(No Model.) 2 Sheets—Sheet 1.

W. R. BREHMER.

DRAWBRIDGE GATE.

No. 552,511. Patented Jan. 7, 1896.

Fig. 1.

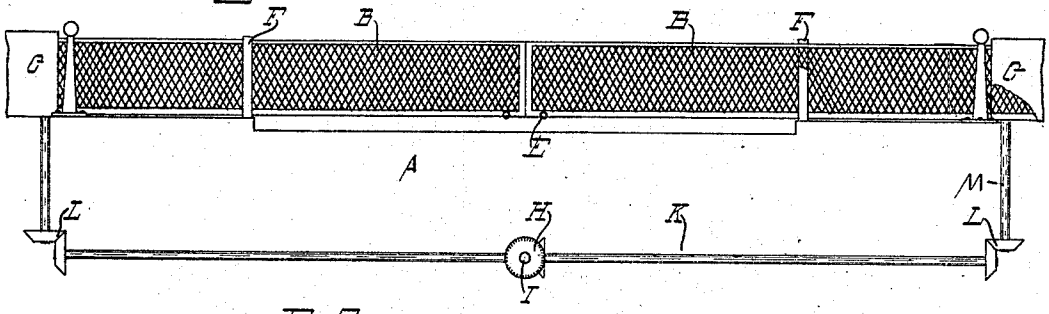


Fig. 2.

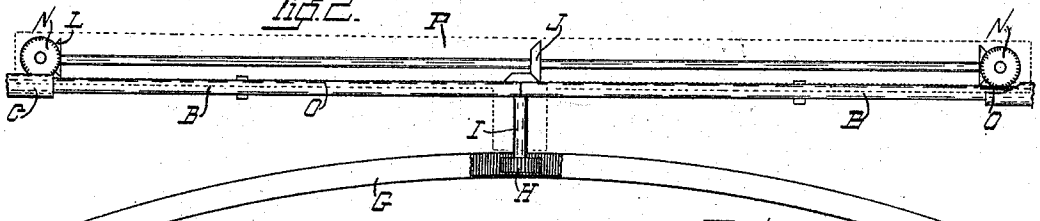


Fig. 3.

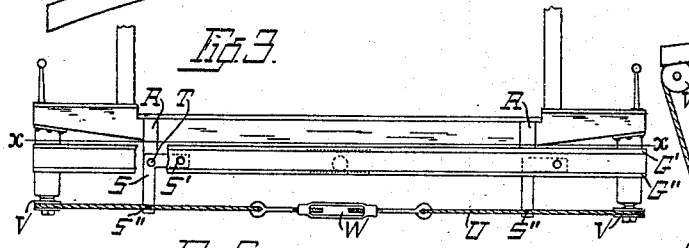


Fig. 4.

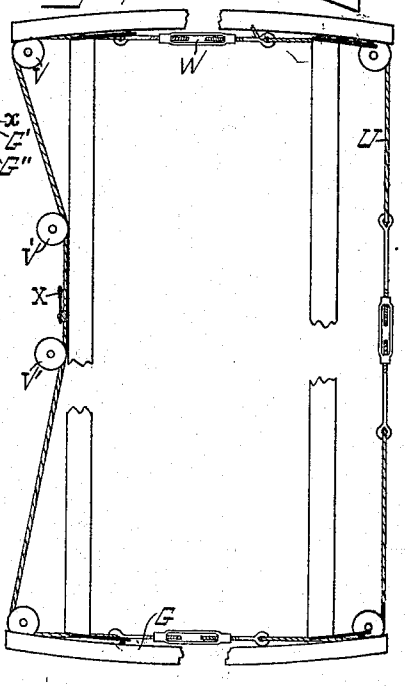


Fig. 5.

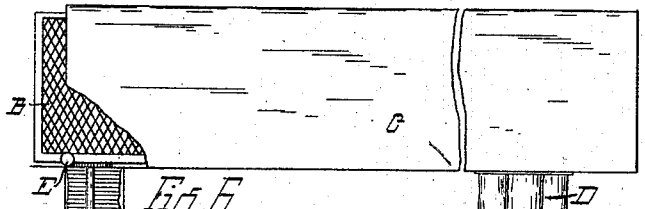
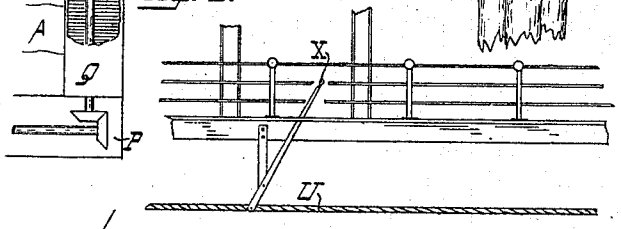


Fig. 6.



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(No Model.)

