

(No Model.)

P. SCANLON.  
DRAINAGE SYSTEM.

No. 520,146.

Patented May 22, 1894.

FIG. 1.

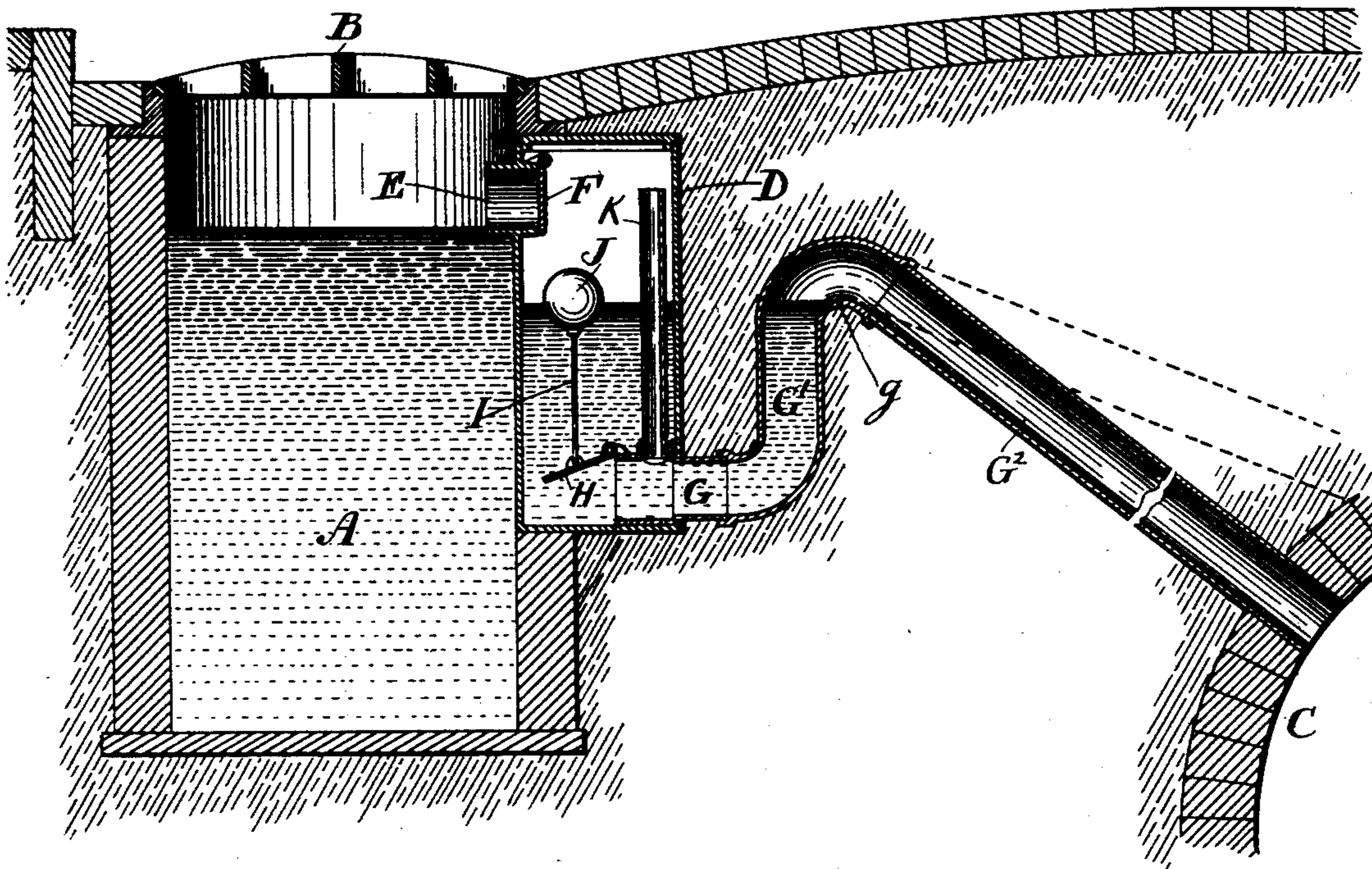
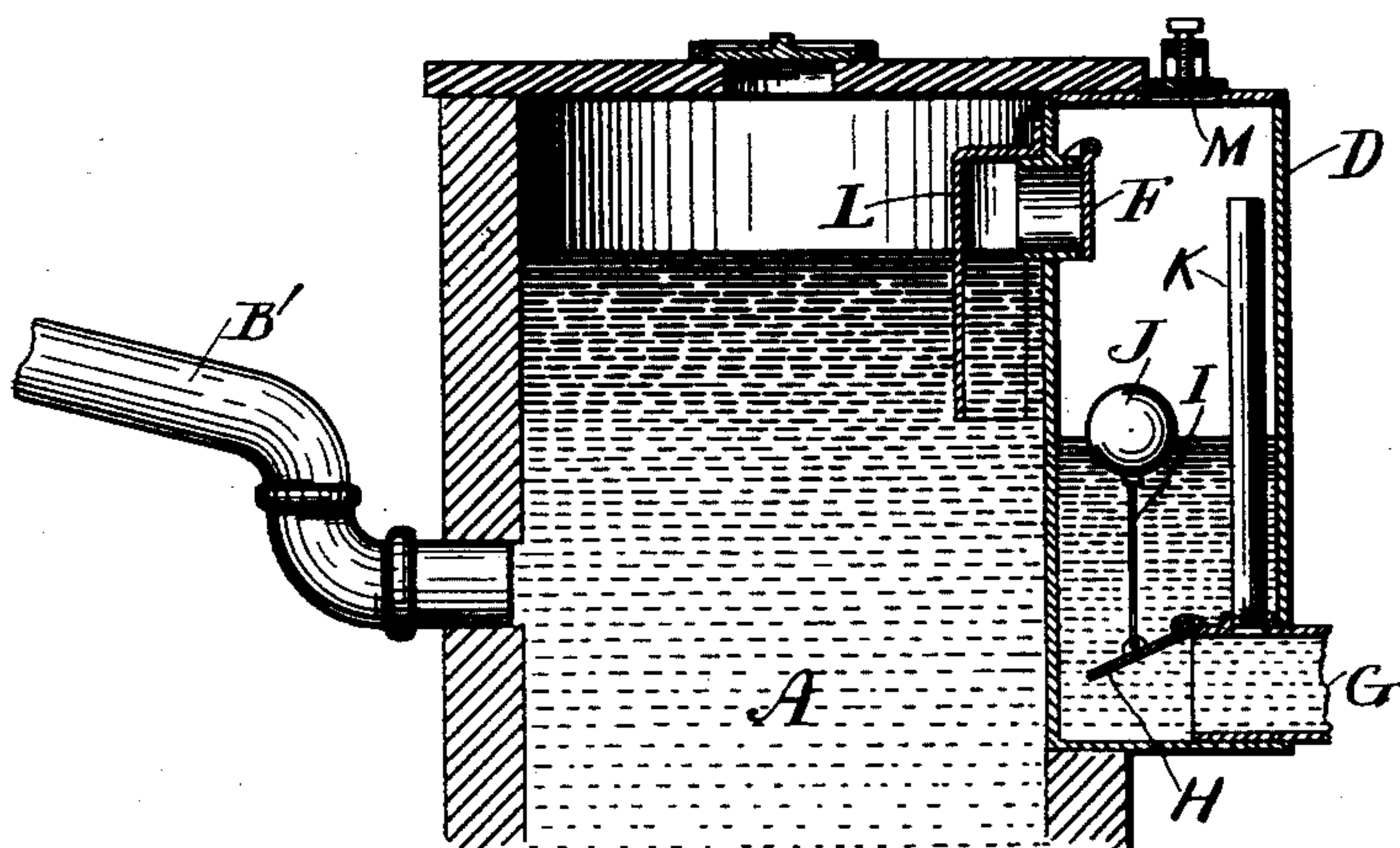


