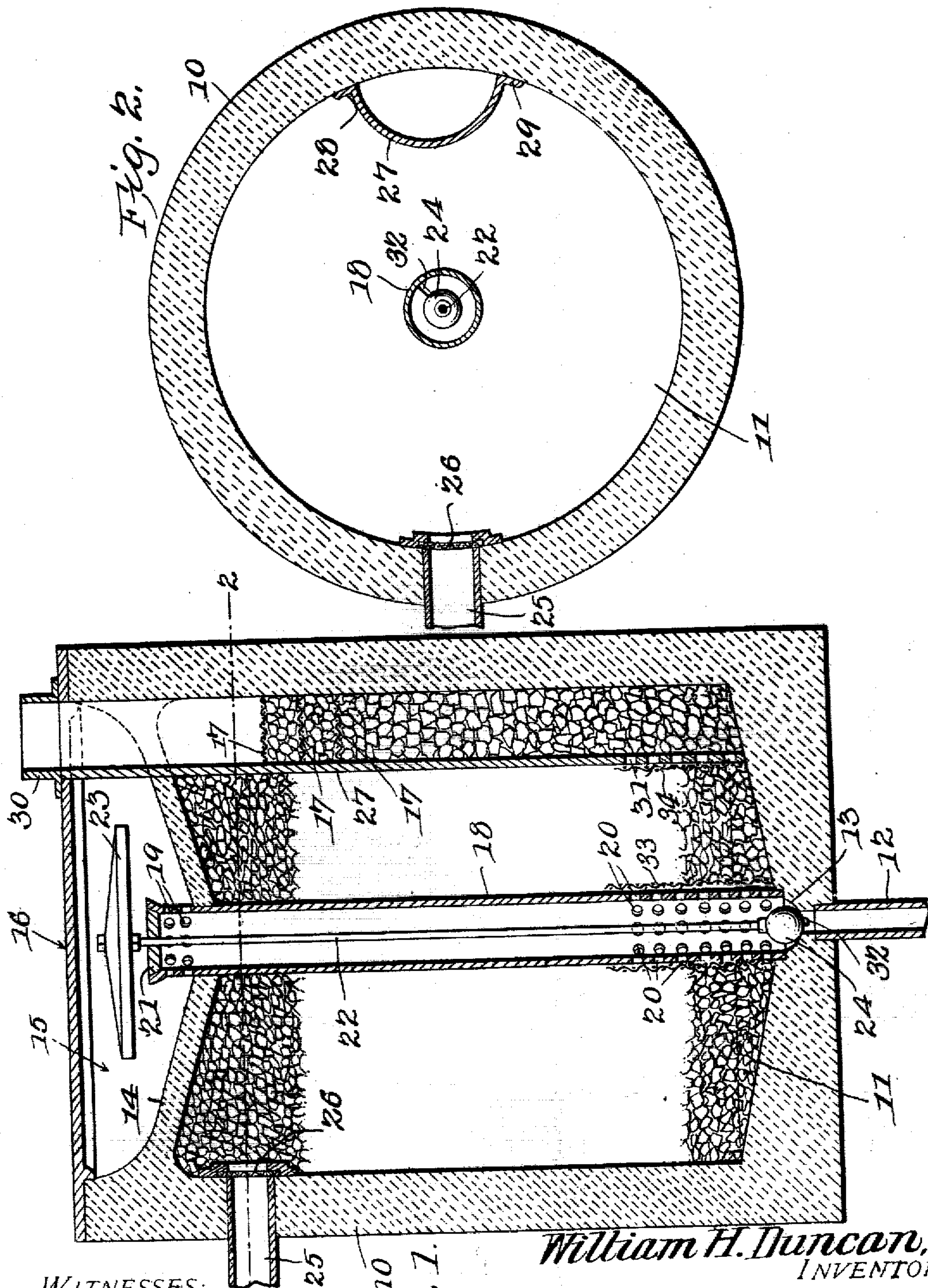


No. 828,724.

PATENTED AUG. 14, 1906.

W. H. DUNCAN.  
 FILTER FOR CISTERNS.  
 APPLICATION FILED MAR. 26, 1906.



WITNESSES:

*E. H. Woodward*  
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*Fig. 1.*

*William H. Duncan,*  
 INVENTOR.

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 ATTORNEYS



# UNITED STATES PATENT OFFICE.

WILLIAM H. DUNCAN, OF WILMINGTON, OHIO.

## FILTER FOR CISTERNS.

No. 828,724.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed March 26, 1906. Serial No. 308,110.

*To all whom it may concern:*

Be it known that I, WILLIAM H. DUNCAN, a citizen of the United States, residing at Wilmington, in the county of Clinton and State of Ohio, have invented a new and useful Filter for Cisterns, of which the following is a specification.

This invention relates to devices for filtering water, more particularly to devices of this character through which rain-water is conducted in its passage from the roof to the cistern or storage-tank, and has for its object to improve the construction and increase the efficiency of devices of this character.

With these and other objects in view, which will appear as the nature of the invention is better understood, the invention consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of the embodiment of the invention capable of carrying the same into practical operation.

