof, a radial supporting-frame at the lower end of said rod, a depending projection between the ends of said rod, and a valve-disk disposed between said projection and frame and adapted to tilt upon said rod.

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

WALTER C. RICE.

Witnesses:

LOUIS A. BASINET,
WILLIS A. STEERE.