

No. 752,453.

PATENTED FEB. 16, 1904.

H. A. HOPKINS.
SODA WATER APPARATUS.
APPLICATION FILED FEB. 25, 1903.

NO MODEL.

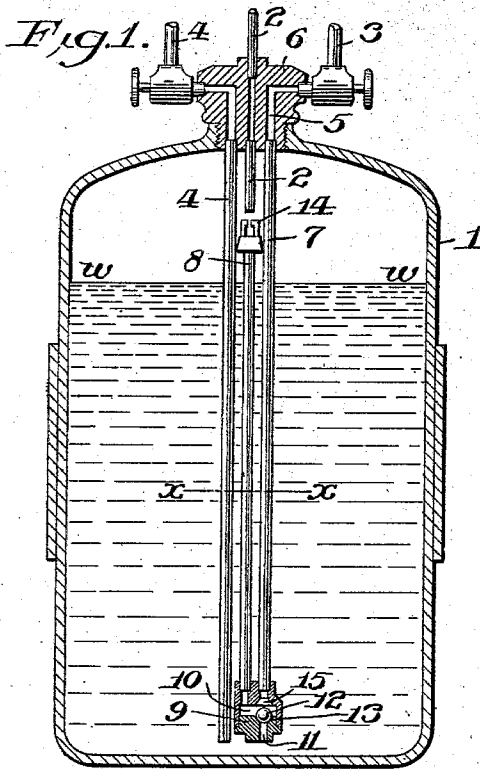
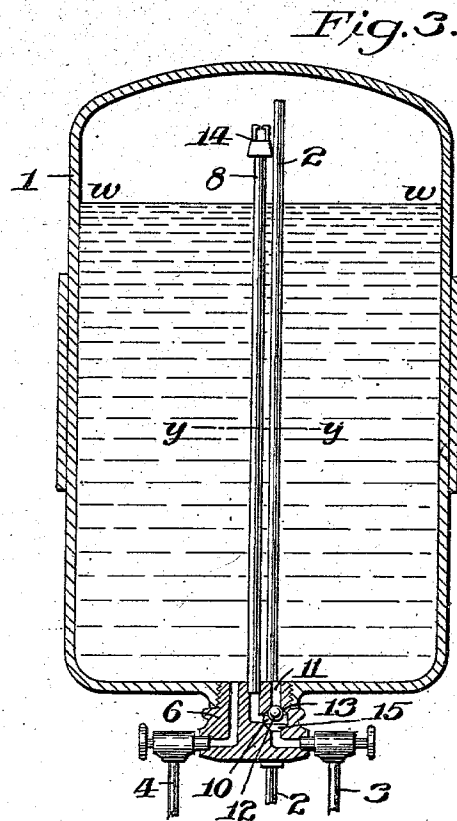


Fig. 2.

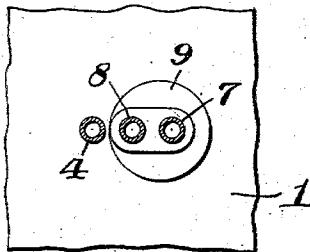
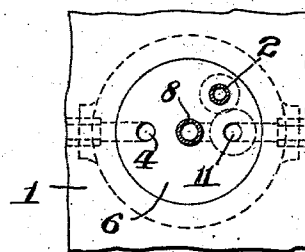


Fig. 4.



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SODA-WATER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 752,453, dated February 16, 1904.

Application filed February 25, 1903. Serial No. 145,017. (No model.)

To all whom it may concern:

Be it known that I, HEBER A. HOPKINS, a citizen of the United States, residing at the city of Cambridge, in the State of Massachusetts, have invented certain new and useful Improvements in Soda-Water Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a vertical section. Fig. 2 is an enlarged horizontal section on line *xx*, Fig. 1. Fig. 3 is a vertical section of a modified form of the invention. Fig. 4 is an enlarged horizontal section on line *yy*, Fig. 3.

In soda-water apparatus as generally constructed the pipe that leads from the source of water-supply opens directly into the upper part of the usual tank for containing the water and carbon dioxid under heavy pressure, and it frequently occurs that when the tank is allowed to stand for some time charged with the water and gas the latter will escape through a leak in the usual check-valves or other joint in the water-supply pipe, so that when the attendant at the fountain attempts to draw off the soda-water he finds that there is no pressure within the tank. Consequently the latter must be recharged with gas before any water can be drawn off.

The purpose of my invention is to provide a simple and effective device for preventing the entrance of the gas from the tank into the water-supply pipe, and thus obviating the possibility of such leakage.

The precise nature of the invention will clearly appear from the following description, reference being had to the accompanying drawings, in which the same or corresponding parts are designated by the same characters in the several figures.

1 denotes the usual tank for containing the gas and water; 2, the gas-supply pipe; 3, the water-supply pipe; and 4, the outlet-pipe to the soda-water fountain.

