E. MONTROSE

FILTER.

APPLICATION FILED SEPT. 27, 1910.

994,864. Patented June 13, 1911.

Fig. 1.

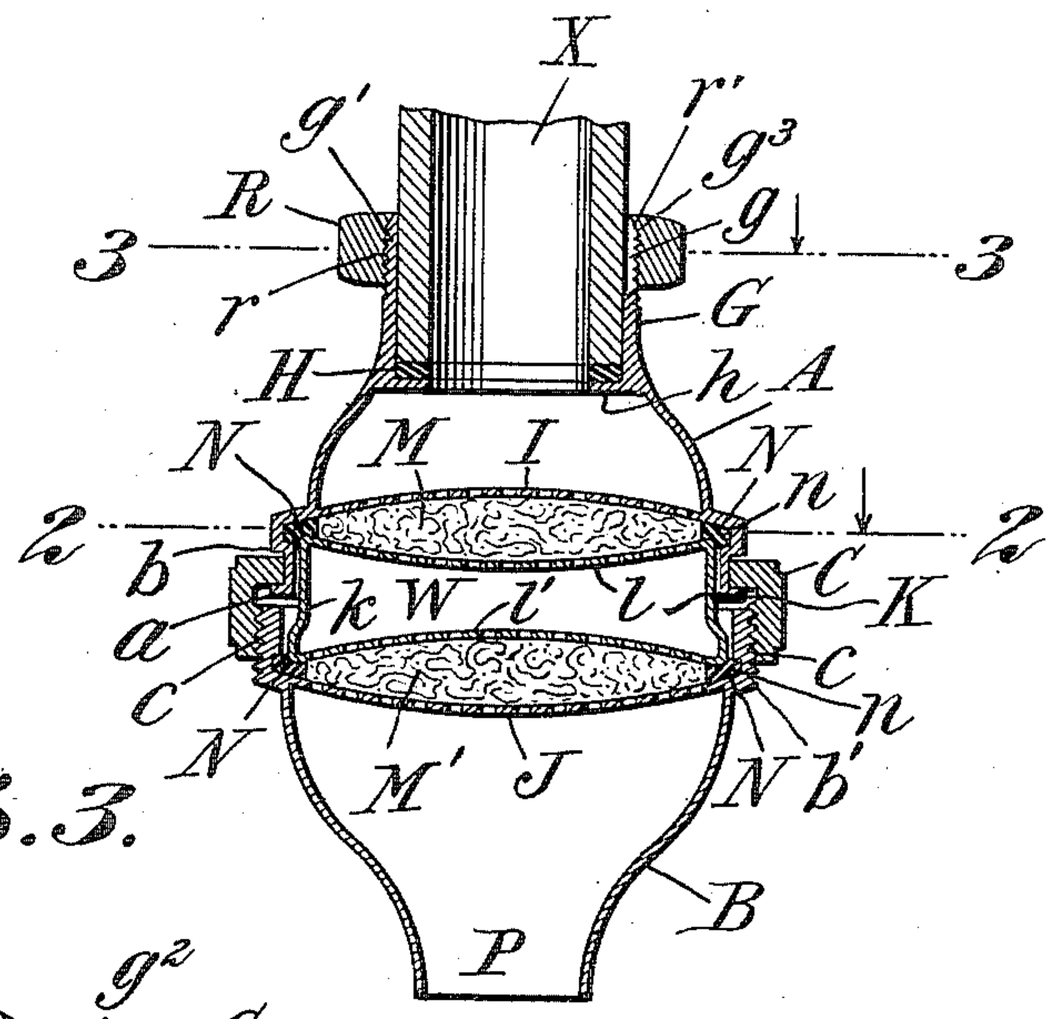


Fig. 3.

