

(No Model.)

W. W. BAYS.

RAIN WATER CUT-OFF AND FILTER.

No. 390,943.

Patented Oct. 9, 1888.

Fig. 1.

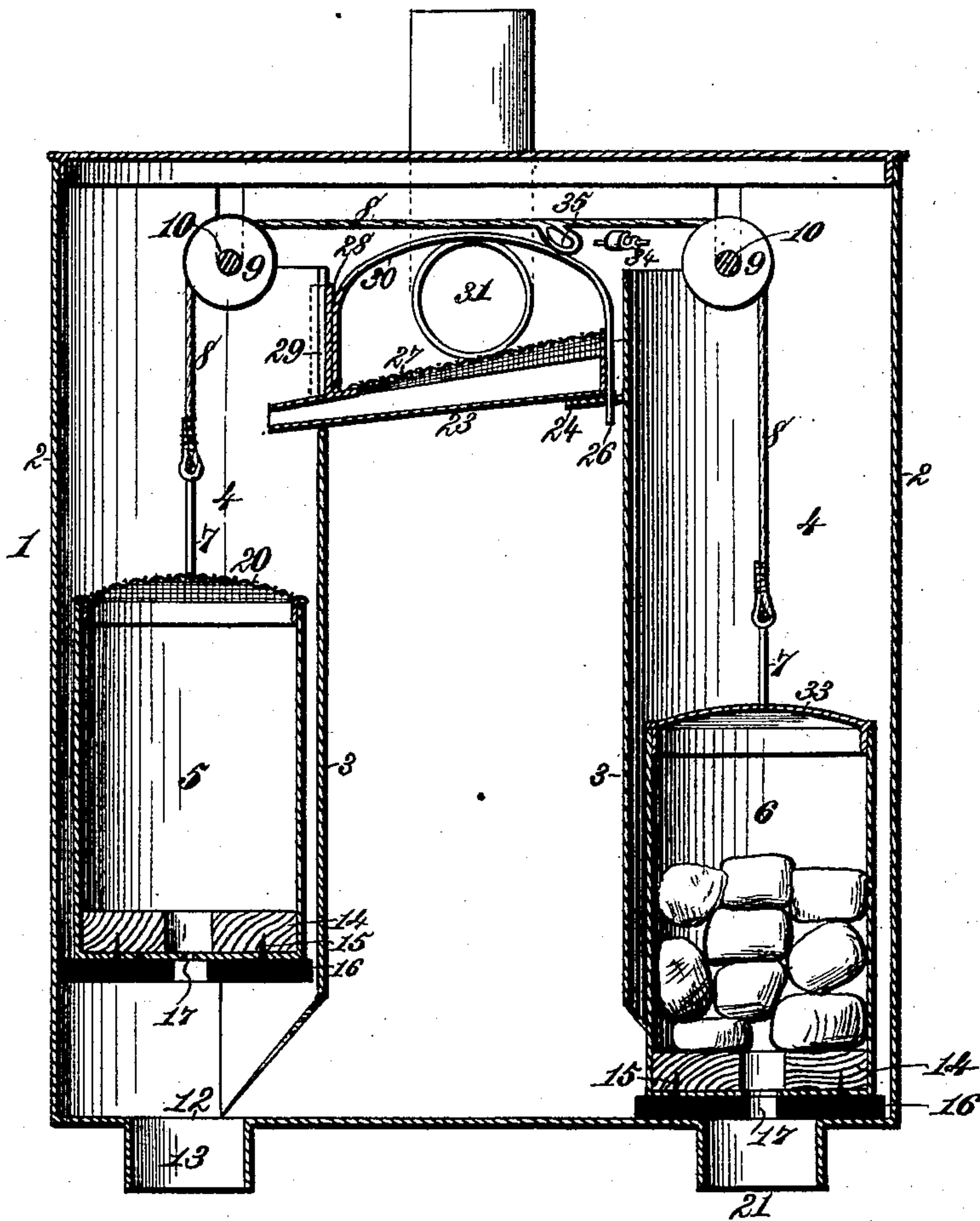


Fig. 3.

