T. Daniels

Soda Water Apparatus,

No. 22,549. Patented Jan. 11, 1859.

Fig. 1.

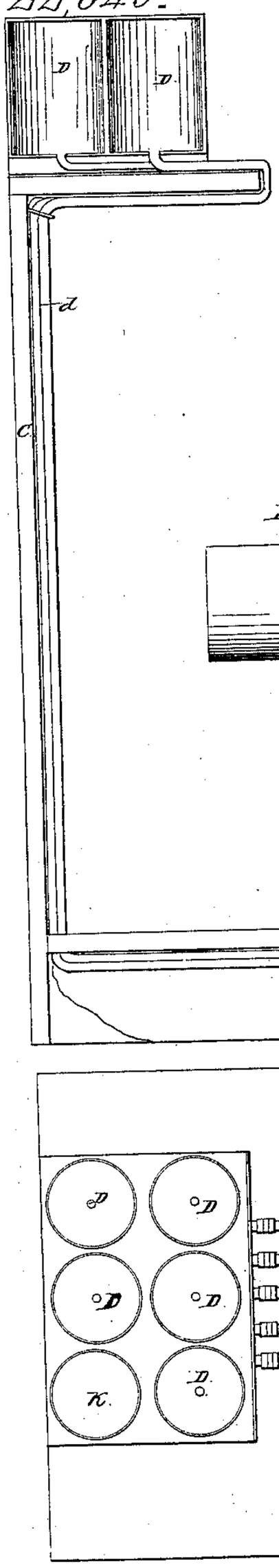


Fig. 1.

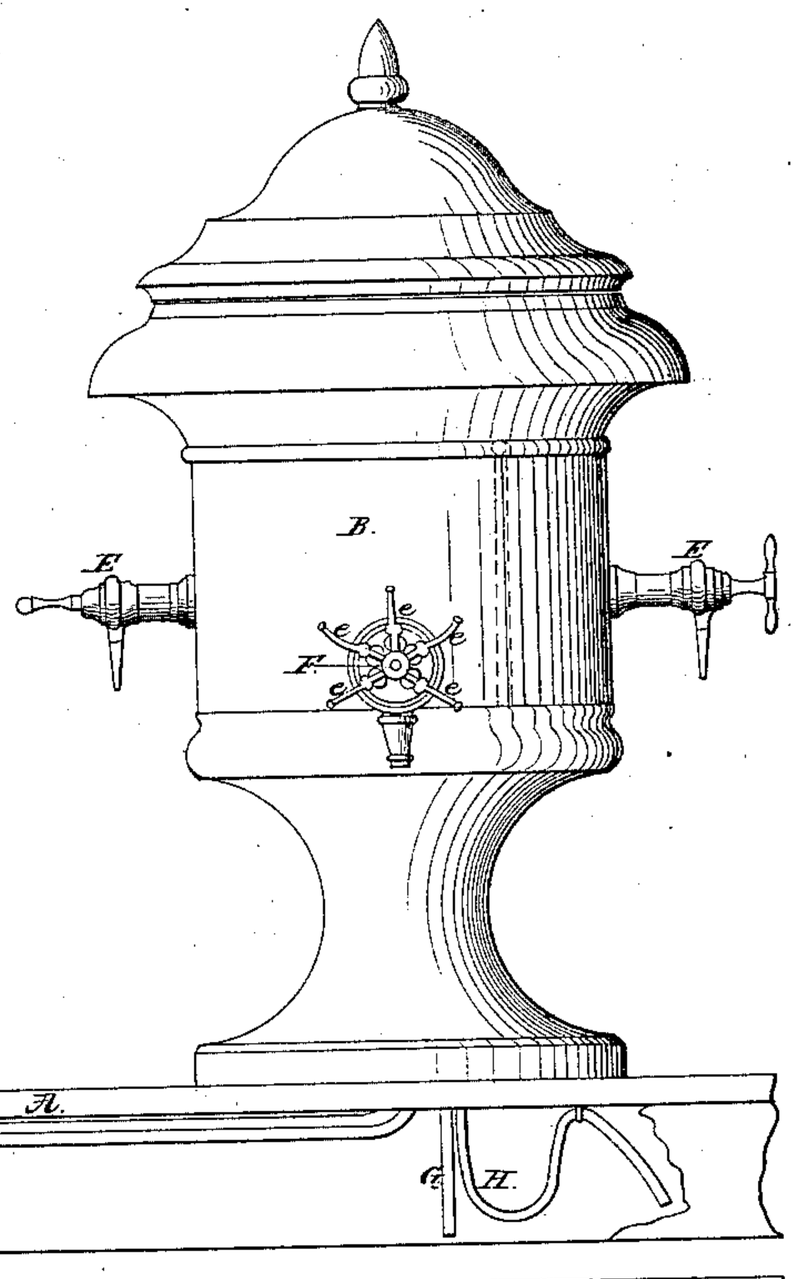


Fig. 3.

