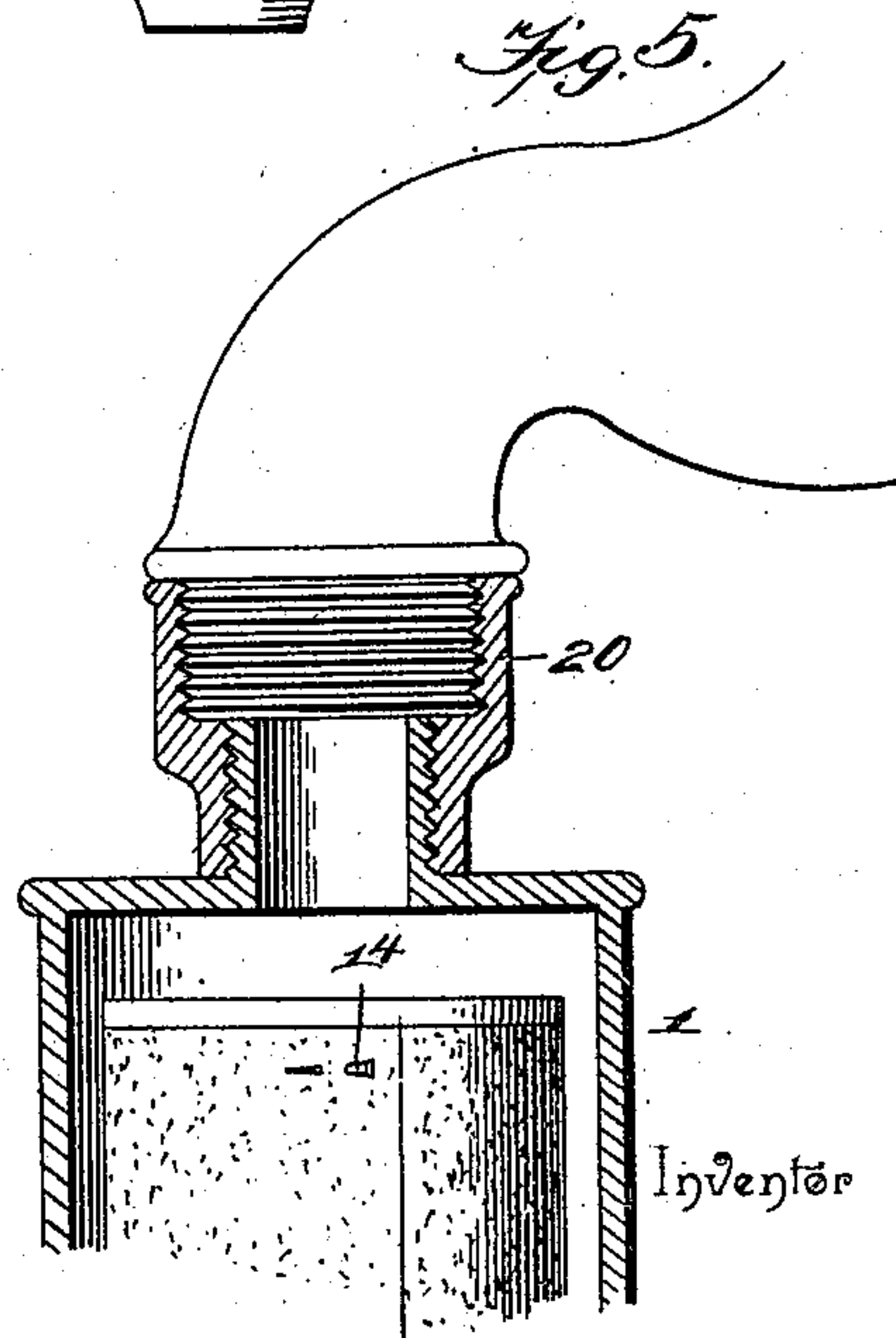
