

(No Model.)

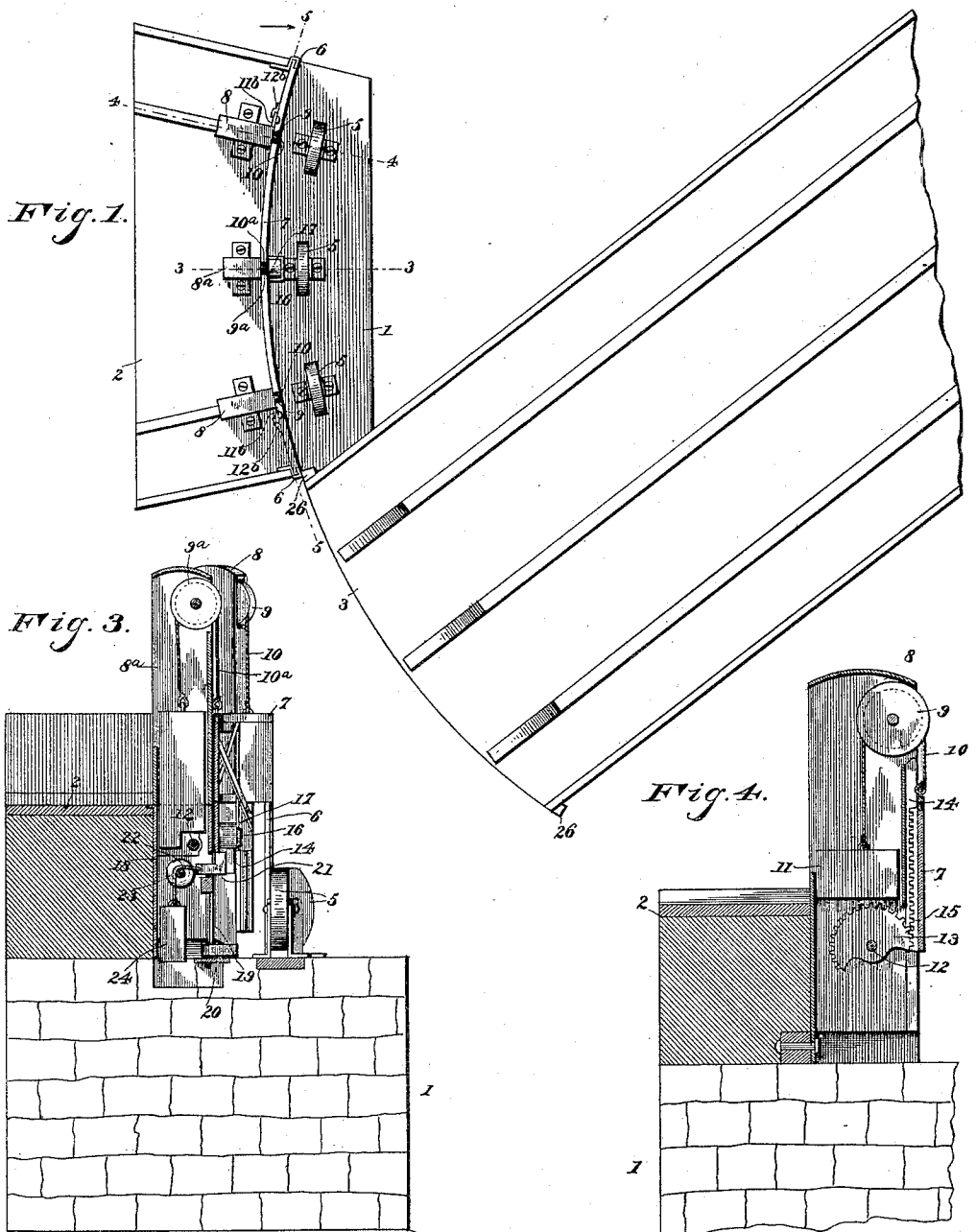
2 Sheets—Sheet 1.

H. H. SCHLEE, W. F. BACH & T. MOONEY.

BRIDGE GATE.

No. 463,237.

Patented Nov. 17, 1891.



Witnesses;

Wm. Thew.

