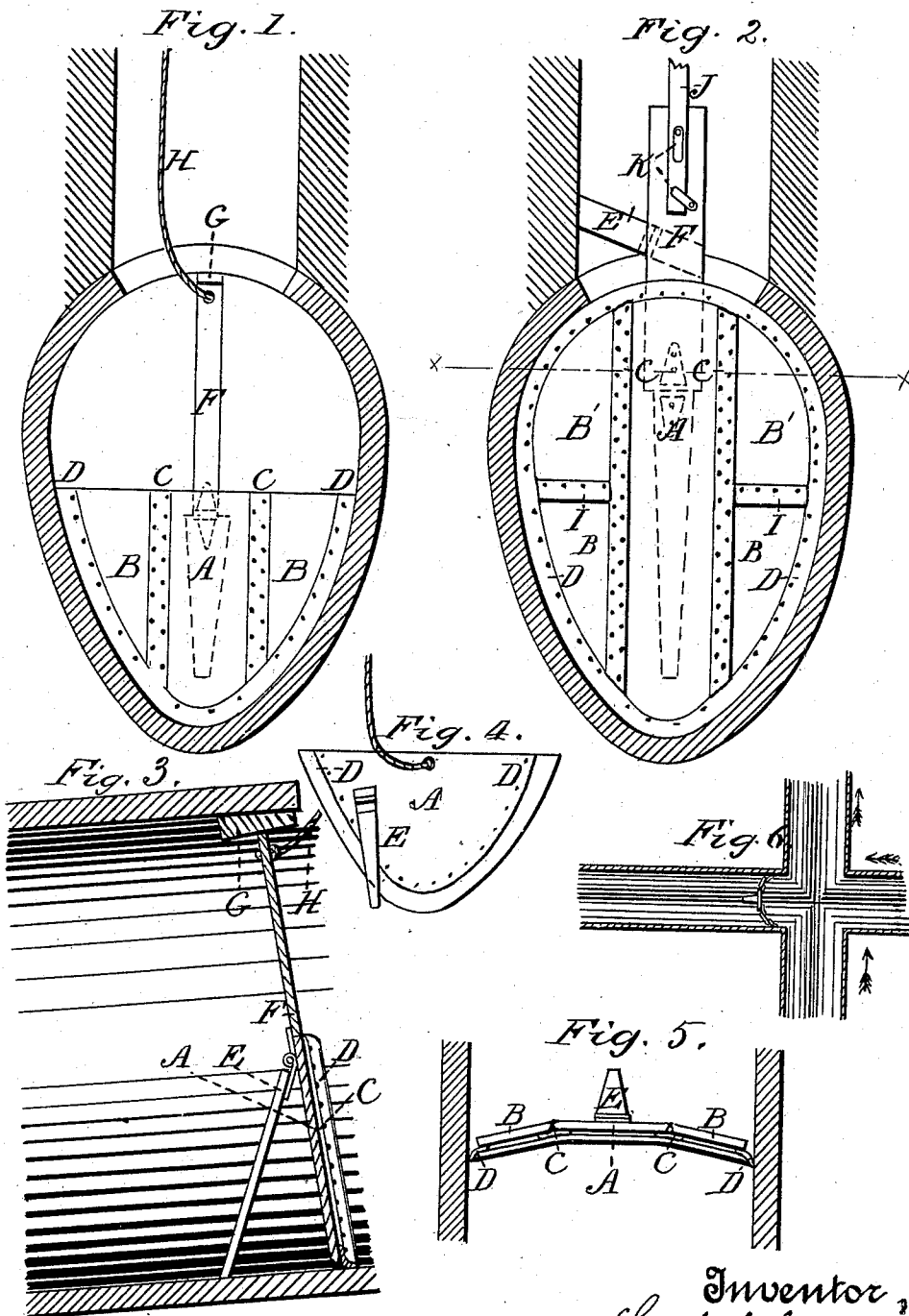


S. JOHNSON.

WING GATE FOR FLUSHING SEWERS.

No. 268,903.

Patented Dec. 12, 1882.



Witnesses,
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 7.

