

No. 869,165.

PATENTED OCT. 22, 1907.

A. F. ETTER.

STRAINER

APPLICATION FILED SEPT. 22, 1906.

2 SHEETS—SHEET 1.

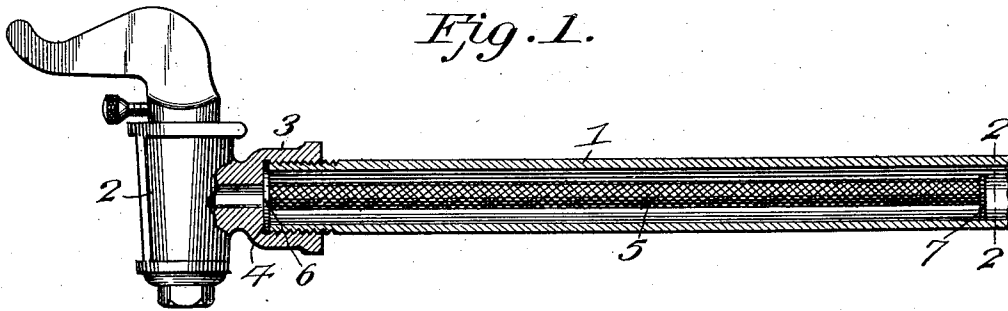


Fig. 2.

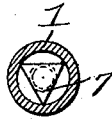


Fig. 3.

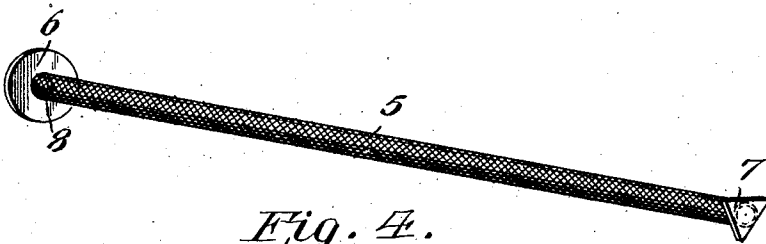
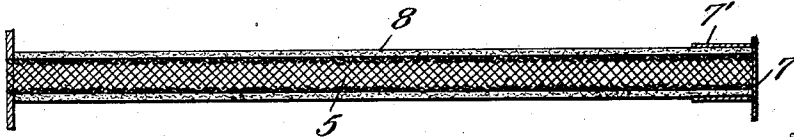


Fig. 4.



Inventor

Albert F. Etter

Witnesses

Frank B. Hoffman

C. C. Hines

By

Victor J. Evans

Attorney

No. 869,165.

PATENTED OCT. 22, 1907.

A. F. ETTER.
STRAINER

APPLICATION FILED SEPT. 22, 1906.

2 SHEETS—SHEET 2.

Fig. 5.

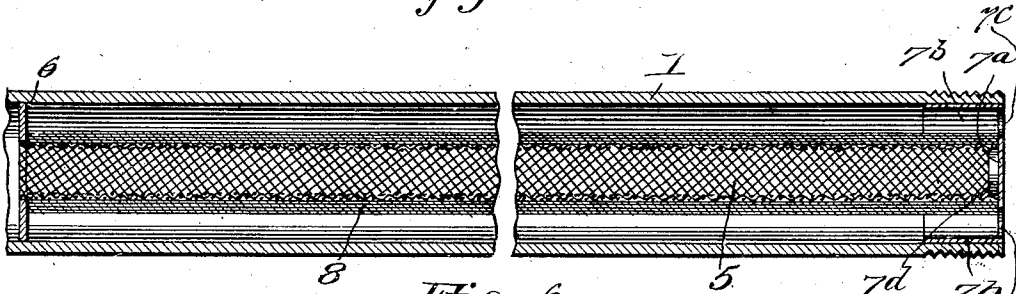


Fig. 6.

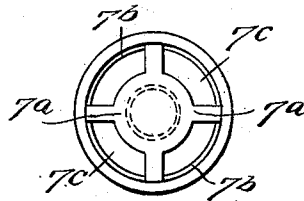
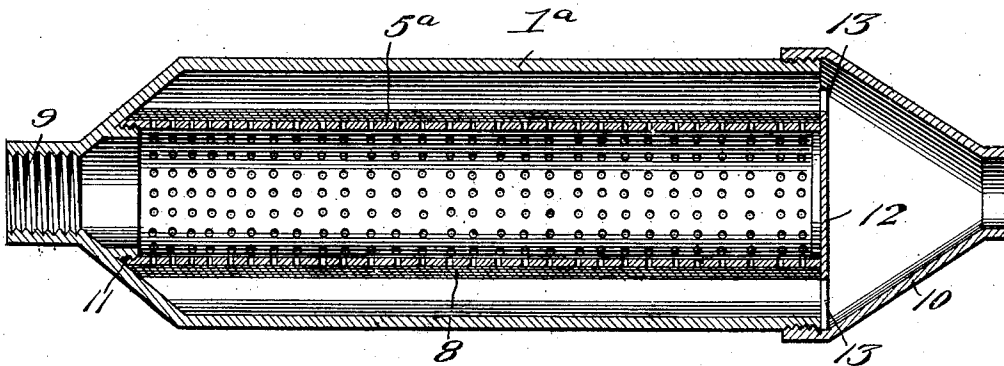


Fig. 7.



