

H. CARTER & J. A. HUMPHREYS.

CISTERN WATER-FILTER.

No. 173.268.

Patented Feb. 8, 1876.

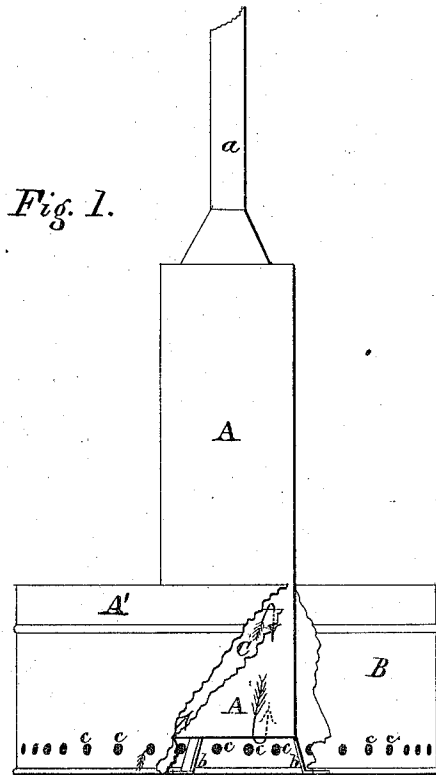


Fig. 2.

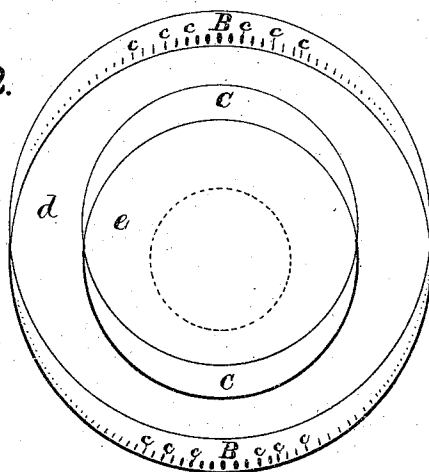
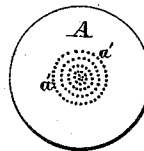


Fig. 3.



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UNITED STATES PATENT OFFICE.

HUGH CARTER AND JOHN A. HUMPHREYS, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN CISTERN WATER-FILTERS.

Specification forming part of Letters Patent No. **173,268**, dated February 8, 1876; application filed October 22, 1875.

To all whom it may concern:

Be it known that we, HUGH CARTER and JOHN A. HUMPHREYS, both of the city of Springfield, county of Clarke and State of Ohio, have invented certain Improvements in Cistern Water-Filters, of which the following is a specification:

Our invention is a portable rain-water filter, especially designed for cisterns.

It is well known that rain-water in cisterns becomes foul and unfit for use from stagnation, and that, when a separate chamber is constructed in the cistern, into which the water is admitted through a filtering partition-wall, the water thus filtered becomes itself offensive in a short time, and wholly unfit for domestic purposes. The cleansing of these fixed filters occasions much trouble and expense, as the entire cistern must be emptied of its contents.

The object of our invention is to obviate this trouble and expense by the construction of a cheap, compact, portable filter, easily introduced and readily removed for cleansing, and which will always afford a supply of freshly filtered and deodorized water.

Our filter may be set on the bottom of the cistern or suspended a little above it, as preferred. It is connected with the pump by having the pipe of the latter lead down through its stand-pipe to the reservoir, or the pump may be directly connected with the stand-pipe by a screw or soldered joint. We prefer having the pipe from the pump separate from the stand-pipe. In case the filter is suspended the top of the stand-pipe is flanged, to be attached at the top of the cistern.

Figure 1 is a side elevation of our improved portable water-filter for cisterns. Through the broken section the interior parts are visible. Fig. 2 is an inside view of the filter-case. Fig. 3 is a view of the perforated bottom of the reservoir.

A is the reservoir, which is supported upon legs *bb* in the middle of the case B, its bottom being above the bottom plate sufficiently to leave a space between them, which is filled with the filtering material. The reservoir, stand-pipe, and case are entirely made of galvanized iron. From the top of reservoir A extends the stand-pipe *a* to a height a little

above the overflow or eduction pipe of the cistern.

The case B (see Fig. 2) contains the filtering material; animal charcoal (pulverized) is used for the purpose. Case B, which is shown without its cap in Fig. 2, has a partition, C, in it about half-way between its outside shell and the reservoir A, dividing it into two separate chambers. This partition, which is of the same material as the outside case, is lower than the outside shell, so that when the case is filled the charcoal will extend over the top of it. The circular form is given to case B by preference, as being of cheaper construction and more convenient for the purpose designed. Its size depends upon the size of the cistern and the quantity of water desired. For an ordinary cistern of fifty barrels, for a single family of the average number of persons, we make the case B about eighteen inches diameter and about eight inches high.

For this sized case the reservoir is about eight inches diameter and about two feet high—the stand-pipe according to depth of the cistern from the point of overflow.

ccc are the inlet-holes near the bottom of the case B. They extend entirely around the case, and are made small enough to prevent floating substances from entering them. In the bottom of the reservoir A a large number of holes, *a' a'*, are made to admit the filtered water into it. These are much smaller than holes *ccc* in the outside case. (See Fig. 3.) The dotted circular line in Fig. 2 shows the relative position occupied by the reservoir A.

A' is a cap or cover of case B. This is made with a hole in it for the reception of the reservoir A, which passes down through it. It fits over the top of the case in the manner of a blacking-box lid.

In charging the filter the reservoir A is placed in its position in the middle of case B, and its legs secured to the bottom plate by screws or otherwise. The powdered charcoal is filled into the case, around and under the reservoir, until the entire case is full to the top, the spaces *d* and *e* being tightly packed. The cover A' is then placed over the top of the case and fitted down close, after which the reservoir and cover or cap are soldered firmly together where they unite on the top. A

water-tight packing or cement may be used for the joint of the cap A' and case B, or they may be soldered together. The filter is now let down into the middle of the cistern, and the pipe of the pump inserted through stand-pipe *a* till it reaches the reservoir A. The water finds its way through holes *c c c*, through the charcoal in *d*, over the top of C, and down through the filtering material in space *e*, and up through holes *a' a'* into the reservoir A in the direction of the arrows, as shown in Fig. 1. As the water is taken from the top of the reservoir by the pump, it is set in motion from the cistern to the filter in the manner shown.

We disclaim the use of charcoal as a filtering medium or deodorizer.

What we claim as our invention is—

1. A water-filter in which the reservoir is placed in the middle of the filtering-case, is

supported above the bottom of the same by legs or their equivalents, and, extending above it, supports a stand-pipe for a pump for operating said filter, substantially as and for the purpose set forth.

2. We claim case B, with its partition C and compartments *d* and *e*, and cap A', for the purpose set forth.

3. In combination with a central and upward-extending reservoir, A, with its stand-pipe *a*, we claim the filter-case B, with its partition C, compartments *d* and *e*, and cap A', substantially as hereinbefore set forth, for the purpose specified.

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Attest:

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