

No. 658,139.

Patented Sept. 18, 1900.

I. P. CLARKE.  
AUTOMATIC FLUSHER.  
(Application filed Feb. 16, 1900.)

(No Model.)

Fig. 1.

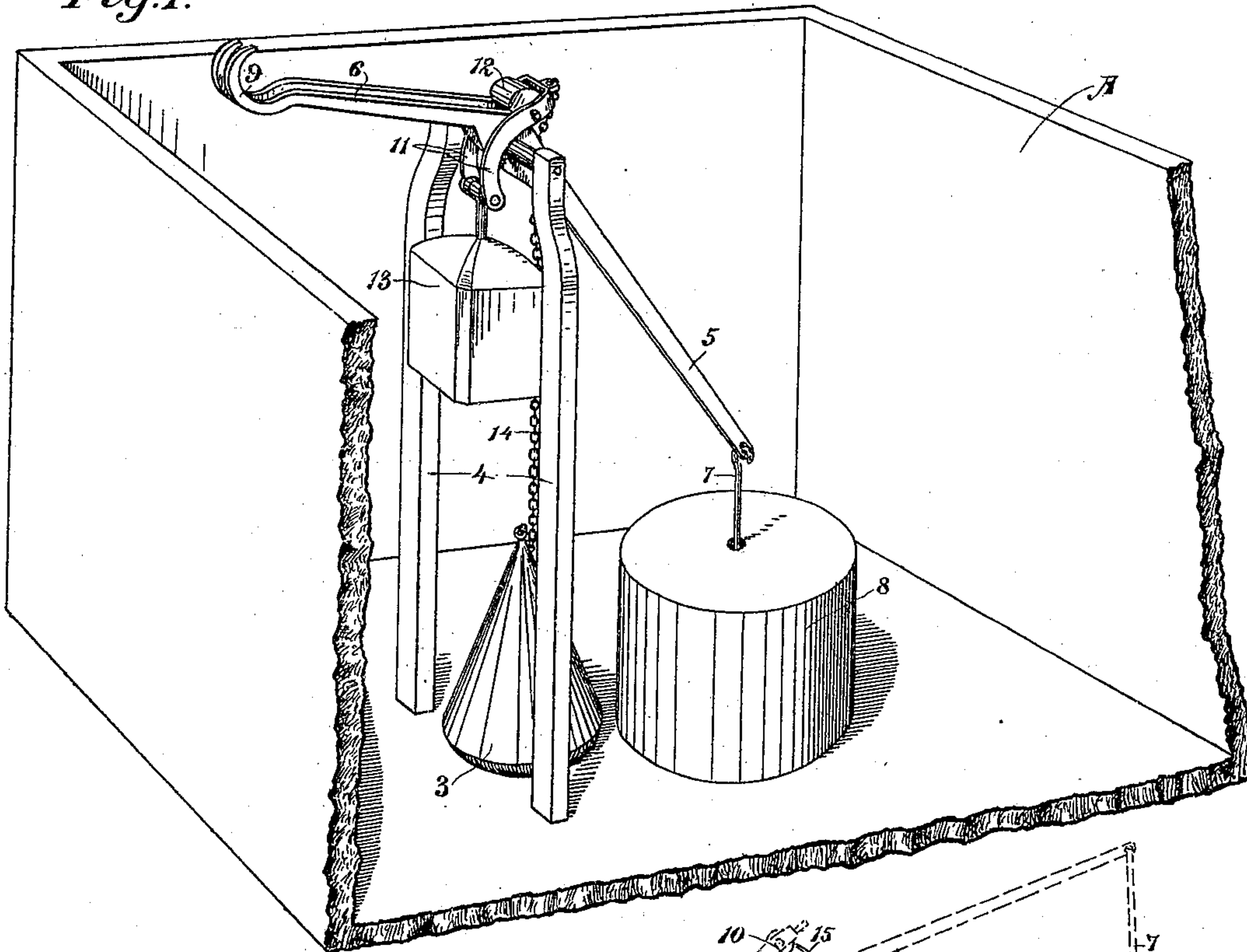
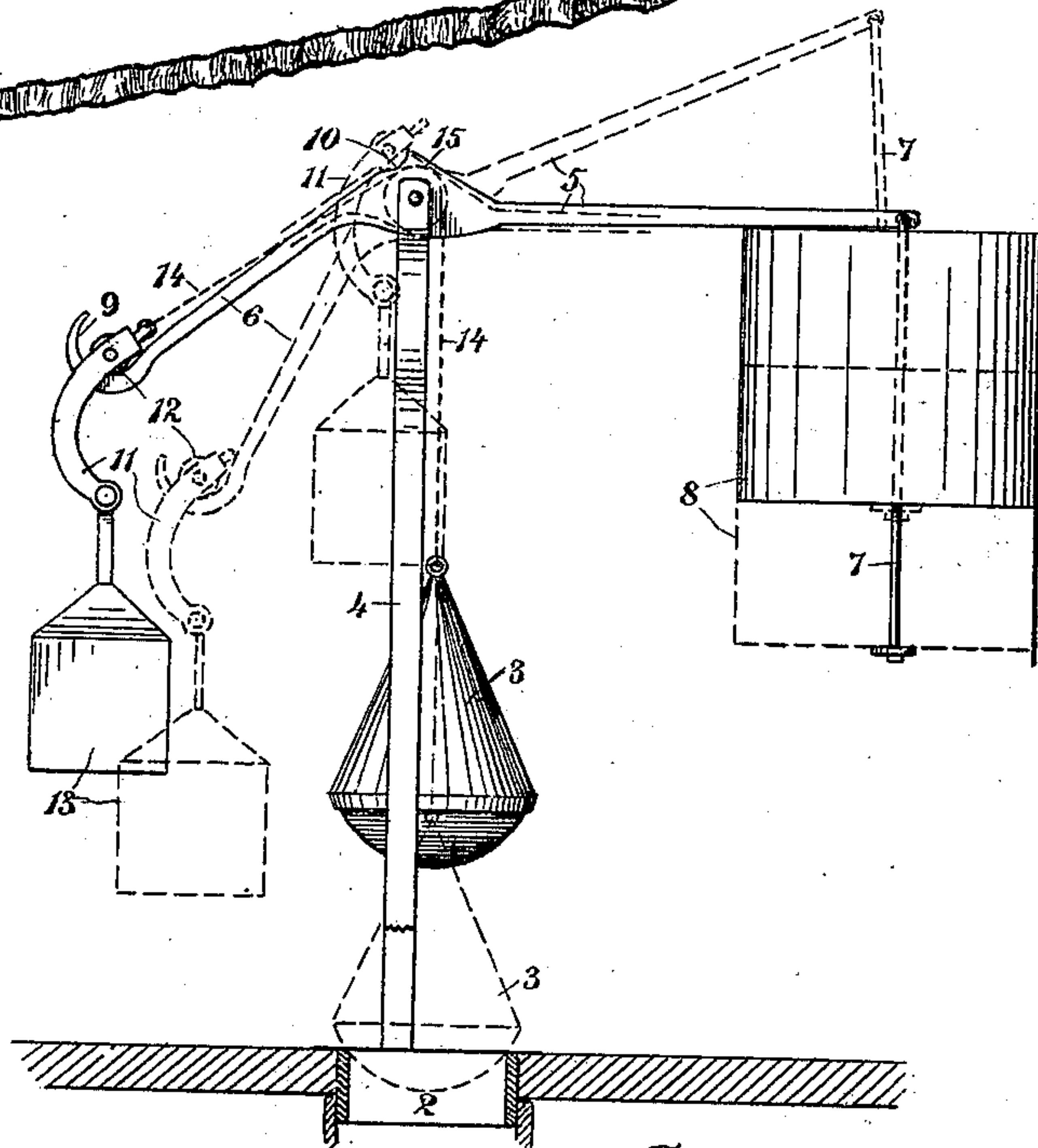