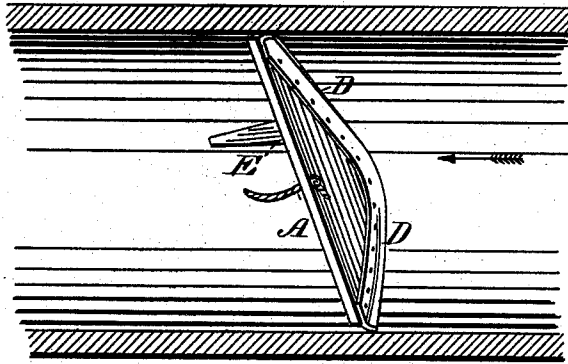


Fig. 8.

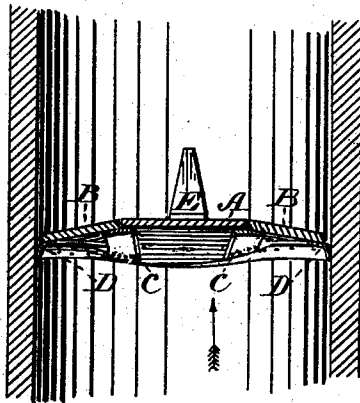
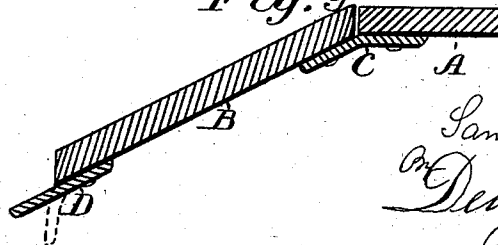


Fig. 9.



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UNITED STATES PATENT OFFICE.

SAMUEL JOHNSON, OF SAN FRANCISCO, CALIFORNIA.

WING-GATE FOR FLUSHING SEWERS.

SPECIFICATION forming part of Letters Patent No. 268,903, dated December 12, 1882.

Application filed June 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL JOHNSON, of the city and county of San Francisco, State of California, have invented an Improved Wing-Gate for Flushing Sewers; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to what I call a "wing-gate" for flushing sewers; and it consists of an adjustable gate, of peculiar construction, hinged at points, so that it may be folded to be introduced into the sewer through the man-hole, and having connected with it a means for securing it at any desired point. This gate is used to carry out a system devised by me for flushing or cleansing sewers, in which my gate may be fixed in any sewer where there is a heavy flow of water, so as to divert the stream into a branch or side sewer which opens into this first one, and by this means cleanse it.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a section of a sewer, showing a front elevation of a gate. Fig. 2 is a section of a sewer, showing a modification of my invention. Fig. 3 is a longitudinal section of a sewer and section of gate. Fig. 4 is an elevation of a small gate. Fig. 5 is a plan; Fig. 6, a plan of cross-sewers. Fig. 7 is a plan view of Fig. 4. Fig. 8 is a sectional view on line *xx* of Fig. 2. Fig. 9 is a detail of gate as shown in Fig. 8.

A is the center piece, and B B are the wings or side pieces, of my gate. These pieces may be made of any desired height, as one-fourth, one-half, or the full height of the sewer into which they are to be placed, and the outline of the whole is made to conform to that of the sewer. The wings B are hinged to the center piece, A, by strips of any suitable flexible material, C, secured to and thus connecting their adjoining edges, which will also provide a tight joint, rubber being preferable on account of its durability. This is nailed or otherwise fixed to the sections, and the wings may be folded upon the center piece, so that the whole gate can be easily introduced or removed through any ordinary man-hole from the street. The edges of the wings and center piece where they fit against the walls of the sewer are also provided with a flexible projecting flap, D, against which the pressure of the water will act and

cause it to close, thus making a water-tight joint.

The gate will be set at a small angle with the perpendicular, and a brace, E, is hinged to the back of the center piece, its foot standing out at an angle with the gate and resting upon the bottom of the sewer, where there is usually enough sediment to prevent its slipping.

From the top of the center piece a standard or bar, F, extends upward to about the top of the sewer, and a wedge, G, is driven in between it and the top of the sewer, thus holding the gate firmly in place and preventing it from floating away. A cord or chain, H, is attached to this bar, and is led thence up to a cross-bar or other point of attachment within the man-hole well, where it is fixed, so as to be easily accessible. This serves to pull the standard F away from its fastening when it is desired to let the accumulated water escape, and at the same time it prevents the gate from being carried away.