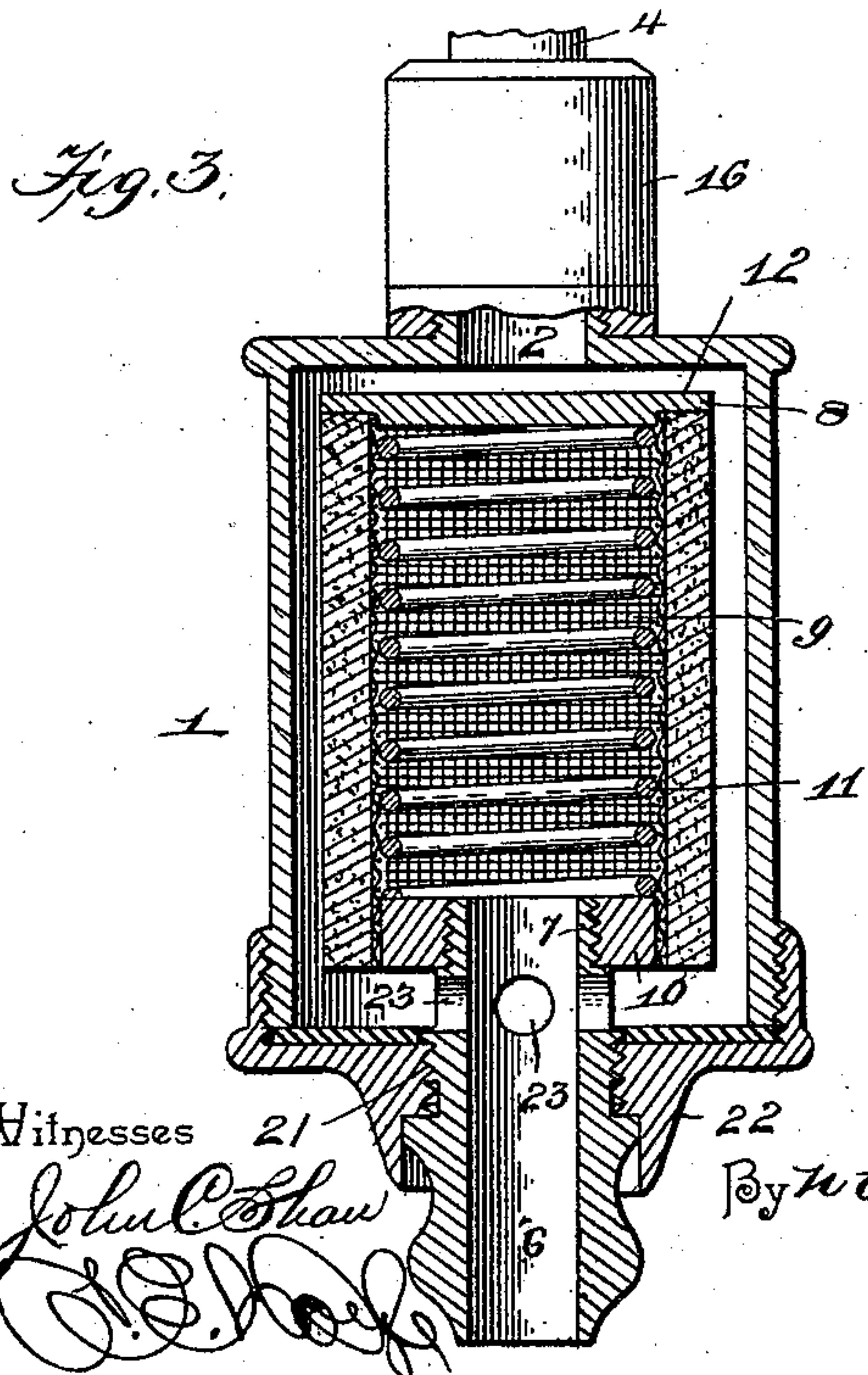
