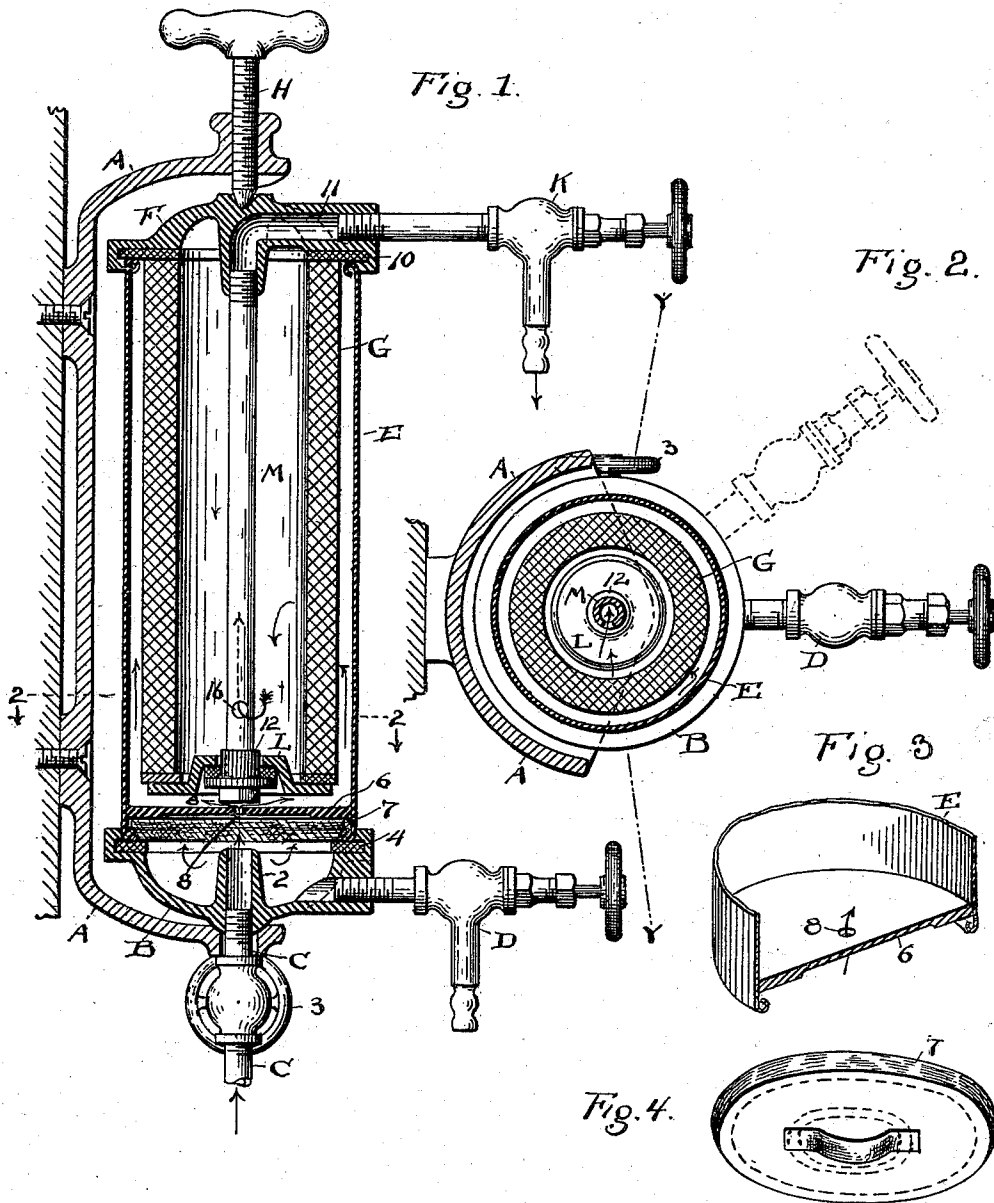


(No Model.)

R. R. & C. B. DARLING.
WATER FILTER.

No. 535,817.

Patented Mar. 19, 1895.



Attest.

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WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 535,817, dated March 19, 1895.

Application filed January 2, 1894. Serial No. 495,304. (No model.)

