No. 649,530. Patented May 15, 1900.

G. RITTER.

CISTERN FILTER.

(Application filed Jan. 27, 1900.)

(No Model.)

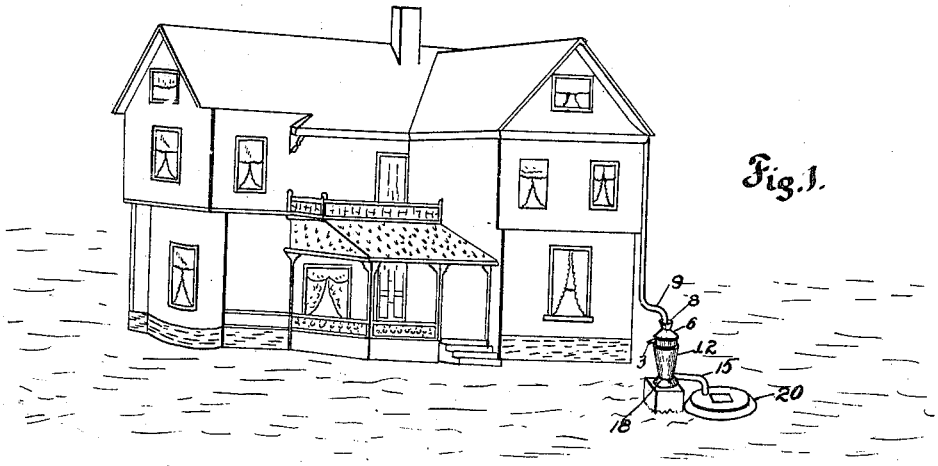


Fig. 1.

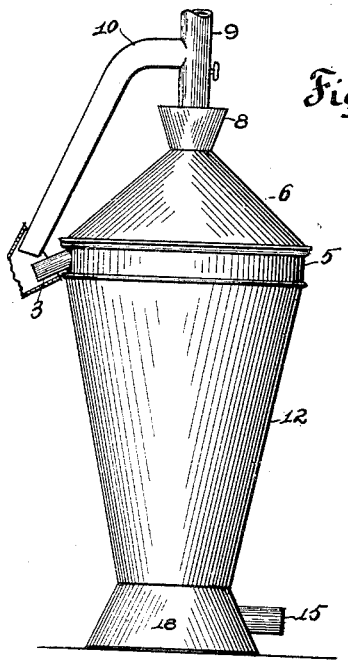


Fig. 2

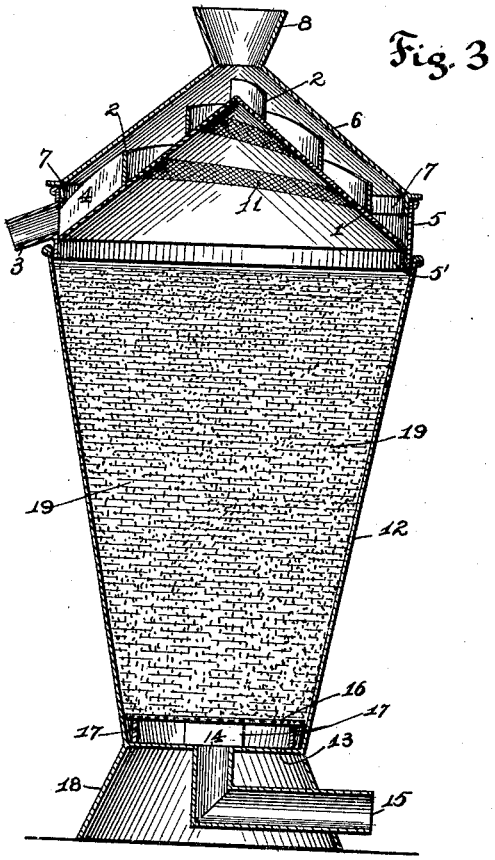
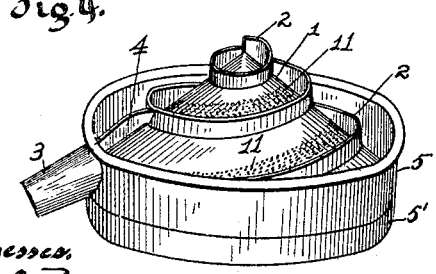


Fig. 3

Fig. 4.



Witnesses.
G. L. Bulfy
M. Boyd.

Inventor
George Ritter
By Emil Starck Atty

UNITED STATES PATENT OFFICE.

GEORGE RITTER, OF PINCKNEYVILLE, ILLINOIS.

CISTERN-FILTER.

SPECIFICATION forming part of Letters Patent No. 649,530, dated May 15, 1900.

Application filed January 27, 1900. Serial No. 3,014. (No model.)