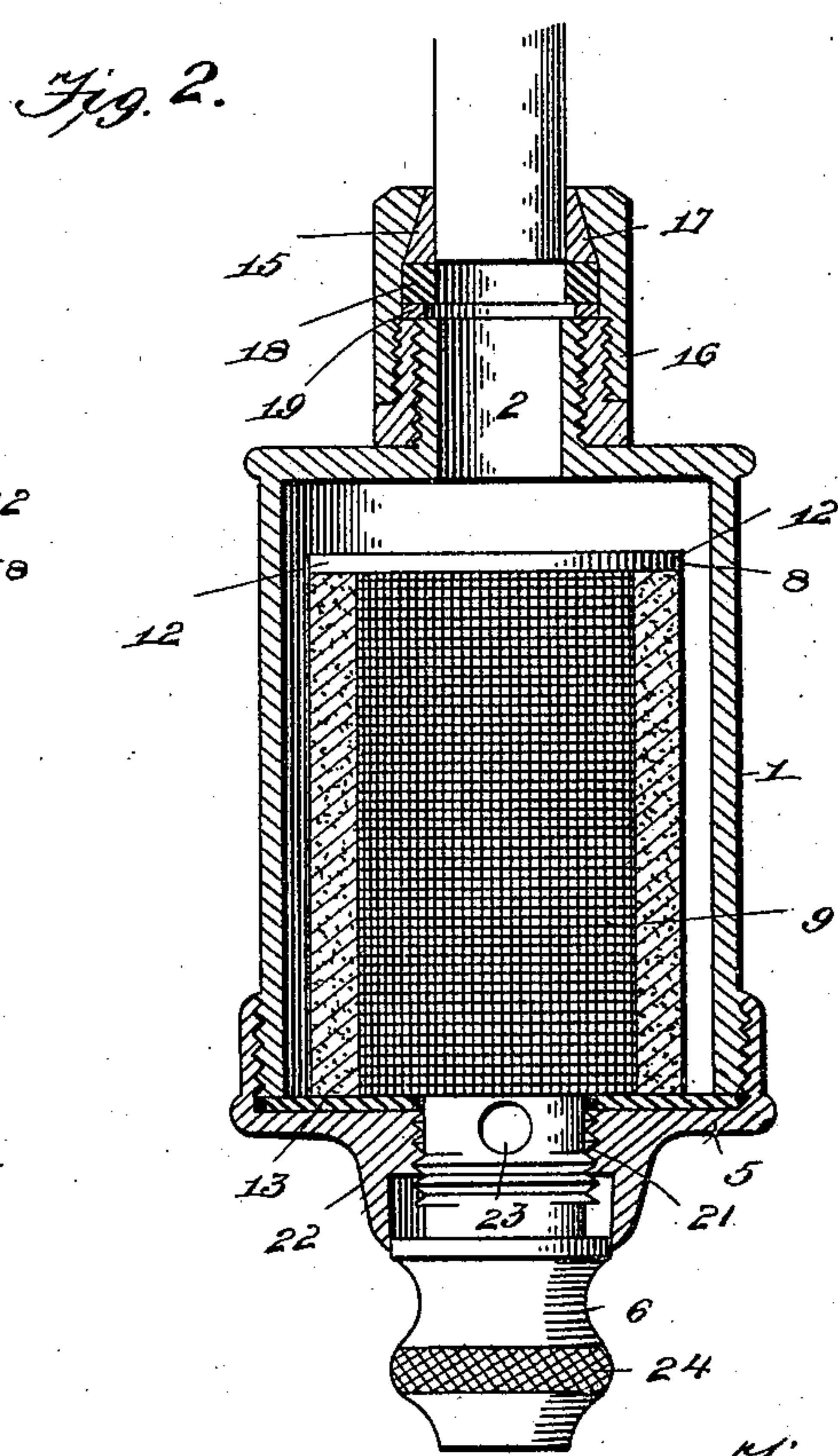