Inventor

Albert F. Etter

Witnesses

Frank B. Hoffman.

C. C. Hines.

By

Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

ALBERT F. ETTER, OF ETTERSBURG, CALIFORNIA.

STRAINER.

No. 869,165.

Specification of Letters Patent.

Patented Oct. 22, 1907.

Application filed September 22, 1906. Serial No. 335,793.

To all whom it may concern:

Be it known that I, ALBERT F. ETTER, a citizen of the United States of America, residing at Ettersburg, in the county of Humboldt and State of California, have invented new and useful Improvements in Strainers, of which the following is a specification.

This invention relates to improvements in strainers and filters designed for use in connection with water or other liquid conducting pipes, the object of the invention being to provide a device of this character which is simple of construction, efficient in use, inexpensive of production, and adapted to be readily applied to and removed for cleansing and repairs.

In the accompanying drawing,—Figure 1 is a longitudinal section through a conducting pipe having the improved strainer arranged therein. Fig. 2 is a cross section on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of the strainer *per se*. Fig. 4 is a part sectional and part side elevational view of a modified form thereof. Fig. 5 is a longitudinal section of a further modified form. Fig. 6 is an end elevation thereof. Fig. 7 is a longitudinal section of the device as embodied in a filter.

Referring to the drawings, 1 designates a conducting pipe carrying at its outer end a faucet or valved discharge nozzle 2, said nozzle being provided with a coupling 3 internally threaded to receive the proximate threaded end of the pipe and provided at the inner end of this threaded portion with a shoulder 4 against which the end of the pipe normally bears.

The strainer is applied for use in the pipe in the manner illustrated in Fig. 1, and comprises a foraminous tube 5, composed of wire of suitable mesh, perforated sheet metal or other suitable material, said tube being of a desired length to effectually subserve the purpose and of less diameter than the pipe to form an intervening annular passage around the tube through which the water or other liquid circulating in the pipe flows therinto. The tube is secured at its forward end to a head or disk 6 and at its rear end to a head or disk 7. The disk 6 is circular in form and is clamped between the shoulder 4 and threaded end of the pipe and closes communication between the pipe and faucet or nozzle except through the perforated strainer tube, the said disk being provided with an aperture 8 communicating with the forward end of the tube and serving as an outlet passage for the flow of the liquid from the tube to the faucet or nozzle. The disk 7 supports the rear end of the strainer tube within the pipe concentrically with relation to the latter, and, as shown in the present instance, is of triangular form to space it from the pipe to provide ports or passages for the flow of the liquid past the same and into the space about the strainer tube. The said disk may, however, be of any other form to subserve this purpose.

It will be understood that as the rear end of the

strainer tube 5 is closed by the head or disk 7, the water will flow through the above mentioned ports past said disk and into the strainer tube through the meshes thereof, which are close enough to prevent the entrance of any foreign particles, the strained liquid flowing from the tube through the outlet passage 8 into the nozzle. Hence the fluid will be thoroughly strained and purified in its passage. The construction of the strainer and mode of mounting it shown and described enables it to be conveniently applied and removed in an obvious manner.

In the embodiment of the invention shown in Fig. 4, the head 7 is provided with a sleeve 7' to inclose the adjacent end of the strainer 2. This sleeve slidably engages one of the ends of a sleeve or tube 8 of felt or other suitable porous textile fabric, which surrounds the strainer tube 5 and is arranged between the heads 6 and 7, the sleeve of the latter serving to embrace and hold said sleeve 8 from longitudinal movement. Upon removing the head 7, the sleeve 8 may be withdrawn in an obvious manner. The water filters from the pipe through the tube or sleeve 8 into tube or sleeve 5 and then discharges in the manner above described, this construction insuring a more perfect filtering of the water.

