

(No Model.)

S. L. BAILEY.
FEED WATER PURIFIER.

No. 528,318.

Patented Oct. 30, 1894.

Fig. 1.

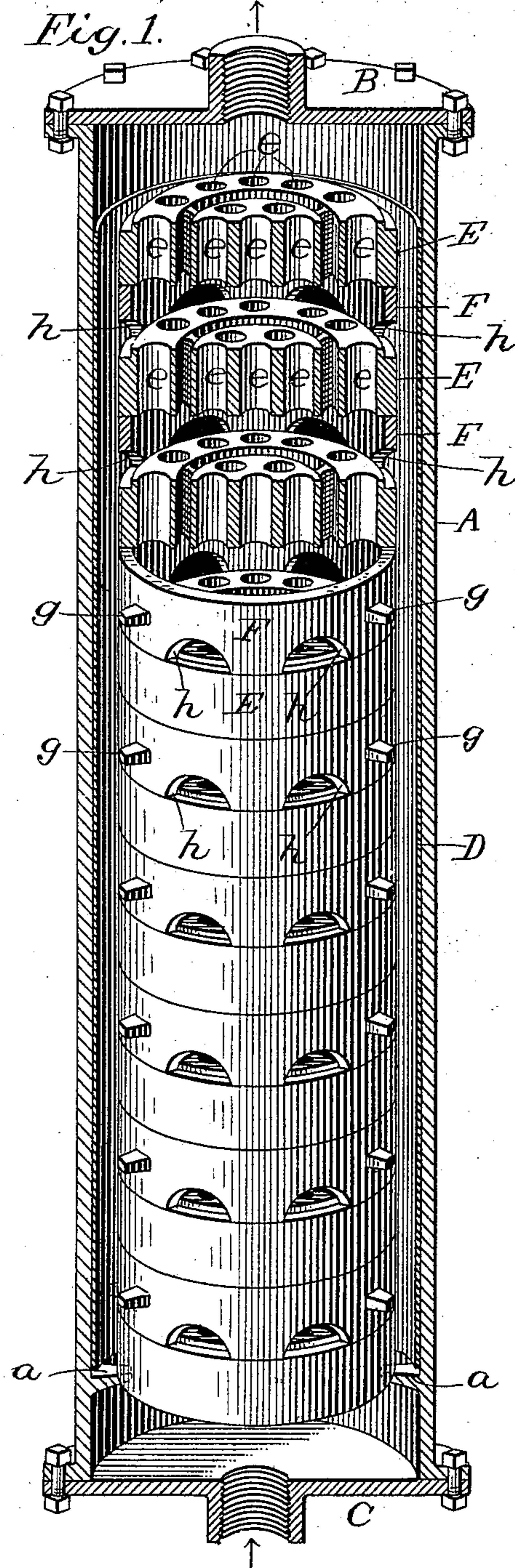


Fig. 2.

