2 Sheets—Sheet 1.

A. STEMPEL.

Bridge-Gates.

No. 212,329. Patented Feb. 18, 1879.

Fig: 1.

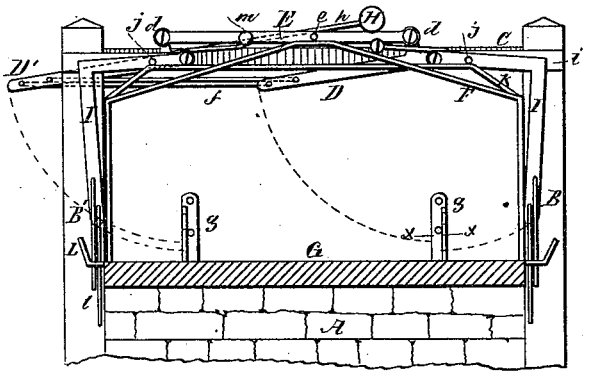


Fig: 2.

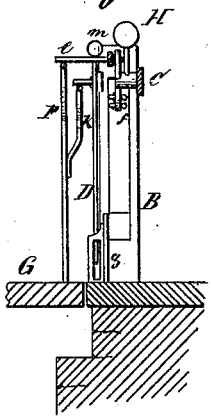


Fig: 3.

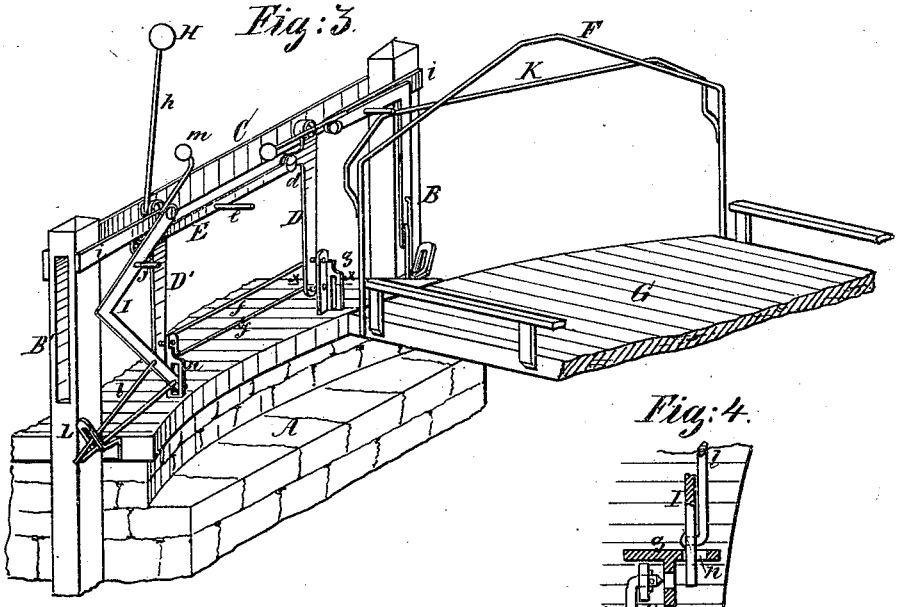
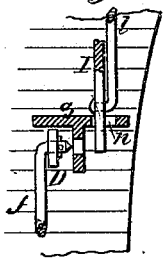


Fig: 4.



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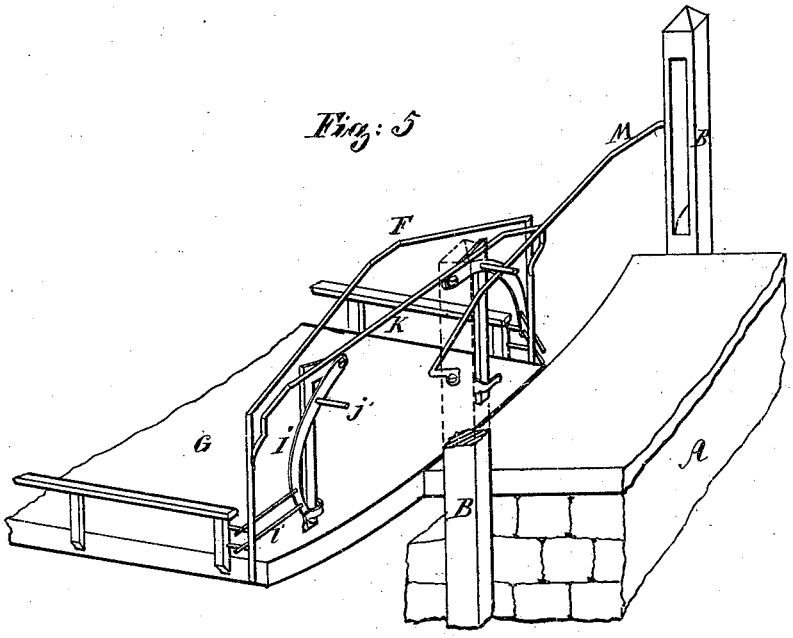
2 Sheets—Sheet 2.

