S. F. SIMES & C. TATE.

WATER-FILTERS.

No. 184,920. Patented Nov. 28, 1876.

Fig. 1.

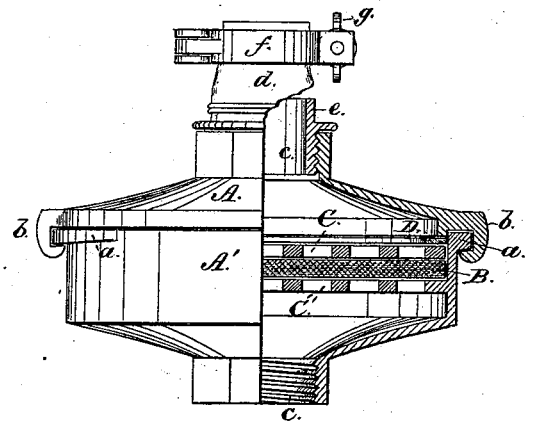


Fig. 2.

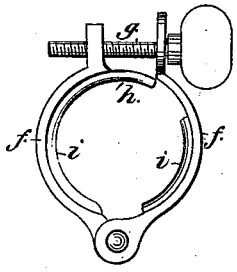
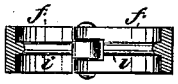


Fig. 3.



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SAMUEL F. SIMES AND CHARLES TATE, OF PHILADELPHIA, PA.

IMPROVEMENT IN WATER-FILTERS.

Specification forming part of Letters Patent No. **184,920**, dated November 28, 1876; application filed March 24, 1876.

To all whom it may concern:

Be it known that we, SAMUEL F. SIMES and CHARLES TATE, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and Improved Water-Filter; and we 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—

Figure 1 is a side elevation, partly in section; Fig. 2, a plan view of the clamping device for fastening the device to the hydrant. Fig. 3 is a transverse section of the clamping device.

This invention relates to a novel construction of filter for the purification of water or other liquids, which filter is especially designed for attachment to the nose of a hydrant, but applicable also for general use in any connection whatever.

The invention consists in a specially-prepared purifying-pad, formed by embodying powdered charcoal, kaolin, or other purifying material, either singly or combined, with the fiber of felt by blowing it in during the process of the manufacture of the felt. This pad is contained in a chamber formed by two detachable caps, and is held between gratings in the same. The invention also further consists in the combination of the detachable caps, fastened by a cam-joint with the gratings, filter-pad, and a rubber ring, and in the means for attaching the filter to the hydrant, as hereinafter more fully described.

In the drawing, A A′ represent the two detachable caps, which may be of any desired shape, and form the exterior casing of the filter. These caps are made of different sizes for the different uses to which the filter may be applied, and are preferably nickel-plated, and polished upon the outside for the sake of finish. B is the specially-prepared purifying-pad, which is held between the gratings C C′, in central position in the chamber formed by the two caps. As shown, the top grating C is made removable, while the bottom one, C′, is cast in one and the same piece with the lower cap. Both of the gratings, however, may be made independent of the caps and removable. D is a rubber ring, arranged upon the edges of the upper grating, between the grating and the upper cap A, so that when the latter is fastened down thereupon it makes a tight joint at the edge, and compels the passage of the water through the filtering-pad. The filtering-pad B is made of felt from which the hair has been extracted, and the process of giving body to the same is much the same as in hat-making. During the operation of blowing the felt upon the cone, however, powdered animal charcoal and kaolin, singly or combined, or other purifying agent or agents, are also blown into the forming mass, and the purifying material thus thoroughly embodied with the felt. During the operation of forming the felt, also, an admixture of ground sponge is used, for the purpose of diminishing the density of the prepared felt and imparting to it sufficient porosity to admit the easy passage of the water therethrough. The purifying-pad, with the gratings and rubber ring, being in position between the caps, the latter are fastened, and the whole securely clamped together by the following devices: *a a* are diametrically-located inclined ribs or cams formed upon one of the caps, and *b b* are hook-shaped extensions formed upon the other, which hooks, when the caps are brought together, are adapted to pass beneath the edges of the cams or inclined ribs, and, when turned, serve to draw the caps tightly together, thus producing a simple, strong, and readily-detachable connection for the two caps. As shown, these cams and hooks are arranged upon the outside of the caps, which is, in most cases, the preferable way; but it is obvious that they may be located upon the interior of the caps without departing from our invention. Both the caps are provided with a central interiorly screw-threaded hole, *c*, with which connection may be made with the hydrant-nozzle through the flexible tube *d*. This tube is attached to a metallic screw-collar, *e*, fitting in the central holes of the caps, and is attached at the upper end to a specially-devised clamping device, which consists of the two hinged jaws *f*, having a clamping-screw, *g*, which passes through the ends of the jaws, and, when turned, tightens the jaws upon the rubber tube which encompasses the hydrant-nozzle, the end of which tube may be provided with rub-

ber bushings of varying size, to adapt it to fit the different sizes of the hydrant-nozzles. The novelty of the clamping device consists in the rib *i* and extension *h*, which latter, when the jaws are brought together, prevents the bulging out of the rubber tubing, and the consequent bursting out of the water at this point, the internal rib *i* serving also to make a more secure joint and prevent the tube from slipping its connection.

The device as thus described has a most extensive and useful application, being employed to advantage not only in private houses, but being alike useful to the chemist, physician, distiller, and restaurant.

The specially-prepared pad, it will be seen, is of such a character as to catch and retain both the soluble and insoluble impurities, and the detachable character of the several parts permits the ready cleaning or renewal of the pad. After the water has been passing through the pad in one direction for some time, the caps may be removed from the connection with the hydrant and reversed, and as the water passes through them in the opposite direction a large portion of the accumulated impurities will be dislodged, and the device, by thus cleansing itself, may be used for a long time without having its merit as a filter impaired.

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

1. A filter-pad made of felt laden with powdered charcoal, kaolin, or other purifying agent blown into or embodied with the mass, substantially as described.

2. The caps A A′, detachably united by a cam-joint, in combination with the gratings C C′, the packing-ring D, and a filtering-pad, substantially as and for the purpose described.

3. The combination, with the flexible tube *d*, of the hinged jaws *f*, having internal rib *i*, extension *h*, and the clamping-screw *g*, as and for the purpose described.

The above specification of our invention signed by us this 24th day of March, 1876.

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