

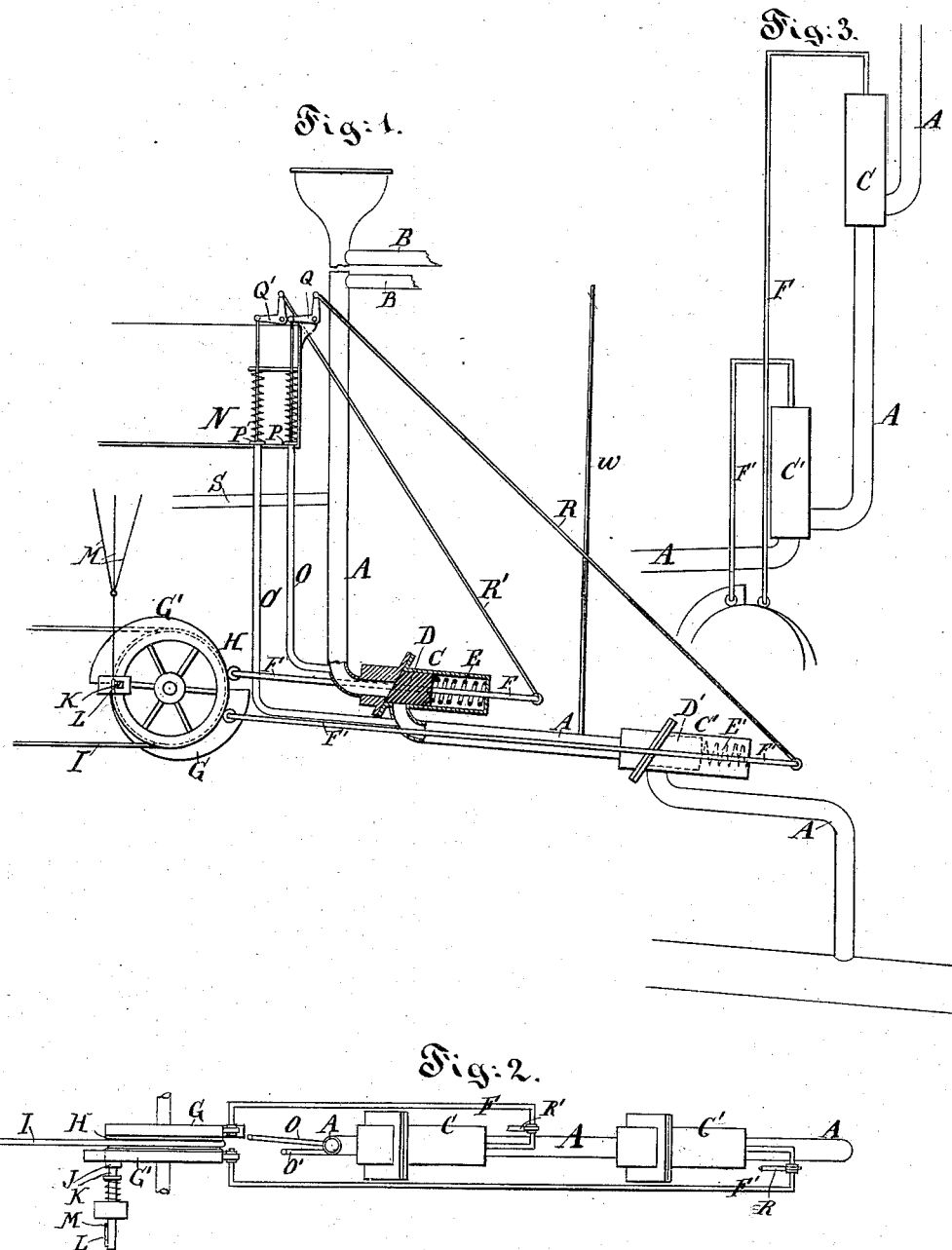
(No Model.)

M. F. DEEGAN.

APPARATUS FOR PREVENTING THE ESCAPE OF SEWER GAS INTO HOUSES.

No. 262,934.

Patented Aug. 22, 1882.



Witnesses:
W. Allen
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UNITED STATES PATENT OFFICE.

MATHEW F. DEEGAN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
HENRY HOOPER, OF SAME PLACE.

APPARATUS FOR PREVENTING THE ESCAPE OF SEWER-GAS INTO HOUSES.

SPECIFICATION forming part of Letters Patent No. 262,934, dated August 22, 1882.

Application filed July 11, 1882. (No model.)

To all whom it may concern :

Be it known that I, MATHEW F. DEEGAN, of Chicago, Cook county, State of Illinois, have invented certain new and useful Improvements in Apparatus for Preventing the Escape of Sewer-Gas into Houses; and I do hereby declare the following to be a full and exact description thereof.

I connect all pipes leading waste water and offals from a house to one main soil-pipe which delivers the matter into the sewer. In this main soil-pipe, between the sewer and the last connection with a branch soil-pipe, I arrange two valves in such manner that under ordinary circumstances both these valves remain shut; but whenever a quantity of waste water or offals is delivered into said main soil-pipe the first or upper one of the valves is opened by positive mechanical means, first permitting the waste material to be discharged into that branch of the main soil-pipe which lies between the two valves. Then, after the first or upper valve is closed again, the second valve is opened for a sufficient length of time to allow all of this waste material to pass without obstruction into that branch of the main soil-pipe that leads directly into the sewer.

