J. F. STOCKING.

WATER FILTER.

APPLICATION FILED DEC. 1, 1909.

1,001,784.

Patented Aug. 29, 1911.

Fig. 1.

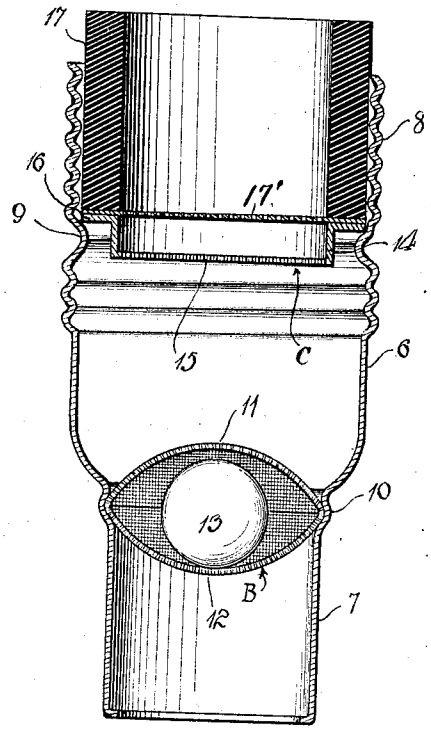


Fig. 2.

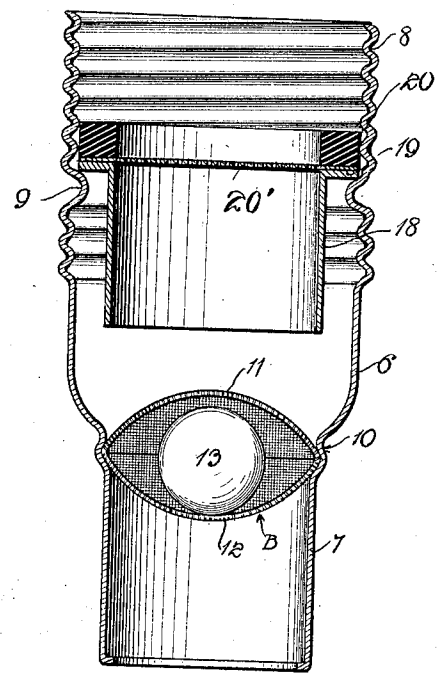


Fig. 3.

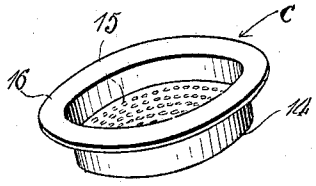
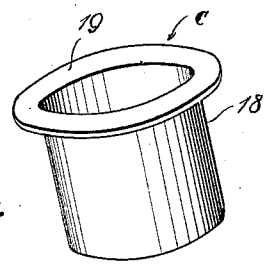


Fig. 4.



Witnesses
C. C. Chandlee
Henry T. Bright

Inventor
James F. Stocking

By Chandlee & Chandlee

Attorney

UNITED STATES PATENT OFFICE.

JAMES FRANK STOCKING, OF NEW YORK, N. Y.

WATER-FILTER.

1,001,784. Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed December 1, 1909. Serial No. 530,791.

To all whom it may concern:

Be it known that I, JAMES F. STOCKING, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Water-Filters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to water filters and particularly to the detachable faucet type.

Heretofore in the use of filters of this character the issuance of water therefrom has always been attended more or less by a splash or splutter, due to the breaking of the water column above the main straining element. This objection has always been a source of annoyance in the use of filters of this type and it is the object of the present invention to provide a structure which will maintain the column of water flowing through the filter in an unbroken condition and thereby obviate splashing and spluttering at the delivery end thereof when in use.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and described.

In describing the invention in detail reference will be had to the accompanying drawings in which like characters of reference denote corresponding parts in the several views, and in which,

Figure 1 is a vertical section of a filter constructed in accordance with the invention; Fig. 2, a vertical section of a modified form; Fig. 3, a detail perspective view of the director plate employed in the form shown in Fig. 1; and Fig. 4, a detail perspective view of the director plate employed in the form shown in Fig. 2.

Referring to Figs. 1 and 3 of the drawing, the filter is shown as comprising a casing having an upper portion 6 and a contracted lower mouth 7. The upper end of the portion 6 is threaded as at 8 and is provided intermediate the length of said threaded portion with an inwardly projecting annular shoulder 9 for a purpose to be presently described. Formed at the upper end of the contracted portion 7 of the casing is an annular recess or seat 10. Mounted in this seat is a strainer B formed of two sieves 11 and 12 of substantially hemi-spherical formation and united at their bases to produce an external annular rim which seats in the recess 10. A ball 13 of hard impervious material is held loosely in the strainer B between the sections 11 and 12 thereof, the said ball being inserted at the time the two sieves are united with each other and serving the function of preventing the collapse of the sections 11 and 12 no matter how much pressure the sieve is subjected to.

