

O. E. GIESE.

FILTER.

APPLICATION FILED AUG. 3, 1912.

1,053,287.

Patented Feb. 18, 1913.

Fig. 1.

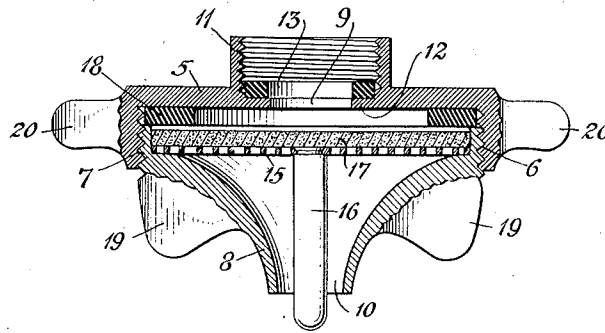


Fig. 2.

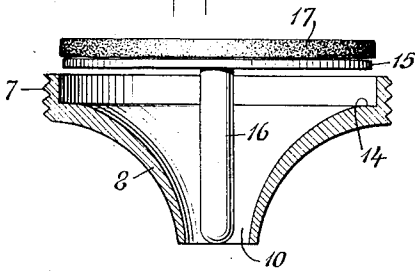


Fig. 3.

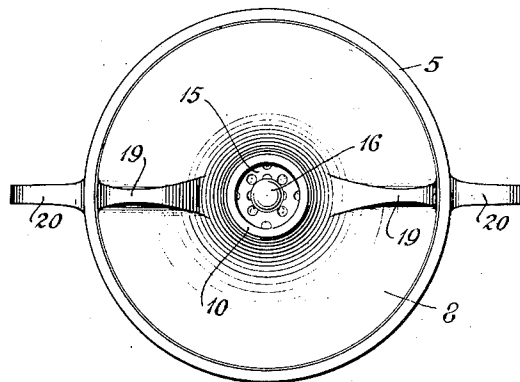
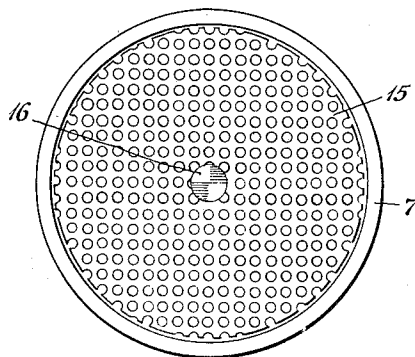


Fig. 4.



WITNESSES

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FILTER.

1,053,287.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed August 3, 1912. Serial No. 713,138.

To all whom it may concern:

Be it known that I, OTTO E. GIESE, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Filters, of which the following is a specification.

My invention relates to filters and more particularly to water filters in which disks or sheets of filtering material are used, and has for its object to provide a compact and simple device of the character mentioned which will have a maximum of efficiency and which may be readily placed in and removed from operative position and easily assembled and disassembled when desired.

My improvement also contemplates a structure from which the used and no longer effective filtering disk or sheet may be easily and quickly removed when a fresh disk or sheet is required without making it necessary to handle the used disk or sheet and in which spattering of the outflowing filtered fluid is prevented.

A further object of my invention is to provide means for readily separating and connecting the parts of the filter casing from and with each other without necessitating the use of a wrench or other instrument.

Other objects of my improvement will appear from the description hereinafter and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a central vertical sectional view of my improved filter; Fig. 2 is a similar view of the lower portion of the casing showing the used filtering disk or sheet raised therefrom; Fig. 3 is an inverted plan view of said filter and Fig. 4 is a plan view of Fig. 2 the filtering disk or sheet having been omitted.

In the drawings 5 represents a cover internally screw-threaded at 6 for connection with the externally screw-threaded neck 7 of a shell 8, said cover and shell together forming a hollow casing as is clearly shown in Fig. 1 of the drawings. The cover 5 is provided with an inlet 9 which communicates with the interior of the casing and the shell 8 is formed with an outlet 10 which similarly communicates with the interior of said casing and is preferably arranged in axial alinement with the inlet 9 in the as-

sembled condition of the filter. The cover 5 in addition is formed with a preferably integral sleeve 11 internally screw threaded for ready connection, for instance, with a faucet and having a larger internal diameter than said inlet 9 so as to form an annular internal flange 12 surrounding the inlet 9. This flange 12 serves as a support for a packing ring or washer 13 which engages and is compressed by the faucet to prevent leakage when the filter is in operative position.

