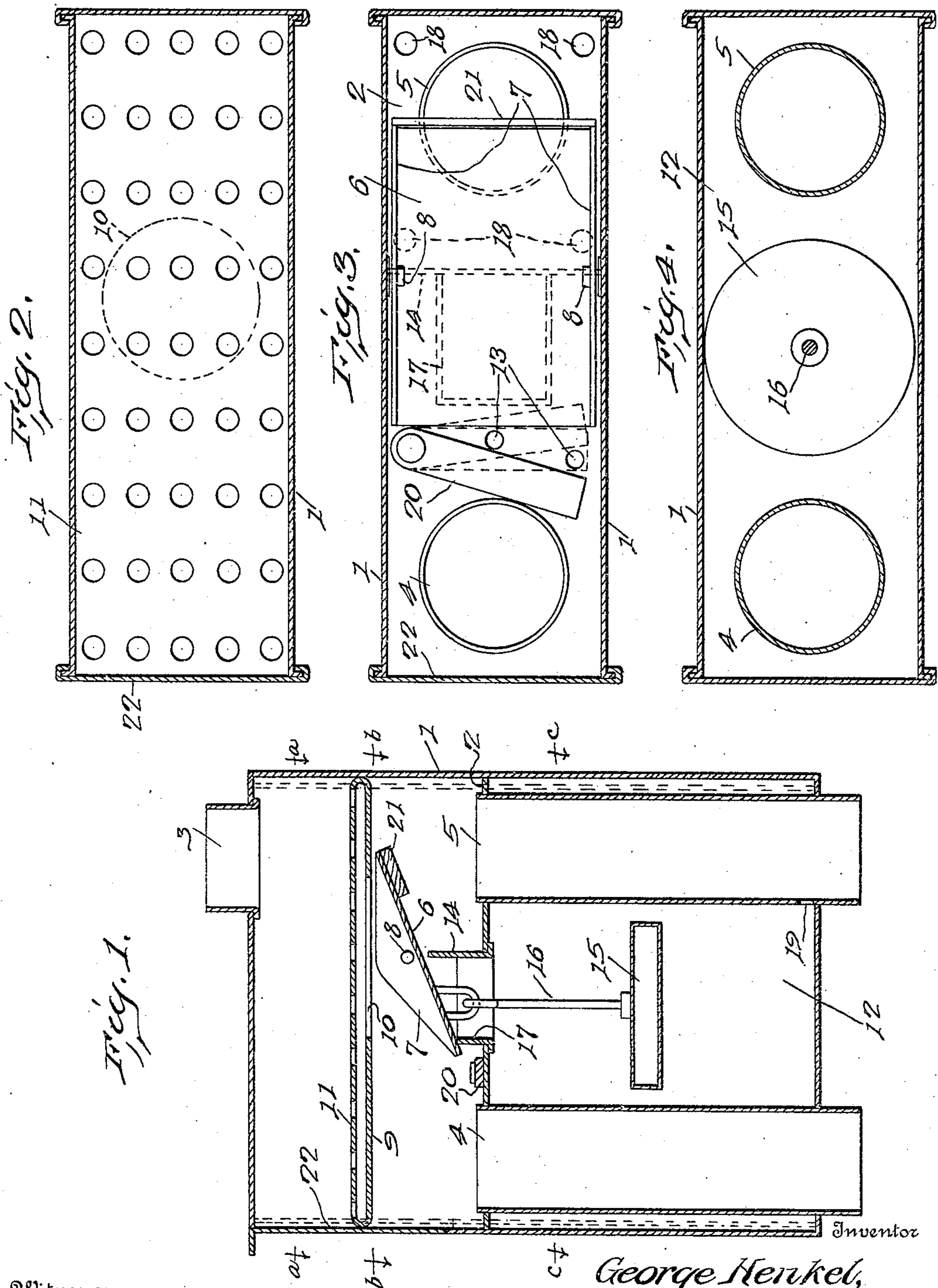


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 CUT-OFF FOR WATER SPOUTS.  
 APPLICATION FILED APR. 23, 1909.

938,665.

Patented Nov. 2, 1909.



Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE HENKEL, OF CANAL DOVER, OHIO.

CUT-OFF FOR WATER-SPOUTS.

938,665.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed April 23, 1909. Serial No. 491,734.

