(No Model.)

C. BIRKERY.

FILTER.

No. 385,440. Patented July 3, 1888.

Fig. 1

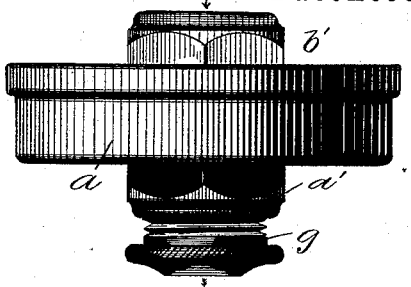


Fig. 2

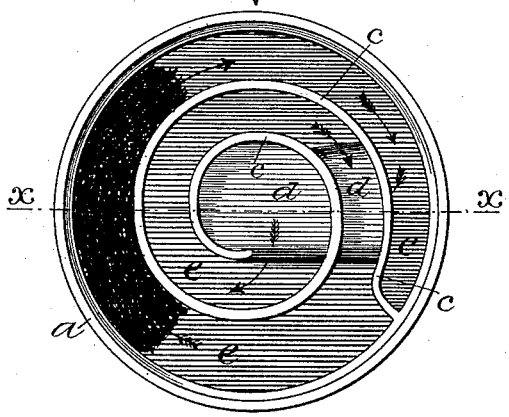


Fig. 3

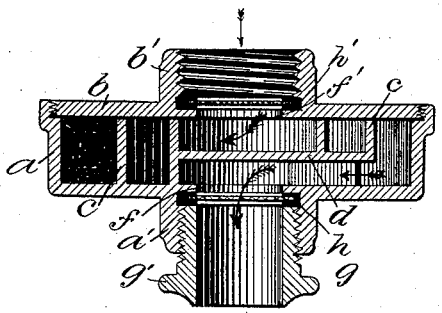
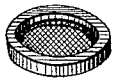


Fig. 4



Witnesses:

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Henry L. Ruckard.

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by Harry R. Williams.

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UNITED STATES PATENT OFFICE.

CORNELIUS BIRKERY, OF HARTFORD, CONNECTICUT, ASSIGNOR OF ONE-HALF TO OWEN H. JONES, OF SAME PLACE.

FILTER.

SPECIFICATION forming part of Letters Patent No. 385,440, dated July 3, 1888.

Application filed February 2, 1888. Serial No. 262,771. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS BIRKERY, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Filters, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to the class of filters that are attached to the end of a faucet to arrest mechanically-suspended impurities that are in the outflowing liquid.

The object of the invention is to produce a filter of this class that shall be more convenient to use in certain positions, that can be easily cleaned, that is cheaply constructed, and at the same time that shall require the liquid to pass through considerable cleansing material.

Referring to the accompanying drawings, Figure 1 is an edge view of the filter. Fig. 2 is a plan view with the cover-plate and part of the filtering substance removed. Fig. 3 is a view in vertical section on plane denoted by line X X of Fig. 2. Fig. 4 is a detail view of the sieve used to prevent the washing away of the filtering substance.

Like letters of reference indicate the same parts.

a denotes the body of the filter, that is cast of metal to the shape of a shallow cup, the upper edge of which cup is flanged and the inside of the flange threaded to provide a seat for the cover-plate *b*. This cover-plate is cast to the shape of the same material as the body *a*, and has a thread on its periphery to fit the thread in the flanged upper edge of the body.

The letter *c* denotes a spiral web, that is preferably cast integral with and perpendicular to the bottom of the body. *d* denotes a conduit, the walls of which are cast integral with the body, with an opening through it from the spiral channel *e* to the opening *f*, through the bottom of the body. *a'* is a nut, usually cast integral with the bottom of the body, and having its interior threaded to fit and screw onto the threaded end of any ordinary faucet. *b'* is a similar nut formed on the cover-plate *b*.

g denotes a spout having a thread cut on its outer surface that will fit the thread in the nuts *a' b'*, and a milled head, *g'*, on one end that can be grasped to unscrew and remove the spout when desired.

The sieves *h h'*, which are placed in an annular groove at the bottom of the nuts *a' b'* over the openings *f f'*, are made up of a ring of leather or the like substance, which is slitted around its inner circumference, and in this slit the edge of a disk of wire-gauze is inserted. This construction provides at once a packing, against which the end of the faucet or spout may abut to prevent leakage, and a sieve to permit the passage of liquid, but to prevent the escape with the liquid of the filtering substance.

The spiral channel *e* is filled with any suitable filtering material, as charcoal or pulverized quartz, then the cover screwed into place close against the flange on the body and the top of the spiral web, and the whole attached to a faucet by means of the thread in the nut *b'*. The spout having been screwed into the nut *a'*, any liquid passing through the faucet will enter the filter through the sieve *h'* and opening *f'*, pass along the spiral channel through a considerable length of filtering-matter, and then pass under the bridge *d*, through the opening *f* and sieve *h*, and out of the spout in an ordinary stream. After some use the device can be unscrewed from the faucet, the spout removed from the nut *a'* and inserted in the nut *b'*, and the device attached to the faucet by means of the nut *a'*. Then what liquid that passes through the filter will flow in a reverse direction to that above described, and wash out the sediment which has been collected by the filtering substance, and when the latter has become foul it can be removed and new material substituted. By simply unscrewing the cover access is had to the entire length of the spiral channel in which the filtering material is packed.

My construction permits the liquid to pass in at the center and out at the center of the filter, after traveling through a considerable length of filtering-matter, without occupying but little space depthwise, which is a great advantage over the filters now in use, for if such filters were lengthened to give an amount of filtering substance equal in length to the length

that the liquid has to pass through in my filter they would be inconveniently long and impracticable on that account. Another advantage is that the stream that issues from my filter has the same force as if coming directly from the faucet, as the cross-sectional area of the channel in the filter is nearly the same as that of the pipe it comes through. This is not so with the ordinary filter, which is swelled out to allow the liquid to traverse a large mass of cleansing material.

I claim as my invention—

1. As a new article of manufacture, a filter consisting of a body provided with an integral spiral web that forms a spiral channel, and a conduit that forms an opening from the outer end of the spiral channel to the opening through the bottom of the body, and the cover-plate having an opening into the center of the body over the inner end of the spiral channel, and the filtering substance packed into said channel, substantially as described.

2. As a new article of manufacture, a filter consisting of a cast-metal body provided with an integral spiral web and an integral conduit, which forms an opening from the end of the spiral channel formed by the web to the opening through the body, the interiorly-threaded nut a', attached to the body surrounding the hole f, the cover b, the interiorly-threaded nut b', attached to the cover-plate surrounding the hole f', the nozzle g, adapted to fit within either of said nuts, and the filtering substance, all substantially as described.

CORNELIUS BIRKERY.

Witnesses:

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