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC FLUSHER.

SPECIFICATION forming part of Letters Patent No. 658,139, dated September 18, 1900.

Application filed February 16, 1900. Serial No. 5,506. (No model.)

*To all whom it may concern:*

Be it known that I, IRA P. CLARKE, a citizen of the United States, residing at Alameda, county of Alameda, State of California, have  
5 invented an Improvement in Automatic Flushers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus for  
10 the automatic and effectual flushing of sewers and the like at frequent intervals.

It consists of a chamber or receptacle having an opening connecting with the sewer, a valve by which said opening is closed, a float  
15 suspended from one end of a lever fulcrumed above the valve, a weighted traveler movable to and from the fulcrum-point on the opposite side of the lever, and a chain connecting said traveler with the valve, so that when the float  
20 has risen to a certain point the traveler will be disengaged and will move quickly to the outer end of the lever and will open the valve to allow the escape of the water. The float  
25 sinking with the discharge of the water will tilt the lever into such position that when the tank is approximately empty the traveler will rapidly move toward the center of support of the lever and, slackening the chain, will allow the valve to close suddenly upon its seat.  
30 The flow of water being continuous at any desired rate will cause this operation to continue automatically and indefinitely.

Referring to the accompanying drawings, Figure 1 is a view of the flusher, showing the  
35 valve closed. Fig. 2 shows the successive operation of the flusher.

The tank may be of any suitable or desired shape, and the arrangement of the valve-actuating mechanism may be varied without  
40 materially altering the character of the invention.

As here shown, A is the tank, having an opening 2 in the bottom with communication between it and the sewer, so that water may  
45 flow from the tank to the sewer. The area of this opening is of sufficient size so that the water passing will fill the sewer, and thus flush it out thoroughly. 3 is a valve adapted to seat and close this opening. The valve is  
50 here shown as having the convex or equivalent lower surface, so that it will fit and close

upon the seat, which may be made of rubber or other similar soft material to insure a proper closing of the opening when the valve is seated. As here shown, the lower part of  
55 the valve is intended to be heavy and the upper part may be hollow, so as to insure the valve standing in the proper position when it is raised in the body of water in the tank, and thus insuring its dropping properly upon its  
60 seat when released.

4 indicates standards or supports which represent any suitably-arranged fulcrum-supports for the bent lever, one arm 5 of which extends to one side of the fulcrum and the  
65 other arm 6 to the opposite side and forming, as here shown, an obtuse angle with the part 5. From the end of the arm 5 a rod 7 depends and passes loosely through a float 8, having a certain amount of vertical play independent of  
70 the movement of the float for a purpose to be hereinafter described. The lever-arm 6 may be single; but in the present case I have shown it as formed in two parallel arms having the outer ends turned up into hook shape, as at  
75 9, and a slight depression formed at the junction of these hook-shaped ends with the straight portions 6 of the lever. At the junction of these arms 6 with the arm 5 is a curved depression 10.  
80

11 is a yoke or traveler fitting over the lever and having a roller 12 journaled in the upper part, and when the valve is closed and the float at the bottom, the lever being tilted, as shown in Fig. 1, the roller 12 rests in the  
85 depression 10 at the angle of the lever and approximately above the fulcrum-shaft, but a little to the side thereof which is nearest the float.

From the bottom of the yoke or traveler 11  
90 is suspended a weight 13. A chain 14 connects the upper part of the traveler 11 with the valve 3, the chain being sufficiently slack so that the tilting of the lever by the gradual rise of the float 8 when water is admitted into  
95 the tank will not affect the valve during this rise and until the time when the valve shall be opened.

Journaled upon the fulcrum-shaft between the arms 6 is an antifrictional roller 15, over  
100 which the chain passes when the valve is opened.



The operation of the device will be as follows: The tank being empty, water flowing into it will gradually raise the float 8, which slides freely upon the rod 7 until it strikes the end of the lever-arm 5. The lever-arm 5 will then be tilted about its fulcrum-shaft until when the float has reached the point indicating as much water as it is desired to have the tank contain the lever would be so tilted that the roller 12, journaled in the traveler 11, will pass out of the socket 10 and will rapidly roll down the arms 6 until it drops into the hooks at the ends of these arms, where it is arrested. This movement, aided by the weight 13, produces a sudden tension upon the chain connecting the traveler with the valve and forcibly lifts the valve with a sudden jerk, which breaks the suction or pressure and raises it from its seat, thus leaving the passage clear for the flow of the water, which then runs out of the tank to the appointed place. The length of the rod 7 is such that when the float pressing against the lower end of the lever-arm 5 has raised the latter to a point where it allows the traveler to move down to the end of the arm 6 the rod will slide rapidly through the float, thus allowing the lever to complete its tilting movement and the weight on the traveler to have its full effect in opening the valve. As the float sinks it has no effect upon the lever until it has reached the bottom of the rod 7, when it commences to pull the lever back to its normal position. The depressions at the outer ends of the arm 6 retain the roller 12 in position until the lever has tilted so that the arm 6 will decline considerably from the outer end toward the center and the water will have nearly all escaped from the tank. The roller 12 then starting out of the depressions, the weight on the traveler will rapidly return it to the central position, where the roller 12 rests, as at first. This sudden return slackens the chain and allows the valve to drop suddenly to its seat and close the egress-passage. Water still flowing in the tank will again fill it, and the same operation is repeated as often as the rapidity of flow into the tank and the size of the tank will provide for.