*To all whom it may concern:*

Be it known that I, GEORGE HENKEL, a citizen of the United States, residing at Canal Dover, in the county of Tuscarawas and State of Ohio, have invented certain new and useful Improvements in Cut-Offs for Water-Spouts, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to cut-offs for water spouts, and more particularly to that class of cut-offs adapted to be interposed between the down-pipe, leading from the eaves-troughs, and the cistern-pipe and having a deflector which is supported normally in position to divert the water into the waste-pipe, but is adapted to be automatically reversed to divert the water into the cistern-pipe after a predetermined amount of the water has passed over the deflector, thereby preventing the first rainfall, which carries with it the dirt and dust from the roof, from entering the cistern.

The object of the invention is to provide a cut-off of this character which will be positive in its operation; which will require little or no attention after it has once been installed; which will be right or left handed, *i. e.*, may be mounted with either side next to the supporting wall; which will be provided with means for regulating the amount of water which must pass over the deflector before the same will be reversed; and which will be very simple in its construction, comprising a minimum number of parts and having these parts of such a character that they will require no fine adjustments and will necessitate no fine machine work in the manufacture of the device, thereby, not only rendering the device very easy and inexpensive to manufacture, but also rendering the same very durable and minimizing the liability of the device being rendered inoperative by the disarrangement of the operating parts.

With these objects in view the invention consists in certain novel features and in certain combinations and arrangements of parts hereinafter to be described, and then more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view, taken centrally through a cut-off embodying my invention; Fig. 2 is a transverse sectional view, taken on the line *a a* of Fig. 1; Fig. 3 is a transverse sectional view, taken on the line *b b*

of Fig. 1; and Fig. 4 is a transverse sectional view, taken on the line *c c* of Fig. 1.

In these drawings I have illustrated one embodiment of my invention and have shown the same as comprising a deflector arranged between the down-pipe and the cistern- and waste-pipes in combination with a water receptacle which has an inlet so arranged as to divert a portion of the water discharged toward the waste-pipe into the receptacle and a float mounted within the receptacle and operatively connected to the deflector, whereby, when the water within the receptacle has risen above a predetermined point, the deflector will be reversed and the water from the down-pipe diverted to the cistern-pipe.

In the present instance I have shown the device as comprising a casing 1 divided by a horizontal partition 2 into an upper and lower chamber, the upper chamber containing the deflector and having an inlet 3, which is preferably in the top wall of the casing, and having two outlets 4 and 5, the outlet 4 being adapted to be connected with the waste-pipe and the outlet 5 being adapted to be connected with the cistern-pipe. These outlets may be arranged in any suitable manner, but preferably they are arranged at opposite ends of the partition 2 and comprise vertically arranged pipes extending through the partition and through the bottom wall of the casing. The lower ends of the pipes extend some distance below the bottom wall of the casing and are adapted to be connected to the waste-pipe and to the cistern-pipe, respectively, and to form part of those pipes. The upper ends of the pipes 4 and 5 extend a short distance above the partition 2 and thus form low walls surrounding the outlet openings in that partition.

A deflector 6, which may be of any suitable character, is movably mounted in the casing above the partition 2 and is so arranged that it may be moved either into a position to divert the water, which it receives from the down-pipe through the inlet 3, to the waste-pipe or into a position to divert that water into the cistern pipe. In the present instance the deflector is shown as comprising an elongated plate having ears or upwardly extending projections 7 which are connected to the side walls of the casing by means of rivets or pivot pins 8. These pivot pins preferably extend loosely



through the ears 7 and form a loose support for the deflector so that it may be readily moved from one position to the other and will not bind or require lubrication. In order that all the water entering the upper chamber through the inlet 3 may be discharged upon the deflector 6 a horizontal partition 9 is arranged in the upper chamber of the casing above the deflector and has an opening 10 formed therein immediately above the deflector. Consequently, all the water which enters the chamber through the inlet in the top wall thereof must pass through the opening 10 and will fall upon the deflector. It is also desirable that a suitable screen should be placed between the inlet 3 and the partition 9, thereby removing from the water any leaves or other foreign matter which might serve to clog the openings in the device and interfere with the operation of the deflector. Any suitable material may be used for this screen, but is here shown as consisting of a perforated plate 11 supported above and removed a short distance from the partition 9.

