R. H. CUMMINGS.

CISTERN FILTER.

APPLICATION FILED APR. 5, 1919.

1,337,595. Patented Apr. 20, 1920.

Fig. 1

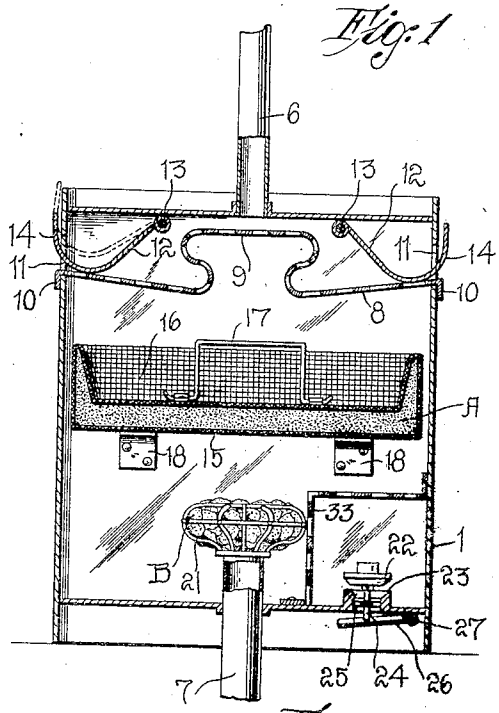


Fig. 2

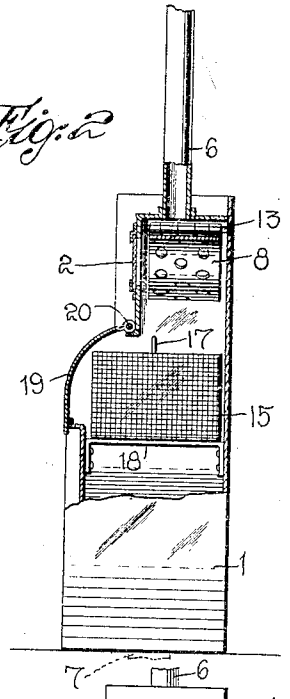


Fig. 3

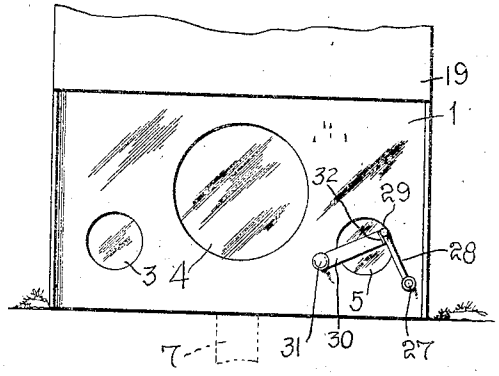
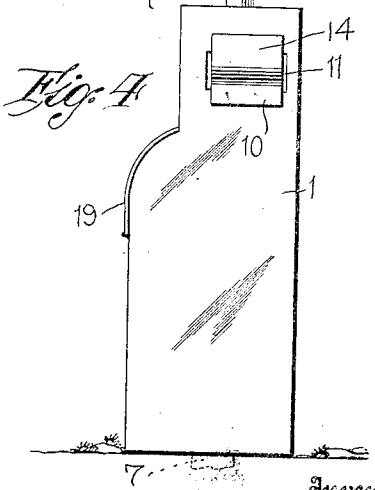


Fig. 4



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CISTERN-FILTER.

1,337,595. Specification of Letters Patent. **Patented Apr. 20, 1920.**

Application filed April 5, 1919. Serial No. 287,731.

To all whom it may concern:

Be it known that I, REZIN H. CUMMINGS, a a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Cistern-Filters, of which the following is a specification.

The general object of my invention is to provide a cistern filter which will be simple in construction, thoroughly efficient in operation, and inexpensive to manufacture.

One of the specific objects is to provide a novel construction of strainer, disposable near the top of the filter-casing, upon which the water from the down-pipe falls as it enters the filter-casing, and which functions to catch thereon debris contained in the water, such as leaves, nests, and dirt that may be washed down the pipe or spout; said strainer extending from side to side of the filter-casing and projecting through apertures in said sides, which apertures afford means for permitting the strainer to be flushed and the debris accumulated thereon removed.

