No. 846,882. PATENTED MAR. 12, 1907.

O'NEAL WATSON.

WATER FILTER.

APPLICATION FILED SEPT. 29, 1906.

Fig. 1.

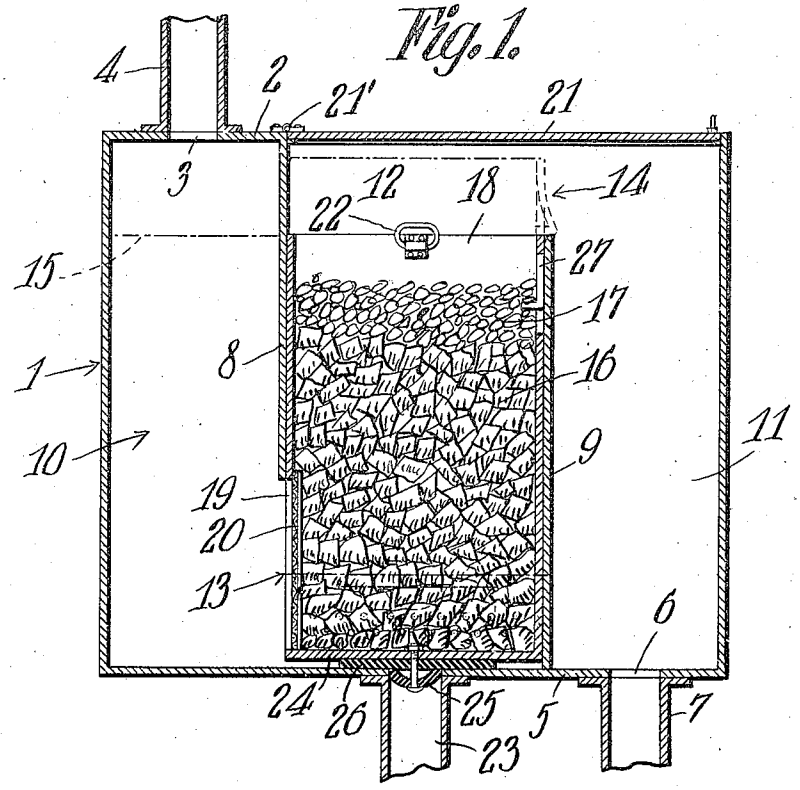
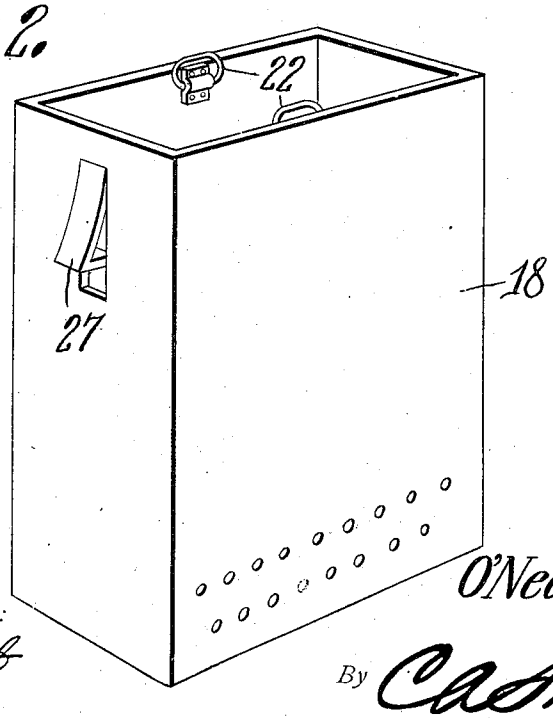


Fig. 2.



WITNESSES:

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WATER-FILTER.

No. 846,882. Specification of Letters Patent. Patented March 12, 1907.

Application filed September 29, 1906. Serial No. 336,697.

To all whom it may concern:

Be it known that I, O'NEAL WATSON, a citizen of the United States, residing at Crawfordsville, in the county of Montgomery and State of Indiana, have invented a new and useful Water-Filter, of which the following is a specification.

This invention relates to a filtering apparatus of that type intended for household use for filtering the rain-water in transit from the roof of the house to the cistern, and while the filter is particularly adapted for this purpose it is to be understood that it is capable of other uses.

The invention has for one of its objects to provide a comparatively simple and inexpensive filter which is reliable and efficient in operation and easy to keep clean and sanitary.

