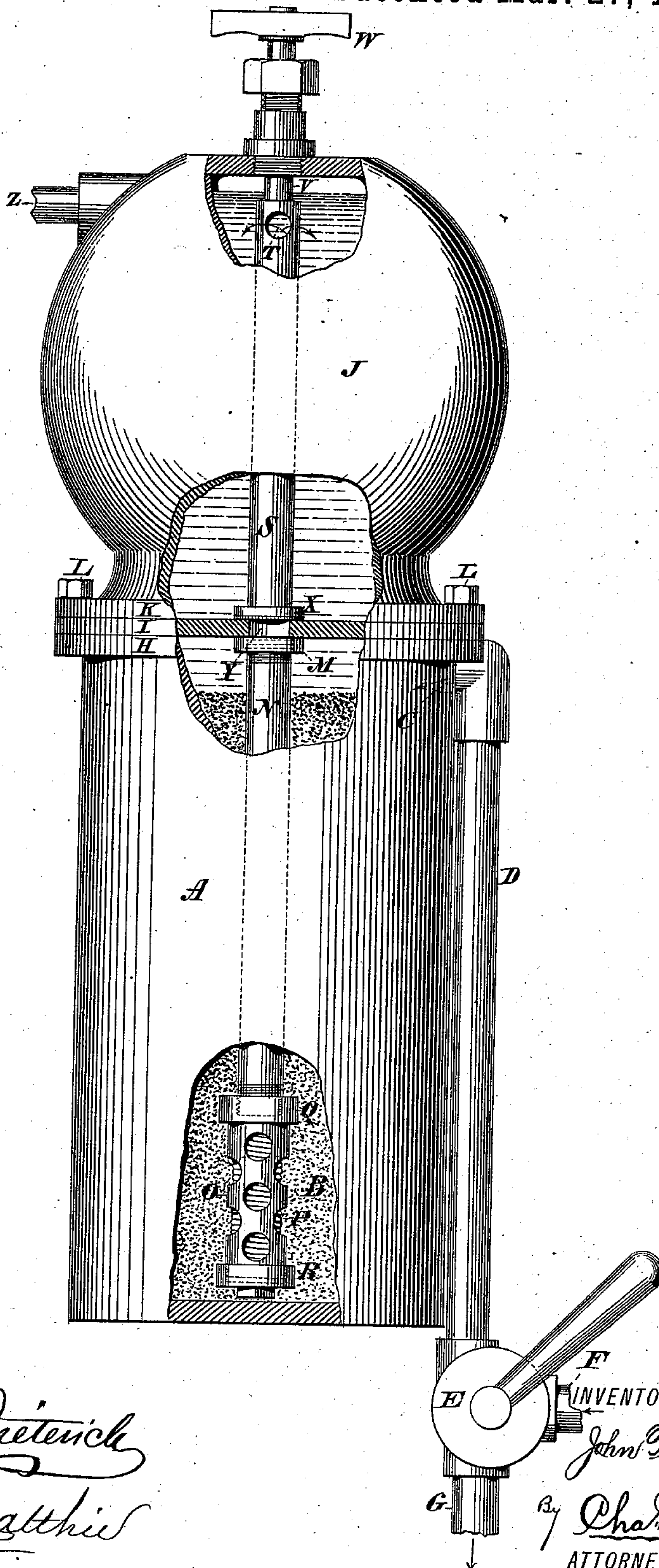


(No Model.)

J. TIMMONS.
FILTER.

No. 380,149.

Patented Mar. 27, 1888.



WITNESSES:
Gustave Daetewick
W. A. C. Matthias

John Timmons,
INVENTOR.
By *Chas. C. Gill*
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN TIMMONS, OF NEWARK, NEW JERSEY.

FILTER.

SPECIFICATION forming part of Letters Patent No. 380,149, dated March 27, 1888

Application filed October 8, 1887. Serial No. 251,796. (No model.)

To all whom it may concern:

Be it known that I, JOHN TIMMONS, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Filters, of which the following is a specification.

The invention relates to improvements in filters; and it consists in the apparatus hereinafter specifically described, and pointed out in the claims.

The drawing illustrates a side elevation of a filter embodying the elements of the invention, the outer walls of the apparatus being partly broken away, so as to more clearly disclose the construction.

In the drawing, A represents the main body or receptacle, containing the sand bed B, and having an inlet, C, for the water to be purified. The inlet C is in communication with a supply-pipe, D, and this is provided with a three-way valve, E, connected with a main supply-pipe, F, and a waste-delivery, G.

Upon the upper edge of the receptacle A is formed the horizontal flange H, passing entirely around the filter, and upon this is placed the plate I, which separates the receptacle A from the pure-water reservoir J, the lower edge of the latter having a flange, K, corresponding in size and outline with the flange H and resting upon the outer edges of the plate I.* The pure-water reservoir J and the plate I are held in place upon the upper end of the receptacle A by means of bolts L, which pass downward through the flange K, the plate I, and flange H.