The pipe 3 communicates with a passage-way 5 in a head 6, that is screwed to the tank,

which passage-way leads into the latter, being virtually a continuation of the said pipe.

Referring now particularly to Figs. 1 and 2, which illustrate the preferred form of the invention, I extend the water-supply pipe 3 to a point adjacent to the bottom of the tank—that is, below the water-level *ww*—by means of a pipe-section 7, leading from the passage-way 5. I also employ a pipe-section 8, whose upper end extends to a point near the top of the tank—that is, above the said water-level—and I connect the lower ends of these two pipe-sections to a box 9, having a chamber 10 and an opening 11 through the bottom thereof. Within this chamber is a ball-valve 12, made, preferably, of india-rubber and about the specific gravity of water, which ball is adapted to seat in a concave enlargement 13 at the upper end of the opening, and thus to close and open the latter under the circumstances now to be described.

When the water is allowed to enter the tank by way of the pipe 3, the ball 12 will be caused by the pressure of the inflowing water to seat over the opening 11, as in Fig. 1, and thereby prevent the escape of water through the latter. Consequently the water will ascend the pipe-section 8 and flow out into the tank through the upper end of the pipe-section or, as in the usual construction, through a suitable spraying-head 14.

When the water is not flowing into the tank, the valve 12 will rise from or remain loosely seated over the said opening. It will be obvious that when this occurs the gas cannot escape into the water-supply pipe, as if there should be any leakage in the usual check-valves or other joint of said pipe it would be a leakage of water only, the water to take the place of such leakage entering the pipe by way of the opening 11 of the valve-chamber.

The modified form of the invention illustrated in Figs. 3 and 4 is in the nature of an inversion of the form shown in Figs. 1 and 2. In this modified form the valve-chamber 10 is within the head 6, which thus substantially

becomes the box 9 of the first form, into which chamber leads the water-supply pipe 3 and from which chamber extends the pipe-section 8, having the spraying-head 14 at the top. The opening 11 of said chamber is upwardly into the bottom part of the tank instead of downwardly, as in the first form, and the concave seat 13 for the ball 12 is at the lower end of said opening, all as clearly seen in Fig. 3.

The mode of operation is substantially the same in the two forms, the ball being in the modified form forced upwardly to close the opening 11 instead of downwardly, when the water is allowed to flow into the tank, and it (the water) escapes into the latter through the upper end of the pipe-section 8.

It will be observed from the foregoing description that the essential requirements of the invention may properly be said to be an opening in the water-supply pipe or conduit at a point below the water-level within the tank and a suitable valve in said pipe adapted to automatically close said opening when and only when water is flowing through said pipe, so that the water will then be delivered into the tank from the upper free end of the pipe.

In order to have the valve or ball 12 act also as a check-valve to arrest the escape of water from the tank in case of a leak in the water-supply pipe, I sometimes provide a seat 15 for the ball in the chamber 10 at the inlet end of the water-supply pipe into said chamber, so that water entering through the opening 11, induced by the outflow from a leak in the water-supply pipe, will cause the ball to close the inlet end of said water-supply pipe.

I do not limit myself to the precise construction shown in the drawings nor to the use of the particular kind of valve shown therein, as the construction may be modified and valves of other kinds used in lieu of a ball.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a soda-water apparatus, the combination with the tank, of the water-supply pipe extending below and opening above the water-level in said tank, there being an opening in said pipe below said water-level, and a valve adapted to normally open said opening, and

to close the same by the pressure of water when flowing through said pipe, substantially as and for the purpose set forth.

2. In a soda-water apparatus, the combination with the tank, of the water-supply pipe extending below and opening above the water-level therein, a chamber communicating with said pipe, and having an opening below said water-level, and a suitable ball-valve within said chamber adapted to normally open said opening and to close the same by the pressure of water flowing through said pipe, substantially as and for the purpose set forth.

3. In an apparatus of the character described, the combination with the tank, of the water-supply pipe extending downwardly adjacent to the bottom of the tank, the pipe extending upwardly from a point adjacent to the lower end of said first-mentioned pipe to a point above said water-level, the chamber with which the lower ends of said pipes communicate, there being an opening through said chamber, and a ball-valve within said chamber adapted to normally open said opening and to close the same by the pressure of water when flowing through said pipe, substantially as and for the purpose set forth.

4. In an apparatus of the character described, the combination with the tank, of the water-supply pipe extending below the water-level in said tank, a chamber with which said pipe communicates, a pipe leading from said chamber and extending above the water-level within said tank, there being an opening in said chamber into the tank, and a valve adapted to close said opening by the pressure of water flowing through said water-supply pipe into said chamber; and to open said opening and also to close the end of said water-supply pipe and arrest the exit of water therefrom in case of a leak in said pipe, substantially as and for the purpose set forth.

In testimony whereof I have hereunto affixed my signature this 30th day of January, A. D. 1903.

HEBER A. HOPKINS.

Witnesses:

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THOMAS MORTON.