A further object of the invention is the provision of a movable receptacle for the filtering medium, which is arranged so as to control a flushing-outlet whereby the interior of the filter-casing and the said receptacle can be thoroughly cleansed without the dirty water passing through the cistern.

Another object of the invention is to provide a filter in which the water entering the same is caused to pass through the filtering medium in an upward direction, the portion of the filter containing the medium being adapted to be normally filled with water, so that the flushing operation can be effected at any time by the mere opening of the drainage-valve.

With these objects in view and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a vertical longitudinal sectional view of the filter. Fig. 2 is a perspective view of the basket or receptacle for holding the filtering medium, the same being drawn on a slightly-enlarged scale.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawing, 1 designates the casing of the filter, which is liquid-tight and preferably made of galvanized sheet-iron. The casing is preferably, though not necessarily, in the form of a parallelogram of slightly greater length than height and comparatively narrow in width. These proportions, however, are not obligatory, but may vary as desired. The top 2 of the casing is provided adjacent one end with an inlet-opening 3, that is connected by the pipe 4 with the drainage system from the roof or with any other source of water-supply. The bottom 5 is provided at a point diagonally disposed from the inlet with an outlet-opening 6, that is connected by the pipe 7 with the cistern. Extending downwardly from the top 2 is a transverse partition 8, which extends considerably short of the bottom of the casing. Spaced apart from the partition 8 is a second transverse partition 9, which rises from the bottom 5 and extends somewhat short of the top 2 of the casing. These partitions serve to divide the interior of the casing into an inlet-chamber 10, an outlet-chamber 11, and an intermediate chamber 12, in which the filtering element is disposed. The inlet or sediment chamber 10 communicates with the filtering-compartment 12 through the opening 13, formed between the lower end of the partition 8 and bottom 5 and between the two side walls of the casing. The compartment 12 communicates with the outlet chamber or compartment 11 through an opening 14, formed between the top edge of the partition 9 and top 2 of the casing. By this arrangement the course of the water through the filtering apparatus is downward in the inlet-chamber, upward in the middle chamber, and downward in the outlet-chamber. The partition 8 thus serves as a deflector and the partition 9 as a dam over the top edge of which the water flows out of the filtering-chamber. By reason of the partition 9 the casing will normally contain water to the height of the dotted line 15 in both the inlet and filtering chambers.

The filtering medium or element may be of any suitable material—such, for instance, as a body of broken charcoal and a body of gravel. These filtering media (designated 16 and 17, respectively, in Fig. 1) are preferably held in a box-like receptacle or basket 18, which is also preferably of galvanized iron. This receptacle has a horizontal cross-section corresponding to that of the chamber 12, and the interior surface of the receptacle is adapted to have a snug fit or working contact with the walls of the chamber 12, so that no water will be able to pass between the re-

ceptacle and walls of the chamber, but be compelled to traverse the charcoal and gravel. The lower portion of the receptacle 18 is open to the inlet-chamber, so as to permit the water to pass freely from the latter to the former. This opening may extend entirely around the receptacle or be provided at one or more sides. In the present instance one opening 19 is shown, and over the opening is arranged a wire-netting 20 or equivalent means which serves as a retainer for the charcoal. The portion of the cover 2, disposed over the compartments 11 and 12 constitutes a cover 21, hinged at 21′, so that the filtering element or receptacle 18 can be removed for the purpose of inspection and renewal of the filtering media. To permit the receptacle 18 to be lifted out, handholds 22 are provided.