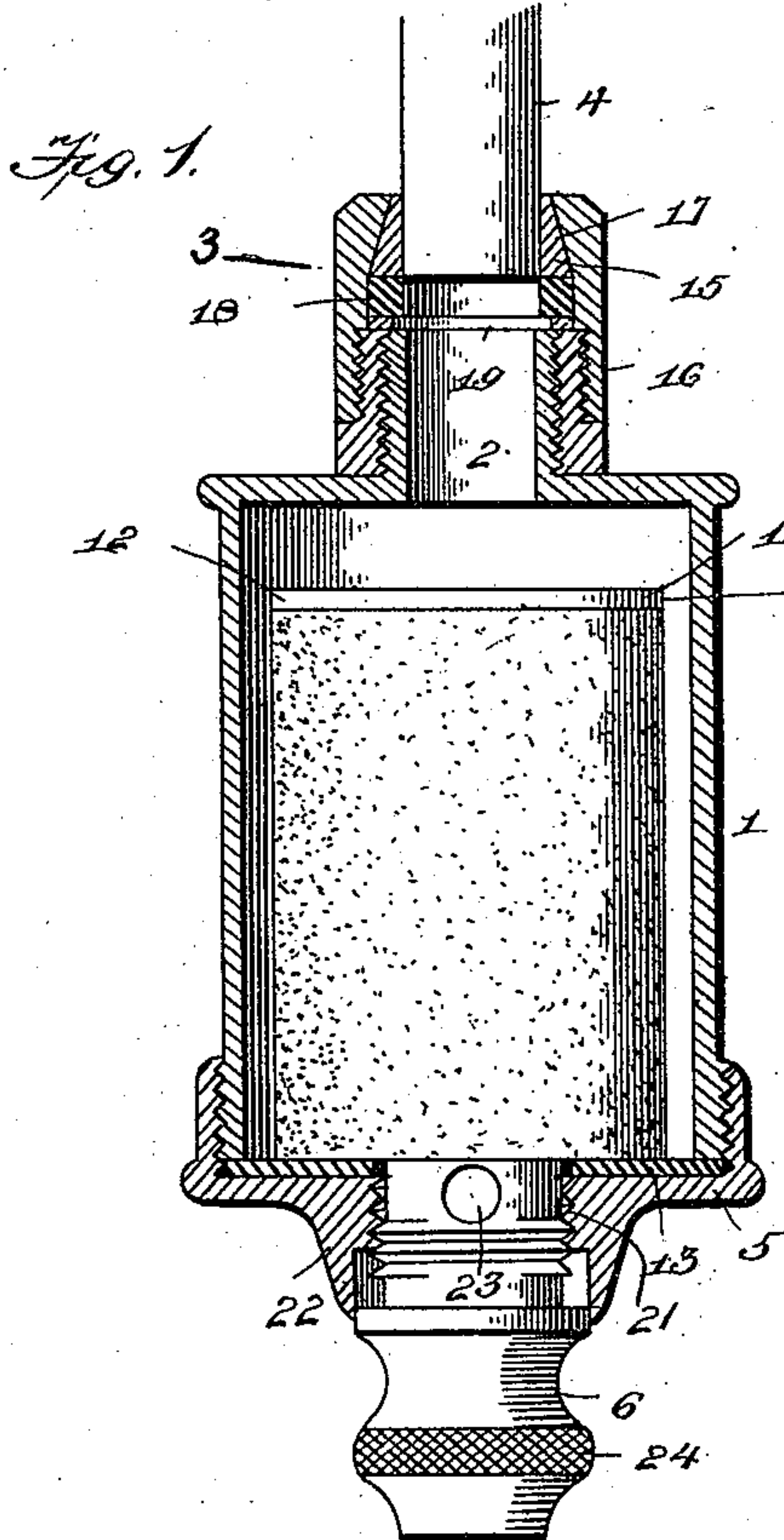


