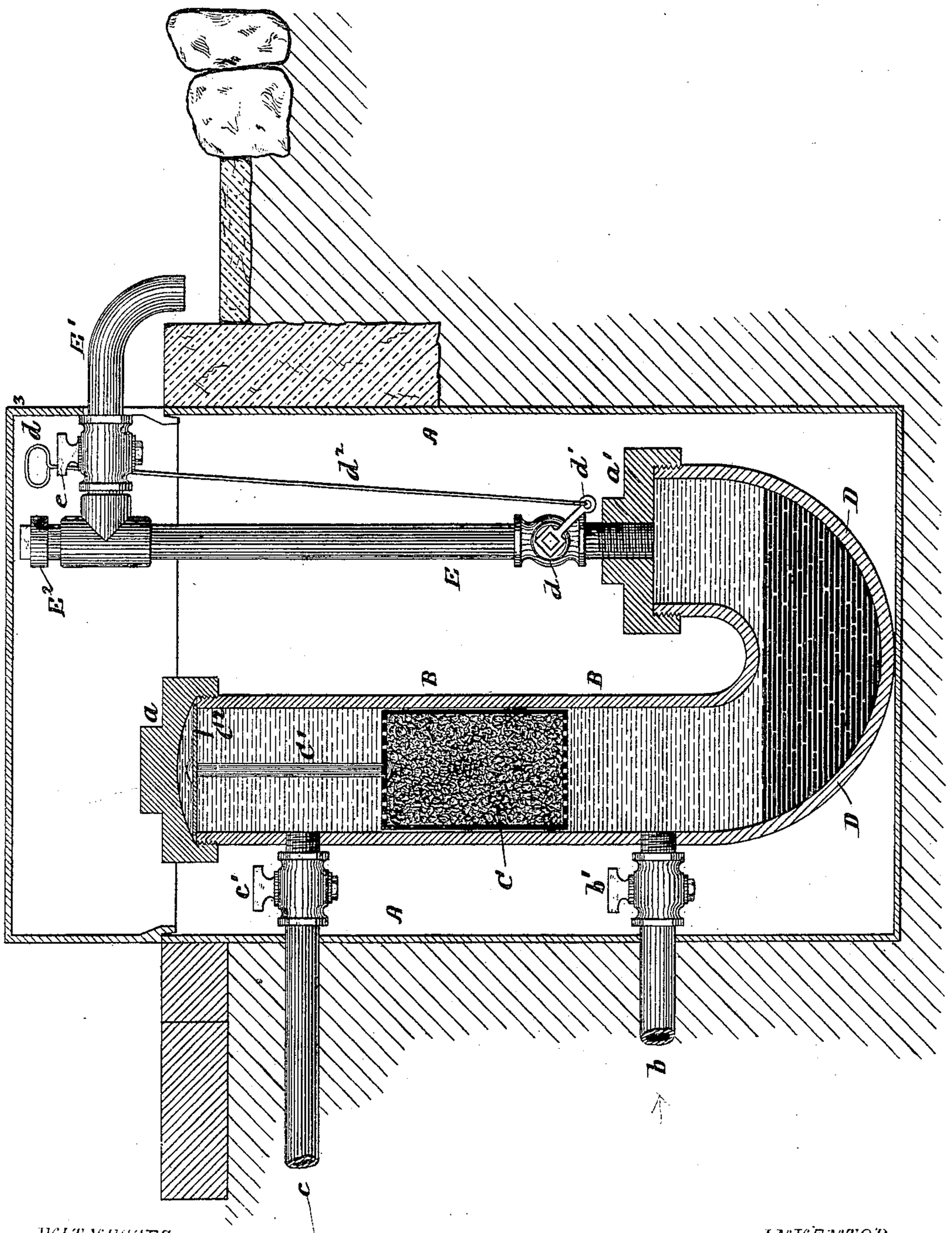
(No Model.)

R. C. ARMSTRONG.

FILTERING APPARATUS.

No. 271,396. Patented Jan. 30, 1883.



WITNESSES

Wm. A. Skinkle.

H. W. Elmore.

INVENTOR

Robert C. Armstrong

By his Attorney,

Marcellus Bailey

UNITED STATES PATENT OFFICE.

ROBERT C. ARMSTRONG, OF ALEXANDRIA, VIRGINIA, ASSIGNOR OF ONE-HALF TO WILLIAM SMALL, OF WASHINGTON, DISTRICT OF COLUMBIA.

FILTERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 271,396, dated January 30, 1883.