In the drawings, Figure 1 is a vertical section of the improved device. Fig. 2 is a transverse section on the line 2 2 of Fig. 1.

The improved device consists generally in a receptacle for the filtering material, so arranged that the water to be filtered may be conducted through the filtered material or turned aside, if required, and conducted into a waste-outlet or drainage means.

The improved apparatus comprises more particularly a casing for the filtering material, a receiving-chamber for the water to be filtered, a drainage means associated with the chamber and casing and so arranged and connected that the water may be conducted from the receiving-chamber through the filtering material or directly from the receiving-chamber into the drainage means, as may be required.

In the embodiment of the invention employed for illustration is shown a casing 10 of any suitable material, the material employed depending largely upon the location of the casing.

If the device is located above the ground, the casing may be of tank-steel or similar material, and if located below the ground or partially in the ground the casing will usually be of concrete, tiling, or similar material.

For the purpose of illustration the casing is

represented constructed of concrete, which is the preferred material under ordinary circumstances.

The casing is formed with an inclined bottom 11 and with a discharge-duct 12, leading from the lowest point of the inclined bottom and with a valve-seat 13 at the entrance to the duct. The upper end of the casing is provided with a partition 14, preferably integral with the casing and inclined from all sides to the center and forming a chamber 15 in the upper end of the casing. The casing is also provided with a closure 16, preferably of iron, and with a collar 30 to receive the down-spout from the roof.

Disposed within the casing is a central tube 18, with its lower end bearing over the valve-seat 13 and its upper end protruding through the partition 14 and extending into the chamber 15. The portion of the tubular member 18 above the partition 14 is provided with a plurality of transverse apertures 19, while the lower end of the tubular member is also provided with a plurality of transverse apertures 20, the latter apertures being disposed just above the inclined bottom 11 of the casing.

The upper end of the tubular member is provided with a closure 21, through which a rod 22 extends, the rod carrying a float 23 at the upper end within the chamber 15 and with a valve 24 at the lower end for bearing upon the seat 13.

The outlet 25 of the casing leads therefrom near the upper end and is provided with a screen 26 to prevent the entrance of foreign matter, as well as to prevent the escape of the contents of the casing. Disposed within the casing at one side is a semicircular partition 27, with its edges attached at 28 29 to the inner walls of the casing. The partition 27 extends through the transverse partition 14 and also through the closure 16 and terminates beneath the collar 30 to receive the water from the down-spout. At its lower end the partition 27 is provided with a plurality of transverse apertures 31 to permit the water to escape into the interior of the casing.

The casing 10 is filled with suitable filtering material, such as gravel and sand or the like, while the area within the partition 27 is likewise partially filled with similar material or with gravel alone, and above the gravel within the partition 14 are disposed alternate layers of fabric 17 and filtering material, such as gravel, sand, and the like.



Any suitable filtering material may be employed, dependent upon the condition of the water to be filtered, as the matter held in suspension in some qualities of water and in some localities may require different combinations of the filtering material to remove them, and I do not, therefore, desire to be limited in any manner to the filtering compound employed.

The apertures in the tubular member 18, as well as in the partition 27, are preferably protected by fine screen material or gauze, as shown, respectively, at 33 and 34. By this arrangement the water entering through the down-spout flows into the chamber 27 and thence through the aperture 31 into the casing 10 and rising through the filtering material escapes at the discharge 25.

If the supply of water is greater than the capacity of the discharge 25, a back pressure will be created which will flood the chamber 15 and elevate the float 23, and thus open the valve 24 and permit the surplus water to escape through the drainage-tube 12. When the excess flow ceases, the float will drop by gravity and close the valve 24. The device is thus automatic in its action and all danger of flooding a cistern or tank is obviated.

A small drainage-channel 32 is formed in the seat 13 for the valve 24 to permit any water which may remain in the filter or in the tubular members 18 and 22 to slowly escape after the flow from the down-spout has ceased, and thus avoid any danger of freezing in cold weather.

The device may be of any required size or capacity and employed for purifying water received from any source, but, as above noted,

is more particularly designed for use in filtering rain-water on its way from the roof to the cistern or tank.

Having thus described the invention, what is claimed is—

1. A filtering apparatus comprising a casing having a partition intermediate thereof and with filtering material at one side of the partition, a drainage means leading from said casing, a tubular member leading through said partition and communicating with the casing and also with said drainage means, a valve for controlling the outflow through said drainage means, a float connected to said valve, and means whereby an abnormal flow of water will actuate said float and open said valve.

2. A filtering apparatus comprising a casing having a partition intermediate thereof, a drainage-tube leading from said casing, a valve seated in the drainage-tube, a tubular member extending through said partition and casing and inclosing said valve and communicating adjacent to the valve with the interior of the casing, filtering material within the casing and surrounding the tubular member, a float in the chamber formed by said partition, and a rod between said float and valve.

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

WILLIAM H. DUNCAN.

Witnesses:

HARRY GASKILL,  
E. C. HAYNES.