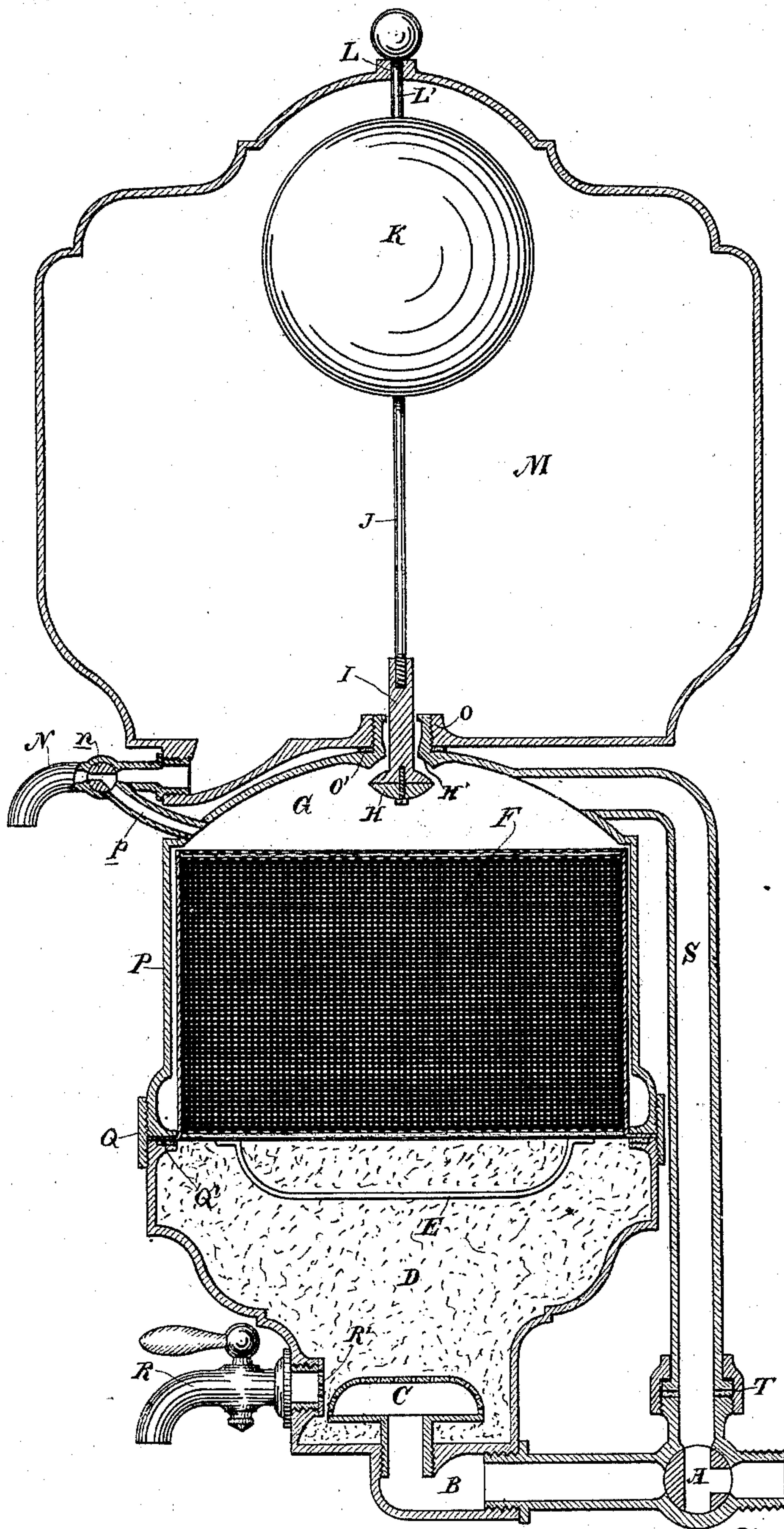


(No Model.)

J. KRAKER.
FILTER.

No. 489,747.

Patented Jan. 10, 1893.



Witnesses,
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UNITED STATES PATENT OFFICE.

JOSEPH KRAKER, OF SAN FRANCISCO, CALIFORNIA.

FILTER.

SPECIFICATION forming part of Letters Patent No. 489,747, dated January 10, 1893.

Application filed May 2, 1892. Serial No. 431,546. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH KRAKER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Filters; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved filter, and it consists in certain details of construction which will be more fully explained by reference to the accompanying drawing, in which—the figure shows a vertical central section of the entire apparatus.

A is a two-way cock and inlet to supply the apparatus. B is the inlet from this cock to the lower part of the filter chamber D. This inlet extends horizontally beneath the chamber and turns upwardly and has screwed into it a short tube having upon the upper end a convex cap C of larger diameter into which the water enters from the inlet passage, and from which it escapes upwardly and outwardly through numerous perforations made in this cap.