A. STEMPEL.

Bridge-Gates.

No. 212,329. Patented Feb. 18, 1879.

Fig: 5



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UNITED STATES PATENT OFFICE.

ADOLPH STEMPEL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN BRIDGE-GATES.

Specification forming part of Letters Patent No. **212,329**, dated February 18, 1879; application filed December 20, 1878.

To all whom it may concern:

Be it known that I, ADOLPH STEMPEL, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Bridge-Gate, which is fully described in the following specification, reference being had to the accompanying drawings.

The nature of my invention relates to that class of gates which are placed upon the approaches of a draw-bridge in order to prevent accidents; and it is the object of my invention to provide such a gate which will close the several approaches to the vehicle-way and the sidewalks of the bridge in succession as the bridge is turned open for a vessel to pass, and which gates will open again in succession as the draw-span of the bridge meets the abutment, said gates being so nearly balanced that their closing movement can be retarded with perfect ease by a person underneath the gate to obviate accidents by the gate itself.

My invention consists of three separate gates upon the approach to the draw-bridge, each working independently of the others, and all three being operated automatically by elevated bars or beams secured over the ends of the draw-span of the bridge; also, in the peculiar construction and arrangement of the several gates; and, finally, in attachment of similar gates to the ends of the draw-span sidewalks, to be operated by an elevated bar or beam on the abutment of the bridge.

In the drawings, Figure 1 represents a sectional elevation of the end of the draw-span while closed, with the gates open. Fig. 3 represents a perspective view of the draw-span, partly opened, showing the roadway-gate and one of the sidewalk-gates closed. Fig. 2 represents a vertical cross-section through the central gate; Fig. 4, a horizontal section on line *x x* through one of the gate-retaining posts; and Fig. 5 represents the draw-span of the bridge arranged with end gates to its sidewalks, and partly swung open.

A is the abutment or approach to the bridge, and B B′ are two posts, firmly erected upon the sides of the abutment in close proximity to the draw-span joint. These posts B B′ are connected at their upper extremities by a horizontal beam, C, to which are pivoted the ends of two pendulum-bars, D D′, each provided with a rectangular arm, *d*, at or near its fulcrum, the ends of which arms *d* are coupled together by a horizontal bar, E, which will hold the said bars D D′ parallel with other, and which, while being raised, will cause said bars D D′ to swing a quarter of a revolution, or from a vertical to a nearly-horizontal position. This bar E carries a horizontally-projecting stud, *e*, at or near its center, which may be provided to carry a wheel or roller, and will ride up or down the inclinations of a shallow arch-shaped bar or beam, F, secured over the ends of the draw-span, G, of the bridge, at such an elevation as not to interfere with the transit over said bridge.

The pendulum-bars D D′, at their lower ends, are connected by two or more rods, *f*, the extreme ends of which are bent right-angularly, are projected through suitable holes in bars D D′, and are secured therein so as to form pivotal joints therewith by either a key or nut.

g g are two small posts, secured upon the bridge-abutment A, in line with the trusses of the bridge while closed, so as to be on the dividing-line between the vehicle-way and the sidewalks. Each of these posts *g* is provided with a series of holes or sockets, in suitable position for the pivot-points of rods *f* to enter the same while the gate is closed and a pressure is applied to said gate toward the bridge, thereby holding the same very firmly against an attack of a span of runaway horses, and preventing any swinging motion to said gate.