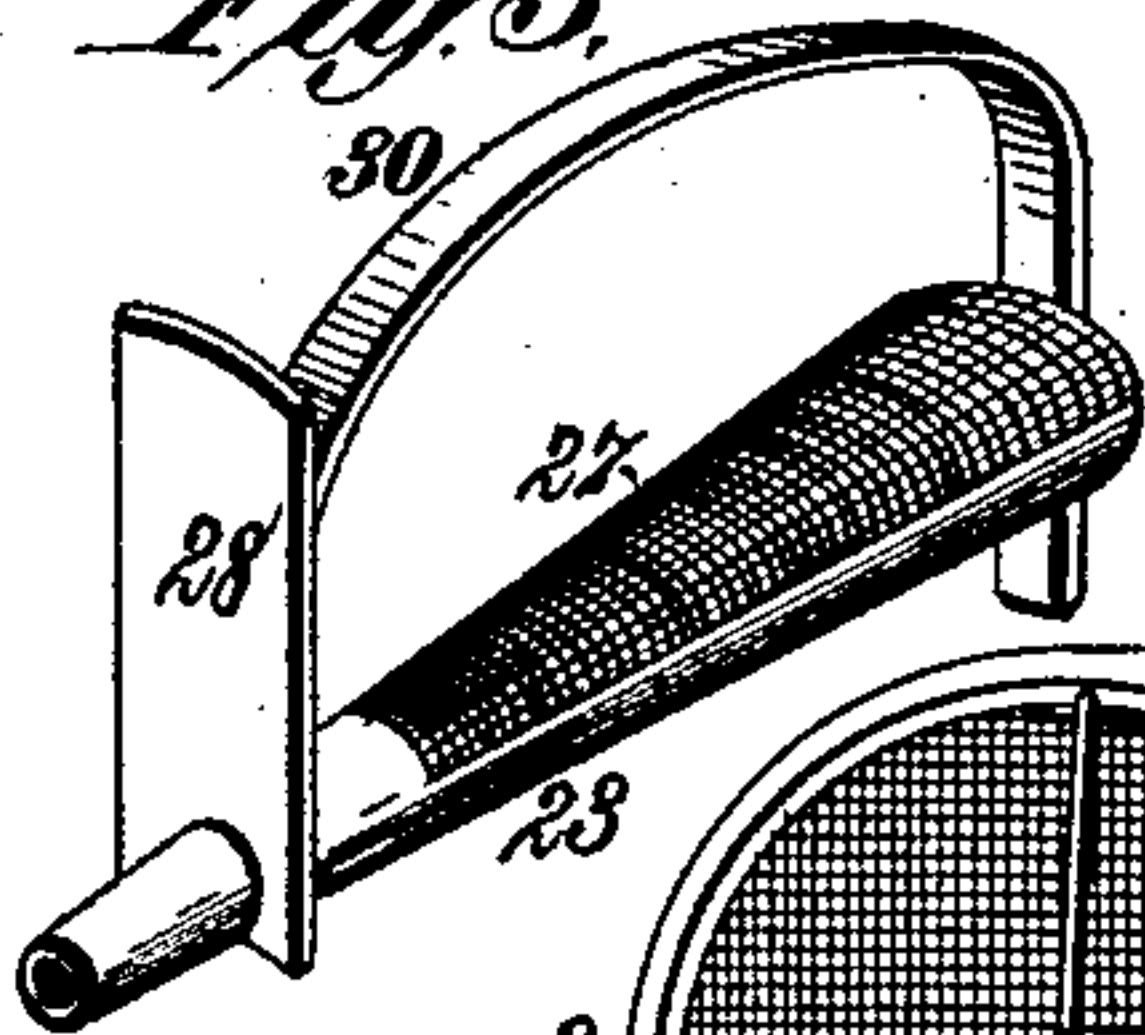
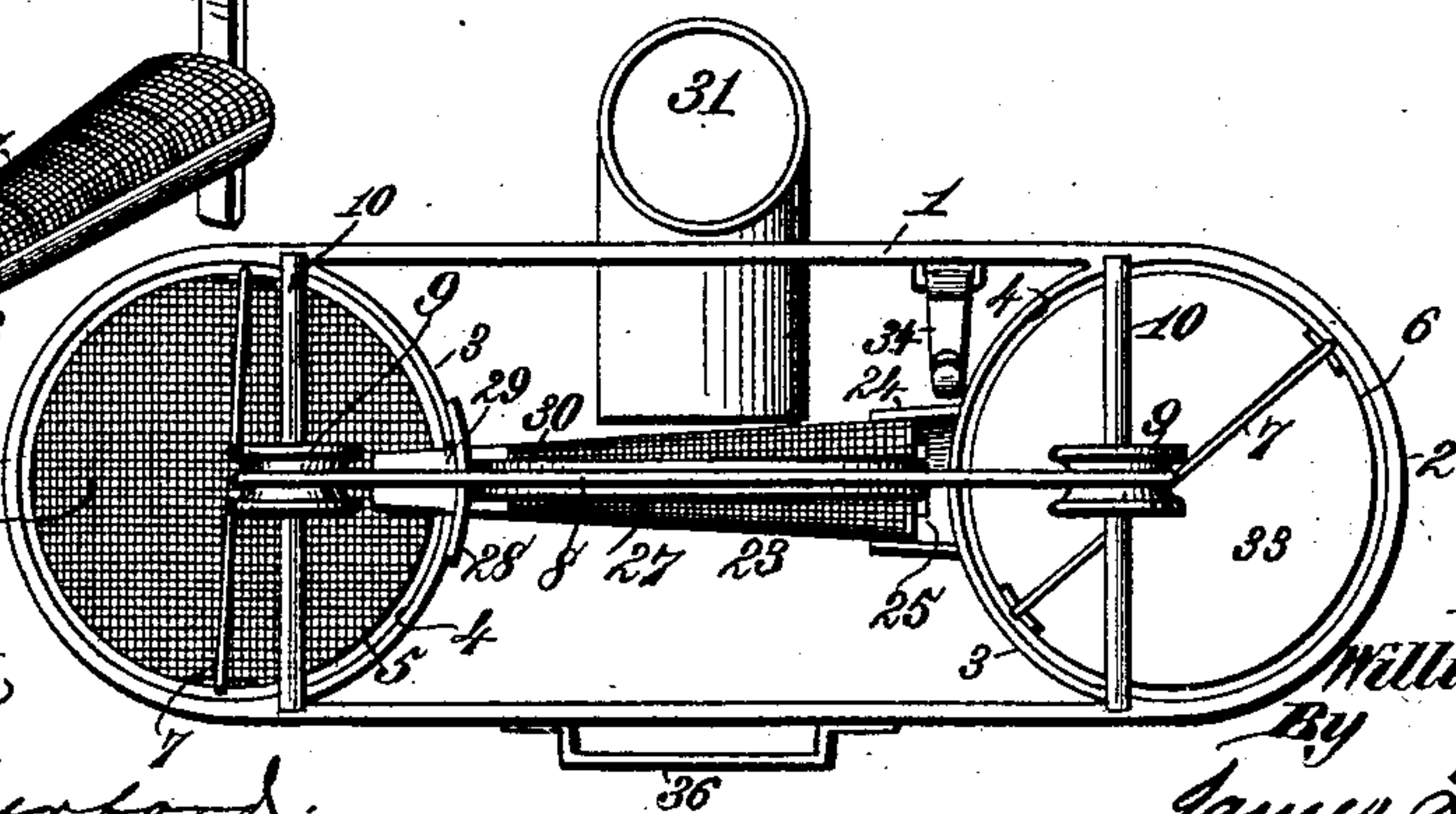