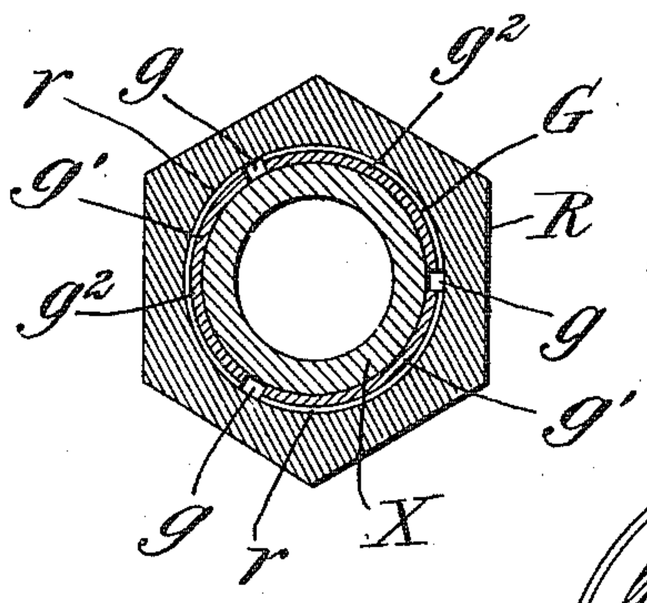
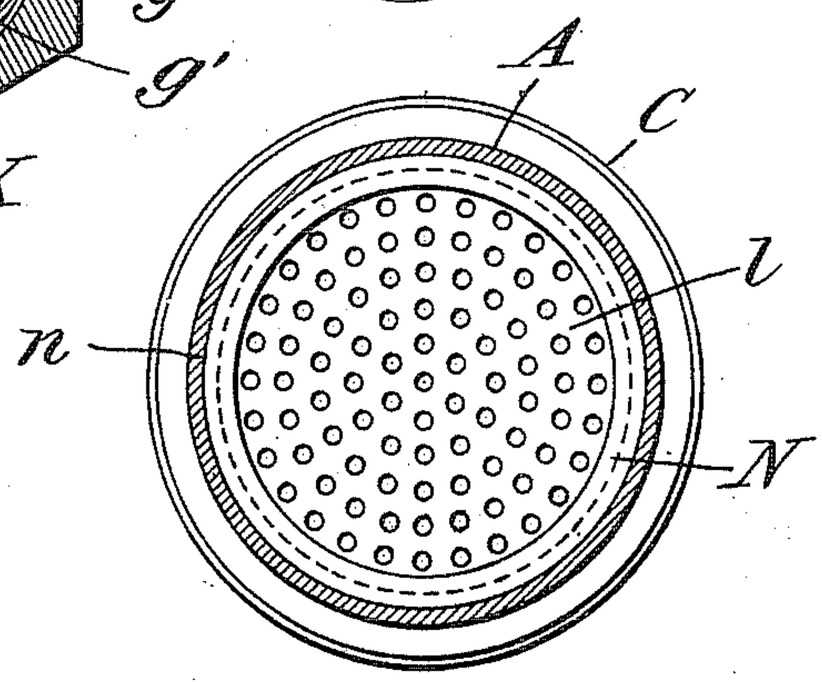


Fig. 2.



WITNESSES:

H. C. Abbott

J. F. Mothershead

INVENTOR

Emil Montrose

By Griffin & Bernhard

Attorneys

UNITED STATES PATENT OFFICE.

EMIL MONTROSE, OF NEW YORK, N. Y.

FILTER.

994,864. Specification of Letters Patent. Patented June 13, 1911.

Application filed September 27, 1910. Serial No. 584,036.

To all whom it may concern:

Be it known that I, EMIL MONTROSE, a citizen of the United States, residing in the city of New York, borough of Brooklyn, county of Queens, and State of New York, have invented a certain new and useful Filter, of which the following is a specification.

This invention is a filter, the same being of that kind used, more particularly, in connection with faucets, pipes, and the like, for the purpose of clarifying water and other liquids by eliminating dirt and sediment therefrom.

An object of the invention is to enable the easy removal of filtering material and the substitution of fresh filtering material therefor.

A further object is to permit separation of the parts comprising the filter while one section or part remains attached to the pipe or faucet, thus facilitating the operation of cleaning the filter.

A further object is to enable the easy and secure application or attachment of the filter to either a smooth or threaded faucet, pipe or the like.

