J. A. LYONS.

Rain-Water or other Cut-Offs.

No. 212,958. Patented Mar. 4, 1879.

Fig. 1.

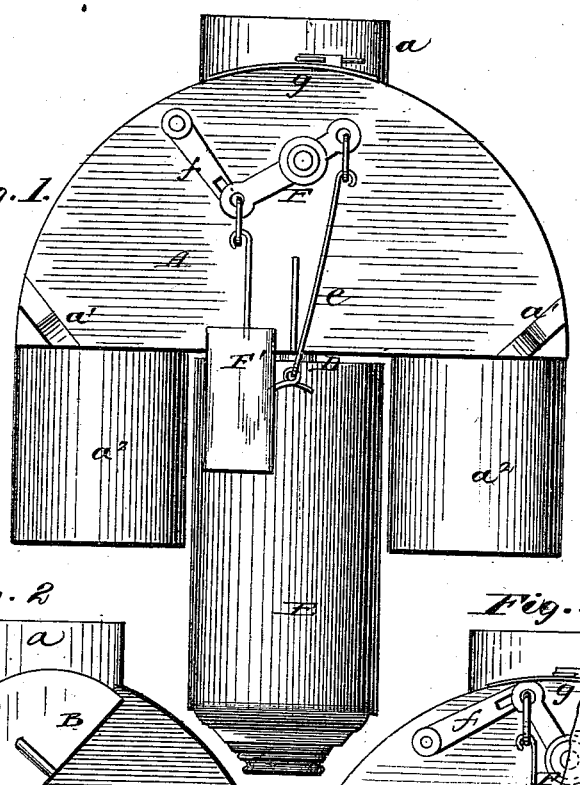



Fig. 2

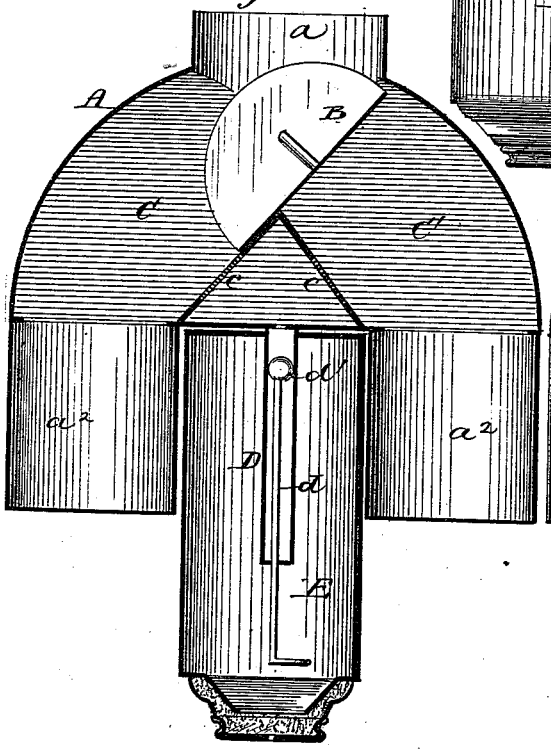
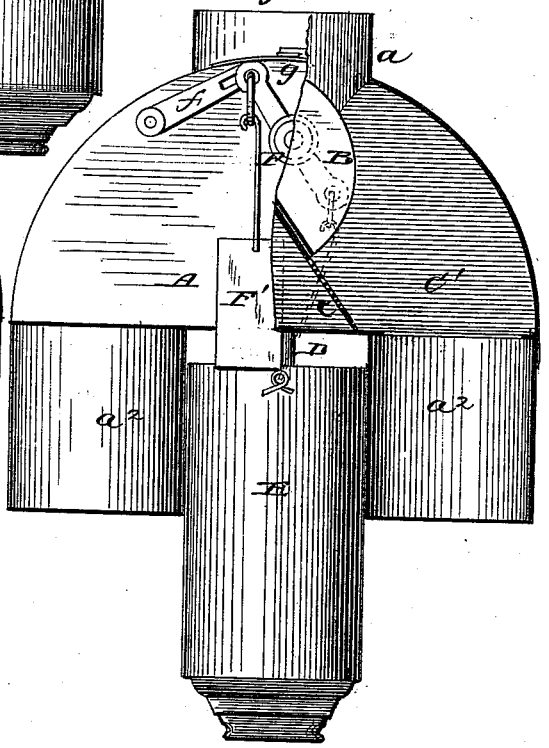



Fig. 3.




Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES A. LYONS, OF KNOXVILLE, TENNESSEE.

## IMPROVEMENT IN RAIN-WATER OR OTHER CUT-OFFS.

Specification forming part of Letters Patent No. **212,958**, dated March 4, 1879; application filed August 9, 1878.

*To all whom it may concern:*

Be it known that I, JAMES A. LYONS, of Knoxville, in the county of Knox and State of Tennessee, have invented certain new and useful Improvements in Rain-Water or other Cut-Offs; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved rain-water or other cut-off. Fig. 2 is a vertical section thereof; and Fig. 3 is a view, partly in section and partly in elevation, of the same, showing the valve reversed, produced by the elevating of the weighted end of the lever attached to its axis or pivot through the preponderance of the filling receptacle or cylinder attached to the other end of said valve-axis.