FIG. 2.



Witnesses.

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# UNITED STATES PATENT OFFICE.

PATRICK SCANLON, OF CHICAGO, ILLINOIS.

## DRAINAGE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 520,146, dated May 22, 1894.

Application filed March 27, 1893. Serial No. 467,810. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK SCANLON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Drainage Systems, of which the following is a specification.

The object of the present invention is to interpose between the main sewer and the catch basin, or house drain-pipe, a trap of such construction that it will effectually prevent the escape of gas from the sewer.

To this end the invention consists in features of novelty that are particularly pointed out in the claims hereinafter, and in order that said invention may be fully understood I will describe it with reference to the accompanying drawings, which are made a part hereof, and in which—

Figure 1 is a sectional elevation of a system embodying the invention in the form that is preferred for street service. Fig. 2 is a sectional elevation of a portion of the catch basin modified to meet the requirements of dwellings and other buildings.

A represents the catch basin having an open top B located near the curb, or at any desired part of the street or roadway. As ordinarily constructed the water is carried directly from the catch basin to the sewer C, by means of a pipe communicating with the catch basin some distance above its bottom. Instead of this arrangement I interpose between the catch basin and the sewer a gas trap of the construction now to be described.

D is a closed tank or receptacle, and E is a short section of pipe which places the upper portion of this tank or receptacle in communication with the catch basin, so that when water rises up into this catch basin to the level of this pipe it will flow into the tank. The tank end of the pipe E is provided with an automatically operating valve of such construction that it permits the free passage of air or water from the catch basin into the tank, but prevents passage in the opposite direction. It is not material, so far as the present invention is concerned, what form of valve is used for this purpose. I prefer a valve of some simple form, and in the drawings have shown a clap valve F.