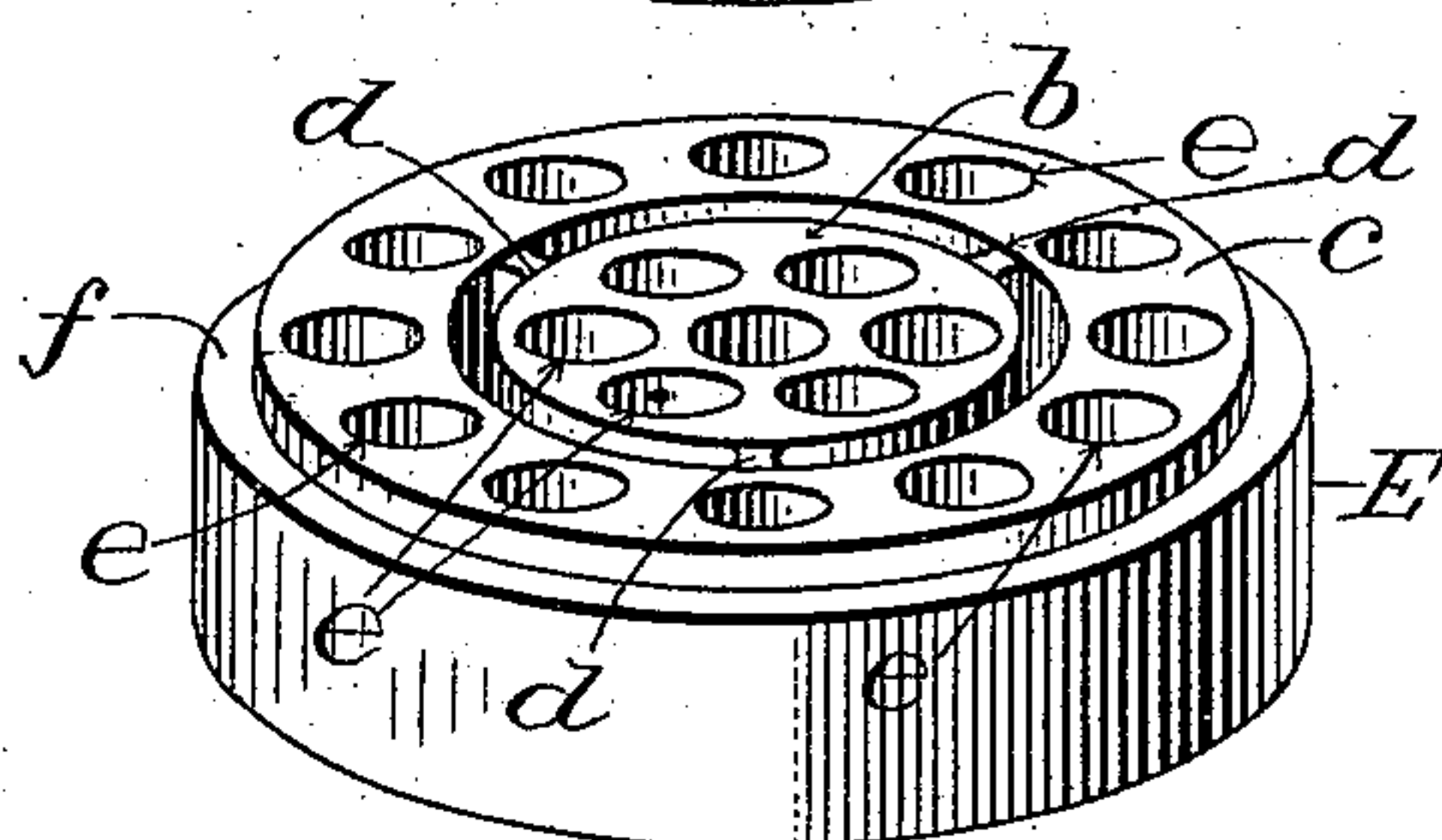
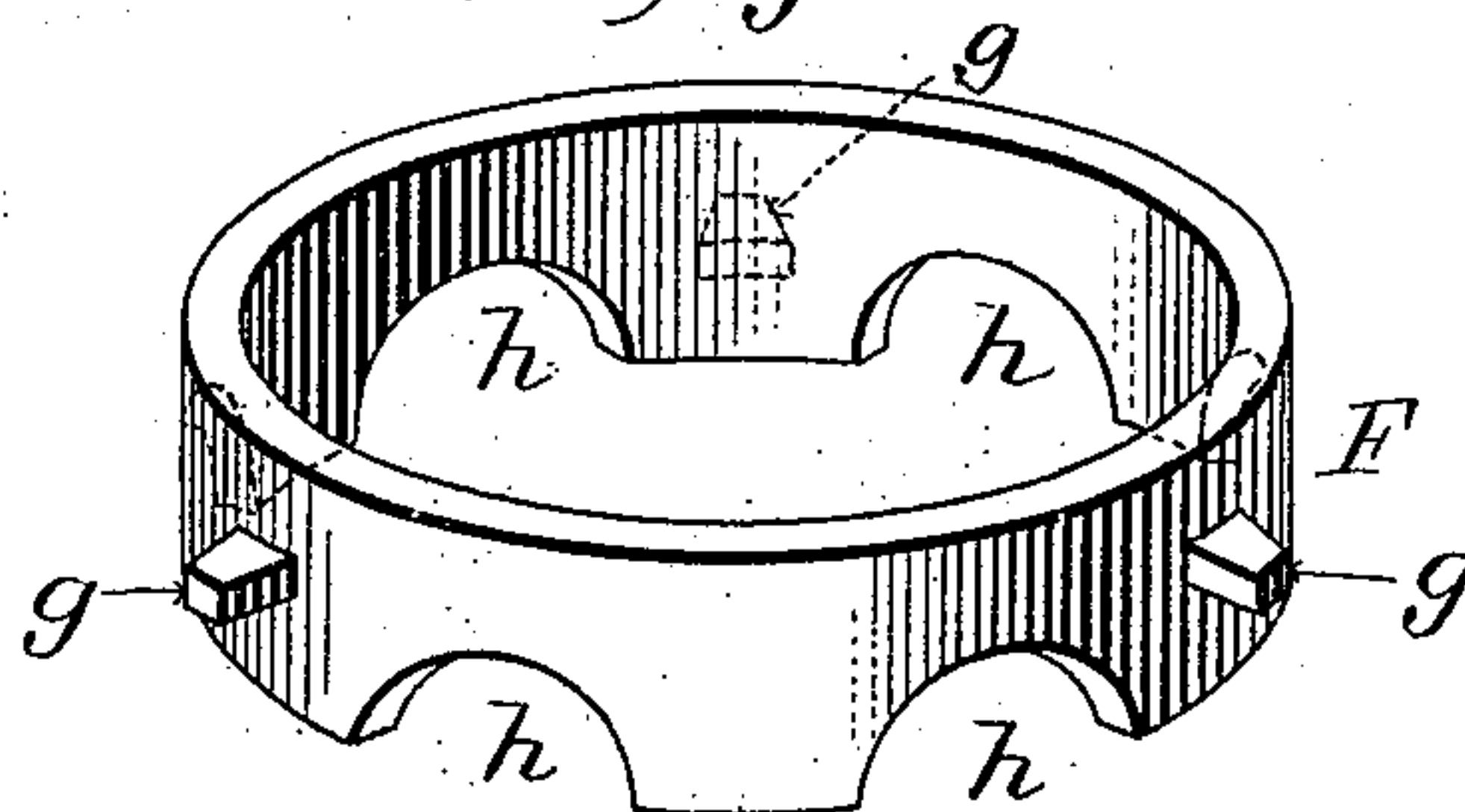