An essential feature of the invention resides in a section positioned intermediate the parts comprising the casing, said intermediate section coöperating with a plurality of layers of filtering material and producing between them a chamber for the reception of partly filtered liquid, whereby the liquid is permitted to percolate through an upper layer of filtering material, to accumulate in said chamber, and to subsequently percolate through a lower layer of filtering material, thus resulting in a double filtration of the liquid.

Another feature of the invention consists of compressible jaws on the upper member and a clamping sleeve for the purpose of attaching the filter to any kind of pipe or faucet.

Other features and advantages of the invention will appear in the course of annexed detailed description of the invention.

In the accompanying drawings I have illustrated a practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a vertical section through the filter showing it attached to a pipe or faucet. Fig. 2 is a plan view, partially in section, taken on line 2—2 of Fig. 1. Fig. 3 is a horizontal section taken on line 3—3 of Fig. 1.

The filter casing consists of two members or sections, A, B, the upper member, A, having an external flange, *a*, and an external groove *b* formed above said flange *a*. The lower member, B, of the filter casing is threaded at or near the upper edge, said threaded portion being shown in Fig. 1 as a male thread *b'*.

A coupling ring, C, is loosely mounted within the groove *b* of the member, A, and is retained in position thereon by means of flange *a*, so that it will freely turn on said member. This ring, C, is provided with a female threaded portion *c* coöperating with the threaded portion *b'* of bottom member, B, to couple the members, A, B.

The upper reduced portion or nipple, G, of member, A, is preferably slitted, as at *g*, to form a plurality of compressible jaws g^2, and the external surface of this nipple, G, is provided with a beveled edge g^3 and with a male thread *g'*, said male thread being adapted to coöperate with a female thread *r* on the inner surface of a clamping sleeve R. The inner surface of sleeve, R, is provided, also, with an annular beveled shoulder, *r'*, preferably positioned within said sleeve and above the thread *r*, said shoulder *r'* coöperating with beveled edge g^3 to compress said jaws into engagement with a pipe or outlet of a faucet, when the sleeve, R, is screwed on the nipple, G, in a direction to force the shoulder, *r'*, against the bevel g^3. The outer face of the sleeve, R, is made hexagonal for facilitating the operation of turning the sleeve. The inner wall of the member, A, at the base of the nipple, G, may be provided with a flange *h*, on which is seated a washer, H, of suitable material, to form a water tight joint between the filter and the faucet or pipe X.

The upper member, A, is provided with a screen, I, which may be of any suitable shape, but preferably concave in cross section. Said screen may be of any suitable foraminous material, such as wire gauze, perforated sheet metal, and the like, but I prefer to construct it of perforated metal attached rigidly to the upper member, A. In like manner the lower member, B, is provided with a screen, J, similar in construction to the screen, I, of member, A.

Between the screens, I, J, on the sections or members, A, B, is an intermediate member or section, K, consisting preferably of a ring *k*, an upper screen *l*, and a lower screen *l'* of foraminous material, such as wire gauze or perforated sheet metal. It is preferred also to make these screens *l*, *l'* concave as well as the screens I, J, though it is obvious that screens *l*, *l'* may be flat and screens, I, J, concave, or vice versa, so that chambers will be formed between screens I, *l* and *l'* and J. An intermediate chamber, W, is formed in section K between screens *l* and *l'*.

By reference to Fig. 1, it will be observed that the screen *l'* and the screen, I, in the upper member, A, are convex in cross section, and, further, that the screen *l* and the screen J are shown as being concave, thus forming a chamber or space, oval in cross section, between each pair of said screens. These chambers are packed or filled with suitable filtering material or agents, M, M', such, for example, as cotton.

The intermediate member, K, is equal in depth substantially to the distance between the screens, I, J, in members A, B, respectively, and said member, K, fits snugly against the flanges of the screens to form a water tight joint, and thus prevent water from leaking through the joint between sections A, B, adjacent to the coupling ring C. However, to insure a water tight joint between the intermediate member and the upper and lower members, I have provided said upper and lower members with a shoulder, and between these shoulders and the corners of the intermediate member is positioned a suitable packing, N, such as a rubber washer. This packing, N, is preferably seated in a suitable recess or annular groove, *n*, provided within the members, A, B. It is optional whether one or two of these washers, N, are used.

