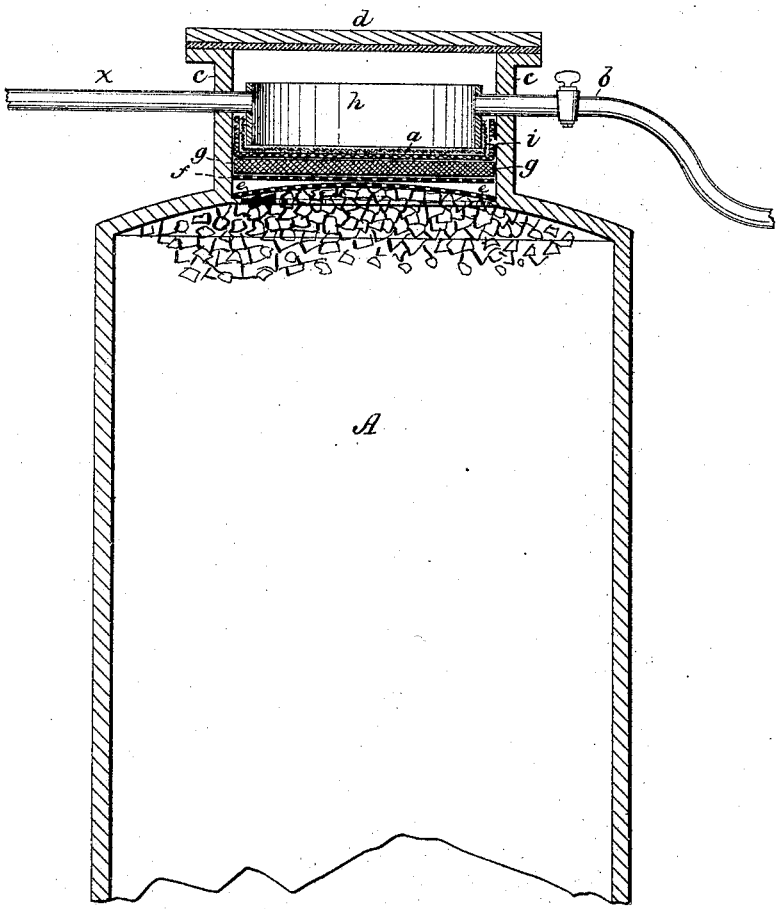
B. P. CHATFIELD.
Filter.

No. 212,658. Patented Feb. 25, 1879.



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UNITED STATES PATENT OFFICE.

BENJAMIN P. CHATFIELD, OF AIKEN, SOUTH CAROLINA.

IMPROVEMENT IN FILTERS.

Specification forming part of Letters Patent No. **212,658**, dated February 25, 1879; application filed September 11, 1878.

To all whom it may concern:

Be it known that I, BENJAMIN P. CHATFIELD, of the city and county of Aiken, and State of South Carolina, have invented a new and useful Improvement in Filters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a vertical longitudinal section.

My invention relates to an improvement upon the water-filter for which Letters Patent were granted to James Gainey, June 11, 1878.

It has been found in actual practice that the felt disk *i*, as secured by the ring *h* in said patent, is not capable of withstanding the passage of the water when under a heavy head of pressure, but immediately bulges up and bursts out from the force of the water.

One feature of improvement consists in re-enforcing this felt disk with a backing of wire-cloth, which is of larger diameter than the chamber, and whose edges are consequently bent up and secured between the ring and inner walls of the chamber.

The improvement also consists in locating in the reduced chamber containing the ring an outlet-pipe and cock, which not only drains the chamber of its sediment, but the end of said pipe projects through a hole in the ring, and serves, in connection with the pipe upon the other side, (which also projects through the ring) to hold the ring down independently of the head, so that the head need not abut directly against the ring, but may be attached higher up to give a larger chamber.

In the drawing, A represents the filter, which is filled with charcoal, and at its upper end is provided with a neck, *c*, forming a reduced chamber, in which is located a dishing strainer, *e*, a finer strainer, *f*, and the felt disks *g* and *i*, held down by the ring *h*, all as shown in the said Letters Patent.

Now, whenever the pressure of the water is great its force, in passing upward through the filter, causes the felt to be immediately ruptured; and to remedy this difficulty I have placed upon the upper side of the last piece of felt a re-enforcing backing of wire-cloth, *a*; and as the force of the water would bulge this up in the center and dislocate it if made of the same diameter as the chamber, I make it of greater diameter, so that its edges are bent up parallel with the walls of the chamber, and are secured between the same and the outer periphery of the ring. This enables me to successfully use the filtering-pads of felt, and to secure the advantages of the same without danger of rupture.

In holding the wire-cloth and filtering-pads down, instead of relying upon the head *d* as an abutment for the ring, I extend through the chamber *c* and the ring *h* a drain-pipe, *b*, provided with a stop-cock and arranged diametrically to the outlet-pipe *x* on the other side. This, it will be seen, both serves to drain the chamber of sediment, and, in connection with the regular outlet-pipe upon the other side, holds the ring down upon the filtering-pads independently of the head *d*, so that the latter may be located higher, if desired, to give an increased capacity for the chamber.

To make a tight joint a rubber gasket, *j*, is fitted beneath the head *d*.

Instead of making the backing *a* of woven wire, it may be constructed of perforated sheet metal.

Having thus described my invention, what I claim is—

1. The combination, with the felt disk *i* and ring *h*, of a re-enforcing backing, *a*, for the felt, constructed of woven wire, and made of larger diameter than the inner periphery of the chamber, so as to fit and be secured between the outer wall of the ring and the inner wall of the chamber, substantially as and for the purpose set forth.

2. The combination, with the straining-plates and filtering-pads, of the diametrically-perforated ring *h*, and the outlet-pipe *x* and drain-pipe *b*, both extended through the walls of the chamber and into the perforations of the ring, substantially as described, and for the purpose set forth.

BENJAMIN P. CHATFIELD.

Witnesses:
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