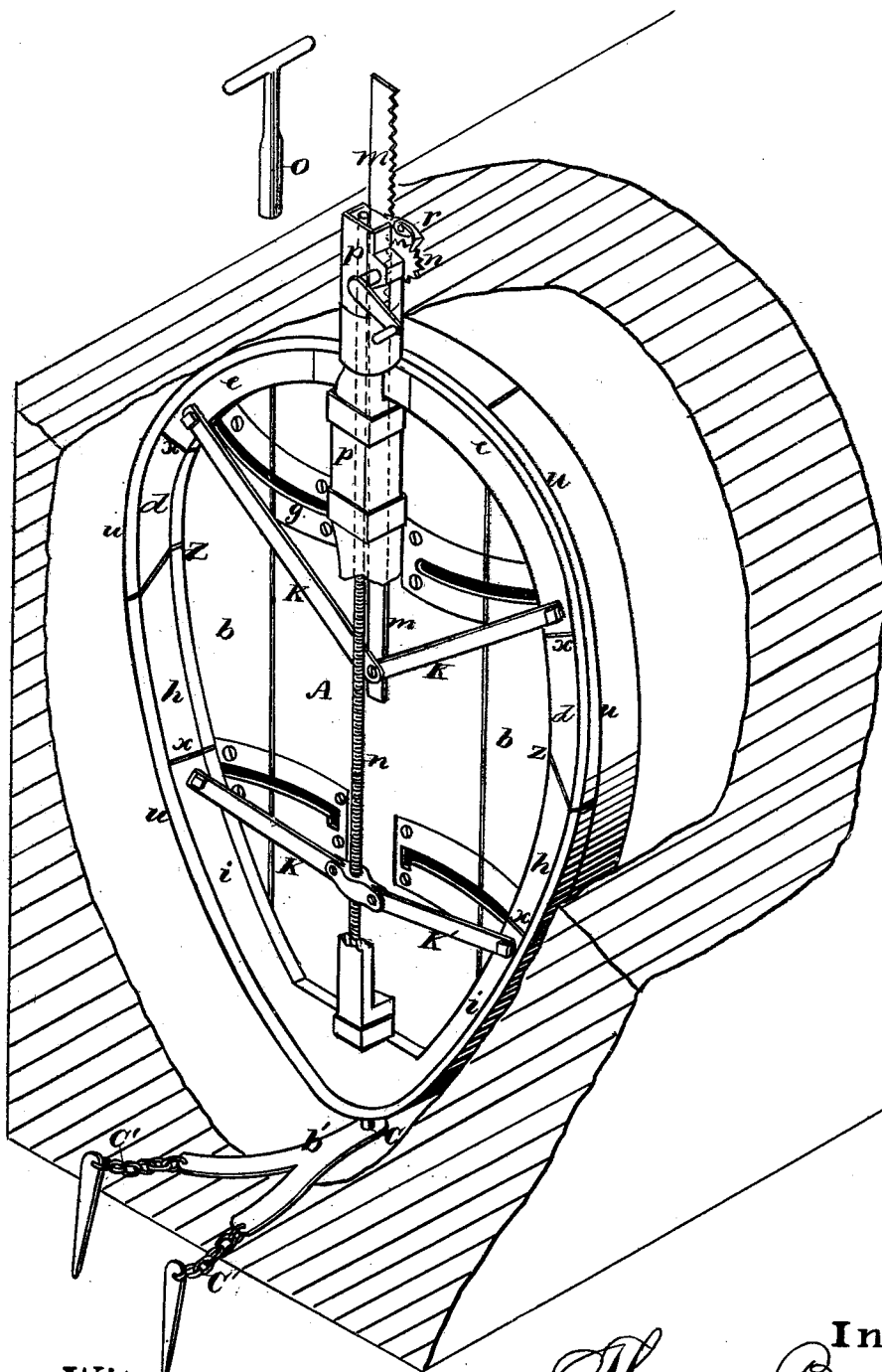


T. BRADY & D. R. MANNING.  
EXPANSIBLE GATES FOR SEWERS.

No. 181,135.

Patented Aug. 15, 1876.



Witnesses  
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# UNITED STATES PATENT OFFICE.

THOMAS BRADY AND DENNIS R. MANNING, OF SAN FRANCISCO, CAL.

## IMPROVEMENT IN EXPANSIBLE GATES FOR SEWERS.

Specification forming part of Letters Patent No. 181,135, dated August 15, 1876; application filed July 6, 1876.

*To all whom it may concern:*

Be it known that we, THOMAS BRADY and DENNIS R. MANNING, both of San Francisco city and county, State of California, have invented an Expansible Gate for Sewers; and we do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use our said invention without further invention or experiment.

This invention relates to the construction of gates employed in the operation of "flushing sewers"—that is, in temporarily stopping up the passage until a sufficient head of water is obtained for cleansing the same after the gate has been opened or removed, and which may also be employed in turning off the water into adjoining sewers for the purpose of repair.

