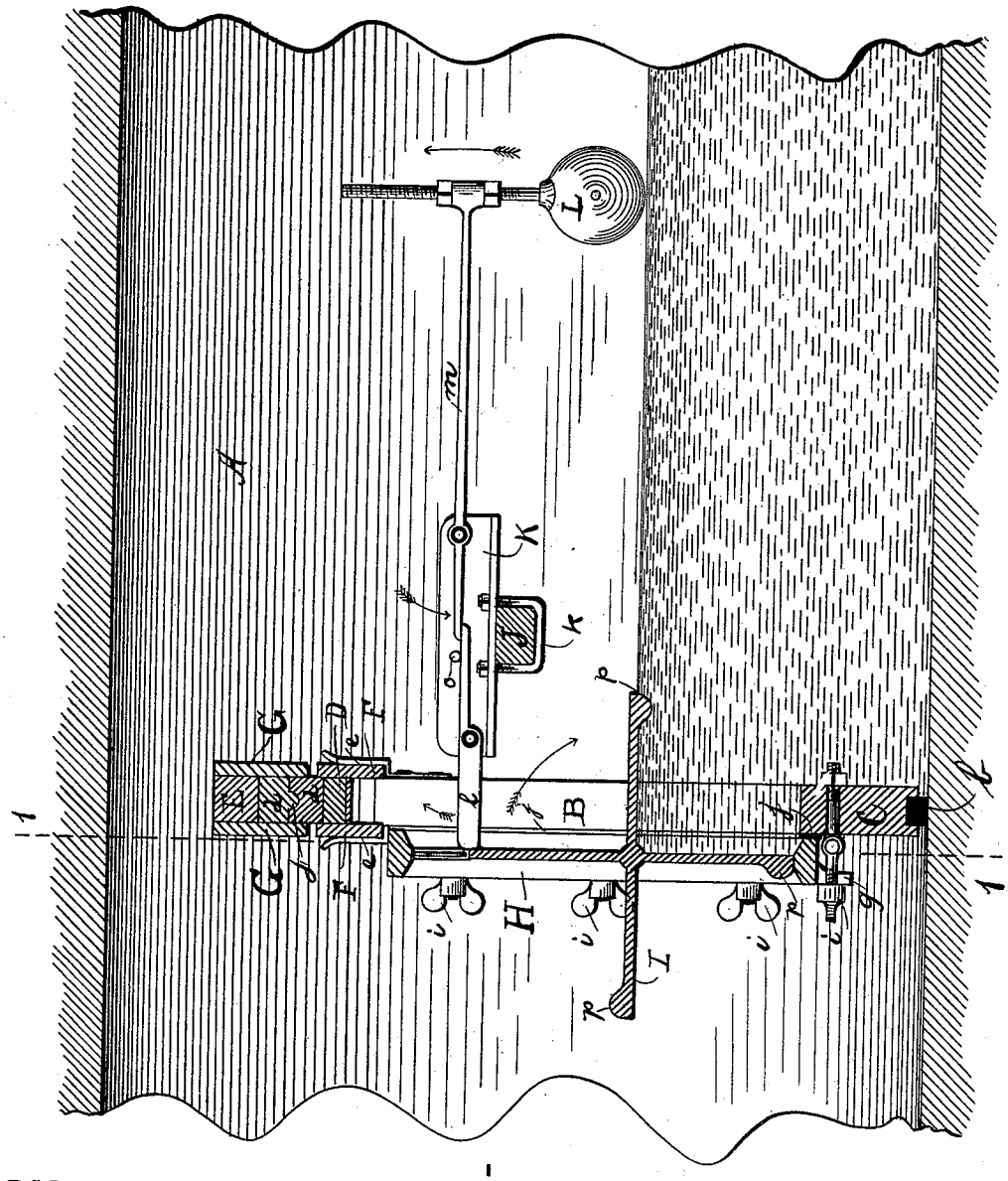
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AUTOMATIC GATE FOR FLUSHING SEWERS.