In some cases I employ a gate formed all in one piece, as shown in Fig. 4, and having the brace E at one side. This gate should be set at an angle across the sewer, so that one edge will bind against the side of the sewer, while the brace projecting back from the other side and at an angle, as shown, will hold the other side up. This form of gate will be useful where there is but a light stream of water to be diverted. It may have a cord or chain attached to it, as before described, so that it can be removed and prevented from flowing away.

In some cases where there is a heavy flow of water in the sewer it will be found necessary or desirable to employ a gate which will occupy the full size of the sewer. In such a case the center piece, A, will be extended up, so as to enter the man-hole. The wings B B will be fitted, as before described, and above them will be another set of wings, B' B', which will fit against the upper portion of the sewer in the same manner that the wings B fit the lower portion. The upper and lower sets of wings are not rigidly joined together, but are secured together by a flap, I, of flexible material, which will form a water-tight joint between them. In this gate a brace, E', is connected with the center piece above the top of the gate, and braces against the sides of the

man-hole well. In order to remove this gate when desired, I employ a bar, J, which extends down through the man-hole and in front of the standard F. Two nuts are fixed in the standard F, and corresponding holes are made in the bar J, through which crank-screws K pass and screw into the nuts. A lever or any suitable power may then be applied to the upper end of the bar J to turn it and the gate, so as to allow the water to flow past it and escape.

These gates are preferably made of plank, one and one-half or two inches thick, and the edges where they rest against the sides of the sewer are so beveled that they will fit closely and have a good bearing. The joints where the wings meet the center piece are also beveled, so that when they are turned back to the point where they are to stand when in place in the sewer the beveled edges will meet, and will form a brace to prevent their being forced too far back. If made of other or thinner material, flanges might be formed upon the exterior and uniting edges, being beveled, as before described.

This gate is to be used where sewers meet or cross each other, each one having distinct outlets, and where it is desirable to concentrate the flow from both or all into one or another passage for a time in order to cleanse it. In such cases it often occurs that one sewer may have a heavy flow of water, or such a flow may be temporarily provided. When it is desired to direct this flow into another sewer opening out from this first one, the gate is introduced usually a short distance below the man-hole well, (unless in the case where a full gate is to be used,) and is fixed at a small angle, as before described. The wedge G is driven between the standard F and the top of the sewer, and the brace E set into position so as to hold the gate rigidly in place.

The flexible-joint-forming hinges C allow the wings to be folded forward upon the center piece, for the purpose of introducing the gate through the man-hole, after which they are opened out until their outer edges rest against the sides of the sewer, where they will stand at a slight angle with the center piece, the beveled meeting-edges preventing them from going too far back. The flexible projecting flaps D upon their exterior edges will

fit snugly against the sides of the sewer, and will prevent leakage. The water thus arrested will be turned into the other sewer, and may be allowed to flow through it as long as necessary.

The gate is easily removed, as before described, by pulling upon the cord H, when the standard F will be released from the wedge, and the gate, being then pulled forward, will float upon the surface of the water, and may be allowed to remain until the current has subsided, when it may be removed by folding the wings upon the center piece and withdrawing it through the man-hole.

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

1. A sewer-gate, A B, having the exterior edges curved and beveled, so as to fit the sides of the sewer when the gate stands at an angle, and provided with the flexible flaps D around the edges, and the inclined brace E, standing at an angle so as to brace against the side or bottom of the sewer and retain the angularly-placed gate, substantially as herein described.

2. A sewer-gate consisting of the center piece, A, and the wings B, beveled to fit, and having their meeting-edges hinged together by flexible strips C, and their exterior edges provided with flexible flaps D, in combination with the hinged brace E and the standard or bar F, wedged or braced against the top of the sewer, substantially as and for the purpose herein described.

3. A sewer-gate consisting of a vertical central piece, A, having a brace, E, by which it may be fixed within the sewer, in combination with two or more wings, B or B', hinged to the central piece by flexible water-tight strips C, and having exterior projecting flaps, D, so that said gate may be folded for introduction or removal, and when opened will form a tight dam within the sewer, substantially as herein described.

In witness whereof I have hereunto set my hand.

SAMUEL JOHNSON.

Witnesses:

G. W. EMERSON,
L. H. NOURSE.