Wm. Baggers

By their Attorneys,

C. A. Snow & Co.

Inventors
*Wilhelm F. Bach,
Herman H. Schlee
& Thos. Mooney;*

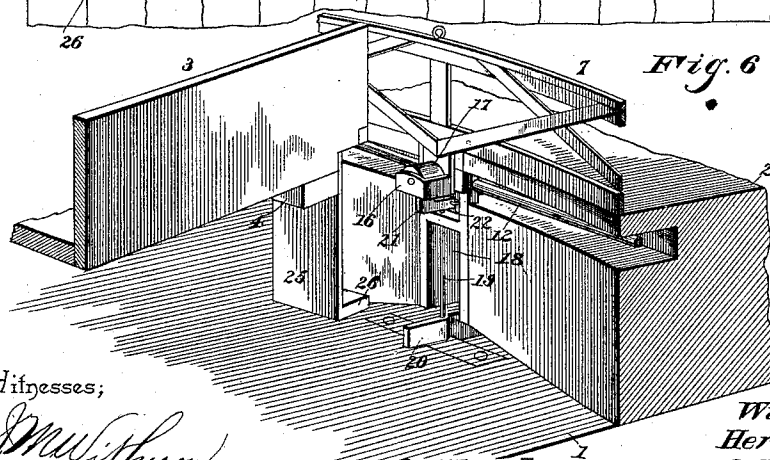
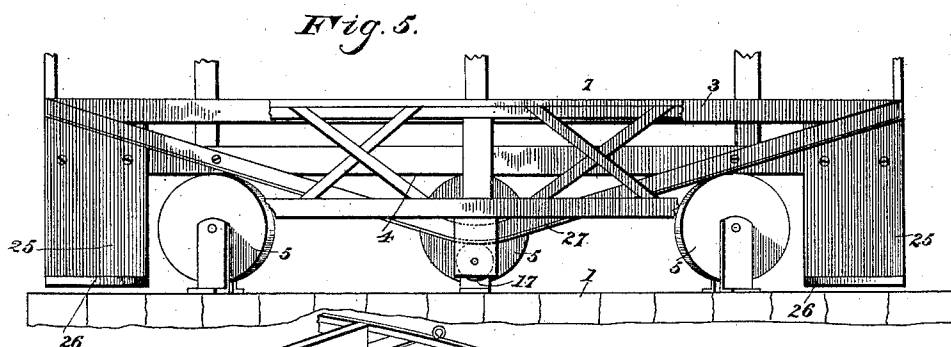
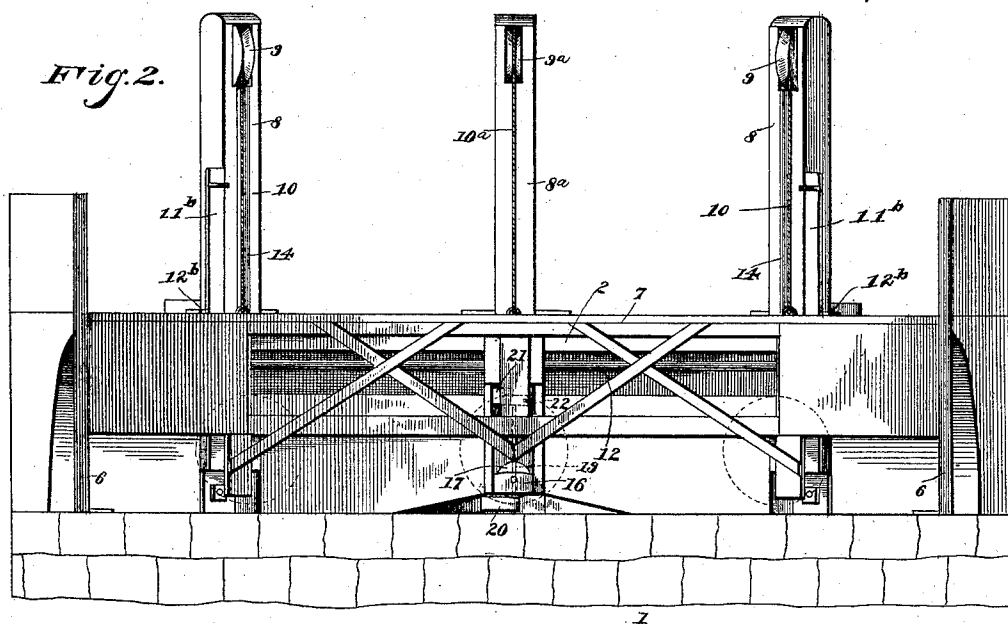
(No Model.)

2 Sheets—Sheet 2.

H. H. SCHLEE, W. F. BACH & T. MOONEY.
BRIDGE GATE.

No. 463,237.

Patented Nov. 17, 1891.



Witnesses;

Wm. Baggett

By their Attorneys,

C. A. Snow & Co.

Inventors
*Wilhelm F. Bach,
Herman H. Schlee
& Thos. Mooney,*

UNITED STATES PATENT OFFICE.