(Application filed Jan. 11, 1897.)

(No Model.) 2 Sheets—Sheet 1.



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Fig. 3.

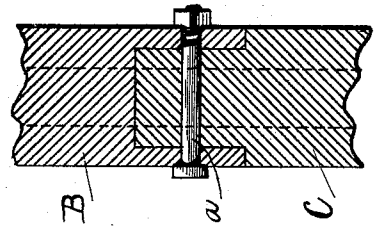
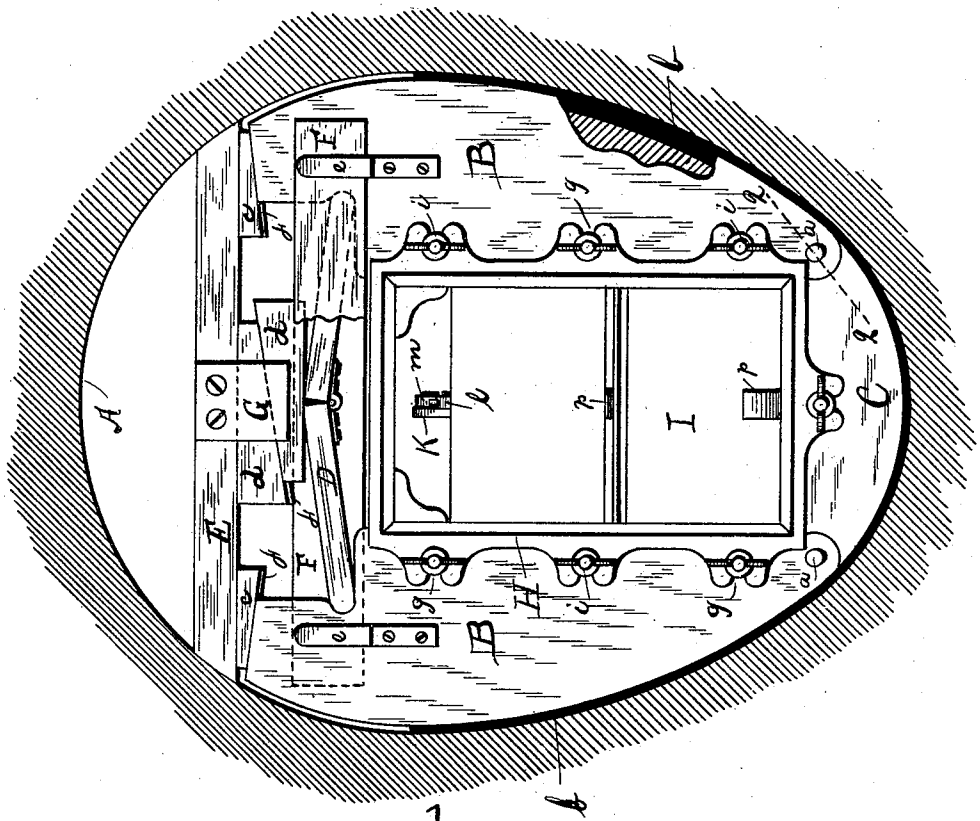


Fig. 2.



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UNITED STATES PATENT OFFICE.

STEPHEN S. TILTON, OF SAN FRANCISCO, CALIFORNIA.

AUTOMATIC GATE FOR FLUSHING SEWERS.

SPECIFICATION forming part of Letters Patent No. 614,675, dated November 22, 1898.

Application filed January 11, 1897. Serial No. 618,879. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN S. TILTON, a citizen of the United States, and a resident of the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Automatic Gates for Flushing Sewers; and I do hereby declare that the following is a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention relates to that class of devices which are placed across sewers or flumes for holding back the water until a certain quantity is accumulated and the desired pressure is obtained and then released instantaneously through an automatic gate for the purpose of flushing away all debris which may have settled at the bottom of the sewer.