(No Model.)

W. H. VANCE.
FAUCET FILTER.

No. 574,644.

Patented Jan. 5, 1897.



Witnesses

John C. Shaw
J. D. Hoff

By *W. H. Vance* Attorney.

Chas. H. Vance

UNITED STATES PATENT OFFICE.

WILLIAM HENRY VANCE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF TWO-THIRDS TO FRANK W. WOLFE AND EDWIN D. WOLFE, OF SAME PLACE.

FAUCET-FILTER.

SPECIFICATION forming part of Letters Patent No. 574,644, dated January 5, 1897.

Application filed June 5, 1895. Serial No. 551,765. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY VANCE, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Faucet-Filter, of which the following is a specification.

My invention relates to filters, and particularly to a device adapted to be applied to and used in connection with a water-supply pipe; and the objects in view are to provide a simple, inexpensive, and efficient device in which the filtering material may be replaced when, by reason of accumulations, it has become worthless or inoperative; to provide means for cleaning the filtering material without removing it from the casing; to provide means for protecting the filtering material from the force of the water discharged through the faucet and into the casing of the filter, and to provide means whereby easy access may be had to the interior of the casing.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a vertical central section of a filter constructed in accordance with my invention, the section being taken only through the casing. Fig. 2 is a similar view showing the wrapping of the filtering-chamber in section and indicating the filtering-chamber in elevation. Fig. 3 is a similar view showing the filtering-chamber in section. Fig. 4 is a detail view of the conical compression-ring. Fig. 5 is a view of a coupling adapted for use in connection with a threaded faucet, the casing being shown in section to illustrate a modified form of filtering material and manner of applying the same.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The casing 1 of the improved filter is provided at its upper end with an exteriorly-threaded tubular stem 2, upon which is threaded the coupling or union 3 for attachment to a pipe, (indicated at 4,) and the lower end of the casing is exteriorly threaded to engage a removable cap 5, provided at its center

with an outlet nipple or spout 6, communicating with the interior of the casing, an exteriorly-threaded collar 7 extending above the plane of the body of the cap in alinement with said nipple or spout.

The filtering-cylinder comprises a disk 8, connected by a cylindrically-disposed screen 9 with a ring 10, the ring being interiorly threaded to engage the collar carried by the cap, and said disk and ring are held separated to maintain the screen in a taut condition by means of a spring 11, which is disposed within the filtering-chamber and bears at its extremities, respectively, against the inner surfaces of the disk and ring. The disk extends laterally beyond the outer surface of the screen to form a flange or lip 12 to protect the filtering fabric, which is wound exteriorly upon the filtering-chamber and which is removable when it fails to perform its function by reason of the accumulation of dirt. This filtering fabric, which is applied to the exterior surface of the filtering-chamber, is arranged with its surface approximately flush with the periphery of the flange or lip formed by the extension of the disk, whereby said disk, with its flange or lip, forms a shield to protect the filtering material from the force of water introduced at the upper end of the casing. Said disk thus forms a deflector. A compressible packing-washer 13 is arranged upon the bottom of the cap around the threaded collar for the pressure of the ring at the lower end of the filtering-chamber, whereby a water-tight joint is formed between the filtering-chamber and the cap.

From the above description it will be seen that the filtering-chamber is carried solely by the removable cap, which is fitted upon the lower end of and forms a part of the casing, and therefore that said filtering-chamber, with its wrapping of fabric, may be removed from the casing for the purpose of renewing the parts. The nipple or spout at the center of the removable cap communicates with the interior of the filtering-chamber, and thus allows the escape of water only after it has passed through the walls of the filtering-chamber and the wrapping of filtering material which is arranged exteriorly thereon. The wrapping may be of any suitable porous

material, such as flannel, cloth, silk, asbestos, cotton, canvas, or the equivalent thereof, and it may be fastened upon the filtering-chamber by any suitable means. In
 5 Figs. 1 to 3 the filtering material is formed as a cylinder which may be slipped on the gauze cylinder with facility after the latter has been detached from the collar 7. In Fig.
 5 the filtering material is shown as formed
 10 in a continuous sheet or strip wound upon the gauze cylinder and secured by pins 14.