D is the bottom chamber of the filter which is made preferably of sheet metal, and is packed with sand or gravel and by means of the perforated convex cap C the water is delivered in all directions through this material rising upwardly until it reaches the second portion of the filter. This consists of an exterior case P which is connected with the case D by a screw coupling ring Q fitting around the outside and uniting the two.

Q' is a packing ring which makes a tight joint between the two cases D and P.

F is a removable interior chamber made cylindrical to fit the interior of the chamber of the case P, and having the upper and lower ends formed of wire screens with asbestos sheets between them. Within the chamber thus formed is packed carbon in a pulverized condition, and this chamber has a handle E projecting downwardly into the chamber D, this handle serving to remove or introduce the carbon chamber F when D has been removed.

The bottom of the chamber F has an outwardly projecting flange which rests upon the packing ring Q' and is clamped between it and the flange of the upper case P so that when the two have been secured together, the

carbon containing chamber will be firmly held in place, and leakage around the edges prevented.

G is an open space at the top of the case F and above the upper screen surface thereof. Into this chamber opens a pipe S, the lower end of which connects with the two-way cock A, so that when the latter is turned in such a position as to close off the connection with the inlet passage B, it will allow the water to flow upward through the pipe S and into the chamber G. This enables me to wash out the filtering material at any time by reversing the flow. In this case, the cock or faucet R is opened so as to allow the sediment which is collected in the lower part of the chamber D to be discharged therefrom. A screen R' across or behind the inner end of the faucet prevents the escape of the gravel which forms the lower layer of the chamber.

M is a reservoir adapted to hold a supply of filtered water having a draw off cock N, and it has a screw-threaded hub O which fits corresponding threads upon an extension of the top of the chamber P with a packing ring O' between the two to prevent leakage.

H is a valve which consists of a lower concaved or cup-shaped body having an upper rubber convex surface which fits against a corresponding seat H' when closed. From this valve a short stem I extends upwardly through a central opening in the top of the casing P, and into the chamber M.

J is a screw stem fitting into the top of the valve stem I, and carrying upon the upper end a float or ball K. Through the center of the top of the chamber M is a guide opening L, and L' is a stem fixed to the top of the float ball extending through this opening, thus steadying the ball and keeping it, the stem, and the valve H, in a central position.

When the reservoir M becomes filled with filtered water the valve H will be drawn up against its seat so as to close the passage between the two, and the filtration of the water will then stop. As soon as the water is drawn off from M, the valve will open and the filtering will then again commence, thus automatically beginning and stopping so that the reservoir is always kept full.

The pipe S is connected with a faucet or cock A by a coupling T which allows it to be

easily uncoupled, and by means of the other connections and couplings, all parts of the filter are easily separated for the purpose of cleaning or inspection.

- 5 *p* is a short pipe connecting the chamber G with the discharge faucet N, and this serves to relieve the pressure in the chamber G beneath the valve H, so that the latter is allowed to open when the water is drawn off
10 from the reservoir M.

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

1. A filter consisting of the superposed, separable chambers D, P and M, the lowermost
15 containing sand and gravel, the second containing pulverized carbon, the third serving as a reservoir for filtered water, an inlet passage at the bottom of the lowermost chamber
20 having a convex perforated cap through which the water is delivered into said chamber, an open space above the uppermost filter chamber, a central opening therefrom and into the reservoir above, with the valve seat and up-
25 wardly closing valve, and a float in the reservoir chamber, whereby the valve is opened or closed, substantially as herein described.

2. In a filter, a chamber D containing sand and gravel, an inlet passage B, a convex perforated delivery cap through which water
30 passes from the inlet passage, a casing P removably attached to the chamber D, an independent movable cylindrical chamber F fitting within the chamber P having the bottom
35 and top formed of wire screens, inclosing asbestos cloth between them, said chamber hav-

ing flanges secured between the flanges of the chambers D and P, a space above the upper end of the carbon chamber F, a reservoir M
40 removably attached to the top of the chamber P, an upwardly closing valve fitting the seat in the upper space of the chamber P, and closing the opening between it and the reservoir chamber, a stem extending upwardly from the valve, connecting with a float by which the
45 valve is opened and closed, and a supplemental pipe or passage S connecting with the two-way inlet cock A whereby the flow of water through the filter may be reversed when the valve between the reservoir and the filter
50 chamber is closed, and a discharge cock R connecting with the lower part of the filter chamber, substantially as herein described.

3. A filter consisting of the superposed filter chambers D and P, and a filtered water res-
55 ervoir situated above them, an open space or receiver G above the uppermost filter, a central opening therefrom into the reservoir chamber above with a valve seat and upwardly closing valve, a float in the reservoir chamber
60 with which the valve stem connects, so that the two move in unison, a discharge cock N and a passage *p* connecting the chamber G with the cock whereby pressure in the cham-
65 ber is reduced and the valve allowed to open, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOSEPH KRAKER.

Witnesses:

S. H. NOURSE,
J. A. BAYLESS.