The object of my invention is to produce a device which is simple in construction, effective in operation, and convenient in manipulation, so arranged that its movements are automatically controlled by the flow of water passing through the sewer; and it consists, first, of a rotating gate constructed in the shape of a fanning-wheel provided with a suitable frame mounted centrally upon a wooden frame placed across the sewer; secondly, of adjustable means by which both the wooden frame and the frame of the rotating gate can be made water-tight; thirdly, to provide adjustable means to stop and release the gate when desired.

In the accompanying drawings, which form a part of this specification, Figure 1 is a longitudinal section of an ordinary sewer broken away, showing a vertical section of my device. Fig. 2 is a vertical section of the sewer, taken from dotted line 1 1 of Fig. 1, showing a front elevation of my device. Fig. 3 is a section taken from line 2 2 of Fig. 1, showing particularly the construction of one of the mitering corners of the wooden frame.

Similar letters of reference refer to similar parts throughout the several views of the drawings.

A represents the sewer, within which the wooden frame of my invention may be placed across it at any point desired for the purpose of flushing away all debris deposited therein. This frame consists of two vertical side pieces B, which may be conveniently called "wings," hinging to a lower cross-piece C, as particularly shown in Fig. 3, and *a* are bolts by which the mitering ends of the wings and the cross-piece are secured together and rendered water-tight. The wings and the cross-piece are cut to fit the inner curve of the sewer and are arranged in such a manner as to form a central square aperture, within which my device rotates.

Between the outer edge of the wings and the cross-piece and the inner wall of the sewer a rubber strip *b* (or other elastic material may be used, if desired) is preferably placed within a depression or groove cut upon the wings and the cross-piece and project outwardly to form a flexible joint for the purpose of rendering that part of the wooden frame and the inner wall of the sewer water-tight. This feature is plainly shown in the drawings. In Fig. 2 a portion is broken away to show the rubber placed into the depression.

The inner upper end of the wings are cut inwardly to provide suitable shoulders for the toggle-joint D, which stands centrally above the square aperture previously described, and in a line above the wings and the toggle-joint is a beam E, rigidly secured across the sewer.

Between the beam and the upper ends of the wings just described I place wedges *c* for the purpose of forcing the wings downwardly, while wedges *d*, placed between the toggle-joint and the beam, force them sidewise until the joint between the wings B and the cross-piece C and the inner wall of the sewer become perfectly water-tight.

The cross-bars F are removably secured upon the upper sides of the wings by means of brackets *e* and serve to keep the wooden frame in position and likewise the toggle-joint in proper place. The beam E is also provided with guiding-plate G for the purpose of keeping the wedges *d* in position.

The various wedges, as shown in the drawings, are provided with the usual groove and sliding rib *f* between their mitering edges to prevent them from shifting away while forcing them toward each other.

The frame H is mounted upon the front elevation of the wings B and the cross-piece

C and may be secured in any suitable manner; but I prefer to carry out this feature as shown in the drawings, where it will be seen that the frame is provided with outwardly-projecting ears having notches *g*, through which bolt *h*, rigidly secured to the wings and the cross-piece, passes. These bolts are provided with a knuckle-joint, so that they can be quickly removed from the frame, and the thumb-nuts *i* serve to tighten the frame against the wings and the cross-piece. The bearing-faces of this frame are provided with suitable packing *j*, so that a water-tight joint can be obtained.

Suitably mounted within the frame H is the rotating gate I, which, acting as a dam, controls the flow of water passing through the sewer. This gate is preferably constructed in the shape of a fanning-wheel with four rectangular blades.

Rigidly secured across the sewer and back of the gate is a beam J, upon which the angular plate K is adjustably secured crosswise by means of double-ended sliding bolt *k*.

Pivoted to the forward end of the angular plate just described is lever *l*, which serves as a stopper for the rotating gate and controls its movements, while lever *m* is pivoted to the rear end of the angular plate and is adapted to force downward the rear end of lever *l* for the purpose of releasing the gate I when desired.

The rear end of lever *m* is provided with an adjustable float, which consists of ball L, provided with stem *n*, having a screw-threaded portion for the purpose of adjusting the same.