The lower chamber in the casing 1 forms a water receptacle 12 having an inlet arranged near the waste-pipe 4 and adapted to divert a portion of the water discharged from the deflector toward the waste-pipe into the water receptacle. In the form of the device here shown this inlet consists of one or more openings 13 formed in the partition 2 near the upper end of the waste-pipe 4. A vertically arranged partition 14 is secured to the horizontal partition 2 and extends transversely thereto at a point beneath the deflector 6. This vertically arranged partition extends a considerable distance above the horizontal partition and is so arranged relatively to the pivotal center of the deflector that it will not interfere with the movement of that deflector about its pivotal axis. Consequently, the lower portion of the upper chamber is divided into two compartments, one of which is in communication with the waste-pipe and the other with the cistern-pipe. Inasmuch as the upper end of the waste-pipe extends some little distance above the partition 2 it will be apparent that the water discharged on that side of the partition 14 must rise to a level above the upper edge of the waste-pipe, thereby insuring a constant flow of water through the inlet openings 13 to the water receptacle 12.

Mounted within the receptacle 12 is a float 15 which is operatively connected to the deflector 6, preferably by means of a rod 16 loosely connected at its upper end to that end of the deflector adjacent the waste-pipe 4. It will be noted that the deflector is pivoted at some distance from the center of the casing, thus enabling the float to be ar-

ranged between the two outlet pipes and connected on one side of the pivotal center of the deflector without the disarranging of any of the parts of the device. The rod 16 extends upwardly through an opening in the partition 2, which opening is surrounded by a wall 17 somewhat higher than the height to which the waste-pipe 4 projects above the partition 2, thus preventing the entrance of water into the water receptacle through this opening. It will be apparent that, as the water rises in the receptacle 12, the float 15 will be raised, thereby positively moving the deflector 6 about its pivotal center a distance sufficient to reverse its inclination and cause it to divert the water passing through the inlet and the apertured partition 9 into the cistern-pipe 5. The end of the deflector 6 is arranged immediately above the outlet pipe 5, but is of a width somewhat greater than that pipe. The partition 2 is provided with one or more openings 18 communicating with the water receptacle, and, inasmuch as the upper end of the cistern-pipe 5 extends above the partition 2, it will be apparent that there will be a constant flow of water into the water receptacle. By thus causing a constant flow of water to enter the receptacle 12 it is possible to provide that receptacle with an outlet which is open at all times, thereby causing the receptacle to drain as soon as the water ceases to enter the casing through the inlet 3. This outlet is here shown as an aperture 19 connecting the cistern-pipe 5 with the water receptacle at a point near the lower end of said pipe. This opening is smaller than the inlet openings 13 formed in the partition 2 near the waste-pipe 4 and the amount of water which escapes through the outlet 19 is taken into consideration in timing the operation of the deflector.

To enable the device to be adjusted for use in down-pipes leading from roofs of different sizes, the partition 2 may be provided with a plurality of inlet openings 13 which are so arranged that one or more of these openings may be closed. In the present instance this is accomplished by means of a plate 20 pivotally mounted on the partition 2 near one side thereof in such a manner that it may be moved into position to close one or more of the openings 13 or to leave all of the openings unobstructed. This adjustment is made when the cut-off is installed in the down-pipe, and by thus regulating the amount of water which enters the receptacle 12, the operation of the deflector 6 may be timed as desired. The time of this operation may also be controlled by varying the length of the rod 16 which connects the float 15 with the deflector. The deflector may also, if desired, be provided with a counterweight 21 secured thereto near that end opposite the end to which the float 15



is connected, thereby serving in a measure to balance the deflector and facilitate its operation by the rise and fall of the float 15.

The operation of the device will be understood from the foregoing description and it will be apparent that, when the water receptacle 12 is empty, the deflector will be held, by the weight of the float 15 or by any other suitable means, in its normal position, *i. e.*, inclined in a direction to discharge the water toward the waste-pipe 4. As all the water is not discharged directly into the pipe 4, a part of the same will pass through the opening or openings 13 and enter the water receptacle 12, thus gradually filling the same. The amount of water entering the water receptacle or chamber 12 is so regulated that it will reach a height such as to raise the float 15 after a period of time sufficient to permit the roof to have been thoroughly cleansed has elapsed. As the water rises above a predetermined height the deflector 6 will be moved about its pivotal center and the direction of its inclination reversed, diverting the water toward the cistern-pipe 5. Here also all the water does not enter directly into the cistern-pipe, and, as a result, a part of the same passes through the openings 18 into the water receptacle, thereby compensating for the water which drains through the outlet 19 and maintaining the float at all times, during the passage of the water through the cut-off, in its elevated position. As soon as the water ceases to pass into the casing 1 through the inlet 3 the water in the receptacle 12 will drain through the outlet 19 and the float 15 will move downwardly to its lowermost position, thereby again reversing the deflector 6 and moving the same into its normal position.