I have heretofore described the apparatus as applied to the flushing of sewers; but it will be understood that it is equally useful for supplying water intermittently at any point, such as for what is termed "hydraulic shooting" in mining and the like.

The word "tank" is designed to cover any receptacle or reservoir in which water may be stored.

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

1. A sewer-flushing device comprising a tank having a discharge-opening, a valve by which said opening is controlled, a lever fulcrumed above said opening having a float connected with one end whereby it is tilted by the rising or falling of the float, a weighted

traveler movable upon the opposite end of the lever to and from the fulcrum, and a chain connecting said traveler with the valve. 70

2. A sewer-flushing device consisting of a tank having a discharge-opening, a valve controlling said opening, an angular lever fulcrumed so that its arms project upon either side of the fulcrum-point above the discharge-opening, a float connecting with one of said arms, a weighted traveler movable upon the other arm having a chain connecting it with the valve, and a roller concentric with the fulcrum-shaft over which the chain passes, 75 80 depressions near the fulcrum, and at the outer end of the second lever-arm in which the weighted traveler is retained at either end of its movement until the lever has inclined to a considerable angle above or below the horizontal. 85

3. A sewer-flushing device consisting of a tank having a discharge-opening, a valve by which said opening is controlled, a bent lever having its angle fulcrumed approximately above said opening, a float connecting with one of its arms, a weighted traveler with anti-frictional roller adapted to move upon the other arm, a depression at the inner end of said arm in which the roller lies while the float is rising until the lever-arm is depressed below the horizontal line whereby the roller is disengaged from the depression and the traveler caused to run to the outer end of the lever, a chain connecting the traveler with the valve, and a centrally-journaled roller over which the chain passes, whereby the outward and downward movement of the traveler suddenly opens the valve. 90 95 100

4. A sewer-flushing device consisting of a tank having a discharge-opening, a valve controlling said opening, a bent lever fulcrumed at its angle approximately in line above the discharge-opening, a float connected with a weighted arm of the lever adapted to tilt said lever when it rises and falls, depressions and stops made at the outer and inner ends of the other arm of the lever, a weighted traveler having a roller adapted to rest in the depression at the inner end until the arm of the lever is depressed below the horizontal so as to release the roller and allow the traveler to run to the outer end of the lever, a chain connecting the valve with the traveler passing over an anti-frictional roller whereby the outward movement of the traveler opens the valve, and the sinking of the float tilts the lever until it is inclined in the opposite direction and the roller is released so that the weighted traveler returns to the center and allows the valve to suddenly close. 105 110 115 120 125

5. In a sewer-flushing device, a tank having a discharge-opening, a rising-and-falling valve controlling said opening, a bent lever having its angle fulcrumed approximately in line above the opening, one arm of said lever being loosely connected with a rising-and-falling float whereby the lever is tilted about its fulcrum-point, the other arm having a cen- 130



tral depression, and hooks or stops and a corresponding depression at the outer end, a weighted traveler suspended from an antifrictional roller which travels upon said arm, 5 a chain connecting the valve with the traveler, and a centrally-located antifrictional roller over which the chain passes whereby the outward movement of the traveler suddenly opens the valve, said roller being received and retained by the hooks, and the exterior depression, whereby the valve is held 10 open until the tank is empty, and the float has sunk to the bottom.

6. In a sewer-flushing device, a tank having a discharge-passage connecting with a sewer, a rising-and-falling valve by which said passage is controlled, an angular lever having its angle fulcrumed approximately in line above the discharge-opening and the 20 valve, a weighted traveler having a roller journaled thereto and adapted to roll out and in upon the arm, hooks and a depression at the outer end in which said roller is received

when the traveler has moved to that point, a chain connecting the traveler with the valve, 25 and a centrally-located antifrictional roller over which the chain passes whereby the valve is opened by the outward movement of the traveler, a second depression near the fulcrum of the lever into which the traveler-roller is 30 returned when the lever is returned in the opposite direction whereby the valve is suddenly closed, a float and rod or like loose connection between it and the opposite end of the lever whereby said lever is tilted in either 35 direction by the movement of the float until the weighted traveler is released and the lever allowed to complete its movement independent of the further movement of the float.

In witness whereof I have hereunto set my hand. 40

IRA P. CLARKE.

Witnesses:

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