The improvement consists, first, in an expansible gate, which may be contracted and lowered through the man-hole into the sewer, and afterward expanded so as to fill up and obstruct the sewer-passage; secondly, in a series of expansible packing-pieces; and, thirdly, in a detachable device for connecting the bottom of the gate with the sewer, and in certain other details of construction, hereinafter described and claimed.

Referring to the drawings, Figure 1 is a perspective view of our gate attached to a section of sewer.

Let A represent the center piece of the gate, and *b b* side pieces or wings hinged thereto, either permanently or removably, so that the gate may be contracted to pass through the man-hole into the sewer, either by partly folding the wings or by first introducing the main piece A, and afterward adjusting the wings in place thereon. In order to center and steady the gate in the sewer, we provide an iron bar, *b*, which has a hole for the pin *O* upon the lower portion of the gate, and which is secured to the bottom of the sewer-passage by chains *O'* and suitable wedges, so that it may be taken up after the flushing has been completed. The wings *b b*, after the piece A has been seated, are unfolded and the passage closed. In order to pack the gate around its edges, we provide a series of adjustable packing-pieces, which may be expanded so as to

abut against the sewer-walls, either by means of a screw and ratchet, or by ratchets alone. The upper side packing-pieces *d d* are hinged or connected with an end packing-piece, *e*, which is arranged to move upward when the side packing-pieces *d d* are expanded, so as to form the upper portion of a continuous packing-ring around the gate. These packing-pieces we propose to form of steel springs, having bands or strips of india-rubber, or other elastic material, bolted or otherwise secured thereto.

The springs above described are connected with the gate, and guided in their movement by lugs, which work in grooves *g*, said grooves being formed by slotted plates secured over channels in the center board and wings. The structure and connected with the gate in a lower packing-pieces *h h* and *i* are constructed similar to the upper packing-pieces, the line of division between the same being conveniently made at the beveled ends *z*. These packing-pieces are arranged to be expanded from the center to the rim of the gate, so that a complete packing-ring may be formed around the same by means of the pivoted bars *K K* and *K' K'*, the bars or rods *K K* being pivoted at their inner ends to a vertically-moving ratchet-bar, *m*, which, being operated by a ratchet-wheel, *n*, at the upper portion of the gate, will cause the outer ends of the bars to converge or diverge, as the case may be. The rods *K' K'*, which have a similar movement, are pivoted together at their inner ends, and operated by a screw-rod, *n*. A ratchet-bar and wheel, like the above, may be substituted therefor, if desired. In case the screw-rod is employed, I use a key, *o*, which may be fitted upon its upper end, in order to turn the same.

The bar or timber *p*, which is secured to the center part A, and extends some distance above the same, is provided at its lower end with a bearing-block for the screw-rod, and at its upper end with suitable journals *p*, for the axle of the ratchet-wheel. This wheel gears with the cogs of the bar *m*, and is operated by a suitable handle. A pawl, *r*, may be pivoted above the ratchet-wheel, and in case it is desired to substitute a similar arrangement of ratchet-bar and wheel, it is evident that it may be connected with the lower

rods *l l*, and with the bar *p*, to operate in a like manner.

The packing-strips *u* may, in some cases, be formed with V-shaped grooves, whereby greater elasticity is obtained, and the packing-pieces may be jointed, as at *x x*, in order to give greater flexibility to the same.

By our construction of the gate an effective gate or dam may be readily formed within the sewer, and the water backed up, so as to flush the same; and by operating the ratchets, so as to contract the packing and admit of the wings being folded, the same may be lifted out through the man-hole and transferred to the next sewer to be flushed.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A gate for closing sewers, constructed with hinged side wings, whereby its width may be decreased in order to pass it through the man-hole, and then increased to effectually dam the sewer, substantially as described.

2. A sewer-gate constructed with hinged side pieces, for increasing or decreasing the width of the same, and with an expanding or contracting series of flexible packing-pieces, which may be operated by means of screws or

ratchets, to form a line of packing around said gate, substantially as and for the purpose specified.

3. The herein-described end and side pieces *d h* and *e i*, hinged together, substantially as shown, and provided with suitable packing-strips, in combination with the gate, having grooves or ways upon its center and side pieces, and arranged to be contracted or expanded by a ratchet-wheel and bar and screw-rod, or by ratchets alone, constructed substantially as specified.

4. The timber *p*, secured upon the center piece *A*, and extending above the gate, so as to form a bearing for the ratchet mechanism, and also a handle for the same, substantially as and for the purpose specified.

5. The bar *b'*, constructed to form a seat for the gate, and temporarily connected with the sewer-walls by chains and wedges, or any equivalent manner, substantially as specified.

In witness whereof we have hereunto set our hands and seals.

THOMAS BRADY. [L. S.]

DENNIS R. MANNING. [L. S.]

Witnesses:

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