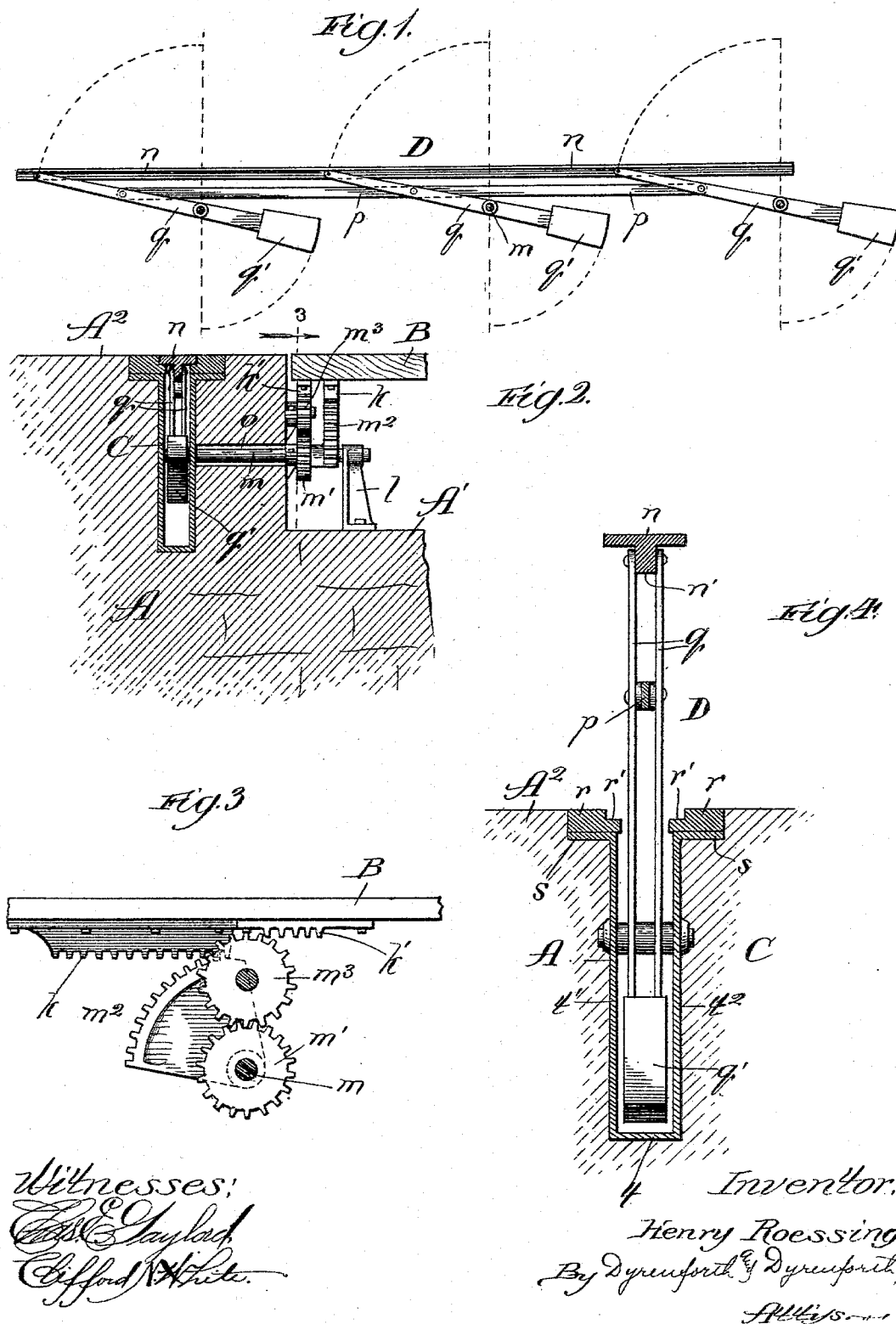


(No Model.)

H. ROESSING.
BRIDGE GATE.

No. 494,796.

Patented Apr. 4, 1893.



UNITED STATES PATENT OFFICE.

HENRY ROESSING, OF CHICAGO, ILLINOIS.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 494,796, dated April 4, 1893.

Application filed November 21, 1892. Serial No. 452,629. (No model.)

To all whom it may concern:

Be it known that I, HENRY ROESSING, a subject of the Emperor of Germany, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Safety-Gates, of which the following is a specification.

My invention relates to improvements in safety gates generally, though more especially of the class employed in connection with swing or pivot-bridges to bar the approach to the bridge abutment when the bridge is opened and open it, by folding out of the way when the bridge is closed, the gate being actuated by movement of the bridge.

My object is to provide a gate of the above class of simple, strong and durable construction, reliable in its operation, and particularly desirable for its purpose.

In the drawings—Figure 1, is a partly sectional elevation, illustrating the swinging bars, which form the gate, in folded condition, the direction of movement of the bars and final position thereof, when the gate is raised, being indicated by dotted lines; Fig. 2, a broken sectional view of a bridge abutment and the adjacent end of a pivot-bridge, with my improved gate in its depressed position; Fig. 3, an enlarged partly sectional view, the section being taken on line 3 of Fig. 2, and viewed in the direction of the arrow; and Fig. 4, an enlarged transverse section of the gate and gate-housing, showing the gate raised.