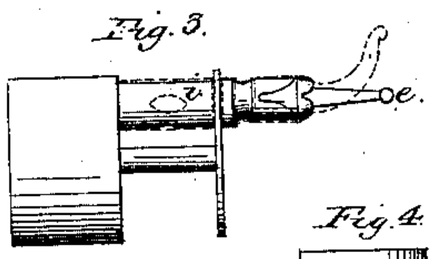
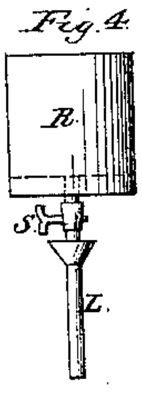


Fig. 4.



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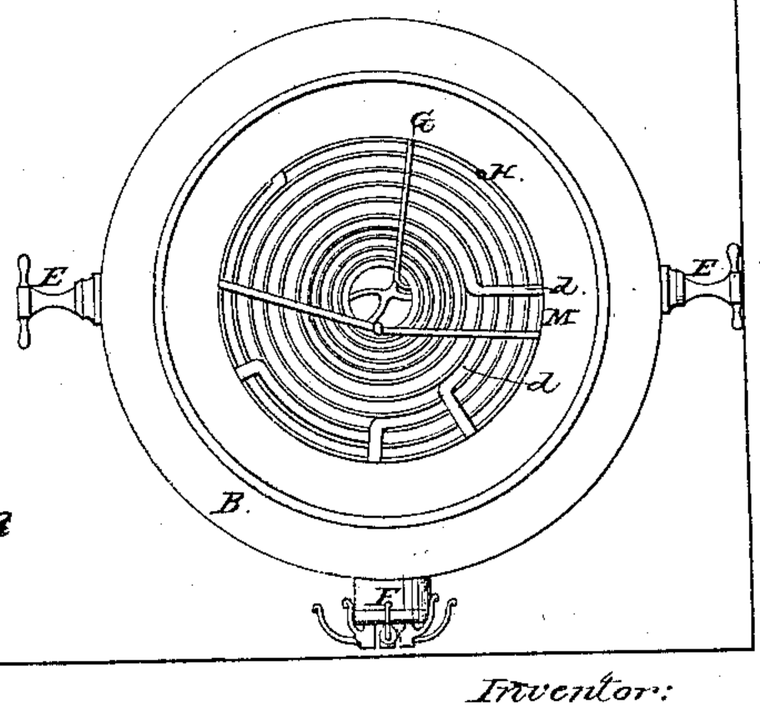

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UNITED STATES PATENT OFFICE.

THOMAS DANIELS, OF TOLEDO, OHIO.

SODA-WATER APPARATUS.

Specification forming part of Letters Patent No. 22,549, dated January 11, 1859; Reissued March 30, 1869, No. 3,351.

To all whom it may concern:

Be it known that I, THOMAS DANIELS, of Toledo, in the county of Lucas and State of Ohio, have invented a new and Improved Apparatus for Soda-Water; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention consists in an improved apparatus for cooling and drawing soda water and syrups.

In the accompanying drawings, Figure 1, is a side view of a soda apparatus, with my improvements attached. Fig. 2, is a top view of the same with the cover of the refrigerator removed. Figs. 3, and 4, are detached parts.

In the drawings A, represents the top of a counter, with part of the front broken away so as to show the tubes under it. Upon this counter is a vase or refrigerator B, the construction of which will be hereafter described. At any convenient distance from this refrigerator and at a considerable height above it are placed the syrup cans D, D. I prefer placing these cans in the second or third story, in order to secure a powerful hydraulic pressure to force the syrup from the stop cock F, of the refrigerator, but they may be put on a high shelf in the same room with the remainder of the apparatus. These cans are connected with the refrigerator by tubes *d*, which pass under the counter and then rise and enter the ice chamber M, near the top of the latter, as seen in dotted lines in Fig. 1.