The form of coupling which I prefer to employ between the threaded collar at the upper end of the casing and the supply-pipe is
 15 shown in Figs. 1 to 3, inclusive, the same comprising a conical compression-ring 15, split or divided to adapt it for adjustment to suit the size of the supply-pipe and encircling the same, as shown in said figures, and
 20 a clamping-sleeve 16, threaded upon said collar 2 and provided at its upper end with a conical bearing-surface 17 to engage the conical surface of the compression-ring. A compressible washer 18 is interposed between the
 25 upper edge of the collar 2 and the compression-ring, and one or more metallic washers or bearing-rings 19 may be interposed between the upper edge of the collar 2 and the compressible washer. It will be seen that
 30 when the parts as described are connected and the clamping-sleeve is screwed down upon the collar 2 the conical bearing-surface of said sleeve will contract the compression-ring upon the exterior surface of the supply-
 35 pipe and thereby clamp the apparatus upon said pipe, and at the same time the washer will be compressed and thus form a tight joint between the contiguous parts of the coupling.

40 When the device is to be applied to an ordinary faucet having a threaded extremity, the ordinary form of union, as shown in Fig. 5 at 20, may be employed, said union being threaded upon the collar 2 in a manner similar
 45 to that described in connection with the clamping-sleeve.

In order to provide for cleaning the filtering material without removing the cylinder from the casing, I form the nozzle 6 and the
 50 exteriorly-threaded collar 7 integral with each other and separate from the cap 5 and thread said nozzle in a central opening 21 in the cap, said opening being preferably surrounded by a strengthening web or collar 22, which
 55 extends the opening and has the effect of bracing and steadying the nozzle. The threads by which the nozzle is connected to the cap are of a more abrupt pitch than the threads upon the collar 7, whereby, when it is desired
 60 to clean the filtering material, the nozzle may be turned upward in the cap, thereby elevating the gauze cylinder and the filtering material sufficiently to expose vents 23, which are formed in the side of the nozzle, said vents
 65 being normally closed and arranged below the plane of the inner surface of the cap 5. When the cylinder is raised to remove its lower ring

from contact with the upper surface of the washer 13 and said vents are exposed above
 the upper surface of the washer, it is obvious 70
 that water admitted from the faucet will carry the dirt accumulated upon the surface of the filtering material through the vents and the nozzle and thus cleanse the filter without de-
 75 taching the cap 5. Inasmuch as the pitch of the threads in the opening 21 is greater than that of the threads on the collar 7, the nozzle may be turned to draw the lower ring of the filtering-cylinder down firmly upon the surface of the washer 13 without detaching
 80 the collar 7 from said ring, and therefore after the surface of the filtering material has been properly cleansed the nozzle may be turned in the opposite direction to that necessary to elevate it and thereby return the
 85 cylinder to its normal position, whereby water entering the casing must pass through the filtering material and through the gauze of the cylinder in order to reach the nozzle. The nozzle is preferably provided with a milled
 90 rib 24, whereby it may be grasped to elevate and lower the cylinder.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit
 95 or sacrificing any of the advantages of this invention.

From the above description it will be seen that the filtering-chamber, comprising the filtering-screen, means for holding this screen
 100 extended in a cylindrical form, and the fibrous filtering-cylinder which is removably fitted exteriorly upon the screen, may be constructed as an article of manufacture adapted to be applied to a filtering device having a casing
 105 of any ordinary construction or may be arranged contiguous to the outlet-opening of a tank or reservoir where the casing is unnecessary; and, furthermore, that the open-ended fibrous cylinder, which is removably
 110 fitted upon the cylindrical screen, may be constructed as an independent article of manufacture, whereby it may be replaced as it becomes foul without the difficulty of winding a continuous strip of filtering fabric upon said
 115 cylindrical screen as in the ordinary practice. It will be seen also that the imperforate disk 12 forms a deflector arranged in front of the inlet-opening of the casing in the path of a current of liquid admitted therethrough and
 120 perpendicular to said current of liquid, and that in order to hold said disk with a yielding pressure to prevent injury to the members of the filter when the fluid is turned suddenly thereinto I employ the cushion-
 125 spring 11. This spring thus performs a double function in that it maintains the filtering-screen in an extended form and at the same time forms a cushion or yielding support for the deflector. The screen prevents the ex-
 130 cessive extension of the spring and thus limits the upward movement of the disk.