A director plate C is mounted in the portion 6 of the casing and is formed with a non-perforated cylindrical wall 14 and a perforated bottom 15. Said director plate is supported in position by an annular flange 16 projecting laterally from the upper end of the wall 14 and resting upon the annular shoulder 9. A rubber ring 17 fits upon the flange 16 of the director plate and is adapted to hold said plate in place upon the shoulder 9 and to receive the delivery end of a non-threaded faucet; said ring being of such diameter with respect to its bore that it will be slightly expanded by the insertion of the faucet and pressed into the threads 8 of the portion 6 and thereby hold the filter upon the faucet and maintain the director plate C in position. In order to prevent the rubber ring or gasket 17 from moving into the passage surrounded by the cylindrical wall 14 when a downward pressure is applied to said gasket there is provided a perforated disk 17′ which is interposed between the gasket 17 and the director plate and has its extreme outer portion resting upon the flange 16 and its intermediate portion spanning the passage surrounded by the wall 14 of said director plate. From this construction it will be apparent that the perforated disk 17′ will effectually prevent the gasket 17 from entering the passage through the director plate and obstructing the free flow of water through the perforated bottom 15 thereof.

The disk 17′ performs another function in addition to the above described function, namely, reinforcing the flange of the director plate against distortion at its juncture with the cylindrical body or pipe of the plate, for it is obvious should this plate be dispensed with and the gasket allowed to expand down into the director plate under pressure, that the portion of the gasket which would bear upon the corner formed at the juncture of the flange and pipe, would

tend to distort this corner so as to move the edge of the flange up off of the shoulder and allow the escape of water between the edge of the flange and shoulder, thence upwardly between the threads of the casing and spigot. This overflow of water invariably results when the disk is dispensed with and is very annoying. This disk it will be observed positively prevents an occurrence of this kind and is deemed to be of importance when used in this connection, due to its two-fold function, namely, of preventing escape of the gasket into the director plate and also reinforcing the flange of the director plate at its juncture with the pipe of the plate against distortion.

In the use of a filter of the construction just described the passage of the water will be resisted somewhat by the sieve B and result in backing up of same in the space between the sieve B and the plate C until the bottom of said plate is beneath the level of the water. A further backing up of the water, inasmuch as the cylindrical wall of the plate C is non-perforated, will form an air cushion between the level attained by the water and the flange 16 of said plate and thus constantly maintain an unbroken column of water passing through the sieve B and preventing objectionable splashing and spluttering at the mouth of the filter.

In the form shown in Figs. 2 and 4 the filter is adapted to be applied to a faucet having a threaded delivery end and the director plate employed therein is constructed with a non-perforated cylindrical body portion 18 of considerably greater length than the cylindrical wall 14 of the director plate illustrated in Fig. 1, and entirely open at both ends. The upper end of the cylindrical portion 18 is provided with an outwardly extending annular flange 19 which rests upon the annular shoulder 9 in precisely the same manner as the annular flange 16 of the director plate disclosed in Fig. 1. A rubber ring 20 rests upon the upper face of the flange 19 and terminates a considerable distance inward of the upper end of the portion 6 of the casing so as to permit the threads 8 to be engaged with the threaded end of the faucet to which the filter is applied; said application of the filter to a faucet serving to compress the rubber ring 20 by engagement with the lower end of the faucet and expand said ring laterally into the threads of the casing adjacent thereto and maintain the flange 19 firmly seated upon the annular shoulder 9. Interposed between the flange 19 and the ring or gasket 20 is a perforated disk 20′ which has its outer portion resting upon the flange 19 and its intermediate portion spanning the passage through the director plate at the top in precisely the same manner as the perforated disk 17′ illustrated in Fig. 1. This perforated disk 20′ will also effect in conjunction with the ring or gasket 20 a perfectly tight fit between the gasket and the end of the faucet as the filter is screwed home, thus preventing any possibility of leakage by way of the top of the filter. In all other respects the form of the filter shown in Figs. 2 and 4 is precisely identical with what is disclosed in Fig. 1 and a detail description thereof is deemed unnecessary. It will be noted, however, that when the form of filter shown in Figs. 2 and 4 is employed the air cushion between the level of the water contained between the director plate and the sieve is formed sooner than would be the case when the construction shown in Fig. 1 is employed, owing to the increased length of the cylindrical portion 18 of the director plate with respect to the cylindrical portion 14 of the plate employed in the construction disclosed in Fig. 1.

What is claimed is:—

A filter including an attaching casing having a nozzle, said casing having an internal shoulder, a pipe arranged axially in the casing and having a terminal flange bearing upon said shoulder, a perforated disk closing the bore of said pipe and bearing with its marginal portions upon said flange, said disk reinforcing said flange against distortion at its juncture with the pipe, and a yielding gasket bearing upon said disk and wall of the casing and clamping said disk to said flange.

In testimony whereof, I affix my signature, in presence of two witnesses.

JAMES FRANK STOCKING.

Witnesses:
HAROLD W. HOOVER,
JOHN T. HOGAN.