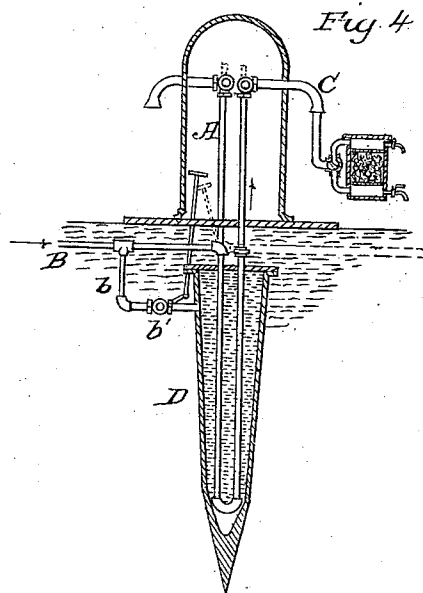
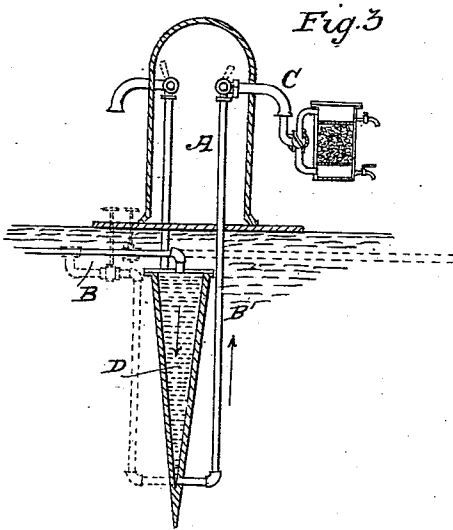
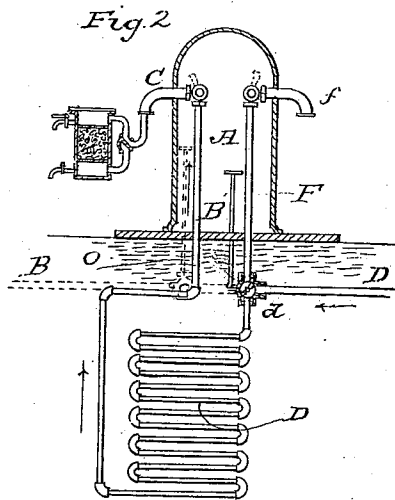
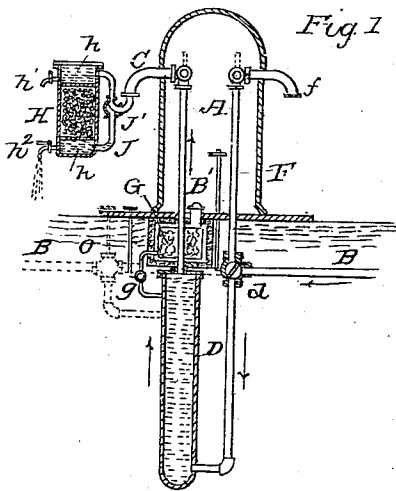


D. E. SOMES.

Liquid Cooler.

No. 82,651.

Patented Sept. 29, 1868.



WITNESSES

J. Snowden Bell
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INVENTOR

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UNITED STATES PATENT OFFICE.

DANIEL E. SOMES, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN APPARATUS FOR COOLING AND FILTERING LIQUIDS.

Specification forming part of Letters Patent No. 82,651, dated September 29, 1868.

To all whom it may concern:

Be it known that I, DANIEL E. SOMES, of Washington, District of Columbia, have invented a new and useful Mode of Cooling and Filtering Liquids; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a vertical section of a hydrant with my improvements attached; Fig. 2, a similar section, in which a series of horizontal pipes is used as a cooler; Fig. 3, a similar section, in which the cooler is shown as pointed at its lower end to facilitate driving it into the ground; and Fig. 4, a similar section, in which the supply-pipe passes into and out of the cooler, instead of being connected to it.

The object of my invention is to provide a simple and convenient device for cooling and filtering water or other liquids; to which end my improvement consists in connecting the supply-pipe, by which they are brought to the tap or hydrant from which they are drawn, to a cooler placed in the earth, beneath and in convenient proximity to the tap or hydrant, and connecting to the mouth thereof a filter, of construction hereinafter to be described.