A is the bridge-abutment, formed on its outer side with a shelf A', and having an upper surface A² which constitutes the bridge-approach. The bridge B is pivoted in the usual way to swing horizontally with its ends, in the plane of the approach A². Close to and parallel with the edge of the approach is a housing C of the form in cross-section shown in Figs. 2 and 4, open at the top and extending nearly or fully the width of the approach. The housing forms a narrow trench with a base *t*, vertical parallel sides *t'* *t''* and outward extending flanges *s* at the top a short distance below the plane of the surface A². Resting upon the flanges *s* are heavy metal plates *r* having coincident recesses *r'* at their upper inner edges. D is the gate, comprising bars *q*, formed with parallel side strips, and pivoted in the housing to swing in the vertical

plane. Below their pivots the bars *q* are provided with weighted ends *q'* which tend to maintain the bars vertical.

Extending between the strips of the bars *q* below the tops of the latter and pivoted thereto, is a horizontal bar *p*, forming the lower rail of the gate; and similarly connected with the tops of the bars *q* is a horizontal bar *n*, forming the upper-rail of the gate. The bar *n* is a flat plate adapted, when the gate is lowered, to rest in the socket formed by the recesses *r'*, with its upper surface flush with the surface A²; and along its under side is a rib *n'* to which the upper ends of the bars *q* are pivoted. The middle bar *q* at its pivot is fixed upon a rock-shaft *m*, journaled in bearings in the sides *t'* *t''* of the housing, and extending through an opening *o* in the abutment to the shelf A', where it is journaled at its outer end in a standard *l*. The shelf *m* carries a pinion *m'*, and a segmental gear *m''*. Mounted on the outer surface of the abutment above the pinion *m'* and meshing with the latter is an idle pinion *m'''*.

On the under side of the end of the bridge is a rack *k*, in position to engage the segment *m''* in the movement of the bridge, and beyond the end and to one side of the rack *k* is a rack *k'* arranged to engage the pinion *m'''*. When the bridge is closed the shaft *m* is directly below its center, the gate is folded, the segment is in position to be engaged and turned by the rack *k* a quarter revolution by the movement of the bridge in one direction, and the pinion *m'''* is in position to be engaged by the rack *k'* and turned a quarter revolution when the bridge is moved in the opposite direction. Movement of the bridge to the right, in Fig. 3, will cause the rack *k* to turn the segment *m''* and shaft *m* to the right and swing the central gate bar *q* and, through the latter and the horizontal bars *n* *p*, the other gate bars *q*, to the vertical position; while movement of the bridge to the left causes the rack *k'* to engage and turn the pinion *m'''* a quarter revolution to the left, and by its engagement with the pinion *m'*, turn that pinion and the shaft *m* a quarter revolution to the right and raise the gate as before. When raised the gate is maintained in that condition by the weights *q'*, causing the segment *m''* and pinion *m'''* to remain in the position where one or the other

will be engaged by its respective rack, depending upon the direction from which the bridge approaches, to turn the shaft m to the left and fold the gate. When the gate is folded, as before stated, the top bar or plate n rests in the socket formed by the recesses r' and extends flush with the surface A^2 , so that the top of the trench is closed and no obstruction will be presented to the passage of teams or pedestrians, while when the gate is raised it will present a strong and effective bar at the end of the approach.

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

1. In combination with a swing bridge and its abutment, a housing, forming a narrow trench in the abutment, a folding gate comprising bars pivoted in the said housing to swing upward on their pivots from a folded position in the housing, to extend upward, in unfolded position, from the housing, a rail pivoted to the ends of said bars and fitting over and closing the top of the trench when the said bars are folded, and movable with the bars to form the top rail of the gate when the bars are raised on their pivots, gear mechanism on the bridge, and operating gear mechanism for the gate on the said abutment in the path of the gear mechanism on the bridge, to be actuated thereby to fold the gate as the bridge is closed and unfold the gate as the bridge is opened, substantially as described.

2. In combination with a swing bridge and its abutment, a housing forming a trench in the abutment, a folding gate comprising bars pivoted in the housing to swing in the vertical plane between an upright or unfolded position and a reclining or folded position, a cross-rail connecting the said bars pivotally together, fitting over and closing the trench when the bars are folded, and forming the

top rail of the gate when the bars are unfolded, an operating shaft for the gate, gear mechanism connected with the shaft to turn the latter, and gear mechanism upon the bridge, operating in the movement of the bridge in either direction away from the abutment to engage and turn the gear mechanism at the shaft to turn the shaft and unfold the gate, and operative in the movement of the bridge from either direction to the abutment to engage the gear mechanism at the shaft and fold the gate, substantially as described.

3. In combination with a swing-bridge and its abutment, a rock-shaft m journaled in and projecting past the abutment, a folding gate connected with and operated by said shaft to unfold across the abutment when said shaft is rocked in one direction, and to fold out of the way when said shaft is rocked in the opposite direction, racks k, k' on the under side of the bridge, a segmental-gear on the shaft m in the path of the rack k , a gear m' on the shaft m , and an idle gear journaled in the abutment to mesh with the pinion m' and extend in the path of the rack k' , the racks on the bridge and gears on the abutment being so arranged with relation to each other, that when the bridge is swung to the abutment from either direction, one of said gears will be engaged by one of said racks to rock the shaft m in one direction, to fold the gate, and when the bridge is swung in either direction away from its abutment one of said gears will be engaged by one of said racks and rock the shaft m in the opposite direction to unfold the gate, substantially as described.

HENRY ROESSING.

In presence of—

M. J. FROST,
J. N. HANSON.