Fig. 2.



Witnesses:
Robert Everett,

J. A. Rutherford.

Inventor:
William W. Bays,

By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM W. BAYS, OF ASHEVILLE, NORTH CAROLINA.

RAIN-WATER CUT-OFF AND FILTER.

SPECIFICATION forming part of Letters Patent No. 390,943, dated October 9, 1888.

Application filed July 7, 1888. Serial No. 279,242. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. BAYS, a citizen of the United States, residing at Asheville, in the county of Buncombe and State of North Carolina, have invented new and useful Improvements in Rain-Water Cut-Offs and Filters, of which the following is a specification.

My invention relates to apparatus for automatically diverting the first flow of rain-water collected upon a roof and carrying it away by a suitable waste-conduit, the succeeding flow being thereafter directed to the cistern or other receiving-reservoir.

It is my purpose to provide simple and effective means for accomplishing the result specified, whereby the dust, dirt, and other foreign matter accumulating upon the roof may be removed and the collecting surface and troughs cleansed before the flow is admitted to the cistern, thereby greatly promoting the cleanliness and purity of the water, and thus contributing to health.

It is one object of my said invention to provide a simple automatic mechanism which will not easily get out of order, and in which the first flow of water from the roof and the subsequent cessation of such flow will actuate the cut-off to divert the first portions of water collected to the waste-pipe and the subsequent water to the cistern or reservoir, while the total cessation of the rainfall will again close the reservoir or cistern inlet and hold it closed until a repetition of the operation.