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

STERLING L. BAILEY, OF CHICAGO, ILLINOIS.

FEED-WATER PURIFIER.

SPECIFICATION forming part of Letters Patent No. 528,318, dated October 30, 1894.

Application filed August 2, 1894. Serial No. 519,274. (No model.)

To all whom it may concern:

Be it known that I, STERLING L. BAILEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Feed-Water Purifiers, of which the following is a specification.

My invention relates to that class of water purifiers in which a galvanic action is produced by the passage of water over surfaces of relatively positive and negative metals, and the invention consists in a novel construction and arrangement of the galvanic elements as hereinafter set forth, whereby the apparatus is rendered cheap and simple in construction and convenient to clean and repair.

While retaining the general features of construction hereinafter set forth, certain minor modifications may be made without departing from the spirit or scope of my invention, as I will explain after describing the preferred construction.

In the accompanying drawings, Figure 1 is a sectional perspective view of my improved apparatus, and Figs. 2 and 3, perspective views of one of the rings and one of the disks removed from the shell or casing and separated to better show their form.

In constructing my apparatus I first provide a shell A, preferably of cast iron having heads or caps B and C, one or both secured to the flanged shell A by suitable bolts, whereby the head may be removed to give access to the interior. Projecting from the inner wall of the shell or casing A at a point near its lower end, are lugs *a*, designed to support the internal portions of the apparatus.

D indicates a copper lining fitting snugly within the shell A, and when made as a separate sheet or body, arranged to rest at its lower end upon the lugs *a*. It is possible to deposit a lining of copper within the shell A by electro-plating, but it will be found cheaper, generally, and as satisfactory to employ a sheet or cylinder of copper made to fit closely against the inner wall of the shell as indicated.