The guiding-pin *o*, secured to the angular plate K, prevents the lever *l* from going beyond its intended position.

The operation of my invention may be described as follows: When all the various parts of my invention are placed in position within the sewer across the water-course and the different screws and wedges forced within their respective places until the structure becomes water-tight, the rotating gate I is then held rigid in position by means of lever *l*, thus forming a dam to that portion of the sewer. The course of the water being stopped, the same will naturally dam up against the gate and cause the float secured at the rear end of lever *m* to rise with it, thus forcing the forward end of the lever to press downward upon the rear end of the lever *l* and cause thereby its forward end to swing upward, thus releasing the gate I. The gate being free from any obstruction, the pressure beyond forces the same to rotate, thus allowing a large volume of water to pass instantaneously through the central aperture of the wooden frame and removes by its natural force any debris which may be settled at the bottom of the sewer within the vicinity of my device. As soon as the water depresses the float, with lever *m*, will naturally drop downward and release thereby lever *l*. The forward end of this lever being heavier beyond its pivotal center will drop also downwardly to its normal position and slide upon the projections *p* of the other blades while the gate is being rotated until the former blade is reached. Thus the apparatus is ready for similar operation.

Believing I have produced a valuable improvement in "automatic gate for flushing sewers" and having described the same, what I claim, and desire to secure by United States Letters Patent, is—

1. In a device for flushing sewers, a gate having four rectangular blades and means for automatically controlling said gate, substantially as set forth, and for the purpose described.

2. In a device for flushing sewers, a rotating gate adapted to stop and release the flow of water and automatic means to control the movements of said gate, substantially as set forth, and for the purpose described.

3. In a device for flushing sewers, a rotating gate provided with blades adapted to stop automatically the flow of water, and means to control its movements consisting of suitable levers, and means to support said levers, an adjustable float suitably secured to one of the levers, substantially as set forth and for the purpose described.

4. A device for flushing sewers provided with an adjustable water-tight frame, a rotating gate suitably mounted upon said frame and means for automatically releasing and stopping said gate, substantially as set forth and for the purpose described.

5. An automatic device for flushing sewers, provided with an adjustable water-tight frame, a rotating gate mounted upon said frame, and means to control its movements, consisting of levers *l* and *m* suitably secured to the inner wall of the sewers, in combination with an adjustable float adapted to work up or down, substantially as set forth and for the purpose described.

6. In a device for flushing sewers, provided with water-tight frame, rotating gate mounted upon said frame, and means to control the action of said gate, consisting of an adjustable float, provided with a lever suitably secured to said gate, substantially as set forth, and for the purpose described.

7. In an automatic device for flushing sewers, a water-tight frame consisting of wings B B and cross-piece C hinging together, in combination with the described means to force downwardly and sidewise said frame consisting of beam E and wedges *c c* all of which is arranged and constructed to operate in the manner as set forth.

8. In a device for flushing sewers, a rotating gate provided with a water-tight frame consisting of wings B, cross-piece C, provided with means for straightening said frame, consisting of cross-bars F suitably secured to the frame, substantially as set forth, and for the purpose described.

9. In a device for automatically flushing sewers, a water-tight frame provided with an adjustable and removable rotating gate mounted thereon, in combination with flexible joint, consisting of an elastic strip suitably secured between the frame and the inner wall of the sewer, substantially as set forth, and for the purpose described.

10. In a device for flushing sewers, provided with a water-tight structure, a removable frame mounted upon said structure provided with knuckle-jointed bolts and a rotating gate mounted upon said frame, substantially as set forth and for the purpose described.

11. In a device for flushing sewers provided with a water-tight structure, a frame mounted upon said structure, provided with outwardly-projecting ears having notches cut thereon and adapted to receive bolt and a gate mounted upon said frame, substantially as set forth, and for the purpose described.

In testimony whereof I have hereunto set my hand this 2d day of January, 1897.

STEPHEN S. TILTON.

In presence of—
C. A. SHREEDER,
R. L. NOUGARET.