Application filed June 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. ARMSTRONG, of the city of Alexandria and State of Virginia, have invented certain new and useful Improvements in Filtering Apparatus, of which the following is a specification.

My invention has for its object a convenient, effective, and inexpensive means of filtering water taken from the water-main for house use. It is characterized by the combination of a filtering-chamber to which are connected the water induction and eduction pipes, a removable filter contained in said chamber, a well or sediment-chamber designed to catch and retain the impurities deposited from the water, a blow-off pipe, a system of cocks or valves whereby, whenever desired, the water can be diverted from its usual course and caused to discharge from the blow-off pipe, passing through the sediment-chamber on its way, and acting to wash out and clean that chamber of its contents.

The nature of my invention can best be explained and understood by reference to the accompanying drawing, which represents in vertical central section, partly in elevation, an apparatus embodying my improvements.

The apparatus is preferably inclosed in a box, such as shown at A, set in the ground at a suitable depth, and furnished with a cover which can be removed whenever it is desired to have access to the apparatus. Proper means for packing the apparatus and protecting it from the effects of cold may be employed, and will be understood without further explanation.

The filtering-chamber is represented at B, and consists in this instance of a stand pipe or tube closed by a removable screw-cap, *a*, and connected to the water-induction pipe *b* and eduction-pipe *c*, provided each with a cock, *b'* or *c'*, and serving, the former to conduct water into the filtering-chamber from the water-main, the latter to conduct water from the chamber to the point where it is to be used. Within the filtering-chamber or stand-tube B is a filter, C, consisting of a cylindrical shell or case with perforated heads, which fits within the stand-tube, and is filled with a suitable filtering material. The filter is placed in the chamber B, between the points *b* and *c*, so that all the water passing from the one pipe to the other must pass through it. It is held in the position by any convenient means which will permit it to be removable, the means consisting in the present instance of a supporting-stem, C', and a plate, C^2, or its equivalent, resting on top of the tube B, and held down thereon by the screw-cap *a*. The filter is then maintained in position, but at the same time can readily be got at and removed or lifted out when the box A is opened and the cap *a* unscrewed. The stand-tube B is continued below the point where the induction-pipe *b* enters it, and there forms a well or sediment-chamber, D, into which the large impurities and refuse which may enter into the water settle. In order to provide for cleaning the chamber, I connect it to a blow-off pipe, E, screwed into a cap, *a'*, which closes the upturned end of the sediment-chamber. This pipe usually will open into the street or some other convenient point, where it may discharge, as indicated at E', and it is provided at or near its lower end with a cock, *d*, the stem of which is connected by a crank, *d'*, and connecting-rod d^2 to a handle, d^3, so as to be within convenient reach when the box-cover is removed. Normally the cock *d* is closed and cocks *b' c'* are open. Under these conditions water passes from the main through the filter to the house. When it becomes necessary to rid the sediment-chamber of its contents, cock *c'* is closed and cock *d* is opened. This diverts the course of the water, which will now pass under full head through the sediment-chamber and out from the blow-off pipe E E', carrying along with it the contents of the sediment-chamber, which will thus be washed and cleaned. Objection in some cases may be made to the use of the water for that purpose, and to meet this contingency I provide the blow-off pipe E with another outlet closed by a removable screw-cap, E^2. When this is used the spout E' must have a cock, *e*, by which it can be closed. To clean the sediment-chamber under this arrangement I close all three cocks *b' c' e*, remove the cap E^2, apply to the outlet thus uncovered a pump, and open the cock *d*. The pump, when put in operation, will exhaust the stand-tube and sediment-chamber, to a very great extent, of their liquid contents, and will take up some of the sediment as well, along with the water. What remains can readily

be removed by taking off cap *a* and lifting out filter C. This leaves tube B open, and access can be had through it to the sediment-chamber, which can readily be cleaned out by means of a small scoop, or hoe or scraper, or other suitable instrument introduced through the tube B.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The filtering-chamber D or stand-tube, and the removable filter held therein in a position intermediate between the water induction and eduction pipes, in combination with the sediment well or chamber, and the valve or cock, controlled blow-off or discharge pipe E, leading from the upper end of said chamber, substantially as and for the purposes hereinbefore set forth.

2. The discharge or blow-off pipe provided with two outlets, E′ E², in combination with the sediment-well, stand-tube, filter, water induction and eduction pipes, and cocks or valves for controlling the several pipes, substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 13th day of June, A. D. 1882.

ROBERT C. ARMSTRONG.

Witnesses:

EWELL A. DICK,

R. J. FLOOD.