No. 807,332. PATENTED DEC. 12, 1905.

G. S. STUART.

CISTERN CUT-OFF.

APPLICATION FILED MAR. 3, 1905.

2 SHEETS—SHEET 1.

Fig. 2.

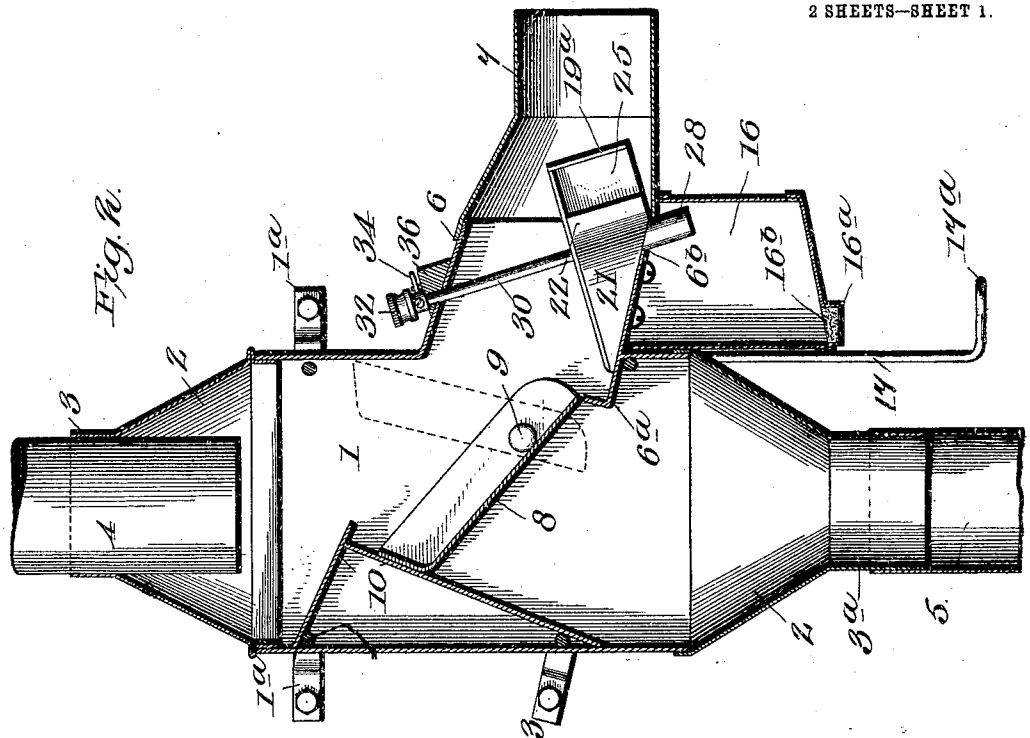
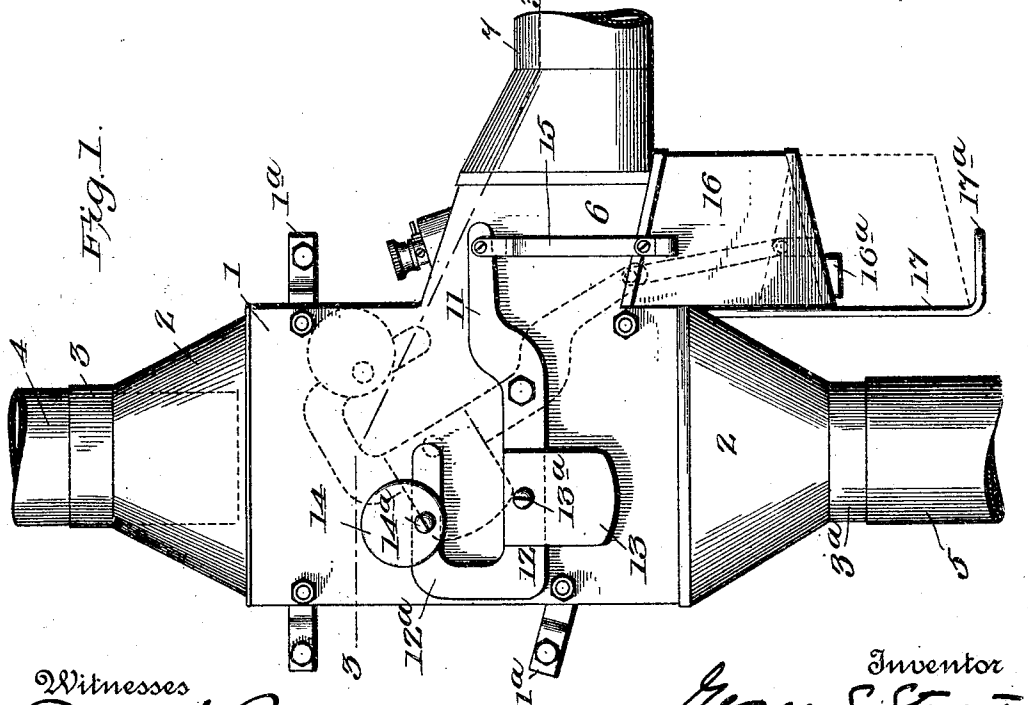


Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

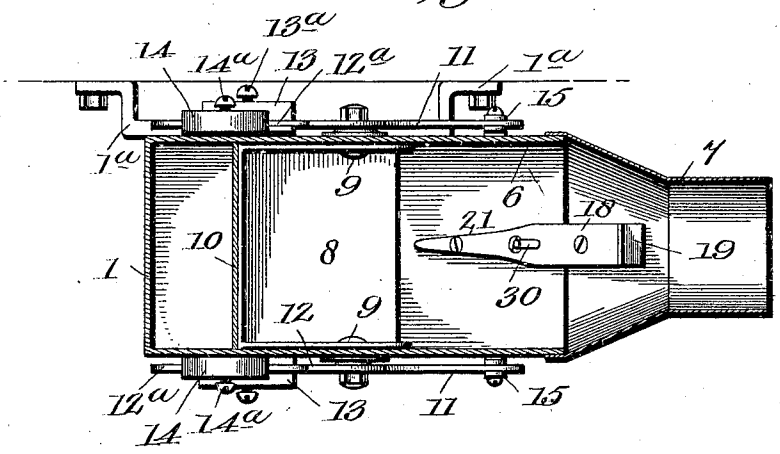


Fig. 4.

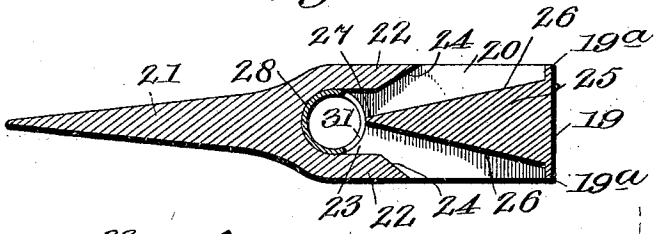


Fig. 7.

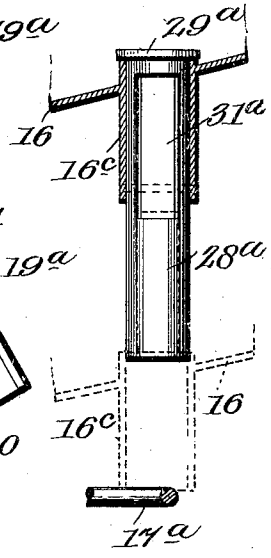


Fig. 5.

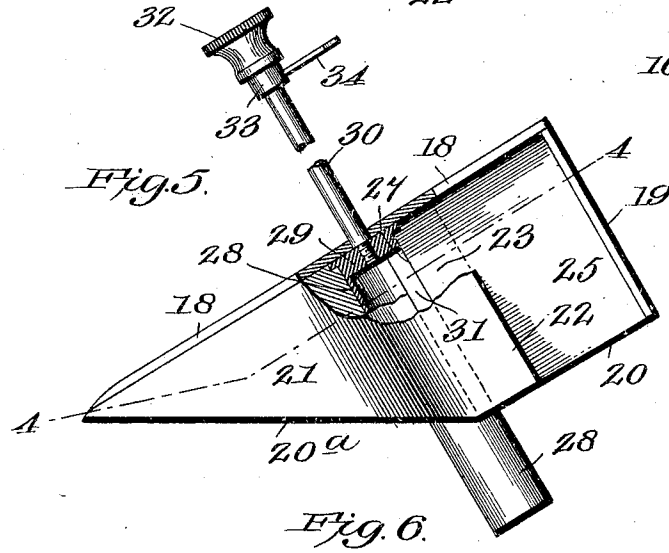
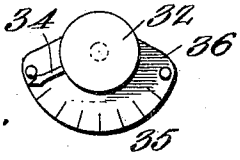


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE S. STUART, OF HOLLIDAYSBURG, PENNSYLVANIA.

CISTERN CUT-OFF.

No. 807,332. Specification of Letters Patent. Patented Dec. 12, 1905.

Application filed March 3, 1905. Serial No. 248,227.