Upon the lower surface of the plate I is formed the internally-threaded boss M, into which is screwed the upper end of the pipe N, which extends downward through the bed of sand or other suitable filtering media into the lower portion of the receptacle A, and has upon its lower end a section consisting of the apertured cylinder O, inclosing the closely-compressed coiled wire P, and having upon its upper end the collar Q, by which the section may be applied to the pipe N, as indicated in the drawing, the lower end of the apertured cylinder O being closed by a cap, R, which is adjustable by means of the internal screw-thread.

The upper end of the wire or spring P, I will preferably solder within the collar Q, leaving

the lower end free, this enabling me by using a spring of suitable length to regulate its degree of compression by adjusting the screw-cap R with relation to the lower edge of the apertured cylinder O. The purpose of compressing the spring P is to bring its coils into such close contact with each other that the sand or impurities will not escape through the same into the delivery-pipe N.

Within the reservoir J is arranged the pipe S, which is in line with and during the operation of filtering forms an extension of the pipe N, the upper end of the pipe S being provided with outlets T, and being secured upon the lower end of the rod V, which is vertically adjustable by means of the hand-wheel W, whereby the pipe S may be elevated from the plate I and the communication between said pipe and the pipe N thus broken. The lower edge of the pipe S is provided with the collar X and operates as a valve for the opening Y in the plate I. The upper portion of the pure-water reservoir J is provided with a delivery-pipe, Z.

In the drawing the apparatus is illustrated in position for filtering, the water passing through the inlet C, and thence percolating downward through the sand bed B to the apertured section O, through which and the coiled spring P it passes into the pipe N, thence moving upward through the aperture Y and pipe S, and escaping therefrom through the apertures T into the pure-water reservoir J. The impurities in the water are arrested by the sand bed, the water entering the pipe N in a purified condition. After the filter has been in operation a sufficient length of time to require the cleansing of the sand bed, the supply-pipe F is closed and the pipe S is elevated from the plate I by means of the hand-wheel W, at which time the pure water in the reservoir J will pass downward through the aperture Y and pipe N and be distributed into the lower portion of the bed of sand through the coiled spring P and the apertures in the cylinder O, the water thence ascending through the sand and escaping through the pipe D and waste-delivery G. It will thus be seen that the washing of the sand bed is accomplished with water which had been previously filtered. During the process of washing the filtering-

bed, an additional supply of water may, if desired, be delivered through the pipe Z into the reservoir J, whence it will pass downward through the aperture Y and pipe N into the
5 receptacle A, in the manner above described.

It has been found that the downward passage of the water from the reservoir J creates a suction therein, which would operate, when desired, to draw water from a suitable receptacle through the pipe Z into the reservoir, thus facilitating the thorough washing of the sand bed without the water being admitted to the reservoir J from an independent pipe under the usual pressure in the water-main. The dimensions of the apparatus will vary according to the quantity of water required to be filtered within any given length of time, the invention being adapted for use either as a house-filter or for use on a larger scale in factories or elsewhere.
20

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a filter, the main receptacle for the bed of filtering media, provided with an inlet for the water to be purified, combined with a reservoir for pure water, a pipe extending from the lower portion of the bed to said reservoir and having a screen on its lower end, and an additional pipe in communication with the aforesaid pipe and having an outlet in the upper part of the reservoir, the latter pipe being adapted to be disconnected from communication with the pipe first referred to when it is desired to cleanse the bed, substantially as set forth.
35

2. In a filter, the receptacle containing the filtering media and having an inlet-pipe, combined with the delivery-pipe located within

said bed, the end of the delivery-pipe consisting of the section O, containing apertures, the coil of wire P, inclosed within said section, and means, substantially as described, for regulating the degree of compression in said coil of wire, substantially as and for the purposes set forth.
40

3. In a filter, the main receptacle having an inlet, the pure-water reservoir having an outlet, and a plate between said receptacle and reservoir and containing an opening, combined with the delivery-pipe extending downward into the filter-bed from said opening, the pipe within the reservoir adapted to be elevated from said opening, and a delivery from the reservoir, substantially as set forth.
45

4. In a filter, the main receptacle having the inlet and the flange H, the plate I, having an opening and supported on the said flange, and the pure-water reservoir having flange K and secured in position by bolts, combined with the pipe N, vertically-movable pipe S, and a discharge-pipe from the reservoir, substantially as set forth.
55

5. In a filter, the receptacle containing the bed of filtering media and having an inlet-pipe, combined with the delivery-pipe located within said bed, the end of the delivery-pipe consisting of an apertured section, O, screw-cap R, and inclosed coiled wire P, substantially as set forth.
60

Signed at New York, in the county of New York and State of New York, this 1st day of October, A. D. 1887.
70

JOHN TIMMONS.

Witnesses:

CHAS. C. GILL,
W. A. C. MATTHIE.