Another object is to provide a novel construction of shutter for normally closing said apertures against passage therethrough of birds, mice, rats, etc.

Another object is to provide a novel construction of colander and percolator, in the form of double trays nested one within the other, the upper tray (constituting the colander) functioning to catch and retain therein foreign substances escaping through the larger perforations of the strainer at the top of the filter-casing, and the lower tray containing a filtering medium, such as sand, through which the water percolates.

Another object is to provide a novel construction of holder for water-purifying substance, such as charcoal, which holder is adapted to be supported upon the top of the discharge-pipe of the filter-casing, and is peculiarly adapted for holding charcoal.

Another object is to provide novel means, manually operable from the front of the casing of the filter, for opening a valve in the bottom of the filter-casing.

Another object is to provide a novel and most simple form of a device for holding the manually-operable member of said valve-actuating means in position after it has been shifted to open the valve.

With these objects in view, the invention resides in the novel construction, combination and arrangement of parts of a cistern filter, as will be hereinafter fully described in the specification, summed up in the claims, and illustrated in the drawing.

The accompanying drawing graphically exemplifies a form of embodiment capable of carrying out the underlying principles of the invention. Like reference-characters denote corresponding parts throughout the several views. The different views may be briefly described as follows:

Figure 1 is a central, vertical, longitudinal sectional view through my cistern filter;

Fig. 2 is a view in side elevation, partly broken away;

Fig. 3 is a fragmentary view, in front elevation; and

Fig. 4 is a view in side elevation.

Referring, now, in detail to the drawing:

The filter-casing 1 is of suitable material, preferably sheet metal, and is advantageously provided, in its front, with a transparent top panel 2 and with transparent lower panels 3, 4 and 5.

Tapped into the top of the casing is a down-pipe 6, and projecting through the bottom of the casing is an exit-pipe 7, discharging into a cistern (not shown).

Directly beneath the lower end of the down-spout 6 is a metallic, reticulated screening body 9, bent downward and inward at both ends on the lines of a compound curve, and thence inclined upward and outward, as shown at 8, 8, to the sides of the casing and through the apertures 11, 11, where the terminals 10, 10 are bent down against the sides of the casing. The bulk of the water issuing from the down-spout passes through the upper horizontal screening body or surface 9, the debris (such as stones, etc.) being washed onto the lower inclined straining portions 8, 8. The upper screening surface 9 is always kept clean, since it receives the full force of the water issuing from the down-spout, and, consequently, water passes freely therethrough. The debris, of unfilterable size, has a tendency to gravitate down the inclined lower straining surfaces 8, 8 into the pockets at the inner ends thereof formed by the bent curved portions referred to of the straining surface 9. The plate or strainer may be flushed and accumulated debris removed therefrom by water poured in at either one

of said apertures 11, 11, or a cleaning tool, such as a scraper, may be inserted through said openings to remove such debris from the strainer; or the side openings 11, 11 may be of such size relative to the strainer as to permit the latter to be slid bodily out of the filter-casing, at either side thereof.

To prevent birds, rats, mice, etc., gaining access, through said apertures 11, 11, to the strainer 8 and depositing droppings, etc., thereon, I provide shutters 12, 12, which are hinged, at one end, on hinge-pins 13, 13 disposed transversely of the casing, preferably immediately beneath the top thereof. From the hinge-pins, the shutters incline downward and are provided with upward-projecting or hook-shaped terminal portions 14, which project through the lower portion of the openings 11, 11 and form a barrier, as shown in the drawing. The shutters 12, 12 may be tilted upward on their hinges as shown in dotted lines at the left in Fig. 1, so that the strainer-plate 8 may be cleaned. While, as shown in the drawing, the shutters close by gravity, they may be mechanically closed by springs.