To all whom it may concern:

Be it known that I, GEORGE S. STUART, a citizen of the United States, residing at Hollidaysburg, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Cistern Cut-Offs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in cistern cut-offs.

In filling cisterns from roofs the principal object obviously is to first divert the flow of water until the same has become clarified, whereupon communication is changed to the pipe leading to the cistern.

The present invention in addition has for its object to carry out the above end in an automatic manner, and the advantages will more fully appear from the following description, the features of novelty being particularly pointed out in the claims.

To more fully describe the invention, reference is had to the accompanying drawings, illustrating same, in which like figures designate the same parts in the several views, and in which—

Figure 1 is a side elevation of the cut-off. Fig. 2 is a central vertical section of same. Fig. 3 is a transverse section on the line 3 3 of Fig. 1. Fig. 4 is a longitudinal section on the line 4 4 of Fig. 5. Fig. 5 is a detail view, in side elevation, of the valve-casing and controlling-valve, one side of the casing and valve being partly broken away. Fig. 6 is a detail plan view of the indicating means for the valve, and Fig. 7 is a detail sectional view of an automatic valve for the discharge of the contents of the operating-receptacle.

1 designates the main casing, which may be built up in sections secured together in any suitable way and preferably provided at each end with conical-shaped members 2, having the cylindrical extensions 3 and 3^a at the upper and lower ends, respectively. In the extension 3 is operatively mounted a short section of pipe 4, adapted to fit on the rain-spout, and is made longitudinally adjustable for this purpose, as shown in Fig. 2. The lower cylindrical extension 3^a is adapted to fit within a pipe 5, communicating with the cistern, the casing being interposed between the cistern-pipe and the rain-spout and suitably secured—as, for instance, to the side of the house—by brackets 1^a. The casing is also provided with an auxiliary outlet 6, communicating with the drain-pipe 7. This outlet-pipe 6 may be an integral part of the casing and projects at its inner underneath face within said casing, as at 6^a, adjacent the lower end of the trough 8, supported on the pivots 9 within the casing. 10 designates a deflector within the casing opposite said auxiliary outlet 6, and the inner end of the pivoted trough 8 is adapted to normally rest against the front wall of the deflector 10, whereby communication is normally cut off between the inlet-pipe and the main outlet-pipe to the cistern, the initial discharge of water being through the auxiliary outlet 6.

On the outside of the casing and rigidly secured to the pivots 9 are a pair of levers of peculiar conformation, the power-arm 11 being an upwardly and forwardly bent extension of the weight-arm, the weight-arm comprising the elongated member 12 with the hooked portion 12^a, the whole lever being somewhat of the shape of the numeral **5**. On the arm 12 is provided a counterbalancing-weight 13, slotted and adjustable along said arm, being held in its adjusted position by the jam-screw 13^a, while the hooked portion 12^a is similarly provided with an adjustable counterbalancing-weight 14, locked by the jam-screw 14^a. The power-arms 11 of these levers, one of which is mounted on each side of the casing, is pivotally connected to the hanger-bars 15, which latter are in turn pivotally connected at their lower ends with a water-receptacle 16, operating vertically, as shown, beneath a downwardly-disposed opening 6^b in the auxiliary outlet-pipe, the rear of the receptacle slidingly engaging the depending guide-frame 17, having a laterally-bent extension 17^a for limiting the receptacle's downward movement. This receptacle 16 is provided with an outlet 16^a, filled with a suitable porous material 16^b, preferably soapstone.

A valve-casing is mounted within the auxiliary outlet-pipe 6. This casing is of a partially rectangular configuration, having the top edge face 18, the front edge face 19, and the lower edge face 20, the lower rear edge face 20^a, forming the base of the casing, extending at an angle from substantially centrally of the casing to the rear top edge, whereby the forward end of the casing will incline upwardly, as shown at Figs. 2 and 5. The rear portion of the casing is in the nature of a solid wedge-shaped deflector 21, having the extending spaced side walls 22, forming

the U-shaped bore 23, the front edges of the side walls being beveled off, as at 24, forming a flaring opening to the U-shaped bore. At the forward end of the casing is provided the central web 25, extending rearwardly from the front wall 19 between the top and bottom faces 18 and 20, respectively, the side faces 26 of said web converging inwardly to a knife-edge 27, disposed within the U-shaped bore 23 at a position contacting the circumference of a tubular valve, hereinafter referred to. The forward or base end of the converging web is of such a width as to provide lateral extensions 19[a] on the front wall, forming deflectors, for a purpose hereinafter referred to. By this construction it will be seen that the forward end of the casing is provided with rearwardly-directed passage-ways merging at their rear ends into the U-shaped bore 23, extending in the same vertical plane, and at the forward ends comprising enlarged laterally-disposed openings.