Within the shell A, and likewise supported by the lugs *a*, is a cylindrical body composed of alternate disks E and rings F, which may

all be made of zinc or alternately of zinc and copper, or equivalent electro-positive and negative metals.

When the shell A is lined with copper it will be found advisable to make the disks E and rings F of zinc, or at least to make the greater portion of them of zinc; but if the copper lining be omitted, the disks may be made of zinc and the rings made of copper. It is also obvious that the entire shell A may be made of copper, and the disks E and rings F all of zinc, or the greater portion of them of zinc, as desired, but the greater expense of such construction renders it undesirable under ordinary circumstances.

The disks E are of the form shown in Figs. 1 and 3, that is to say, there is a circular central portion *b* and an annular outer portion *c* connected with the central portion by radial arms *d*, both the inner and outer portions being provided with numerous vertical openings or passages *e*, and the outer portion being formed with a shoulder or rabbet *f*, as shown in Figs. 1 and 3.

The rings F are formed of a diameter and thickness to fit upon the shoulder or rabbet *f* of the disks E as indicated, so that when the ring is placed upon the disk, each serves to hold the other in position. Projecting from the outer walls of each ring are lugs *g* which are of such length as just to reach and bear against the inner surface or lining of the shell A when the rings and disks are placed in position therein.

Owing to the interlocking and fitting together of the rings and disks, and to the bearing of the lugs *g* against the inner walls of the shell A, the disks as well as the rings are held in axial alignment with the shell and are prevented from shifting their position therein.

As shown in Figs. 1 and 2, the rings F are cut away or provided with a series of notches *h*, preferably of semicircular form, and of such size that when the ring is placed upon the disk, a series of openings is left, through which water may pass to and from the interior of the ring.

The shell A is made of such diameter and length as the requirements of use suggest, and the rings and disks are made of a diam-

eter sufficiently less than that of the interior of the shell to afford a narrow annular passage between the exterior of said rings and disks and the interior of the shell or casing, as indicated in Fig. 1; the inner cylinder or column extending to a point somewhat below the upper end of the shell or casing as shown.

It will be seen from the foregoing description that the construction of the apparatus is exceedingly simple, and that by merely removing the head B, the disks and rings may readily be lifted out for cleansing or renewal, and replaced with equal facility.

The apparatus being thus constructed, water is introduced under pressure at the lower end of the shell or casing through a suitable inlet provided for the purpose, and rising, passes through the perforations of the lower disk and around the circumference of said disk, and thence upward through the shell and through the successive rings and disks to the top of the shell or chamber. The openings *h* permit the water to flow inward and outward through successive rings and thus to distribute itself through all parts of the apparatus, bringing all portions in contact with the copper and the zinc, and causing each particle to be efficiently acted upon by the galvanic current set up between the metals.

I am aware that water purifiers have heretofore been made with separable plates or disks of relatively positive and negative metals contained within a shell or casing, and I do not broadly claim such construction.

It is obvious that the lugs *a* may be omitted and the lowermost ring F be arranged to rest directly upon the bottom of the shell.

Having thus described my invention, what I claim is—

1. In combination with a shell or casing, an internal core or cylinder composed of alternate notched or perforated rings and perforated disks, resting one upon another substantially as shown and described, the exposed surfaces within the shell being of relatively electro-positive and electro-negative substance.

2. In combination with shell A and copper lining D, a series of perforated disks E and notched or perforated rings F superposed one upon another in axial alignment with the shell or casing and composed of material which will co-operate with the copper lining to produce galvanic action.

3. In combination with shell or casing A, a series of disks E provided with passages from face to face, and an alternating series of rings F provided with lateral openings,—the surfaces exposed within the shell being relatively electro-positive and electro-negative, substantially as set forth.

4. In combination with shell or casing A provided with lugs *a*, an internal core or cylinder composed of alternate perforated disks E, and notched rings F provided with outwardly projecting lugs *g*, the surfaces exposed within the shell being relatively electro-positive and electro-negative, substantially as set forth.

In witness whereof I hereunto set my hand in the presence of two witnesses.

STERLING L. BAILEY.

Witnesses:

H. R. EMERSON,
FRED M. BAILEY.