The same part in the several figures is designated by the same letter.

This invention appertains to certain improvements in rain-water or other cut-offs, especially adapted for use in connection with spouting on buildings for conducting the water produced by a rain-fall to a cistern or other suitable receptacle; the principal object of which is to effect the conducting of the impure or dirty water that first comes off the roof into a waste-pipe, and at the same time render the valve which diverts the course of the water after its purification automatic in its operation.

To these ends my invention consists in the arrangement within the housing or case, having two branch pipes, of one or more chambers, in connection with which the valve which mainly controls the course of the water operates to discharge a portion of the waste-water in said chamber, and with which chamber or chambers is connected a cylinder or receptacle, hung from one arm of a lever attached to the axis or pivot of said valve to or from the other arm of which lever is hung or suspended a weight; and, further, in certain details of construction, substantially as hereinafter more fully set forth.

In the drawings, A is a housing or case, in the upper end of which is a central opening, *a*, with a surrounding flange or collar, by which the case or housing is connected to the spouting of the house. To this case, on either or both sides, are supplied projections or fenders $a^1$ $a^1$, to provide a space between the house and that side of the case A placed next to the house for the operating mechanism of the cut-off valve. To the lower side of this case are provided two short sections of pipes, $a^2$ $a^2$, arranged one at each end thereof, and connected one to a waste-pipe, and the other to the pipe leading to the cistern or other reservoir.

B is the cut-off valve, which is preferably made as shown in the figures of the drawings, and hung in the case A, so as to open or close communication with either one of the discharging-pipes $a^2$ $a^2$, and the supply-pipe connected to the case A at *a*. Further reference will be made to the cut-off valve hereinafter.

C is a chamber, which is duplicated at C′, whose inclosure is inclined to either side of a central point or apex, and provided in each incline with an opening or orifice, *c*, preferably covered with wire-gauze, to prevent the entrance to said chamber or chambers of the coarser particles of dirt with the water.

D is a downwardly-projecting tube secured to the lower side of the case A over an opening communicating with one or both of the chambers C C′. In this tube is a rod, *d*, the upper end of which is headed, as at *d*′, to enable the same to act as a valve to open and close the opening through which the said tube communicates with the chamber or chambers C C′ at certain intervals.

E is a cylinder or receptacle, hung or suspended, by means of rods *e e* or other suitable medium, from the shorter arms of levers F, connected to the axis or pivot of the cut-off valve B, whose longer arms have suspended from them weights, or a single weight, E′. The longer end or arm of the lever or levers F may be propped or held in position by means of a prop or brake, *f*. Edgewise-disposed plates or wings *g*, fastened to the external sides of the case A, prevent the colliding of the weights and the rods connecting the cylinder to the levers.

In the bottom of the cylinder, which is preferably tapering at that point, is placed a porous substance—sponge, for instance—and in

the lower end of screw-cap is a perforation, *h*, through which the water drips or gradually escapes. This end of the cylinder may be fitted with a screw cap or plug, through which the perforation *h* is made.

The operation is as follows: The valve or cut-off B standing in its normal position—*i. e.*, inclined by the weight or weights E′, so as to pass the falling water entering the case A through the opening communicating with the spouting of the house during a rain-fall into the chamber C, and also out through the waste-pipe, from which it continues to flow, and which, as it enters the chamber C and from there flows into the cylinder E until the latter has become sufficiently heavy to counterbalance and elevate the weight or weights E′, will be freed from its impurities or dirt with which it has become contaminated in passing over the roof of the house. Simultaneously with the filling or thus weighting the cylinder the valve will be reversed, and at the proper time—*i. e.*, when it has become freed from dirt from the above-mentioned source—pass the water into the pipe leading to the cistern or receptacle, and at the same time allow a portion thereof to enter the other chamber, C′, and thus continually keep the cylinder B filled or weighted to keep the valve or cut-off in the last-named position as long as the rain-fall continues. The valve *d d′* will control the flowing of the water into the cylinder to prevent the overflowing of the same.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a water cut-off, the case A, having the valve B, in combination with the lever F, chamber C, waste-pipe, weight E′, tube D, and cylinder E, substantially as and for the purpose set forth.

2. The combination, with the case A, having the valve B, chamber C′, and tube D, of the lever F, having the weight E′ and cylinder E, substantially as and for the purpose set forth.

3. The combination of the case A, having the cut-off B and chambers C C′, tube D, chamber E, lever F, weight E′, and waste and cistern pipes, substantially as and for the purpose specified.

4. The combination, with the case A, having the cut-off B, chambers C C′, waste and cistern pipes, and tube D, having the valve *d d′*, of the cylinder E, having porous substance, and a perforation and lever, F, having the weight or weights E′, substantially as and for the purpose described.

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

JAMES A. LYONS.

Witnesses:
J. A. McCAMPBELL,
W. L. LYONS.