By providing the water receptacle 12 with a drain opening or outlet, which is at all times open, it will be apparent that the water receptacle will automatically empty itself as soon as the flow of water to the casing ceases, thus rendering any attention unnecessary and obviating the danger of the water freezing within the casing and thereby interfering with its operation, if not damaging the same in other respects. It will also be apparent that by the interposition of a screen between the inlet and the deflector any leaves or other foreign matter, which may be carried by the water through the inlet 3, will be separated therefrom and thus prevent the clogging of the openings in the partition 2. It will also be apparent that the device is of an exceedingly simple construction, requiring but a minimum number of parts and having these parts of such a character and arrangement that fine workmanship or machine work is unnecessary and enabling the device to be built almost entirely of sheet metal which can be pressed into shape and assembled at a very

low cost; that the device so constructed is of a very durable character; and that the parts are not likely to become disarranged or broken. It will also be apparent that after the device has been installed it will require little or no attention, it being entirely automatic in its operation. It is only necessary to occasionally remove the leaves or other debris which may gather above the screen, this being accomplished through an opening at one end of the casing which is normally closed by a sliding door 22. Further, the casing 1 may be mounted with either side adjacent to the wall or other support for the pipes, thereby enabling the same to be used with existing arrangements of pipes, regardless of the relative position of the waste- and cistern-pipes.

It will, of course, be understood that the cut-off may be inserted in the down-pipe at any suitable point and that that portion of the pipe leading from the cut-off to the cistern becomes the cistern-pipe. Likewise, it will be understood that the construction and arrangement of the cut-off and of the several parts thereof may be varied to a great extent without departing from the spirit of my invention. I, therefore, wish it to be understood that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

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

1. In a device of the character described, a casing, a partition dividing the space within said casing into upper and lower compartments, said upper compartment having an inlet, two outlet pipes extending through said partition, a deflector pivotally mounted in said upper compartment and arranged to deflect the water entering through said inlet toward one or the other of said outlet pipes, a water receptacle within said lower compartment having an inlet near one of said outlet pipes, and a float within said water receptacle operatively connected to said deflector.

2. In a device of the character described, a casing, a partition dividing the space within said casing into upper and lower compartments, the lower compartment having a water receptacle and the upper compartment having an inlet and a plurality of outlets, a deflector pivotally mounted between said inlet and said outlets and adapted to deflect the water toward one or the other of said outlets, a float within said lower compartment and operatively connected to said deflector, and a passage connecting said lower compartment with said upper compartment and adapted to divert a portion of the water into said lower compartment.



3. In a device of the character described, a casing, a partition dividing the space within said casing into an upper and a lower compartment, the lower compartment having a water receptacle and the upper compartment having an inlet, a plurality of outlet pipes communicating with said upper compartment at points above said partition, a deflector pivotally mounted between said inlet and said outlets and adapted to deflect the water toward one or the other of said outlets, a float within said lower compartment and operatively connected to said deflector, and a passage connecting said lower compartment to said upper compartment at a point below the point of connection of said outlets with said upper compartment and adapted to divert a portion of the water into said lower compartment.

4. In a device of the character described, a casing, a horizontal partition arranged in said casing and forming a water receptacle in the lower part thereof, an inlet pipe connected with the upper part of said casing, two outlet pipes connected to said horizontal partition and extending through said water receptacle, a deflector pivotally supported between said inlet and said outlets and arranged normally to deflect the water from said inlet toward one of said outlets, means for introducing a portion of the water so deflected into said water receptacle, and a float mounted in said water-receptacle and operatively connected to said deflector.

5. In a device of the character described, a casing, a horizontal partition dividing said casing into two chambers, one of said chambers forming a water receptacle and the other of said chambers having a water inlet, a waste-pipe extending through said partition and said water receptacle, said partition having an aperture therein near the upper end of said waste-pipe, a deflector pivotally supported in the upper chamber of said casing and normally arranged to receive the water from said inlet and divert the same to said waste-pipe, a cistern-pipe extending through said partition and through said water receptacle, a float mounted in said water receptacle and operatively connected to said deflector, whereby the rise of the water in said water receptacle will cause the float to move said deflector into a position to divert the water received from said inlet toward said cistern-pipe.