In the accompanying drawings, which show a convenient arrangement of parts for carrying out the objects of my invention, A represents a hydrant for streets, and B the supply-pipe connecting it with the water-main. D represents the cooler, which is a metallic vessel of any convenient shape, and placed in the earth beneath the hydrant.

The supply-pipe B is connected to the cooler, a two-way cock, *d*, being provided, by means of which the water can be shut off from the cooler and discharged through the pipe F and spout *f*, if deemed necessary, to prevent freezing, and in cases of repair, &c. The water passes through the cooler D into the pipe B', which is connected to its top, and is drawn off through the spout C.

An ice-box, G, may be used, if desired, to further reduce the temperature of the water. This box is placed in the earth above the cooler D, and surrounds the delivery-pipe B'. It is inclosed in an air-tight casing or casings, which may be filled with air or charcoal, felt,

or any good non-conductor, to prevent the liquefaction of the ice.

The ice is introduced by a suitable opening, and the water which is produced by melting can be drawn off by a pipe which connects with the cooler D, and is provided with a stop-cock, *g*.

Salt and ice or other freezing-mixture may be used in the ice-box or around it, if desired.

A filter, H, is connected to the mouth of the spout C, for the purpose of filtering the water as it is drawn off. This filter is preferably a cylindrical metallic vessel of convenient size, provided with two partitions, *h h*, perforated for the passage of the water, between which is placed sponge, pumice-stone, charcoal, or other suitable porous substance. It is connected to the spout C by the bifurcated pipe J, which connects with its upper and lower ends, and is provided with a two-way cock, J', by means of which the water can be admitted either to the upper or lower end of the filter, as desired, and drawn off by the cock *h*¹ or *h*².

From this arrangement it will be seen that the water can be made to circulate either upward or downward through the filtering material, preventing the latter from becoming choked or having its effect impaired. I also place sand, gravel, charcoal, pumice-stone, or other filtering material in the coolers, and when they need to be cleansed the cock *f* should be closed and the cock O opened, thereby reversing the current of water and forcing the sediment out at the latter cock.

Fig. 2 shows a modification of my invention, in which a series of pipes, E, united by elbows in the manner of steam-heating pipes, is employed as the cooler D, the water being shut off from the cooling-pipes, when desired, by the stop-cock *d* in the same manner as in the preceding case.

Fig. 3 shows the cooler made in conical form, tapering to a point at its lower end, for the purpose of enabling it to be more readily driven into the earth. In this case the supply-pipe B is connected to its upper and the delivery-pipe B' to its lower end; but the arrangement may be reversed, if found more convenient.

In Fig. 4 the supply-pipe passes down into the cooler, having one or more returns, and is

surrounded by water, which is supplied to the cooler by means of the pipe *b* and cock *b'*. The cooler is shown made conical and pointed, as in the former case.

My invention is applicable not only to the cooling and filtering of water supplied to hydrants, but also to use in breweries and other establishments where the cooling of liquids in a cheap and satisfactory manner is an important consideration in manufacturing economy.

Soda-fountains may have my improvements applied to them with advantage and at trifling cost.

When conveniently near to a stream or body of water the cooler may be embedded therein, instead of in the earth.

From the arrangement of the filter *H*, it will be seen that the circulation of the water may be reversed at pleasure by means of the cock *J'*, enabling the filtering material to be cleansed of the dirt and sediment which accumulate therein.

The filter can be placed either horizontally

or vertically, and the delivery-cock set upon such portions of its periphery as are found most convenient.

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

1. The supply-pipe *B*, two-way cock *d*, and delivery-pipes *F B'*, with the cooler *D*, placed in the ground beneath a hydrant or tap, as set forth.

2. The combination of the supply-pipe *B*, cooler *D*, delivery-pipe *B'*, and filter *H*, substantially as described.

3. The supply-pipe *B*, two-way cock *d*, cooler *D*, and ice-box *G*, substantially as described.

4. A cooler tapering toward and pointed at its lower end, as arranged in relation to supply and discharge pipes, substantially as herein shown and described.

D. E. SOMES.

Witnesses:

CHARLES HERRON,
F. C. SOMES.