Having described my invention, what I claim is—

1. A filter having a casing provided with inlet and outlet openings, a yielding-mounted deflecting-disk arranged in front of the inlet-opening in position to receive the impact of fluid entering the casing, and a filtering medium arranged in rear of and protected by said disk and in communication with the outlet-opening, substantially as specified.

2. A filter having a casing provided with inlet and outlet openings, a spring-supported deflecting-disk arranged in front of the inlet-opening to receive the impact of fluid entering the casing, and a filtering medium arranged in rear of and protected by said disk and in communication with the outlet-opening, substantially as specified.

3. A filter having a casing provided with inlet and outlet openings, a filtering-chamber provided at one end with an imperforate disk arranged in front of the inlet-opening to receive the impact of fluid entering the casing, a filtering-screen attached at one end to said disk to limit the movement of the screen toward the inlet-opening, and a spring arranged at one end in contact with the disk to yieldingly support the same and maintain the screen in a taut condition, said spring being adapted to oppose the impact of fluid projected against the disk, substantially as specified.

4. As a new article of manufacture, a filtering-chamber having a ring adapted to be attached to a supporting-tube, a disk parallel with the ring and connected therewith by a filtering-screen, and a spring interposed between and seated at its extremities upon the ring and disk and inclosed by the screen to hold the same extended, the disk being supported solely by the spring, substantially as specified.

5. A filter having a casing provided at one end with an inlet-opening, a nipple or spout arranged at the other end of the casing and mounted for movement parallel with its axis, and a filtering-chamber communicating with and adapted to be moved by said nipple or spout, said nipple or spout being provided with lateral vents arranged outside of the filtering-chamber and adapted to be exposed to communicate with the interior of the casing when the nipple or spout is moved inwardly to remove the contiguous end of the filtering-chamber from contact with the end of the casing, substantially as specified.

6. A filter having a casing provided at its upper end with an inlet-opening, a nipple or spout threaded in an opening at the opposite

end of the casing and provided with lateral vents adapted to be exposed when the nipple or spout is moved axially inward, and a filtering-chamber communicating with and carried by the nipple or spout and adapted to be moved upward in the casing to remove its lower end from contact with the contiguous end of the casing and thereby allow communication between the interior of the casing and the nipple or spout through said vents, substantially as specified.

7. A filter having a casing provided at its upper end with an inlet-opening and at its lower end with a removable cap, a nipple or spout threaded for vertical movement in an opening in said removable cap and provided at its upper end with a threaded collar and below said collar with lateral vents, and a filtering-chamber threaded at its lower end upon said collar and normally arranged with its lower end in contact with the contiguous end of the casing, said nipple or spout being capable of axial movement to remove the lower end of the filtering-chamber from contact with the end of the casing and expose the said lateral vents below the lower end of the filtering-chamber, substantially as specified.

8. A filter having a casing provided at its upper end with an inlet-opening and at its lower end with a removable cap, a nipple or spout threaded for vertical movement in an opening in said removable cap and provided at its upper end with a threaded collar and below said collar with lateral vents, and a filtering-chamber threaded at its lower end upon said collar and normally arranged with its lower end in contact with the contiguous end of the casing, said nipple or spout being capable of axial movement to remove the lower end of the filtering-chamber from contact with the end of the casing and expose the said lateral vents below the lower end of the filtering-chamber, the pitch of the threads on the nipple or spout, whereby it is moved axially to elevate and depress the filtering-chamber, being greater than the pitch of the threads whereby the filtering-chamber is secured to the collar, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM HENRY VANCE.

Witnesses:

J. P. HARRINGTON,
A. S. GRANT.