Beneath the strainer plate 8 is a reticulated holder for filtering material, A, such as sand. The holder 15 is, preferably, a tray, as shown, suitably supported, as by brackets 18, 18 carried by the casing 1. Nested within said tray is a second reticulated tray 16, constituting a colander. Desirably, the two trays are made of a single sheet of reticulated sheet metal, properly bent up into shape. The top tray 16 functions to catch and hold therein any debris which may escape through the top strainer 8, the tray being preferably and advantageously of finer mesh than the strainer. The lower tray, by reason of the filtering material A therein, functions as a percolator, through which the water percolates.

The trays 15, 16 may be removed from within the casing through a door 19 in the front of the casing, and, for this purpose, the top tray carries a handle or bail 17. Said door 19 is preferably hinged at its top, as shown at 20.

Beneath the tray 15 is a suitable container for charcoal B. This container is of peculiar shape and construction to adapt it peculiarly well for holding charcoal; and, to this end, is in the nature of a wire crib 21 adapted to be supported upon the top of the discharge-pipe 7. Preferably, the top of the pipe 7 is somewhat above the bottom of the casing 1, whereby the crib 21 is held above the bottom of the casing.

In the bottom of the casing is a valve 22, normally seated on a valve-seat 23. The valve is provided with a pendent stem 24, which projects through an opening 25 in the bottom of the casing. This valve may be a gravity-closing valve, or it may be mechanically closed by a spring, in a well known manner.

Suitable means are provided for conveniently opening said valve from the front of the casing. In this instance, such means comprise a valve-stem actuating member 26 supported at one end on a rock-shaft 27 projecting through, and being thus rotatably supported by, the front and rear walls of the casing 1. Carried by the end of the rock-shaft which projects through the front wall of the casing is a crank 28, having, at its other extremity, a handle 29. In the position of the parts as shown in Figs. 1 and 3, the crank 28 has been moved to the right in Fig. 3, which rocked the valve-stem engaging member 26 upward and pushed valve 22, by its stem 24, upward off of the valve-seat 23. The valve 22 is opened when it is desired to flush the interior of the casing 1. For the purpose of locking the crank 26 after it has been moved to open the valve 22, I provide an arm 30, pivoted, at one end, as at 31, to the front wall of the casing, and having a bent terminal 32. By swinging this arm so that it bears (as shown in Fig. 3) against the crank 28, after the latter has been moved to open the valve, the crank is held against movement in the reverse direction (or to the left in Fig. 3), to close the valve. A perforated guard or cage 33 is disposed around and over the valve 22.

The panel 2 in the top of the front wall of the casing is in line with the strainer plate 8, so that the latter may be seen by the user of the filter, and who may see, at a glance, whether the strainer plate needs cleaning, without removing the strainer plate from the casing, or tilting upward the shutters 14, 14. The large transparent panel 4 is in line with the crib 21. The smaller transparent panel 5 to the right of the panel 4, in Fig. 3, is in line with the valve 22, and the remaining small panel 3 to the left of the panel 4 in Fig. 3 affords an additional peep-hole and is also provided for the sake of symmetry.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a cistern filter, a casing provided with an opening at its top for the entrance thereto of water from a downspout, a horizontal reticulated screening body disposed immediately beneath said opening and bent downward at both ends and thence inclined upward to the sides of the casing, said inclined portions receiving the debris from the water issuing through the opening at the top of the casing.

2. In a cistern filter, a casing provided with apertured side walls, a reticulated strainer plate within said casing and projecting through said apertured walls, and shutters pivotally supported within said cas-

ing and having hooked-shaped portions projecting through said openings and preventing entrance therethrough.

3. In a cistern filter, a casing provided with an opening at its top for the entrance of water from a down-spout, and with apertured side walls, a horizontal reticulated screening body disposed immediately beneath said opening and bent downward at both ends and thence inclined upward to the sides of the casing and through said openings in the side walls thereof, said inclined portions receiving the debris from the water issuing through the opening in the top of the casing, and gravity-closing shutters normally preventing access to said screening body through said openings in the side walls of the casing.

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

REZIN H. CUMMINGS.

Witnesses:

WILLIAM F. BOETTCHER,

MARY B. SHEAHAN.