An annular shoulder 14 is formed in the shell 8 above the outlet 10 and loosely supports a foraminated rigid disk 15 of metal or any other suitable material and provided with a stem 16 which in the assembled condition of the parts depends therefrom axially through the outlet 10 and has its free end located below said outlet 10 so as to project beyond the same for the purpose to be more fully described hereinafter. The disk 15 in turn supports a filtering disk or sheet 17 which may be of any suitable material such as for instance white cotton pulp and which snugly fits the neck 7 of the shell 8 and is preferably located entirely within the same so as to completely cover the disk 15. As the shell 8 is screwed into the cover 5 the inner end of said shell will engage and compress a ring washer or other packing 18 located in the cover 5 and thus secure an absolutely fluid tight connection between these elements. By having the filtering disk 17 located entirely within the neck 7 of the shell 8 and below the rim of said neck, the said filtering disk will not interfere with the connection or disconnection of the cover and shell and will consequently not cause leakage.

When in operative condition and suspended for instance from a faucet, the filtering disk 17 and foraminated disk 15 will be located between the inlet and outlet so that as the faucet is opened the water will pass through the filtering disk 17 and percolate through the foraminated disk 15 and will finally pass out of the outlet 10. The filtering disk 17 will remove all impurities from the water and retain said impurities so that the water which flows out through the inlet will be absolutely pure and uncontaminated. As the purified water passes out of the outlet cohesion and adhesion will cause it to flow along the stem 16 which extends axially of said outlet so that the

filtered water will be concentrated thereby and will leave the outlet in a solid stream and spattering will be prevented. After the filtering disk 17 has lost its usefulness and it is desired to substitute a fresh disk the shell 8 is first unscrewed from the cover 5 which may have been previously removed from the faucet to make this readily possible or in some cases permitted to remain suspended from said faucet during this disconnecting operation. When the cover and shell have been separated a push in the direction of its length may be exerted on the stem 16 which will cause the foraminated disk to be moved relatively to and out of the shell 8 as shown in Fig. 2 and will carry the used filtering disk 17 along with it. The stem 16 extends far enough beyond the outlet 10 to make it possible to move said stem and with it the disk 15 a sufficient distance to entirely remove the filtering disk 17 from the shell and completely expose said disk 17 before the movement of the pressure exerting medium is arrested by the end of the outlet 10. In this exposed position the used filtering disk 17 may be simply dropped from the disk 15 or if it adheres thereto, it may be pried loose by means of a nail or any suitable implement and then dropped into a suitable receptacle. It is thus unnecessary for the person changing the filtering disks to handle the soiled or used disk and the same need not come into contact with the hand or fingers when a new disk is being substituted for a useless one.

To make it possible to readily separate or connect the shell and cover from and with each other without the necessity for using a wrench or other implement, I provide said shell and cover with projections or finger pieces 19 and 20 respectively which are preferably located diametrically opposite to each other in pairs and form abutments for the fingers or hands and permit a maximum amount of force to be exerted to rotate said shell and cover relatively to each other. It is thus a simple matter to overcome any tendency on the part of the shell and cover to bind and does away with the danger of defacing or injuring the filter as is liable to happen when a wrench or other implement is used to effect a separation of the casing parts.

It will be seen that my improved filter provides a very compact structure which has a maximum efficiency and when in operative position occupies a minimum amount of space and thus presents an attractive appearance. My improved filter is also capable of being easily and thoroughly cleaned

and the operation of substituting a new filtering disk for one that has been used and become ineffective is cleanly and is accomplished without soiling or contaminating any part of the person making the change.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. A filter comprising two detachably connected sections having an inlet and outlet respectively, a filtering sheet carried by one of said sections between the inlet and outlet, and means extending beyond the outlet whereby said filtering sheet may be pushed from its carrying section and freed therefrom when said sections are separated.

2. A filter comprising a cover having an inlet, a shell detachably connected with said cover and having an outlet, a filtering disk carried by said shell between said inlet and outlet, a supporting member located beneath said filtering disk, and means connected with said member and extending beyond said outlet whereby said member may be actuated to push said filtering disk out of said shell and free it therefrom when said shell and cover are disconnected.

3. A filter comprising a cover having an inlet, a shell detachably connected with said cover and having an outlet, a filtering disk carried by said shell between said inlet and outlet, a foraminated disk located beneath said filtering disk and a stem depending from said foraminated disk and having its free end located beyond said outlet, whereby said foraminated disk may be actuated to push said filtering disk out of said shell and free it therefrom when said shell and cover are disconnected, said stem being disconnected from the outlet of said shell throughout its length and being adapted to concentrate the outflowing stream of liquid when the filter is in operation.

4. A filter comprising a hollow casing having an inlet and an outlet, filtering means located in said casing between said inlet and outlet and a cylindrical stem extending axially of said outlet and being free therefrom throughout its length whereby the outflowing stream of liquid is concentrated when the filter is in operation.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

OTTO E. GIESE.

Witnesses:

JOHN A. KEHLENBECK,
FRED A. KLEIN.