To all whom it may concern:

Be it known that we, ROLLA R. DARLING and CORNELIUS B. DARLING, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Water-Filters; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to water filters, and the invention consists in a filter and supporting mechanism therefor, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central sectional elevation of the filter and its support. Fig. 2 is a cross section thereof on line 2, 2, Fig. 1, looking downward. Fig. 3 is a perspective view of a fragment of the lower part of the filtering cylinder or casing, and Fig. 4 is a perspective view of the filtering pad which is placed in the bottom of the cylinder substantially as and for the purpose hereinafter set forth.

The invention herein has for its object the improvement of the filter itself, as such, and improvement in the means for supporting and operating the same, whereby the filter may be easily removed for cleaning and as easily restored to place, and be adjustable rotarily so as to adapt it to one position or another as location and convenience may require.

To accomplish these and other objects the construction shown has, primarily, a supporting shell or trough shaped bracket A, which has holes in its back for screws or bolts to rigidly secure it to the wall or other support. This bracket is substantially semi-circular in cross section at any point between its ends, as seen in Fig. 2, and it has sufficient depth so that the casing of the filter can be set back therein and make engagement through said ends with the center of the heads or ends of the filter. The lower head or bottom of the filter is a substantially bowl-shaped part, as shown here, having, in this instance, a nozzle —2— projecting inward and upward from its center, and the water supply pipe or joint C is screwed into the lower part of this nozzle. The said joint or pipe passes through an open-

ing in the forwardly projecting part of the shell A, which forms a seat for bottom B, and serves to rigidly unite the bottom to the bracket by screwing the bottom onto the pipe, as clearly seen in Fig. 1. A suitable valve with a handle —3— controls the flow of water through the pipe C into the filter, and a faucet D is connected with the bowl or bottom B, thus enabling any sediment or deposit in said bowl to be removed, and, if desired, the drawing of water at this point without passing through the filter.

The cylinder or casing E, constituting the body of the filter, rests upon a suitable packing —4— within the flanged edge of the head or bottom B, and the said cylinder fits snugly within the said flange and stands upon this packing, as seen in Fig. 1. The cylinder or casing E furthermore has a diaphragm —6— a slight distance above its lower edge or end, leaving a space beneath which is filled with a porous filtering pad —7— of some suitable material, such as asbestos cloth or the like. This pad or material may be flexible or rigid, as shall be found desirable. The diaphragm —6— is shown with a single water inlet —8— at its center, but it may have one or more inlets or openings.

The head, cap or cover F on the upper end of the filter cylinder is provided with a packing ring —10— which not only serves to pack the cylinder E thereon about its flange, as in the case of the packing —4— at the bottom, but in this instance the same packing extends farther in and serves likewise to pack the porous filtering tube G against said cap or head F.

A set screw H having a suitable handle projects down through the upper end of shell A and engages a cavity centrally in the head or cap F, and a faucet K of any suitable construction is threaded into the water channel —11— laterally through the cap F. This faucet serves admirably as a handle or means to rotate the filter when this is required.

Now, in order that the several parts herein described may be set up and supported in operating position and adapted to operate as hereinafter set forth, the head F, the filtering tube G and the inner bottom L on the filtering tube are all rigidly united by means of the threaded tube or pipe M which screws

into the cap F and is locked on the bottom L by means of the nut —12— which passes through the center of the bottom L and threads onto the tube M, as clearly seen in Fig. 1. This ties these parts together and makes them removable as one piece. It will further be seen that by this construction and with the cylinder E resting upon the bottom B, the filtering tube G and its bottom L are suspended in the cylinder E apart from diaphragm —6—, thus leaving a water space at the bottom and sides of the filtering tube. Hence, also, when the hand screw H is withdrawn sufficiently, the cylinder E may be tilted outwardly somewhat and the cap F and the filtering tube G be bodily removed therefrom for the purpose of cleansing said tube.