The outside of the refrigerator is a vase of marble or other material. Within this vase is placed a good ice chamber M, of tinned copper, packed in cotton as a non-conductor of heat. Upon the bottom of the chamber are arranged several coils of pipe, made of block tin or other suitable material. These coils are made of separate pipes all of which enter the ice chamber near its top, as represented in dotted lines at *d*, Fig. 1, and pass down on the inside of chamber M, and after forming the coils pass out of the vase to the stop cock F, or E, below the ice chamber. They are designed for cooling the syrups and the carbonic acid water as these liquids flow through the refrigerator, thus preventing the waste of ice which is usual, where large quantities of syrup or water are cooled before any is drawn. The ice is laid into the ice chamber upon the coils of pipe, so that it constantly presses down upon them, keeping them at the freezing temperature until all of the ice is melted. By this arrangement the syrup and carbonic acid water upon entering the top of the ice chamber, tend by their increasing specific gravity to flow constantly toward the stop cocks at the bottom of the vase, so that the coldest portions of these liquids are always the first to be drawn off for use.

Between the ice chamber M, and the vase B is a considerable space, which I pack with cotton, as a non-conductor of heat. The ice chamber has also a metallic cover and two quilted pads at the top.

The tube G conducts carbonic acid water, the reservoir for which I have not represented, as it forms no part of my invention. The waste-water tube H, Fig. 1, is coiled into a goose neck under the counter, to prevent air from passing through this tube into the refrigerator. All of these tubes are made of gutta percha where they enter the neck of the refrigerator, because metallic tubes conduct much heat to the ice and thus cause it to waste. Around the gutta percha tubes the neck of the vase is packed with cotton. The tubes D, and G, in ascending to the top of the ice chamber, are not brought in contact with its sides, thus avoiding the waste of ice in cooling the syrup outside of the chamber.

I employ a group-stop-cock F of peculiar construction. Several cocks being packed together, less absorbing surface is given, and consequently less ice is required to keep them cool. Each of the five cocks *e*, in the group F, must be connected with a different tube of the coils within the ice chamber. One of these cocks *e*, is better seen in Fig. 3. It consists of two tubes, one within the other, each having a hole *i*. The outer tube is turned, by means of a handle, upon the inner, so as to bring the holes in the tubes together or to separate them at pleasure. In Fig. 3, the hole in the outer tube is best seen in dotted red lines, which represent the cock closed. When the outer tube is turned so as to bring the hole *i* opposite the corresponding hole in the inner tube, as seen in black lines, Fig. 3, the cock is open. Several of these tubes being grouped together as seen at F, they are all inclosed in a larger tube

which has an orifice at its under side for the discharge of whatever fluid is allowed to flow from the separate cocks *e*. The different tubes of this group stop cock and the tubes leading to them are packed in the cotton outside of the ice chamber as above mentioned in regard to the tubes *d*, and G. The group stop cock facilitates the drawing by bringing all the syrups together so that there is no occasion to step aside or move the tumbler. Also the position of the different syrups is more readily recollected in the group than when they are drawn from cocks in a row where the different cocks appear identical and it is necessary to count or resort to other means to distinguish one from another. The carbonic acid water tube may be connected with one of these cocks *e*, or with the side cock E, or with both if desired.

My syrup cans D, are usually open at the top for filling, and are placed in a covered box or chest. When placed on a high shelf near the ceiling they require some modification. I in that case use a closed can, seen at K, Fig. 4, provided with a stop cock *s*. This can, when filled and the cock closed is inverted upon the shelf above a funnel L, to which one of the tubes *d* must be attached. Then upon opening the cock *s* the syrup flows until the tube *d*, the coils in the refrigerator and the funnel L are filled with syrup. But when the syrup rises in the funnel so as to cover the mouth of the stop cock *s*, it ceases to flow because no more air can enter the can K. In this manner the supply of syrup at the refrigerator is constant.

The chief advantages of my improved apparatus are: the arrangement for employing hydraulic pressure to cause the syrups to flow through the refrigerator with a sudden jet; the cooling of the syrups and the carbonic acid water to the freezing point at the stop cock where they are drawn for use, and finally the great economy of ice, by cooling the liquids in small quantities in the lowest part of the discharge tubes, by the use of gutta percha tubes to conduct the liquids into the refrigerator, and the use of the group stop cock.

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

1. The arrangement of the whole apparatus, the syrup cans being elevated above the refrigerator which is provided with the group stop-cock substantially as set forth for the purposes described.

2. The arrangement of the tubes *d* and G, for conducting the syrups, and the water to the top of the ice chamber, without cooling them, and concentrating the cooler portions of these liquids below the ice, near the place of discharge substantially as described.

THOS. DANIELS.

Witnesses:
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