The controlling-valve 28 comprises a tube-section headed at its upper end 29 to receive the screw-threaded spindle 30, the valve being slotted longitudinally a limited distance, as at 31. The valve-spindle 30 at its upper end passes through the outlet-pipe 6 and is provided with a milled head 32 for adjusting the valve.

33 is a collar on the valve-stem, provided with an index-finger 34, adapted to coöperate with a scale 35 on the block or plate 36 for indicating the position of the valve-opening with respect to the knife-edge 27, it being understood that it may be desirable to regulate the extent of this opening to time the operation of the apparatus.

In addition to the porous leak-hole in the operating water-receptacle 16 it may be desirable to provide a valve to more quickly discharge the contents. Any suitable valve may be provided—such, for instance, as shown in Fig. 7—similar in construction to the valve 28, 28[a] designating the tubular body portion, 31[a] the longitudinal slot, and 29[a] the headed portion, which of course is not apertured. This valve, as shown, operates in a depending short tube-section 16[c], the length of the slot 31[a] being so regulated that when the valve is raised to the open position the lower edge of the opening or slot is within the tube 16[c] and the discharge is through the end of the valve. The particular construction illustrated in Fig. 7, however, is primarily designed for use with the apparatus for continuous demonstrating purposes, the valve being so mounted as to contact with a suitable projection—for instance, the transverse extension 17[a] of the hanger 17.

In operation the parts being in their normal positions, as illustrated in Figs. 1 and 2, with the adjustable pipe 4 connected with the rain-spout, upon a rainfall the initial flow is diverted to the auxiliary outlet 6 into the drain-pipe 7. While passing therethrough and past the valve-casing a portion of the outflow striking the deflecting-shoulders 19[a] is splashed back through the rearwardly-extending passage-ways, through the slotted opening 31 into the controlling-valve, and thence to the receptacle, (see Fig. 4,) it being obvious that the flow through the valve may be controlled by the position of the slotted opening 31 with respect to the knife-edge 27 of the web 25, when the body portion of the valve is in its forward position the flow being completely shut off. The receptacle 16 being filled by this gradual splashback and drip, the weight of water therein will overcome the counterbalancing-weights 13 and 14 on the levers and tilt the trough to the position shown in dotted lines in Fig. 2, when the flow of clear water will be directed to the main outlet leading to the cistern, the parts now having assumed the position shown in dotted lines in Fig. 1. Owing to the peculiar shape of the levers, the counterbalancing-weights being properly adjusted thereon, the parts will remain in this latter position until practically all of the water has leaked out from the receptacle, and the porous material providing for slow leakage the operating mechanism will not be shifted until after the rainfall is over.

It will be obvious from the construction of the valve illustrated in Fig. 7 and referred to as being specially designed for continuous demonstrating purposes that when the receptacle 16 is lowered the lower end of the tube 28[a] will contact with the transverse extension 17[a] of the depending frame 17, lifting the valve within the receptacle, so that the top of the longitudinal opening 31[a] will rise above the tubular member 16[c] and an outlet will be provided for the contents of the receptacle, after the discharge of which the parts will assume their normal position and continue the cycle of operation indefinitely.

While I have described the above as illustrating the preferred embodiment of the invention, it is obvious that modifications might be made without departing from the spirit of same, and I do not limit myself to the exact details as disclosed.

What I claim is—

1. In a cistern cut-off, the combination with a casing provided with a main and an auxiliary outlet-pipe, controlling means for the outflow of water and a water-receptacle for operating same, of a valve-casing, within said auxiliary outlet-pipe, above said water-receptacle provided with rearwardly-directed passages, and a valve operating within said casing between said passages and water-receptacle.

2. In a cistern cut-off, the combination with a casing provided with a main and auxiliary outlet-pipe, of controlling means for the outflow of water, means for operating said controlling means comprising a water-receptacle

connected therewith, a valve-casing within said auxiliary pipe extending forwardly therein and having a valve-bore and a longitudinal web forming rearwardly-directed passage-ways communicating with said valve-bore, and a hollow valve mounted in said bore and communicating between said passage-ways and receptacle.

3. In a cistern cut-off, the combination with a casing provided with a main and auxiliary outlet-pipe, of controlling means for the outflow of water, means for operating said controlling means comprising a water-receptacle connected therewith, a valve-casing within said auxiliary pipe extending forwardly therein and having a valve-bore, a rearwardly-disposed longitudinal web terminating at said valve-bore forming rearwardly-directed passage-ways communicating with said bore, and a hollow valve mounted in said bore and communicating between said passage-ways and receptacle.