It will be understood that where a filter is constantly used there unavoidably gathers more or less deposit upon the surface of the filtering tube, and such deposit itself may soon become objectionable or offensive. Hence, frequent and thorough cleansing of the filtering tube is desirable if not necessary, but to make such cleansing practicable, the construction of the parts should be such as to render the removal and replacing of the parts easy and simple. The foregoing construction is of this character and any unskilled person can make no mistake in handling it. In removing the several parts, the filtering tube and head F are taken bodily out of the cylinder E, and said cylinder itself may be removed and the filtering pad —7— taken out and washed and replaced, if this be necessary. All the parts being cleaned they are set back in the bracket A, the hand screw H is turned down so as to make all the joints tight on their packing and thus prevent leakage, and then the filter is ready again to be used. In filling, the faucet K may be opened to allow escape of air.

In operation the water passes through pipe C and nozzle —2— into the bottom B, and the faucet D being closed the water is forced through the filtering pad —7— and through the hole —8— in the bottom of cylinder E and thence into the space between said cylinder and through into the filtering tube G. The pressure of the main is substantially reproduced in the filter notwithstanding the filtering obstructions to the flow of the water thereto. Once the water has filled the filtering tube it enters the tube M through the hole —16— near its bottom and passes thence through the water way —11— in the head F to the outlet faucet K, where the filtered water is drawn.

It, obviously, may occur that it will be more convenient to have the faucet K in one position or relation to the bracket than in another, and this construction enables the filter to be rotated so as to swing the faucet to any position desired between the extremes of its rotation, denoted by the dotted lines y, y , Fig. 2. Ordinarily, it is not necessary to release or loosen the screw H in order to turn

the filter more or less, but said screw may be released for this purpose.

By extending the nozzle —2— up into the bottom B, about as shown, the discharge point is brought very close to the filtering pad. It occurs, therefore, when the faucet D is opened and the water rushes in through the said nozzle, that the said pad is thoroughly cleansed and washed upon its under surface by the flowing water, and thus the water is made a means of cleaning the pad.

It will be seen at both the upper and lower extremities of the cylinder E that the packing rings —4— and —10— extend upward beyond the edge of the cylinder into annular recesses in the flanged heads of the filter. This packing usually is of rubber, although it may be of leather, or other suitable material, and it is necessary that the said packing shall lie upon both sides of the edge of the cylinder so as to make a secure joint at those points that is necessary to prevent leakage and to insure a good bearing for the cylinder against the packing at all points.

Having thus described our invention, what we claim is—

1. In water filters, a wall bracket to support the filter having one end constructed to seat the bottom of the filter casing and a movable fastener in its upper end to bear on the top of the said casing, and a filter casing supported in said bracket having a cap at each end and a filter suspended within said casing, substantially as set forth.

2. The bracket, the filter casing set therein and having its bottom permanently attached to the water connections through said bracket and its top temporarily held by said bracket, the filtering tube and mechanism connecting the lower end of said tube with the top cap of the said casing, substantially as set forth.

3. The bracket having its ends at right angles to the body and holes centrally through said ends, the water supply pipe passing through the hole in the lower end of the bracket and the filter casing held in said bracket and having said water supply pipe fixed permanently in its lower end, a filter tube in said casing and interposed filtering material between the water supply pipe and the said tube, substantially as set forth.

4. The bracket and the filter consisting of the outside cylinder or casing, a cap therefor at the top and the cap at the bottom formed with a water chamber, the filtering tube supported in said cylinder and closed at both ends, and the water supply pipe attached to the bottom cap of the casing, substantially as set forth.

5. In water filters, a supporting bracket, a filter casing in said bracket and fastening mechanism for the casing at the top of the bracket to hold said casing removably therein, in combination with a filtering tube, and a water pipe uniting the bottom of said tube with the top of said casing, substantially as set forth.

6. A bracket having inwardly projecting
ends, a water supply pipe extending up
through the lower end of the bracket, in com-
bination with a filter casing having its bottom
5 constructed to unite with said water supply
pipe and to be rotated with respect to said
bracket, and a pivotal bearing at the top of
said casing in connection with the inwardly
projecting end of the bracket, whereby the

filter casing may be rotated while in use, sub- 10
stantially as set forth.

Witness our hands to the foregoing speci-
fication this 14th day of December, 1893.

ROLLA R. DARLING.

CORNELIUS B. DARLING.

Witnesses:

H. T. FISHER,

GEORGIA SCHAEFFER.