

W. R. HILDEBRAND.

FILTER.

APPLICATION FILED JAN. 27, 1916.

1,273,608.

Patented July 23, 1918.

Fig. 1.

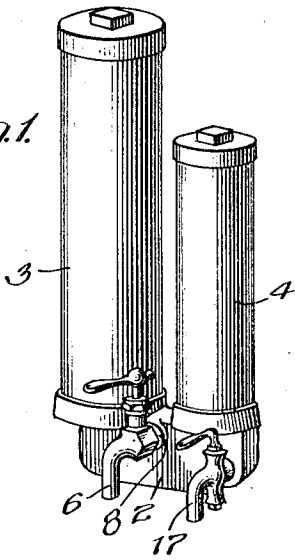


Fig. 2.

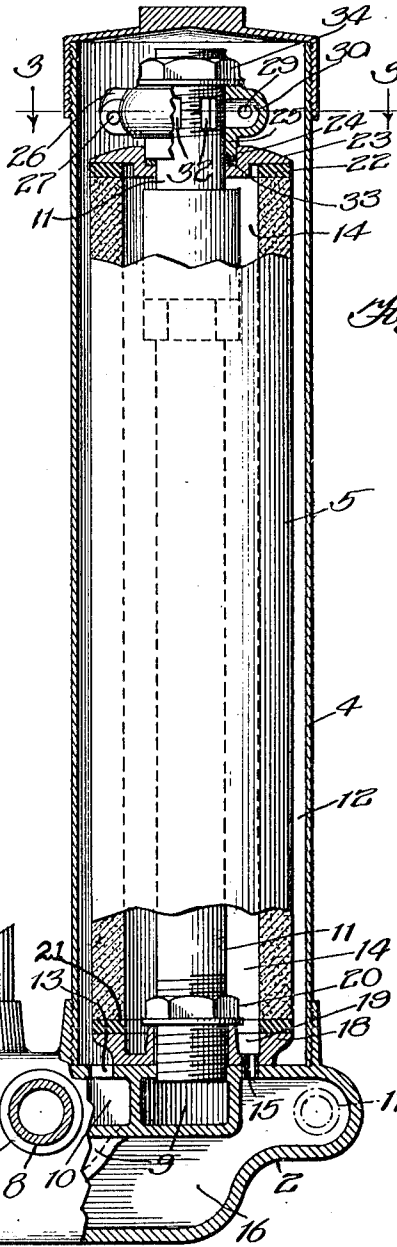


Fig. 3.

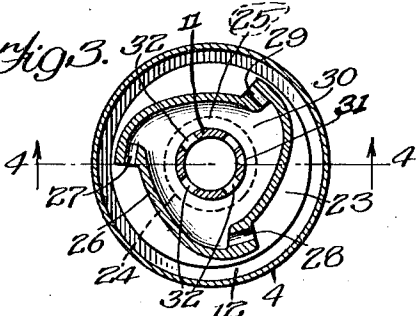


Fig. 4.

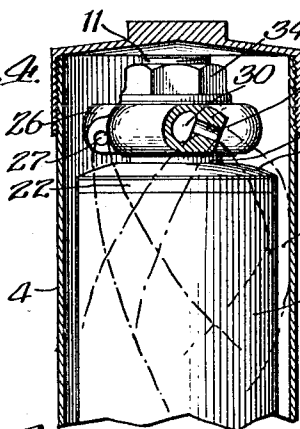
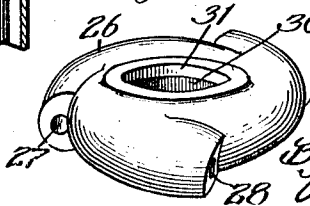


Fig. 5.



Witness:

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UNITED STATES PATENT OFFICE.

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FILTER.

1,273,608.

Specification of Letters Patent.

Patented July 23, 1918.

Application filed January 27, 1916. Serial No. 74,573.

To all whom it may concern:

Be it known that I, WILLIAM R. HILDEBRAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Filters, of which the following is a specification.

