N. BEHRENS.
Bridge Gates.

No. 197,816. Patented Dec. 4, 1877.

Fig: 1.

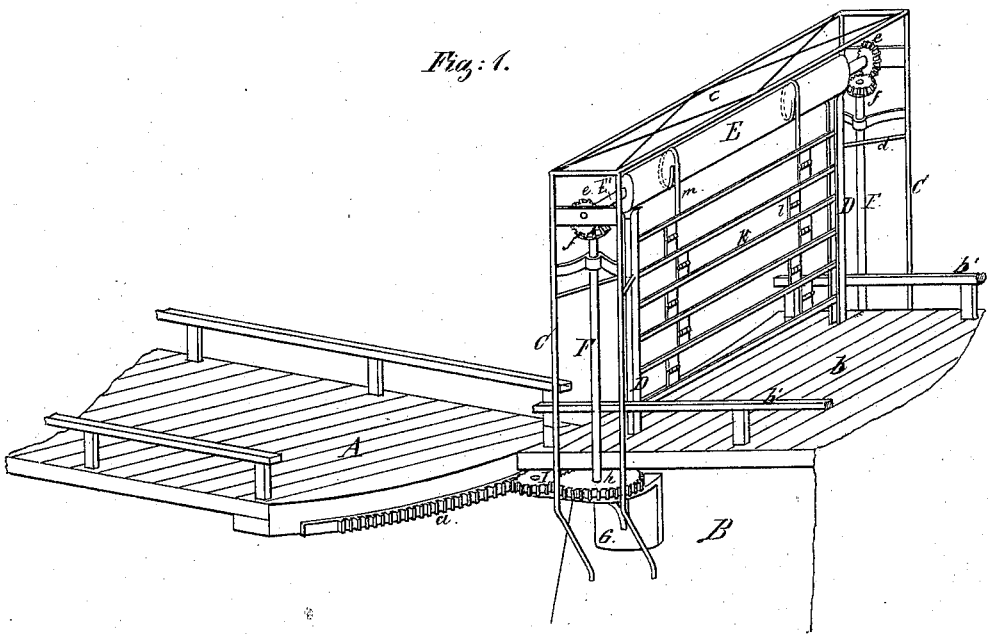


Fig: 2.

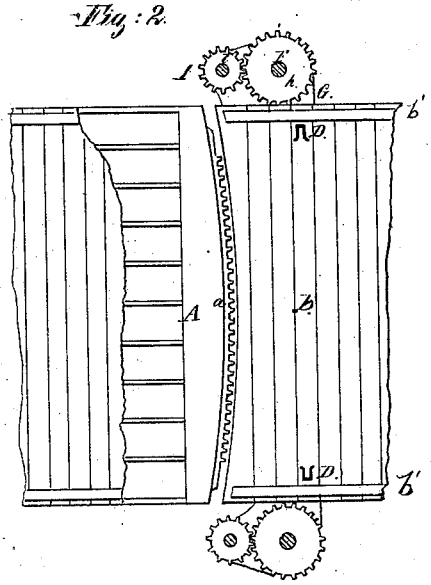
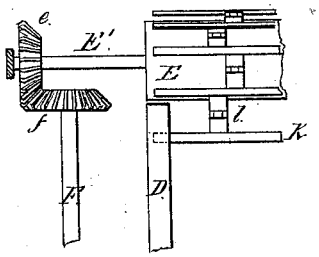


Fig: 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

NICOLAUS BEHRENS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO CHRISTOPHER HILKENS, OF SAME PLACE.

IMPROVEMENT IN BRIDGE-GATES.

Specification forming part of Letters Patent No. **197,816**, dated December 4, 1877; application filed June 12, 1877.

To all whom it may concern:

Be it known that I, NICOLAUS BEHRENS, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Bridge-Gate, of which the following is a full and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of the draw-span, partly swung, and of the approach thereto, with the guard-gate closed. Fig. 2 is a sectional plan of the end of the bridge and its approach, and Fig. 3 is an elevation of one end of the drum-shaft and its driving-gears.

The nature of this my invention relates to an improvement in that class of gates which are placed on the approaches, in order to prevent accidents, which so frequently occur where an open draw is left unprotected.

The invention consists of a gate, constructed, arranged, and operating in the manner of a curtain-shade, winding upon a drum, which is supported in a gallows-frame erected upon the abutment of the draw-bridge, and which gate is raised and lowered automatically from the swinging of the bridge by means of a segment-gear secured to the end of the bridge, and matching into wheels pivoted to the sides of the abutment, which transmit their rotating motion to the drum above by upright shafts and gear-wheels.

A is the swinging bridge, having secured to its end a segment-gear, *a*. B is the pier or abutment of the bridge, with the bridge-approach *b* on top, having a railing, *b'*, at its sides.

To each corner of this pier is secured a standard-frame, C, their top ends being connected by a horizontal frame, *c*. Vertical guides D, of U-shaped cross-section, are erected upon the corners of the pier, their upper ends being braced to the standards C by bars *d*.

Drum E is secured upon shaft E', which latter is pivoted at its ends in suitable bearings fastened to near the top of the standards C.

To each end of shaft E' is attached a bevel-gear wheel, *e*, matching with a similar wheel, *f*, secured upon the end of the upright shaft F. These upright shafts are pivoted near their upper ends in journal-boxes fastened to the standards C, while their bottom ends are each supported in a step-bearing of wall-bracket G, which is rigidly secured to the side of the pier.

A gear-wheel, *h*, fastened upon the lower end of shaft F, gears into another wheel, I, which turns upon a stud, *i*, of the wall-bracket G, and which matches with the segment-gear *a* of the draw-span A.

The gate consists of a series of bars, K, of such lengths as to reach across the whole width of the approach to the bridge, and which are coupled together by a series of hinges, *l*. The uppermost bar is suspended to the drum E by chains *m*, and the ends of the bars K move in the guides D.

As will be noticed, upright shafts F, and all their appending and connecting gear-wheels, are placed one at each side of the approach, so that it makes no difference in which direction the bridge is turned, since one or the other of the gear-wheels I will come into contact with the segment-gear *a*, which, in swinging the bridge away from its approach, will unwind and lower the gate, and vice versa.

The bars K, forming the gate, may be coupled together by chains or wire ropes, or any other flexible connections, in place of the hinges *l*.

What I claim as my invention is—

1. The combination, with the frame C, of the drum E, extending across the carriage-way, and rotated by the swinging of the draw, and the flexible gate, composed of bars K, adapted to be dropped down across the carriage-way, and rolled up upon said drum in the manner of a window-curtain, substantially as described and shown.

2. The bridge-gate K, constructed as described, drum E, having gear-wheels *e*, upright shaft F, having gear-wheels *f* and *h*, and wheel I, all arranged between the standards C, and in combination with the draw-span of a bridge, having segment-gear *a*, all constructed and operating in the manner herein described and shown.

NICOLAUS BEHRENS.

Witnesses:

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