G is a pipe communicating at one end with the bottom of the tank D, and at the other with the sewer. Through this pipe the contents of the tank are discharged, and in order to at all times maintain the water in the tank D at a sufficient height to effectually seal it, the pipe G is provided with an up-take G' extending upward above the bottom of the tank far enough to retain the desired quantity of water. It will be seen that as the water rises up in the tank it also rises up in the up-take G', and as soon as it finds the level shown in the drawings it will flow over the highest point g of the pipe, and thence into the sewer. Ordinarily the leg G<sup>2</sup> of the pipe G will be longer than the leg G'. If so, and the volume of water flowing through the pipe be sufficient to expel the air from the leg G<sup>2</sup>, a siphonic action will commence, and unless the siphoning is in some way interrupted, the entire contents of the tank will be discharged. In order to prevent this, the end of the pipe that communicates with the tank is provided with a valve H and this valve is connected by means of a rod I, or other suitable device, with a float J. So long as the water in the tank remains at the normal level, as shown in the drawings, the float J will hold the valve open, but should siphoning begin, and the level of the water be thereby lowered, the valve H will close the end of the pipe, and thus prevent any further discharge. Unless some means be provided to prevent it, when the valve is once seated, the suction produced by the column of water in the discharge pipe will hold it seated with such force that a float of considerable buoyancy will be required in order to unseat it. In order, therefore, to relieve the suction of this column of water I employ a pipe K, communicating at one end with the air, and at the other with the discharge pipe. With this arrangement, as soon as the valve is seated, the suction within the discharge pipe draws all the water out of pipe K, and draws in a quantity of air. This checks the siphoning and permits the water to regain its equilibrium in the pipes and tank, thereby equalizing the pressure upon opposite sides of the valve.

The arrangement shown in Fig. 1 differs from that shown in Fig. 2 in that in the for-



mer the water finds its way into the catch basin through the open grating B, while in the latter it finds its way into the catch basin through a pipe B'; and also in that the arrangement shown in Fig. 2 is provided with means for preventing grease from entering the tank D, while in Fig. 1 no means for accomplishing this result are shown. This grease trap consists simply of a shield L of U-shaped cross-section, secured to the wall of the tank so as to cover the inlet to the tank and project some distance below it. With this arrangement any matter of less specific gravity than water that once comes to the surface of the water in the catch basin cannot reach the inlet. The grease will therefore accumulate on the surface of the water in the catch basin, and may be removed from time to time.

M is a hand hole giving access to the tank.

It is the intention to make the tank D of such capacity that it will hold enough water to seal the pipe G, even during a protracted dry season. To this end it is important to prevent evaporation as much as possible, and it is for this reason, as well as to prevent back-water from flowing into the catch basin, that the inlet of the tank is provided with an outward seating valve. As shown in the drawings, the tank is built into the wall of the catch basin, and while this is the preferred method of supporting it, still, it is not essential that this construction be followed.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a tank, of a siphonic discharge pipe communicating therewith and having its bend or highest point at a level below the level of the top of the tank, so that the water may rise up in the tank and discharge-pipe to such a height that it flows from the short to the long leg of said pipe, whereby, when the flow is sufficient, siphoning is automatically started, and a valve for closing the inlet end of said pipe when the water reaches a given level, the pipe being provided with a vent for permitting the water within it to regain its equilibrium after

the inlet end of the pipe is closed, substantially as set forth.

2. The combination with a tank and a siphonic discharge pipe communicating therewith and having its bend or highest point at a level below the level of the top of the tank, so that the water may rise up in the tank and discharge-pipe to such a height that it flows from the short to the long leg of said pipe, whereby, when the flow is sufficient, siphoning is automatically started, of a valve adapted to close the inlet end of said pipe, a float located within the tank and suitably connected with the valve, and an air vent for permitting air to enter the discharge pipe after the valve is seated, substantially as set forth.

3. The combination with a tank, and a siphonic discharge pipe communicating therewith and having its bend or highest point at a level below the level of the top of the tank, so that the water may rise up in the tank and discharge-pipe to such a height that it flows from the short to the long leg of said pipe, whereby, when the flow is sufficient, siphoning is automatically started, of a valve for closing the inlet end of the pipe when the water reaches a given level, and a vent pipe communicating with the discharge pipe and extending upward within the tank, terminating above the level of the water, substantially as set forth.

4. The combination with the catch basin J and the auxiliary tank D, in communication with each other, of the valve F seating outward from the tank D and adapted to close the opening through which the catch basin and tank communicate, a siphonic discharge pipe communicating with the tank, the valve H adapted to close the inlet end of said pipe, the float J located within the tank and suitably connected with the valve, and a vent in the discharge pipe for permitting the water to regain its equilibrium after the valve is seated, substantially as set forth.

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Witnesses:

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