(No Model.)

J. S. PHILIP.

BRIDGE GATE.

No. 363,257. Patented May 17, 1887.

Fig. 1.

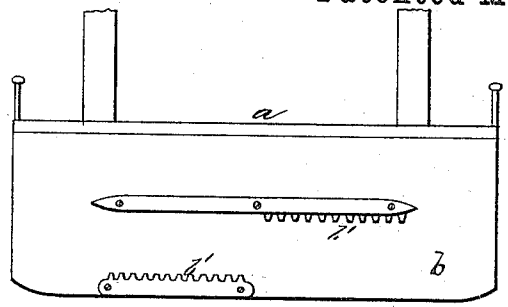


Fig. 2.

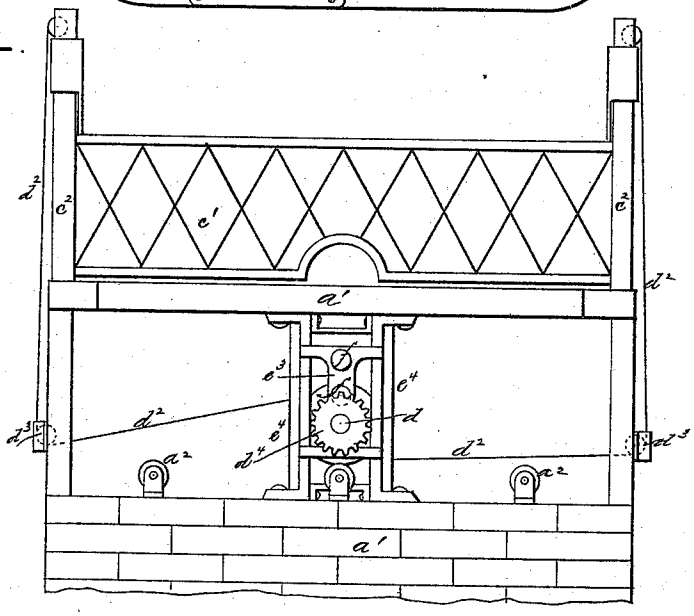
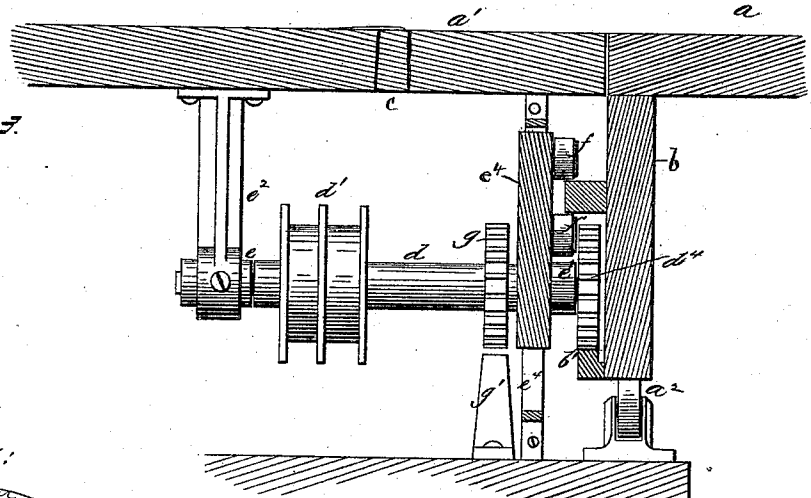


Fig. 3.



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J. STUART PHILIP, OF CHICAGO, ILLINOIS.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 363,257, dated May 17, 1887.

Application filed September 11, 1886. Serial No. 213,329. (No model.)

To all whom it may concern:

Be it known that I, J. STUART PHILIP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bridge-Gates, of which the following is a specification, to wit:

This invention relates to an improvement in bridge-gates; and it consists in certain peculiarities of the construction and arrangement of the same, whereby it is locked and firmly held when elevated, substantially as will be hereinafter more fully described and claimed.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is an end view of the bridge; Fig. 2, a similar view of the abutment and gate-operating mechanism. Fig. 3 is a vertical longitudinal section of the abutment and end of the bridge.

a represents a bridge of the ordinary swing variety, and *a'* one of the approaches or abutments, with which it connects. This abutment is, as usual, provided with a series of small rollers, a^2, upon which the end of the bridge rests when closed. The end of the bridge is provided with a guide-flange, *b*, which is beveled off at its ends, for a purpose presently seen; and it is also provided with two cogged racks, *b' b'*, one extending each side from the center and having their teeth upon their adjacent sides, as shown in Fig. 1.

The abutment is formed with a transverse slot, *c*, in the roadway, in which is placed the gate *c'*, sliding vertically in suitable guides or posts, c^2. Beneath the roadway is a longitudinal shaft, *d*, on which is a drum or drums, *d'*, connected by cords or chains d^2, passed over suitable guide-pulleys, d^3, with the gate, and the gate is lifted to protect the open bridge by winding these cords or chains upon the drums, and is allowed to fall by its own weight. The shaft *d* extends out to the face of the abutment, and is there provided with a gear or pinion, d^4, which is engaged and operated by the racks on the bridge, as will be seen by reference to the drawings. The bridge is supposed to be so supported as to always rest level with the roadway; but in practice wear and the strain of heavy traffic soon cause it to sag slightly at the ends, and it has a slight vertical play in front of the abutment, which would be liable to cause the racks to miss their connection with their pinion d^4. To remedy this and always insure the proper working of the mechanism, I journal the shaft *d* in boxes *e e'*, the former of which is pivoted in a suitable bracket or other support, e^2, and the other in a cross-head, e^3, sliding in vertical guides or ways e^4. This cross-head is also provided with a pair of friction-rollers, *f f*, and when the bridge closes its guide-flange passes between these rollers and lifts or lowers the cross-head, so that this end of the shaft and its pinion are always in proper alignment with the racks on the end of the bridge, and no accident can occur by the latter being in any way out of its true position.

The shaft *d* is also provided with a toothed disk or wheel, *g*, which, when the shaft falls, is engaged by a projection, *g'*, on the abutment, and thus locks the gate from falling till released by the bridge.

In operation the gate is normally lowered into the approach, and when the bridge is opened the drums are revolved, winding up the cords and lifting the gate to close the roadway. As soon as the gate is wholly lifted, the actuating-pinion is freed from the rack, and the cross-head at once falls till the toothed disk is engaged by the stud and the gate is locked. The closing of the bridge first causes the guide-flange to lift the cross-head and shaft free of the locking-stud, and then lowers the gate. The fall of the shaft is not great, but is sufficient to lock it at the proper time.

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

1. In a bridge-gate, the combination, with a swinging bridge provided with a guide-flange and rack-bars on its ends, of a gate on the abutment, and an operating-shaft provided with a pinion and connected by cords or chains to the gate, said shaft being journaled at one end in a movable cross-head lifted and lowered by engagement with the flange on the

bridge to insure alignment with the racks, substantially as and for the purpose set forth.

2. In a bridge-gate, the combination, with the gate arranged to slide vertically in suitable guides, of an operating-shaft connected thereto and supported in boxes, one of which slides in suitable guides, a spur-gear on said shaft, a toothed disk thereon, and a projection on the approach, with which it engages, and a bridge provided with a pair of operating-racks and a guide-flange for moving the journal-box, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

J. STUART PHILIP.

Witnesses:
W. C. McARTHUR,
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