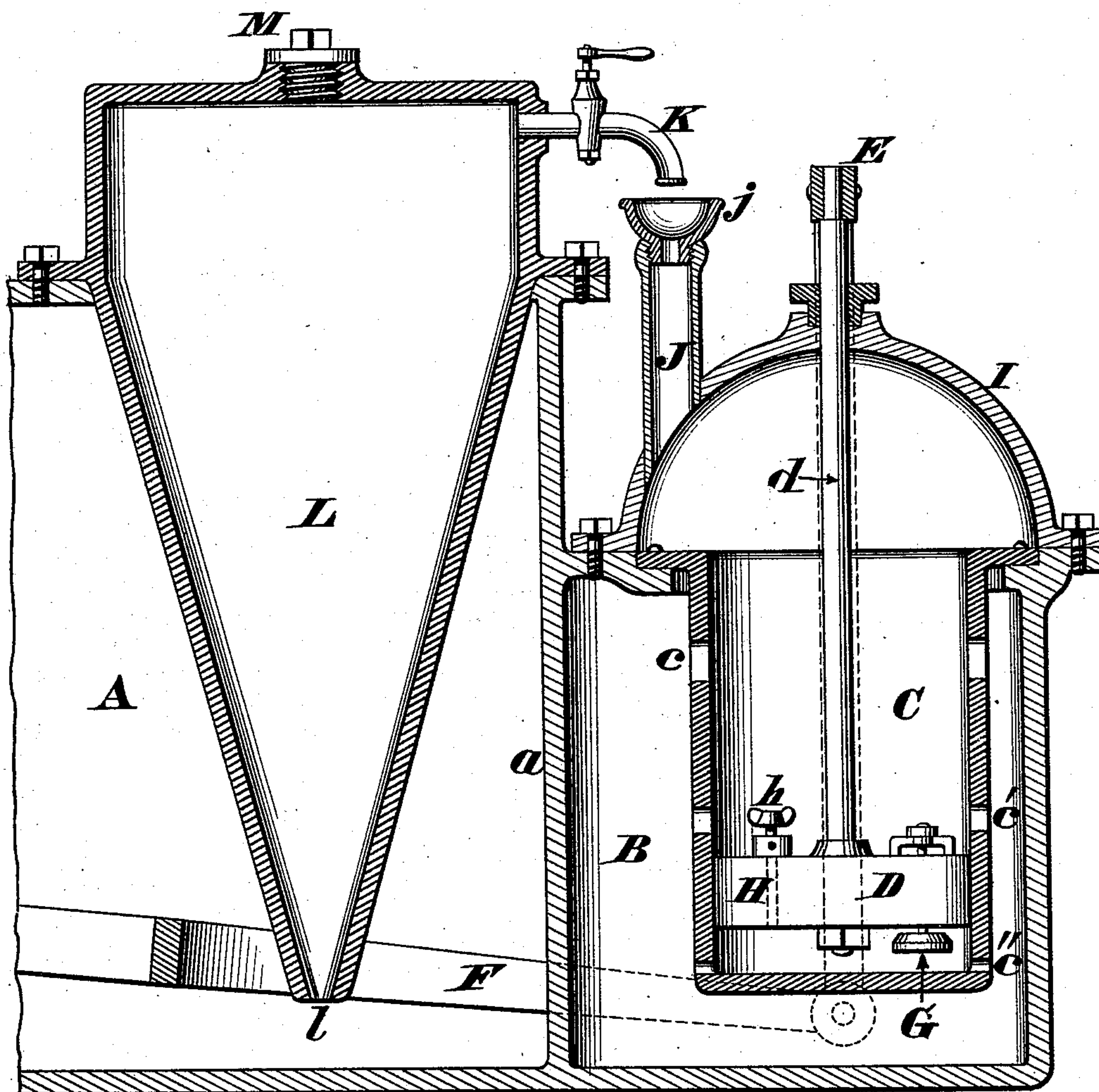


(No Model.)

J. N. POAGE.
WATER COLUMN.

No. 533,917.

Patented Feb. 12, 1895.



Attest.

Ida Heitz
Arthur Moore

Inventor.
John N. Poage.
By James H. Layman.
Att'y.

UNITED STATES PATENT OFFICE.

JOHN N. POAGE, OF COLLEGE HILL, OHIO.

WATER-COLUMN.

SPECIFICATION forming part of Letters Patent No. 533,917, dated February 12, 1895.

Application filed September 28, 1894. Serial No. 524,339. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. POAGE, a citizen of the United States, residing at College Hill, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Water-Columns; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawing, which forms part of this specification.