In operation, the nipple, G, is placed over faucet X until said faucet rests upon washer *h*. The sleeve, R, is turned for the shoulder *r'* to ride against and over the bevel, g^3, on the jaws g^2, compelling said jaws to engage tightly with or grip the faucet X, thus securely holding said filter in position. The liquid flows from faucet X into the upper section or member, A, passes through screen I, and percolates through the filtering material, M, into the intermediate chamber, K, where the liquid will be clarified to a certain extent, but to insure the thorough clarification of the liquid, it flows through the screen *l'*, percolates through the filtering material, M', of member, B, and flows through the screen, J, from whence it passes through the outlet, P, in member, B, thus resulting in double filtration of the liquid.

When it is desired to clean the filter, or supply new filtering material, M, M', it is unnecessary to detach filter from pipe, X, but the operator merely turns coupling ring, C, releasing member, B, after which the intermediate member, K, may be removed, the parts washed, new filtering material placed in position, and the parts, B, K, reassembled.

It is to be observed that in coupling or uncoupling the sections of a filter casing which are connected directly together, there is a relative movement between the sections which tends to disturb the filtering material and to impair the efficiency of the device. To overcome these objections I employ the intermediate section and the separate coupling ring. The intermediate section operates to clamp and confine the filtering material in position during the coupling or upcoupling operation between the sections of the filter casing. The coupling ring operates to draw the two casing sections together or separate them, and by using the coupling ring and the intermediate sections, the casing can be opened and closed without disturbing the filtering material.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A filter having upper and lower members, a threaded coupling ring loosely mounted upon the upper member, a thread upon the lower member for coöperation with said coupling ring, screens within the upper and lower members, and an intermediate member provided with screens and with a chamber between said screens, said intermediate member being positioned between the screens of the upper and lower members.

2. A filter having upper and lower members, means for uniting said members, screens within said upper and lower members, an intermediate member having upper and lower screens and a chamber between said screens, and filtering material between the screens of said upper and lower members and the screens of said intermediate member.

3. A filter having upper and lower members, means for uniting said members, concave screens within said upper and lower members, an intermediate member having upper and lower screens and a liquid chamber, filtering material between the screens of said upper and lower members and the screens of said intermediate member.

4. A filter having upper and lower members, means for separably connecting said members, screens within said members, an intermediate section having concave screens and a liquid chamber between said screens, filtering material between the screens of said upper and lower members and the screens of the intermediate member, and means for fastening said filter to a source of liquid supply.

5. A filter having upper and lower members, means for separably connecting said members, concave screens within said members, an intermediate member having concave screens and a liquid chamber between said screens, filtering material between the screens of said upper and lower members and the screens of the intermediate member, said upper member being provided with jaws, and a clamping ring for attaching said filter to a source of liquid supply.

6. A filter comprising upper and lower members, an intermediate chambered member positioned between said upper and lower members, screens positioned within said members and in coöperative relation to the chambered member, filtering material between said screens and the intermediate member, said upper member being provided at one end with a slitted and screw-threaded nipple, and a clamping ring rotatable on said nipple, said ring being provided with means for compressing the split part of the nipple into frictional engagement with a liquid supply pipe, whereby the filter as an entirety may be suspended from said pipe.

7. A filter comprising upper and lower members provided with shoulders, screens positioned within said upper and lower members, an intermediate chambered member positioned between said screens, packing material interposed between the corners of the intermediate member and the shoulders of the upper and lower members, filtering material between said screens and the intermediate member, and means for attaching the filter to a liquid supply pipe.

8. In a filter, a casing provided at one end with a slotted and threaded nipple, thereby forming compressible jaws, a shoulder within said nipple and below the slots thereof for limiting the movement of the filter relative to a liquid supply pipe, and a clamping member screwed upon said nipple, said clamping member being provided with an internal beveled shoulder positioned for engagement with said jaws, whereby the jaws are adapted for clamping the filter to a liquid supply pipe and for suspending the filter as an entirety therefrom.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL MONTROSE.

Witnesses:
J. F. MOTHERSHEAD,
H. I. BERNHARD.