HERMAN H. SCHLEE, WILHELM FRIEDRICH BACH, AND THOMAS MOONEY,
OF CHICAGO, ILLINOIS.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 463,237, dated November 17, 1891.

Application filed May 13, 1891. Serial No. 392,575. (No model.)

To all whom it may concern:

Be it known that we, HERMAN H. SCHLEE, WILHELM FRIEDRICH BACH, and THOMAS MOONEY, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Bridge-Gate, of which the following is a specification.

This invention relates to automatic gates for draw-bridges; and it has for its object to provide a gate of this class which shall be simple in construction, durable and efficient in operation, and which while not in use shall be sunk below the level of the street so as to be out of the way of traffic.

The invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a plan view showing the bridge approach or abutment, and showing also one end of a draw-bridge partly swung open. Fig. 2 is an end elevation of the abutment, showing the gate lowered. Fig. 3 is a vertical sectional view taken through the abutment and bridge while the latter is closed, said view being taken on the line 3 3 in Fig. 1. Fig. 4 is a vertical sectional view taken on the line 4 4 in Fig. 1. Fig. 5 is a transverse section on an enlarged scale, taken on the line 5 5 of Fig. 1, but with the draw closed. Fig. 6 is a detail perspective view showing the draw returning to a closed position and preparatory to its operating the catch which supports the gate.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the abutment, and 2 the approach.

3 designates the end of a draw-bridge of ordinary construction, which is provided on its under side with a track-bar 4, adapted to ride upon the supporting-rollers 5, which are mounted in the usual manner upon the abutment.

At the sides of the approach are arranged the vertical grooved posts 6, which extends downwardly to the abutment upon which they rest and to which they are secured. Said grooved posts form guides for the vertically-

movable gate 7, which may be constructed of metal in any suitable manner, and which are arranged to slide vertically in the grooves in the said posts, said gate being of such a height that when not in use it may be sunk entirely below the level of the street approach.

At the end of the street approach, between the sidewalks and the carriage-way, are mounted the vertical casings 8 8, at the upper ends of which are mounted pulleys 9, over which pass the chains, cables, or other flexible connections 10, the outer ends of which are connected with the gate, while the inner ends of said flexible connections carry the weights 11, which are sufficiently heavy to overbalance the gate and to raise the latter to an operative position when the bridge is swung open. The front sides of the casings 8 have vertical guide-strips 11^b to engage the guide-lugs 12^b upon the rear side of the gate.

12 designates a transverse shaft, the ends of which have bearings in the casings 8, which latter accommodate the segmental gears 13 mounted upon said shaft. The front sides of the casings 8—that is, the sides facing the bridge—are provided with vertical slots 14 to receive the racks 15, which are secured to the rear side of the gate and which engage the segmental gears 13 upon the ends of the shaft 12. By this mechanism the ends of the gate will move simultaneously and the gate will move smoothly and easily and without danger of getting stuck, as would be the case if it were possible for one end of the gate to move faster than the other end.

The front side of the gate is provided at its lower edge with a centrally-located bracket 16, in which is journaled a horizontal roller 17. The approach is provided with a central casing 18, having bearings for a vertical shaft 19, the lower end of which is provided with an arm 20, which, when the gate is closed, extends in a forward direction. The upper end of the shaft 19 is provided with a cross-bar 21, the front end of which, when the gate is closed, extends forwardly under the lower edge of said gate, thus forming a latch which supports the said gate in its raised or closed position. The rearwardly-extending arm of the cross-bar 21 is connected by a rope or chain 22, passing over a guide-pulley 23, with

a weight 24, the tendency of which is to rock the shaft 19, so as to throw the arm 20 of the latter and the front arm of the cross-bar 21 in a forward direction.

5 When a bridge having only a single carriage-way is used, the foregoing arrangement will become sufficient. When, however, the bridge, as in the drawings hereto annexed, has a double carriage-way, we prefer to add a central casing 8^a, mounted centrally upon the approach and having a pulley 9^a, over which
10 passes a rope or chain 10^a, the ends of which are connected, respectively, with the upper edge of the gate and with a weight arranged
15 within said casing. By this arrangement the increased weight of the gate may be more readily sustained and the strain is also distributed more evenly.

The end of the bridge is provided at each
20 side with a downwardly-extending bracket 25, having a flange 26, adapted to engage the latch-arm 20, so as to operate the latch when the bridge is closed. The end of the bridge is also provided with a track 27, inclined from
25 the ends downwardly to the center to engage the roller 17 at the lower edge of the gate for the purpose of lowering the latter.

It will be understood that the herein-described arrangement is to be the same at both
30 ends of the bridge and its approaches.