The means for operating the valves may be varied according to the various conditions under which my invention may be employed. When there is a sufficient power available from a steam-engine or other motor in more or less continuous operation I can avail myself thereof; but when this is not the case I propose to employ a water-motor, the induction-valves of which may be connected to the devices for discharging material into the main soil-pipe; or electric connections may be used to start the water-motor by hand whenever it is desired to operate the valves of the main soil-pipe.

According to the construction of my apparatus various means may be provided for flushing or washing out the main soil-pipe.

The accompanying drawings form a part of this specification, and represent what I consider the best means for carrying out the invention.

In the drawings, Figure 1 is an elevation partly in section of my improved apparatus.

Fig. 2 is a plan thereof, and Fig. 3 is a diagram illustrating a modification.

Similar letters of reference indicate corresponding parts in all the figures.

A is the main soil-pipe, to which are connected the various waste-pipes B, leading from the different water-closets, sinks, bath-tubs, &c., of the house.

C C' are valve-boxes arranged at different levels, but below the connection of the last branch soil-pipe B in the main soil-pipe A. The valves D D', operating in the valve-boxes C C', are pressed against their respective seats by means of springs E E', and each valve carries a rod, F F', respectively, which may be bent or composed of several pieces in such manner that it is acted upon by the cams G G' respectively to open its valve by the revolution of the pulley H, to which both cams G and G' are firmly fixed. The cams G G' are set on the pulley H, so that at every revolution of the latter the upper valve, D, will be first opened and released by its cam G and connecting-rod F, and that the second valve, D', is opened by its cam G' and rod F' after the valve D has again closed. The action of the parts is such that the valve D is tightly closed before the valve D' begins to be opened. It allows no chance for the escape of the gas. The pulley H receives motion through a belt, I, from a steam-engine or other suitable motor; but under ordinary conditions a fixed stop, J, on the pulley H arrests the motion of the latter by its being in contact with a spring-latch, K, and only when the latter is moved out of the way the pulley H makes one revolution, operating both valves D and D', one after the other. At the end of the revolution the motion is again arrested by the stop J striking against the spring-latch K. The latter is operated by means of a bell-crank lever, L, to which are connected, either directly or indirectly, wires M, which lead to the various places where the discharge of matter into the pipe A or the pipes B takes place. According to circumstances, the wires M may be pulled by hand to liberate the pulley H whenever it is desired to operate the valves D and D', or these wires may for this purpose be connected

with the ordinary mechanism of the water-closets, &c.

N is a flush-tank, from which two pipes, O O', lead into the main soil-pipe A, the first one 5 above the upper valve, D, and the second above the lower valve, D'. The admission of water from the tank N through the pipes O O' is controlled by valves P P', which are operated by means of bell-crank levers Q Q' and 10 connections K R' from the rods F F', so that whenever the valves D D' are opened a liberal quantity of pure water will enter the main soil-pipe at the proper places to thoroughly wash it.

S is an overflow-pipe arranged at a sufficient 15 height, so that in case the cam-wheel or pulley H should fail to work from any accident the water accumulating in the pipe A will find a suitable escape to the street-gutter or other waste space, not the sewer, without damaging 20 the premises.

Modifications may be made in many of the details without departing from the principle of the invention.

The diagram, Fig. 3, shows the valves D D' 25 arranged so as to work vertically, the cam-wheel H being arranged below.

When a water-motor is used to drive the cam-wheel H the flush-tank N may be dispensed with. In this case I propose to connect the 30 flush-pipes O O' with the eduction-passages of said water-motor.

The pulley H may be provided with four or a greater number of cams, G G', so as to operate each valve D and D' more than once at 35 every revolution of the wheel H.

A vent-pipe, w, may lead from a point between the valves D D' to an exit above the roof of the house. This may be of service in some cases in allowing the air to flow in and out as 40 the space between the valves is successively filled and emptied. An air-chamber may be

used instead, if preferred. The springs closing the valves D D' will yield to allow the fluid to pass if the wheel H is not worked.

I claim as my invention—

1. In an apparatus for preventing the escape of sewer-gas, the soil-pipe A and valves therein, one arranged ahead of the other, in combination with means, substantially as described, for operating them successively, whereby one 50 valve is closed before the next begins to open, as herein set forth.

2. In an apparatus for preventing the escape of sewer-gas, the spring-valves D D', in combination with the pipe A and means for operating the said valves successively, and with a 55 positive stop or lock for stopping and holding the parts after each operation, substantially as set forth.

3. The main soil-pipe A of a house, having 60 valves D D', arranged to be operated one after the other, in combination with the flushing-pipes O O', and with suitable connections to admit water into the latter conjointly with the operation of the valves D D', substantially as 65 and for the purposes herein specified.

4. The main soil-pipe A of a house, having valves D D', in combination with a cam-wheel, H G G', and with means for imparting motion thereto, and with a latch, as K, capable of engaging with a stop on the cam-wheel, the whole 70 arranged so as to operate the valves D D' by disengaging the latch K, substantially as herein specified.

In testimony whereof I have hereunto set 75 my hand, at Washington, D. C., this 11th day of July, 1882, in the presence of two subscribing witnesses.

MATHEW F. DEEGAN.

Witnesses:

W. T. JOHNSON,
I. N. KALB.