4. In a cistern cut-off, the combination with a casing provided with a main and auxiliary outlet-pipe, of controlling means for the outflow of water, means for operating said controlling means comprising a water-receptacle connected therewith, a valve-casing within said auxiliary pipe extending forwardly and upwardly therein and having a valve-bore, a rearwardly-disposed longitudinal web terminating at said valve-bore forming rearwardly-directed passage-ways communicating with said bore, transversely-disposed deflecting-shoulders formed at the forward end of said web, and a hollow valve mounted in said bore and communicating between said passage-ways and receptacle.

5. In a cistern cut-off, the combination with a casing provided with a main and auxiliary outlet-pipe, of controlling means for the outflow of water, means for operating said controlling means comprising a water-receptacle connected therewith, a valve-casing within said auxiliary pipe extending forwardly therein and having a valve-bore, a longitudinal web having rearwardly-converging faces terminating at said bore and forming rearwardly-directed passage-ways communicating with said valve-bore, and a hollow slotted tubular valve mounted in said bore and communicating between said passage-ways and receptacle.

6. In a cistern cut-off, the combination with a casing provided with a main and auxiliary outlet-pipe, of controlling means for the outflow of water, means for operating said controlling means comprising a water-receptacle connected therewith, a valve-casing within said auxiliary pipe extending forwardly therein and having a valve-bore, a longitudinal web having rearwardly-converging faces terminating in a knife-edge at said bore and forming rearwardly-directed passage-ways communicating with said valve-bore and a hollow slotted tubular valve mounted on said bore and communicating between said passage-ways and receptacle, the said knife-edge adapted to contact the tubular valve.

7. In a cistern cut-off, the combination with a casing provided with a main and auxiliary outlet-pipe, of controlling means for the outflow of water, means for operating said controlling means comprising a water-receptacle connected therewith, a valve-casing within said auxiliary pipe extending forwardly and upwardly therein and having a valve-bore, a longitudinal web having rearwardly-converging faces terminating in a knife-edge at said bore and forming rearwardly-directed passage-ways communicating with said valve-bore, transversely-disposed deflecting-shoulders formed at the forward end of said web, and a hollow slotted tubular valve mounted in said bore and communicating between said passage-ways and receptacle, the said knife-edge adapted to contact the tubular valve.

8. In a cistern cut-off, the combination with a casing provided with a main and auxiliary outlet-pipe, of controlling means for the outflow of water, means for operating said controlling means comprising a water-receptacle connected therewith, a valve-casing within said auxiliary pipe extending forwardly therein comprising a solid rear portion terminating forwardly in short spaced walls having beveled forward edges, forming a substantially U-shaped valve-bore provided with a flaring opening, a longitudinal web having rearwardly-converging faces terminating in a knife-edge within said U-shaped bore and cooperating to form rearwardly-directed passage-ways, having enlarged transversely-disposed openings at their forward ends, and a hollow slotted tubular valve mounted in said bore and communicating between said passage-ways and receptacle, the said knife-edge adapted to contact the tubular valve.

9. In a cistern cut-off, the combination with a casing provided with an inlet and a main and auxiliary outlet-pipe, the auxiliary pipe having a leak-opening therein, a pivoted trough operating between said outlets, levers carried by the axis of said trough, having a U-shaped weight-arm with counterbalancing-weights thereon disposed in different horizontal planes and means for adjusting the position of same, relatively to each other, longitudinally of said U-shaped weight-arm, and a water-receptacle located beneath said leak-opening and pivotally suspended from the power-arms of said levers.

10. In a cistern cut-off, the combination with a casing provided with an inlet and a main and auxiliary outlet-pipe, the auxiliary pipe having a leak-opening therein, a pivoted trough operating between said outlets, levers carried by the axis of said trough, having a U-shaped weight-arm with adjustable counterbalancing-weights thereon disposed in different horizon-

tal planes and means for adjusting the position of same, relatively to each other, longitudinally of said U-shaped weight-arm, means for positively securing said weights in position when so adjusted, and a water-receptacle located beneath said leak-opening and pivotally suspended from the power-arms of said levers.

11. In a cistern cut-off, the combination with a casing comprising a body portion provided with an inlet and a main and auxiliary outlet, of controlling means for the outflow of water through said outlets, a water-receptacle connected to and operating said controlling means, and means for emptying said receptacle comprising an automatically-operated valve adapted to be opened upon the descent of said receptacle and closed upon its ascent.

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

GEO. S. STUART.

Witnesses:

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C. G. LOWRY.