The invention consists in the several novel features of construction and new combinations of parts, hereinafter fully described, and then definitely pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of a mechanism embodying my invention. Fig. 2 is a plan view of the same, the lid or cover being removed. Fig. 3 is the movable spout, with its handle, gauze covering or strainer, guard, &c.

In the said drawings, the reference numeral 1 designates the casing of the mechanism, constructed of any suitable material. While this casing may be of any desired form, it is convenient to make it of the form shown in Fig. 2, with rounded vertical end walls, 2, which combine with the vertical partition-walls in forming circular chambers 4. Within the chambers 4, I arrange the buckets 5 and 6,

each having a bail or other support, 7, connected by a chain or rope, 8, the latter passing over pulleys 9, carried by shafts 10, journaled in the upper part of the casing, the pulleys being placed so as to cause the bucket and weight to hang in the middle of the bucket-chambers. As one bucket rises, the other will sink in a corresponding degree, one bucket—that over the cistern-outlet—being simply a weight in shape like a bucket.

Directly beneath the bottom of the bucket 5 is formed in the bottom of the casing 1 an opening, 12, having a diameter less than that of the bottom of the bucket and weight. This opening communicates with a waste-pipe, 13, leading to any suitable receptacle for waste water, such as a sewer. Upon the bottom of the bucket and weight, which is composed of a wooden disk, 14, is attached, by nails or screws 15, a rubber, leather, or cloth disk, 16, having a small central outlet, 17, registering with that in the bucket and discharging into the waste-pipe 13, said opening remaining normally open at all times. A convex sieve or strainer, 20, forms the top of the bucket, to arrest foreign matters carried by the water and prevent the clogging of the small aperture 17 in the bottom of the bucket. The lower ends of the semicircular partitions 3 are cut away, preferably diagonally, upon the side, to give free communication between the interior of the casing and the waste-pipe and cistern-pipe. Within the other bucket-chamber is arranged the weight-bucket 6, having an external appearance similar in all essential respects to that of the bucket 5, except the gauze top.

Beneath the bucket 6 is a conduit, 21, leading to the cistern or other reservoir, and which is closed by the descent of the weight bucket and the seating of the rubber, leather, or cloth disk on its bottom, making it water-tight on the rim or shoulder surrounding the outlet leading to the cistern. Arranged within the casing, between the bucket-chambers 4, is a movable trough, 23, having a considerable inclination or downward dip of the smaller end to give the water falling from it into the bucket sufficient velocity and force. The lower or smaller end of the trough projects through the vertical wall of the bucket-chamber 4 sufficiently far to allow the water from it to fall on

the gauze top of the bucket near the center. The upper or larger end of the trough is supported by a projection, 24, attached to the outer wall of the bucket-chamber 4. This projection has in it a transverse slot, 25, for the admission of a small projection, 26, on the under side of the trough at the larger end. This is designed to hold the trough in position and keep it from turning. On the top of the trough 23, and directly under the horizontal inlet 31, is a convex or cylindrical gauze or sieve, 27, forming a part of the trough. This is designed to keep any dirt or other solid material from entering into the trough and falling on the gauze top of the bucket-lid. Near the smaller end of the trough, and attached to it and forming a part of it, is a vertical shield or guard, 28, to prevent the water from entering into the bucket-chamber through the vertical slot or opening 29 in the top of the bucket-chamber. This shield or guard is adjusted to the outside of the bucket-chamber 4.

The guard 28 is curved vertically to suit the outside wall of the bucket-chamber and to fit closely to it. The slot 29 is designed for the descent of the smaller end of the trough to its proper place. A handle, 30, is at one end attached to the guard 28, and the other end attached to the outer larger end of the trough 23, projecting some distance below it and forming the projection or protuberance 26, entering into the slot 25. The handle 30 is of a curved formation, and the top of its curve should be as high or a little higher than the top of the horizontal inlet 31, thus not interfering with the flow of the water from the inlet. The trough 23 can be lifted out or put in position at will by the handle 30. Entering the casing on the rear side near the top is the horizontal inlet 31, which has an angle or elbow on the outside, thus allowing the inlet to make a vertical connection with the spouting of the house. The angle or elbow is also designed to break the force of the falling water before it reaches the inside of the casing and the trough.

