

# UNITED STATES PATENT OFFICE.

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

## IMPROVED MODE OF COOLING WATER IN WELLS.

Specification forming part of Letters Patent No. 50,399, dated October 10, 1865.

*To all whom it may concern:*

Be it known that I, DANIEL E. SOMES, of Washington, in the District of Columbia, have invented a new and useful Improvement in Wells; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of my said improvement.

The object of my invention is to provide means for preventing warm or impure water from entering the well through the sides thereof, and also for increasing the coldness of the water in the well. To effect these objects I construct a series of circular curbs or walls, placed one within the other, and made of cast-iron or other suitable material, and water-tight both at the sides and bottoms thereof; or I may attach all the curbs or walls to one water-tight bottom. These walls or curbs are arranged in such a manner that there shall be air spaces or chambers between them respectively of sufficient capacity for the uses designed to be accomplished thereby, and openings are left at the upper ends of such chambers for the egress of warm or impure air. In these openings I may place valves or other suitable means for regulating the escape of the air from said chambers and the ingress of the same; or I make the same air-tight, which is preferable. The inner curb or wall of said series is left open at the top and bottom thereof, and from end to end, and leaving a space within sufficiently large for a pump or well-bucket. I place this series of curbs or walls inside the well, the water-tight bottom thereof resting upon the ground. Now, as the outermost curb or wall rests against the sides of the well and makes a water-tight wall for the same, it follows that all the water which flows into the well passes up from the bottom thereof.

The air-chambers between the different walls serve to neutralize the effects of any warm water or air that may rest against the outside wall and render the water that finds its way

within the inner wall much colder than it would otherwise be.

I may raise the series of curbs or walls above the surface of the earth to any desirable or practical altitude, and the water within the well will be lowered in temperature in proportion to the height of the same.

My method of curbing wells will be found to be of great value in oil-wells and all others where it is important to exclude water or other substances from flowing into the same from the sides or summit thereof. It will also be found valuable in securing the water from submarine springs, such as are often discovered in the bed of a river or near the margin of a lake or pond.

I do not wish to be confined to a circular form for my invention. I may make said curbs or walls in a quadrangular or octagon shape; but I prefer to construct them in a circular form. In many places—such as Chicago and New Orleans—water is found very near the surface of the earth; but in the warm seasons of the year it is not cold enough or pure enough for drinking or culinary purposes.

By the use of my improvement I can obtain pure cold water from any depth, provided such can be reached, and at the same time exclude from the well all water that is warm or impure.

Whenever the means heretofore described shall fail to render the water within the well as cold as may be desired, I place ice, salt, or other cooling substances or mixtures in the air-chamber next outside of the inner curb or wall in such quantities as shall secure that result.

What I claim as my invention, and desire to secure by Letters Patent, is—

Constructing curbing or walls for wells substantially as described.

Witnesses:

J. C. SMITH,  
WM. ELLIOTT.

D. E. SOMES.