In operation, when the bridge is swung open, the track 27 at each end of the bridge gradually passes out of engagement with the rollers 17 at the lower edges of the gates, which
35 latter are thus gradually elevated by the counter-weights 11 until the highest point is reached, when, by the action of the weight 24, the rock-shaft 19 is oscillated, thus throwing the cross-bar 21 at the upper end of the said
40 shaft in a forward direction, as well as the arm 20 at the lower end of said shaft. The said cross-bar, it will be observed, forms a latch that engages the lower edge of the gate and supports the latter in an elevated position,
45 while the arm 21 is disposed in the path of the brackets 25, having the flanges 26 at the sides of the bridge. When the latter is closed, one of the said flanged brackets at each end will engage the arm 20 of the rock-shaft 19, thus
50 oscillating the latter to swing the latch 21 out of the path of the gate and enabling the latter to be lowered by the action of the inclined track 27 engaging the roller 17. The gate, it will be seen, will thus be gradually lowered until
55 by the time the bridge is closed it will be lowered entirely below the level of the street.

Our improved gate, as will be seen from the foregoing description, is very simple in construction, and it may be applied to bridge
60 approaches at a moderate expense. The gate and its working parts are out of the way of travel, and are therefore not liable to be injured by accident or overthrown by windstorms. The working parts are also so protected as to prevent unauthorized interference therewith, and the gate is not liable to get
65 out of order. Our improved gate forms a com-

plete protection for the bridge approaches when the bridge is open. It is certain in operation and entirely automatic in its action. 70

Having thus described our invention, what we claim is—

1. In a gate for draw-bridges, the combination of the vertically-grooved posts, the vertically-sliding gate mounted in the grooves of
75 said posts, the casings mounted upon the approach and having pulleys at their upper ends, weights arranged in said casings and connected with the gate by flexible connections passing over said pulleys, a transverse
80 shaft having bearings in said casings and provided with segmental gears within the latter, and the racks mounted upon the rear side of the gate, working in slots in different sides of the casings, and engaging the segmental racks
85 within the latter, substantially as set forth.

2. In a gate for draw-bridges, the combination of the grooved guide-posts extending below the level of the street, the gate mounted
90 slidingly in said posts, the casings having pulleys and counter-weights connected with said gate by flexible connections, a friction-pulley upon the front side of the gate, a vertical rock-shaft having an operating-arm and a latch-arm, the latter adapted to be extended
95 in the path of the gate below the latter, and the swing-bridge or draw-bridge having the double-inclined track to engage the friction-pulley of the gate and the flanged brackets to engage the latch-shaft, substantially as set
100 forth.

3. The combination of the guide-posts, the vertically-sliding gate, counter-weights adapted to normally raise the said gate, a friction-pulley upon the front side of the latter, a vertical
105 shaft having a forwardly-extending operating-arm and provided at its upper end with a cross-bar, one end of which is adapted to swing forwardly in the path of the lower edge of the gate, a counter-weight connected
110 with the opposite end of said cross-bar by a flexible connection passing over a suitable guide-pulley, whereby when the gate is raised the latch shall be automatically swung into position, and the swing-bridge having the
115 double-inclined track and the downwardly-extending flanged brackets, substantially as and for the purpose set forth.

4. In a gate for draw-bridges, the combination of the guide-posts, the hollow casings
120 having vertical slots in their front sides, the vertically-sliding gate, the counter-weights to elevate the latter and working within said casing, rack-bars upon the rear side of the gate near the ends of the latter and projecting
125 within said vertical slots, and a horizontal shaft having segmental gears located within each casing and engaging the said rack-bars, substantially as and for the purpose set forth.

5. The combination, with the vertically-movable gate, and the counter-weights for
130 elevating the same, of the vertical latch-shaft arranged centrally below the gate and having at its upper end a cross-bar, one end of

which may swing into the path of the gate while the other end is connected with a weight by a flexible connection passing over a guide-pulley, said latch-shaft being provided at its lower end with an operating-arm adapted to be engaged by one of a pair of flanged brackets extending downwardly from the end of the bridge at the sides of the latter, substantially as and for the purpose set forth.

6. In a gate for draw-bridges, the combination of the grooved guide-posts, the casings 8, having guide-strips 11^b, the gate mounted to slide vertically in said grooved guide-posts and having inwardly-extending guide-lugs

12^b, adapted to take over said strips 11^b, counter-weights mounted in the casings 8 to elevate the gate, and suitable operating mechanism, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

HERMAN H. SCHLEE.

WILHELM FRIEDRICH BACH.

THOMAS MOONEY.

Witnesses:

FRED WORMSTADT,

FRANK C. KUHN.