The present invention is an improvement on the filter shown in U. S. Letters Patent No. 1,043,933, Nov. 12, 1912, and consists in improved means for automatically washing the outside of the cylindrical filtering stone. As shown in said Letters Patent the filter includes a pair of cylinders on a base that is screwed onto the running water pipe in place of the usual faucet, the latter being replaced on the filter as its outlet for a series of unfiltered water passages one of which is the space between the filtering stone and the inner walls of the smaller cylinder, through which space the water descended perpendicularly. In the present invention the stone-washing stream in said space is caused to move in considerably extended helical paths, and the invention consists in the novel construction, combination and arrangement of parts, all as hereinafter described in detail, illustrated in the accompanying drawing and incorporated in the appended claim.

In the drawing—

Figure 1 is an exterior view of the filter, and substantially as of the same form as previously patented.

Fig. 2 is a greatly enlarged view of the smaller cylinder in vertical section, parts being broken away from the upper and lower ends of the filtering stone or cylinder.

Fig. 3 is a section taken substantially on line 3—3 of Fig. 2.

Fig. 4 is a section taken substantially on line 4—4 of Fig. 3.

Fig. 5 is a perspective view of the head for the unfiltered water pipe passing through the center of the cylindrical filtering stone, and which head spiral flows between the cylinder and the filtering stone.

In the several views 2 represents a base having passages therein which connect the large cylinder 3 with the small cylinder 4 through which the unfiltered water is circulated to, first, cool the water in the filtered water reservoir, or cylinder 3, and, secondly, to wash the filtering stone 5 on

the way to the unfiltered water faucet 6. In Fig. 2, 7 represents the water pipe connection on the rear of the base 2 and the circle 8 represents the threaded socket for the faucet 6 at the front of the base. 9 is a passage conveying the water from the inlet 7, or from a cooling pipe or coil in the filtered water reservoir 3 having its respective ends connected with 7 and 9, and 10 is a passage walled apart from 9 and conveying the unfiltered water to the faucet 6 from the passage 9 via a pipe 11 and an annular space 12 between 4 and 5 which leads to the passage 10 and the faucet 6 through an opening 13 in the base. From the space 12 the water is filtered into an annular space 14 between the stone 5 and the pipe 11 whence it escapes through an opening 15 into a base passage 16 that communicates with the interior of the reservoir 3 and with a filtered water faucet 17 the position of which on Fig. 2 is designated by 17'. The foregoing details however, form no part of the present invention and are more fully set forth in the aforementioned patent.

The stone cylinder 5 rests on a disk 18 having an annular groove 19 and a bore which is a part of the bore 15. The lower end of the pipe 11 has threaded engagement with a bore in the base and a lock nut 20 on the pipe clamps the disk 18 to the base and locks the pipe 11 against accidental rotation. A gasket 21 is interposed between the stone and the disk 18. A similar gasket 22 is interposed between the upper end of the stone and an annular disk 23 in which is a countersink bore 24 that is engaged by a hub 25 on a discharge head 26 having a series of tangentially arranged jet openings 27, 28 and 29 which lead from an annular trough 30 which is an interior expansion of an opening 31 through the head 26 for the pipe 11. The latter is provided with a series of elongated openings 32 which communicate with the trough or annular space 30, the elongations of the openings 32 being in the direction of the long axis of the pipe 11 and therefore permitting a certain amount of adjustment of the head 26 longitudinally of the pipe without interfering with the communication of openings 32 with the interior space in the head 26. Between the latter and the bottom of the counterbore 24 is interposed a gasket 33 and

the head 26 is clamped down on the disk 23 by means of a nut 34 which has threaded engagement with the upper end of the pipe 11. The lower edge of the hub or annular flange 25 is beveled, as shown at right side upper Fig. 2, to crowd the gasket 33 against the pipe 11.

As shown in the several views the openings 27, 28 and 29 are directed slightly downward as well as tangentially to speed up the downward spiral flow indicated by dotted lines in Fig. 4. The swirling of the water around the stone will greatly augment its cleaning force and thus make the filter self cleaning for prolonged periods of time.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

The combination with a filter, of a filtering stone casing and a hollow filtering stone having a space therebetween for the passage of unfiltered water, a pipe for conveying unfiltered water through the hollow space within said stone, a discharge head on and adjustable longitudinally of said pipe, and a series of tangentially and downwardly inclined outlet openings in said head for projecting streams of water in spiral paths around the exterior of said stone.

In testimony whereof I have hereunto signed my name.

WILLIAM R. HILDEBRAND.