In order to readily clean out the filter from time to time, a drain-pipe 23 is arranged, preferably at the bottom of the filtering-compartment 12, which leads to a sewer-pipe. The mouth of this pipe may be controlled by any suitable valve mechanism. The receptacle 18 may itself form the valve or the valve may be attached thereto, so that when the receptacle is in its normal position the valve will close the outlet of the drain-pipe, and when the receptacle is lifted the valve will open. On the bottom 24 of the receptacle 18 is a leather or rubber disk 26, held in place by a small washer 25 and a bolt extending through the washer-disk and bottom of the receptacle. By this means an efficient closure is provided for the drain-pipe, the weight of the receptacle and filtering material therein serving to keep the valve tightly closed. When it is desired to flush out the sediment and other debris that has collected in the inlet-chamber 10 and the filtering material, it is simply necessary to raise the receptacle 18, thereby permitting the water normally contained in the compartments 10 and 12 to flow rapidly out through the drain-pipe 23 and carry with it the said sediment and debris. It will be observed that the head of the water in the chambers 10 and 12 will operate to create a rapid discharge, so that the sediment and debris may be effectively swept out. During the flushing operation the receptacle 18 is hooked up or supported in the dotted-line position shown in Fig. 1. This may be done by any convenient device—such, for instance, as a spring-latch 27, stamped out from one side of the receptacle. When the receptacle is down, the catch 27 is held in flush with the side of the receptacle, and when the receptacle is raised the catch will spring out over the top edge of the partition 9, and thus prevent the receptacle from returning to its normal position until the catch is sprung inwardly out of engagement with the partition.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the operation will be readily understood by those skilled in the art to which the invention apertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative and that various changes may be made as are within the scope of the invention.

What is claimed is—

1. A filter comprising a casing having inlet and outlet openings in the top and bottom thereof respectively, a pair of spaced parallel partitions of which one extends downwardly from the top of the casing adjacent the inlet and the other extends upwardly from the bottom adjacent the outlet for dividing the casing into three communicating compartments, a receptacle fitted in the middle compartment and communicating with the inlet-compartment at the bottom and with the outlet-compartment at the top, a body of loose filtering material in the receptacle, a flushing-pipe connected with the bottom of the casing, a valve rigidly attached to the receptacle for opening and closing the flushing-pipe, and devices on the upper end of the receptacle for lifting the same to open the valve and to permit the water in the casing to flush out the debris and sediment.

2. A filter comprising a casing, partitions arranged parallel in the casing for dividing the same into inlet and outlet compartments and a filtering-compartment between them, a flushing-pipe independent of the said outlet and common to the inlet and filtering compartments, and a valve controlling said flushing-pipe.

3. A filter comprising a casing having inlet and outlet openings, spaced partitions extending transversely of the casing for dividing the same into inlet and outlet compartments, and an intermediate compartment connected at the bottom with the inlet-compartment and at the top with the outlet-compartment, a receptacle movably mounted in the intermediate compartment, and filtering material arranged in the receptacle.

4. A filter comprising a casing having inlet and outlet openings, a flushing outlet-opening independent of the first outlet-opening, a non-rotatable filtering device movably mounted in the casing which in one position closes the flushing-outlet and in another position opens it, a stationary member in the casing, and a catch on the device for supporting the latter on the said member in a position to open the flushing outlet-opening.

5. A filter comprising a casing having a top inlet-opening and a bottom outlet-opening arranged at diagonal points, a partition extending from the top of the casing toward

the bottom thereof and separated from the latter by an opening, a partition parallel to the first and extending upwardly from the bottom of the casing and separated from the top of the latter by an opening, a flushing-outlet in the bottom of the casing at a point between the two partitions, a filtering device movably mounted between the partitions, and means carried by the device for closing the flushing-outlet.

6. A filter comprising a casing, partitions dividing the casing into three compartments, means connecting the compartments in series relation, a filtering element movably mounted in one of the compartments, a spring-catch carried by the element and arranged to engage one of the partitions when the element is lifted to a certain point, and a cover for the filtering and one adjacent compartment.

7. A filter comprising a casing, a partition therein forming a dam over the top of which water flows, a receptacle on one side of the partition and movably mounted in the casing, a filtering material in the receptacle, a flushing device controlled by the movement of the receptacle and means for supporting the receptacle in a position to permit the said flushing device to operate.

8. A filter comprising a casing, a partition therein forming a dam over the top of which water flows, a receptacle on one side of the partition and movably mounted in the casing, a filtering material in the receptacle, a flushing device controlled by the movement of the receptacle, and a catch on the receptacle adapted to engage with the partition for holding the receptacle in a position to permit the said flushing device to operate.

9. A filtering device comprising a casing having an inlet and an outlet compartment and an intermediate filtering-compartment, a filtering element in the intermediate compartment arranged to recive water in a lateral direction and to cause the water to filter upwardly therethrough, means for movably mounting the element in the compartment, a flushing means for the filter which depends for its operation upon the movement of the element, and separate outlets for the filtered and flushing water.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

O'NEAL WATSON.

Witnesses:

THEODORE D. BROWN,

WILLIAM S. BROWN.