6. In a device of the character described, a casing, a horizontal partition dividing said casing into two chambers, one of said chambers forming a water receptacle and the other of said chambers having a water inlet, a waste-pipe extending through said partition and said water receptacle, said water receptacle having an inlet arranged near said waste-pipe, means for controlling the amount of water passing through said waste-

pipe, a deflector pivotally supported in the upper chamber of said casing and normally arranged to receive the water from said inlet and divert the same to said waste-pipe, a cistern-pipe extending through said partition and through said water receptacle, and a float mounted in said water receptacle and operatively connected to said deflector, whereby the rise of the water in said water receptacle will cause the float to move said deflector into a position to divert the water received from said inlet toward said cistern-pipe.

7. In a device of the character described, a casing, a horizontal partition dividing said casing into two chambers, one of said chambers forming a water receptacle and the other of said chambers having a water inlet, a waste-pipe extending through said partition and said water receptacle, said partition having a plurality of openings formed therein near said waste pipe, means for closing one or more of said openings, a deflector pivotally supported in the upper chamber of said casing and normally arranged to receive the water from said inlet and divert the same to said waste-pipe, a cistern-pipe extending through said partition and through said water receptacle, and a float mounted in said water receptacle and operatively connected to said deflector, whereby the rise of the water in said water receptacle will cause the float to move said deflector into a position to divert the water received from said inlet toward said cistern-pipe.

8. In a device of the character described, a casing, a horizontal partition mounted in said casing and dividing the same into two chambers, the lower chamber forming a water receptacle and the upper chamber having a water inlet, a waste-pipe extending through said partition and through said water receptacle and having its upper end extending above said partition, said partition having an opening therein leading to said water receptacle, a deflector pivotally mounted in said casing and normally supported in a position to receive the water from said inlet and divert the same toward said waste-pipe, a cistern-pipe extending through said partition and through said water receptacle, and a float mounted in said water receptacle and operatively connected with said deflector, whereby the rise of the water in said water receptacle will move said deflector into a position to divert the water toward said cistern-pipe.

9. In a device of the character described, a casing, a horizontal partition arranged in said casing and dividing the same into two chambers, one of said chambers forming a water receptacle and the other having a water inlet, a waste-pipe arranged near one end of said casing and extending through said water receptacle and through said par-



tion, a cistern pipe arranged near the other end of said casing and extending through said water receptacle and through said partition, a vertically arranged partition mounted on said horizontal partition and extending transversely thereto between said waste-pipe and said cistern-pipe, a deflector pivotally supported in said casing above said vertically arranged partition, said horizontal partition having an opening therein on that side of said vertically arranged partition adjacent to said waste-pipe, and a float mounted in said water receptacle and operatively connected to said deflector.

10. In a device of the character described, a casing, a horizontal partition arranged in said casing, and dividing the same into two chambers, one of said chambers forming a water receptacle and the other having a water inlet, two outlet pipes having their ends extending through and a short distance above said horizontal partition, a vertically arranged partition mounted on and extending transversely to said horizontal partition between said outlet pipes, said horizontal partition having an opening formed therein on one side of said vertically arranged partition, a deflector pivotally mounted in the upper chamber of said casing between said inlet and said outlet pipes, a float mounted in said water receptacle, and means for operatively connecting said float with said deflector.

11. In a device of the character described, a casing, a horizontal partition arranged in said casing and dividing the same into two chambers, one of said chambers forming a water receptacle and the other of said chambers having an inlet, two outlet

pipes having their ends extending through 40 and some distance above said horizontal partition, a vertically arranged partition mounted on and extending transversely to said horizontal partition between said outlet 45 pipes, apertures formed in said horizontal partition on each side of said vertically arranged partition, said water receptacle having a normally open outlet near the lower end thereof, a deflector pivotally mounted in 50 said upper chamber between said inlet and said water pipes, a float mounted in said water receptacle, and means for operatively connecting said float to said deflector.

12. In a device of the character described, a casing, a horizontal partition ar- 55 ranged in said casing and dividing the same into two chambers, one of said chambers forming a water receptacle and the other of said chambers having a water inlet, a waste-pipe and a cistern-pipe communicating with 60 the chamber having said inlet, a deflector mounted in said chamber in a position to receive the water from said inlet and adapted to be inclined toward either said waste-pipe or said cistern-pipe, said water receptacle 65 having an inlet arranged to introduce water into the same when said deflector is inclined toward said waste-pipe, said water receptacle also having a normally open outlet, and an inlet arranged to introduce water 70 thereto when said deflector is inclined toward said cistern-pipe.

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

GEORGE HENKEL.

Witnesses:

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EDWARD L. REED.