To all whom it may concern:

Be it known that I, GEORGE RITTER, a citizen of the United States, residing at Pinckneyville, in the county of Perry and State of Illinois, have invented certain new and useful Improvements in Separators for Eliminating Suspended Impurities from Cistern-Waters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in devices for separating impurities held in suspension in rain-water before the latter is stored in the cistern designed to receive it.

The invention consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a dwelling, showing a general application of my invention thereto. Fig. 2 is a side elevation of my device. Fig. 3 is a middle vertical section of the device, the down-spout and overflow thereof being omitted; and Fig. 4 is a perspective view of the separator proper.

The object of my invention is to construct a simple device which may be attached to the down-spout of an ordinary dwelling and which will mechanically separate all solid particles held in suspension from rain-water before the same is delivered into the cistern in cases where rain-water is used for drinking and domestic purposes generally. In detail the device may be described as follows:

Referring to the drawings, 1 represents a conical plate or separator, from the apex of which is disposed a spiral-shaped wall 2, terminating at a convenient point adjacent to the edge of said cone. Leading from the upper surface of said cone and projecting downward a suitable distance beyond the edge is a waste-spout 3, the latter being located to one side of a limiting or intercepting wall 4, which extends from the lower continuation of the wall 2 to the outer bounding-wall 5 of the conical separator. The wall 5 of course has a discharge-opening leading to the spout 3 aforesaid, and the bottom of the spiral passage or raceway formed by the wall 2 is provided with openings or punctures 11 for the escape of the washed water, as presently to be seen. The cone 1 is surmounted by a conical hood 6, having a depending rim 7 fitting snugly within the wall 5, the top of the hood having a flaring mouth 8 to receive the down-spout 9, the overflow 10 being preferably in proximity to the spout 3. The cone 1 is supported on and coupled to a preferably filtering-receptacle 12, the rim 5′ of the separator being snugly received by the upper end of the latter. Leading from the bottom 13 of the receptacle 12 and communicating with the interior thereof through an opening 14 of such bottom is a discharge-pipe 15, the latter leading direct to the cistern 20. Resting on the bottom 13 is a preferably wire-gauze filter or plate 16, the latter being supported slightly above such bottom by the legs 17. The receptacle is provided with a flaring supporting-base 18, the chamber of the receptacle being preferably filled with sand 19.

The operation of the device is as follows: As the rain-water descends through the down-spout 9 it is immediately received by the spiral passage or raceway formed by the wall 2, the water having thereby imparted thereto a spiral motion, the centrifugal action of which throws the solid particles held suspended in the water against the inner surfaces of the spiral wall, the said particles being finally crowded along and forced against the intercepting-wall 4, contiguous to the spout 3, through which they are discharged with a small percentage of the water, the bulk of the latter, washed or cleared of its impurities, being forced through the perforations 11 into the receptacle 12, where it is finally and fully filtered and escapes in a perfectly-clean condition through the pipe 15 into the cistern.

The device eliminates all manner of suspended impurities and rubbish and may be used in connection with a receptacle or tank not provided with a filter. The device too is susceptible of minor changes without departing from the spirit of my invention.

Having described my invention, what I claim is—

1. A separator comprising a perforated plate, a spiral raceway formed thereon in the path of the perforations, and having its point of beginning at substantially the middle of the plate, and ending at the outer edge of the

plate, means for forcing the water through said raceway, and delivering the suspended impurities at a point beyond the raceway, substantially as set forth.

2. A separator comprising a perforated plate, a spiral raceway formed about said perforations, means for forcing the water through said raceway, and discharging the suspended impurities at a point beyond the raceway, substantially as set forth.

3. A separator comprising a plate having inclined walls, a spiral raceway having a perforate bottom formed thereon, a hood for said plate, and means for connecting the hood to a source of water-supply, substantially as set forth.

4. A separator comprising a conical plate, an outer bounding-wall, a spiral wall disposed from the apex of the cone and leading down to the edge of the cone and against the bounding-wall, thereby forming a spiral raceway about the cone, perforations formed in the cone at the base of the raceway, a waste-spout at the outer limit of the raceway, and means for forcing the water through said raceway, the parts operating substantially as and for the purpose set forth.

5. A separator comprising a conical plate, an outer bounding-wall, a spiral raceway having a perforate bottom disposed along the outer surface of the cone, an intercepting-wall at the outer end of the raceway, a waste-spout adjacent to said limiting-wall and leading from said bounding-wall, a hood covering said conical plate, a mouth formed in the hood at a point opposite the apex of the cone, whereby water entering the raceway through said mouth has imparted thereto a rotary motion, the centrifugal force of which forces the suspended impurities against the walls of the raceway and finally out through the waste-spout, substantially as set forth.

6. A separator comprising a conical plate, a spiral raceway having a perforated bottom disposed along the outer surface thereof, in combination with a receptacle or tank adapted to receive the washed water, substantially as set forth.

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

GEORGE RITTER.

Witnesses:
EMIL STAREK,
G. L. BELFRY.