Either one or both of the pendulum-bars D is provided with a radial extension-arm, *h*, carrying a weight, H, which is to nearly balance the movements of the gate, so as to leave to said gate a sufficient overweight for closing by its own gravity when released by the beam F on draw-span G of the bridge.

I is a curved or rectangularly-bent bar, one extreme end of which is pivoted to the end of a bracket, *i*, so as to bring its fulcrum vertically in line with one of the posts *g*. A short distance below its fulcrum this bar I has a projecting stud, *j*, which may be arranged to carry a small wheel, and is to ride upon a bar or beam, K, straight, with inclined ends, and secured upon the end of draw-span G of the bridge in a position parallel with beam F, and

in close proximity therewith. This bar K will cause the bar I to swing outward and hold it in such position while the bridge is closed; but when the bridge opens, said bar I by its own gravity will again swing across the sidewalk to obstruct the same.

The lower ends of bars I have the ends of two (more or less) rods, *l*, attached by pivotal joints, the outward ends of which slide in a slotted bracket, L, secured to the sides of the abutment and against the post B. These rods *l*, while the gate is open, hang down vertically against the abutment; but when said gate closes the bar I will drag the same across the sidewalk approach to the bridge. The said bar I, by an upward extension carrying a weight, *m*, can be counterbalanced to any desired degree for reducing its pressure while closing, and thereby preventing an accident to a person getting caught between the bar I and the post *g*. Said bar I, with its lower end, will enter a slot or pocket, *n*, in post *g* when the gate closes, and will be held thereby against any end pressure.

As will be noticed, the central or vehicle road gate and each of the sidewalk-gates work independently, and will not close as long as the draw-span of the bridge forms a full-width connection with that portion of the abutment having the gate, and neither will it open until the draw-span is butting the approach to the full width of that portion of the same to which the gate is attached, thus enabling passengers to pass said bridge while it is only partly turned, and only at such points where the bridge is yet approachable, while all such passages are closed which would lead into the water.

To guard against accidents also to foot-passengers who are on the draw-span of the bridge while the same is being swung open, I also attach gates to the sidewalk end of the bridge similar in every respect to the side gates on the abutment, which are to be automatically opened by a bar or beam, M, secured to the posts B on the abutment and shaped similar to beam K. These side gates on the swinging draw will close by their own weight when moved away from the abutments, and are intended to have counterbalancing-weights like those provided for the side gates on the abutments.

This gate, as will be seen, has many advantages over the ones heretofore constructed for a similar purpose. It is arranged to operate with as little friction as possible, and its construction is such that it cannot easily get out of order. Its working mechanism is overhead, where it is out of reach and not likely to be tampered with, nor is it liable to be covered with mud. It is so nearly balanced that it requires but a very light power for opening it, and therefore it is no obstacle to the swinging of the bridge and has no crushing force in its movements; besides, it has the great advantage that it does not obstruct the passage over the bridge entirely until said bridge is turned entirely away from its abutment.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The approach to a bridge provided with three gates independent of each other in their movements for opening and closing in succession, the same being automatically operated in succession by the swinging of the bridge and by elevated bars or beams secured upon the ends of the draw-span of said bridge, substantially in the manner and for the purpose described and shown.

2. The pendulum-bars D, pivoted to an elevated beam, C, on the bridge-abutment, and having rectangular arms *d*, connected by bar E, having stud *e*, and connecting-rods *f*, in combination with the elevated bar or beam F, secured upon the end of the draw-span of the bridge, the whole to be constructed and arranged to operate substantially in the manner described and shown.

3. In a gate, substantially as described, the pendulum-bars D and rods *f*, having projecting pivotal points, in combination with the posts *g*, having corresponding holes or sockets for said pivotal points to enter and hold said gate against an end pressure.

4. The bars I, pivoted to an elevated frame having stud *j* and bars *l*, sliding in a bracket, L, or its equivalent, and being operated by an elevated bar or beam, K, the whole to be constructed and arranged to operate substantially in the manner and for the purpose set forth.

5. The sidewalk ends of the draw-span of a bridge provided with pivotal bars I′, having stud *j′* and rods *l′*, in combination with an elevated bar, M, on the abutment for operating the same, substantially in the manner and for the purpose set forth.

ADOLPH STEMPEL.

Witnesses:
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