In Letters Patent No. 531,598, issued to me December 25, 1894, I have described and claimed a water-column provided with a filter through which water slowly escapes into the lower portion of a special chamber containing a cataract-gear that regulates the closure of an inlet-valve of the apparatus; but, owing to the peculiar location of this filter, a cap, plunger and cataract-cylinder must be detached before access can be had to said filter, either for the purpose of cleaning or repairing it. Such cleaning, however, is necessary only at very rare intervals—provided the apparatus is always supplied with clear water; but where the water is charged with sand, or other gritty sediment, the filter must be attended to more frequently. To overcome this objection to the old arrangement, I now construct the water-column in such a manner as to permit a bodily detachment of the filter in a few minutes, and without removing any other part of the apparatus.

This improved form of filter is clearly shown in the annexed vertical section of the apparatus.

In the aforesaid section, A represents one end of a hollow-base of a water-column, similar to that seen in the patent above referred to, and *a* is a vertical partition that separates this base from a special chamber B, within which latter a cylinder C is fitted, the cylinder being open at top, but closed at bottom, and having its sides pierced at *c, c', c''*. Cylinder C is traversed by a piston or plunger D, whose rod *d* is attached to a cross-head E, operated by a lever Y in either of the ways described in said patent. Furthermore, this piston has a downwardly-opening valve G, and a passage H, whose outlet is regulated by a screw-plug *h*.

I is a cap, bolted upon the chamber B, and having a vertical pipe, or other inlet J, to the

top of which a funnel *j* is screwed. This funnel collects water as it slowly drips from a cock K, communicating with the upper portion of a settling or precipitating vessel L, having a flange wherewith it is fastened upon the base A. This portion of the vessel is usually cylindrical; but the lower part thereof is conical, and has, at its bottom, a very small water-inlet *z*.

Tapped into the top of vessel L is a plug M, the removal of which enables a wire to be inserted for raking off any sediment that may adhere to the sides of said vessel.

The above-described devices operate in substantially the same manner as the arrangement of parts seen in my Patent No. 531,598; the only material difference being, that in the present case, chamber B, must first be filled with water from some source other than the base A. This preliminary charging of said chamber is readily effected by unscrewing the funnel *j*, and then pouring in water until it runs over at the top of pipe J. As soon as the chamber is thus filled, the funnel is re-engaged with the pipe. Vessel L receives its supply of water directly from the hollow-base A, by means of the inlet *z*, and, by properly turning the cock K, an upward flow is started within said vessel, and controlled with the utmost nicety. Ordinarily, this regulator, K, will be so adjusted as to allow from six to ten drops to run out of it every minute, which supply will compensate for any possible leakage or evaporation from the cataract-chamber B, and this is all that is needed to insure a proper working of the apparatus. Now, as the water can escape from vessel L, only as the fluid slowly escapes from the cock K, it is evident the upward current within said vessel is extremely sluggish, and, therefore, sand or other sediment cannot ascend as high as said regulator. On the contrary, such sediment will naturally settle or gravitate toward the bottom of the vessel, and be discharged therefrom at the opening *z*; but if there should be an accumulation of any kind on the inner side of said vessel the obstruction can be readily scraped off by passing a wire down through the opening the plug M is screwed into.

From the above description it is evident that the cataract plunger works in clear, fil-

tered water that cannot possibly injure any of the operative devices, and as the precipitating chamber can be readily detached in a few minutes, and without removing other parts of the apparatus, it is apparent that the present invention has a decided advantage over the arrangement seen in my patent referred to.

I claim as my invention—

10 1. In a water-column, the hollow base A, and closed chamber B, which chamber contains a "cataract gear," and has an inlet J, in combination with a precipitating vessel L, supplied from said base, so as to have an ascending current, and discharging into said inlet, substantially as herein described, and for the purpose stated.

15 2. The combination, in a water-column, of a hollow base; a special chamber at one end

of the same; a cataract-gear fitted within said chamber; and an up-current precipitating-vessel applied to said base, and discharging into said chamber, for the purpose described. 20

3. The combination, in a water-column, of a hollow base; a special chamber at one end of the same; a cataract-gear fitted within said chamber; and an up-current precipitating-vessel applied to said base; said vessel being provided at its bottom with a restricted inlet, and having at its top a valve-guarded outlet discharging into said chamber, all as herein described. 25 30

In testimony whereof I affix my signature in presence of two witnesses.

JOHN N. POAGE.

Witnesses.

JAMES H. LAYMAN,
ARTHUR MOORE.