In Fig. 5, the head 7^a corresponding to head 7 in Figs. 1 to 4 inclusive, is provided with an inwardly projecting flange 7^b fitting within the pipe 1, and the strainer tube 5 is provided with a sleeve or covering 8 of filtering material, such as before described with reference to Fig. 4. The heads 6 and 7^a in this embodiment of the invention are reversely arranged with respect to the structure disclosed in Fig. 1, the head 6 being at the inlet end of the strainer in the direction of flow of the water. The water here enters the tube 5 through the opening in the strainer 6, thence flows through the tubes 5 and 8, and into the annular space between the same and the pipe 1, and finally discharges through the head 7^a at the outlet end of the pipe, which is threaded for the reception of the faucet 2. The head 7^a, in addition to being provided with the sleeve 7^b, is formed with outlets 7^c for the discharge of the water and with a projection 7^d to enter and support the contiguous end of the strainer tube. In this and the construction shown in Fig. 4, the sleeve 8 may be in the form of a tube adapted to be slipped endwise on to the tube 5, or it may consist of a wrapping about the latter-named tube.

It will be seen that the invention as thus far described provides a reversible strainer, in which the water may enter through one of the heads and flow through the tube, or first pass into the tube and then discharge through the perforated head.

In Fig. 7, I have shown my invention as embodied in a filter adapted for attachment to the threaded nozzle of a faucet for filtering or straining the water discharging therefrom. In this construction, the conductor 1^a is

in the form of a casing having at its upper end a threaded inlet 9 for connection with the faucet, and provided at its lower end with a discharge nozzle 10, threaded or otherwise detachably secured thereto. At its upper end, the casing is provided with a supporting head or tube 11 in open communication with the inlet 9 and threaded for the reception of the upper end of the strainer tube 5^a, which is here in the form of a foraminous cylinder. This tube or cylinder rests at its lower end upon a head 12 clamped by the nozzle 10 against the lower end of the casing 1^a and provided with discharge ports 13. The water from the nozzle enters the filter through the inlet 9, thence flows into the tube 5^a and through the latter and filtering sleeve 8 into the annular space between the same and casing, and finally discharges through the ports 13 and nozzle 10, as will be readily understood.

It will be apparent, of course, that this construction of strainer or filter may be employed in the line of a fluid conducting pipe to filter the fluid on its passage, and it will be obvious that by simply reversing the parts, that is, respectively making the elements 10 and 9 the inlet and outlet, the water may first be caused to enter the casing, then pass through and into the filtering tube, and finally discharge through the member 9.

Having thus described the invention, what is claimed as new, is:—

1. A strainer comprising a perforated tube, a disk closure at one end of the tube, said closure being of greater diameter than the tube and having its projecting portion imperforate and its center formed with an opening communicating with the tube, and a supporting disk at the opposite end of the tube, said disk being constructed to provide an annular row of spaced projections forming intervening ports beyond the periphery of the tube and between the same and a pipe or casing in which the strainer is inclosed.

2. A strainer comprising a perforated tube, a disk fixed to one end of the tube and having an opening communicating therewith, said disk being of a greater diameter than the tube and having its projecting portion imperforate, and a supporting disk at the opposite end of the tube, said disk being constructed to provide an annular row of spaced projections forming intervening ports beyond the periphery

of the tube and between the same and a pipe or casing in which the strainer is inclosed.

3. A reversible strainer comprising a perforated tube, a disk closure at one end of the tube having an opening communicating therewith, and a triangular supporting disk inclosing the opposite end of the tube with its points projecting beyond the periphery of the tube.

4. A strainer comprising a perforated tube, heads arranged at the opposite ends of the tube and of greater diameter than the same, one of said heads having an opening communicating with the tube, and being otherwise imperforate, and the other constructed to provide an annular row of spaced projections forming ports beyond the periphery of the tube and between the same and a pipe or casing in which the tube is inclosed.

5. A reversible strainer comprising a filtering tube, and means associated therewith whereby the tube may be reversed, said means comprising supports for the tube, one being in open communication with the tube and the other constructed to form ports beyond the periphery thereof, whereby the water may be caused to pass through one of the supports and thence through the tube from the interior thereof, or through the other support from the exterior into the tube and thence out through the other support.

6. A strainer comprising a perforated tube, heads for supporting the tube, said heads being arranged at the respective ends of the tube and of greater diameter than the same, one of the heads being provided with an opening communicating with the interior of the tube, and being otherwise imperforate, and the other constructed to provide an annular row of spaced projections forming ports beyond the periphery of the tube, and a filtering sleeve or wrapper surrounding the tube and secured at one end by one of the heads thereto.

7. A strainer comprising a perforated tube, a head arranged at one end of the tube and having an opening communicating therewith, said head forming an imperforate flange beyond the periphery of the tube, and a second head forming a closure at the opposite end of the tube, said head being provided with projections extending beyond the periphery of the tube to form a support therefor, said projections being spaced to provide a row of annular ports around the tube and between it and a pipe or casing in which said tube is inclosed.

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

ALBERT F. ETTER.

Witnesses:

ELLA THOMAS,
C. G. THOMAS.