The top of the lid of the bucket 5 is a convex gauze or sieve, 20, for the double purpose, in connection with the convex gauze on the trough, of preventing any solid matter from entering the bucket 5, and thus obstructing the small outlet 17 in the bottom of the bucket. If preferred, on the top of the other bucket or weight 6 is also a lid, 33, but not of gauze, as the bucket 6 is not designed for water at all, but simply as a weight. On the rear side, preferably, and near the top of the chamber 1, and situate near the tubular chamber in which the weight 6 is placed, is a small movable hook or catch, 34, and attached to the chain or pulley cord is a small loop, 35, which is to be attached to the hook 34 when it is designed for the cut-off not to operate, as in summer-time, when it is desired to keep the water from the cistern. When it is desired for the water to again enter the cistern, the loop is to be detached from the hook 34, which allows the cut-off to again operate. The casing

1 of the cut-off should sit firmly on a solid smooth plank, with holes in it for the outlet-pipes to pass through, and the casing should be firmly attached to the plank by a strap or cord passing under the bottom of the casing and the plank and then passing up the sides of the casing and through the cleats 36 on the outside of the casing.

In this invention there are no hinges and no valves to get out of repair, and the construction is so simple that it will not easily become impaired or ever need much attention when once placed in proper position.

The operation of the mechanism is as follows: The bucket 6 being provided with a weight which normally predominates over that of the bucket 5, the latter will be sustained in the position seen in Fig. 1, while the former is down, closing the entrance to the cistern, but leaving free communication with the waste-pipe. As the rainfall begins, a portion of the water, first flowing from the roof, passes through the trough and flows into the bucket 5 through the interposed convex sieve or lid 20. The outlet 17 through the bottom of said bucket, being considerably less in capacity than the inflow through the trough, overcomes that of the bucket or weight 6, whereon the latter will rise, opening the conduit leading to the cistern, while at the same time the other bucket sinks, closing the waste-pipe. It is maintained in this position by the constant flow from the trough 23, which passes out of the bucket-chamber over the bottom of the casing 1 and into the cistern. When the rainfall ceases, the contents of bucket 5 slowly escape through the central aperture, 17, in the bottom, running through the waste-pipe until the normal equilibrium is restored, when the bucket 5 rises and the bucket 6 sinks to its former position.

What I claim is—

1. In an automatic cut-off, the combination, with two unequally-weighted buckets, with openings in the bottoms thereof and connected by a chain or cord, of bucket-chambers having openings communicating with a reservoir and with a waste-pipe, and an inlet for the rain-water leading to a movable trough emptying into one of said buckets, substantially as described.

2. In an automatic cut-off, the combination, with a casing having an inlet and two outlets, one leading to a cistern and the other to a waste-pipe, of two similar bucket-chambers having openings at their lower ends leading into the casing, unequally-weighted buckets connected by a chain or cord running over pulleys, each bucket having a yielding disk fastened upon its bottom and closing the escape-apertures in the floor of the casing, and a movable trough to conduct the water to one of the buckets, substantially as described.

3. In an automatic cut-off, the combination, with a casing having an inlet and two outlets, one leading to a cistern and one to a waste-pipe, of a bucket and weight connected to-

gether to rise and fall in bucket-chambers in the casing, a yielding disk mounted on the pierced bottom of both bucket and weight, and a trough arranged to receive the flow from the spouts of the house and having a foraminous or gauze covering, substantially as described.

4. The combination, with the casing 1, having bucket-chambers 3, provided with openings at their lower ends, said casing having openings 12, of the bucket 5 and weight 6, the latter having an overbalancing-weight and the former a convex sieve on top, the yielding disks 16, with central apertures, the trough 23, having convex gauze covering, and the inlet 31 in top of casing, and a removable cover or lid for casing, substantially as described.

5. In an automatic cut-off, the combination, with a casing having two bucket-chambers and provided with exit-openings below the foot of each chamber, of a bucket and weight connected together by a chain or cord, the overbalancing-weight normally operating said bucket to sink the same, a trough arranged

beneath an inlet to discharge into one of said buckets, and a shield mounted upon the smaller end of the trough and fitting on the outer wall of the bucket-chamber, substantially as described.

6. In an automatic cut-off, the combination, with a casing having two similar bucket-chambers provided with openings at their bottoms, of buckets arranged in said chambers and connected by a cord passing over pulleys, and a trough discharging into one of the bucket-chambers, the openings in the bottoms of said chambers leading one to a waste-pipe and the other to a reservoir, said buckets being unequally weighted and the connecting-cord having a loop adapted to engage a hook on the casing, substantially as described.

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

WM. W. BAYS.

Witnesses:

D. W. RUCKER,
H. M. MURPHY.