2 Sheets—Sheet 2.

W. R. BREHMER.

DRAWBRIDGE GATE.

No. 552,511. Patented Jan. 7, 1896.

Fig. 7.

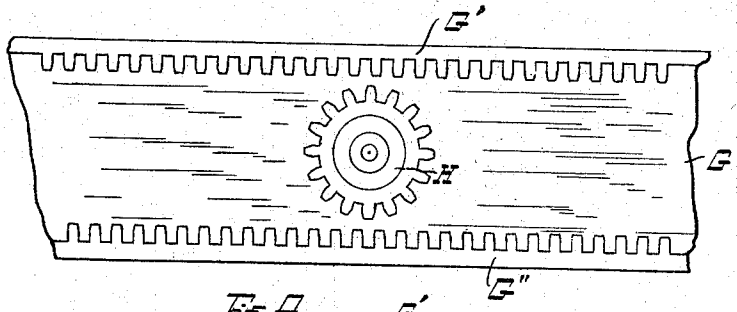
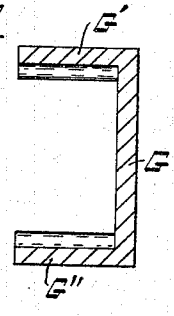


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM R. BREHMER, OF WAUSAU, WISCONSIN.

DRAWBRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 552,511, dated January 7, 1896.

Application filed August 26, 1895. Serial No. 560,469. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. BREHMER, a citizen of the United States, residing at Wausau, in the county of Marathon and State of Wisconsin, have invented new and useful Improvements in Bridge-Gates and Actuating Mechanism Therefor, of which the following is a specification.

My invention relates to improvements in bridge-gates and mechanism for actuating the same.

The object of my invention is to provide means for automatically actuating the gates with the movement of the bridge.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a front elevation of the bridge-abutment, showing the gates and that portion of the mechanism for actuating the gates which is located in the abutment. Fig. 2 is a top view of my invention as seen independently of the abutment with the gate-supporting boxes removed. Fig. 3 is an end view of the bridge, showing the curved double rack-bar for actuating the gates and the means for adjusting the same. Fig. 4 is a top view drawn on section-line *x x* of Fig. 3, showing the bridge-supported portion of my invention and a hand-lever for adjusting the parts. Fig. 5 is a side view of the gate supporting and protecting box located on each side of the abutment, the side of the box being partially removed to show the interior. Fig. 6 is a detail view showing the hand-actuated lever for adjusting the rack-bars. Fig. 7 is a detail enlarged view of a portion of the double rack-bar G as viewed from the face of the abutment, showing also the pinion adapted to be engaged by either the upper or lower rack. Fig. 8 is a cross-section view of the rack-bar G.

Reference-letters are used consistently throughout the several views.

A is the abutment of the bridge.

B B are sliding gates adapted to be housed in boxes C at the sides of the abutment A, the outer ends of the boxes being supported upon the guard-spiles D at each side of the abutment. The gates are supported on rollers E, so as to move easily, and when closed are supported laterally at the curb-line by the posts F and F′, between which the projecting end of the gate passes. The boxes C may be braced from the abutment in a perfectly obvious manner and if desired may be provided with a gong adapted to be actuated by the movement of the gate in a well-known manner.

The gates are actuated by a double rack-bar G, supported underneath the bridge in a manner hereinafter explained. The movement of this rack-bar is communicated to the gates through the pinion H, shaft I, miter-gear J, horizontal shaft K, miter-gear L, vertical shaft M, pinion N, and horizontal rack-bar O, the latter being located on one side of the lower edge of the gate, as best shown in Figs. 1 and 5. The shaft K and gearing directly connected with it are located in a rectangular box P in a recess in the abutment, (see dotted lines, Fig. 2,) and the vertical shaft M is located in a vertically-disposed box Q, which connects the boxes P and C, thus covering and protecting all of the connecting mechanism except the pinion H and a portion of its shaft I which projects from the box P.

It will be observed that in order to close the gates it is necessary to actuate the pinion H in but one direction, whichever way the bridge is opened. The rack-bar G is therefore channel-shaped, and is curved to correspond with the arc described by the bridge in opening. The pinion H is adapted to project between the upper and lower sides of the bar G, and the teeth or cogs of the racks are located on these sides and project inward to engage with the cogs on the pinion whenever the bar is elevated or depressed to bring one of its sides into contact therewith. It will therefore be seen that when the bridge is opened in one direction the bar G is adjusted with the upper rack G′ in engagement with the pinion H, and when opened in the opposite direction the lower rack G″ is brought into engagement with the pinion. The racks are separated sufficiently so that the bar may be adjusted to leave the pinion free from engagement with either rack, thus enabling the operator to stop the movement of the gates at any time, if necessary to prevent accident.

The mechanism for adjusting the bars G at

each end of the bridge is best shown in Figs. 3 and 4. The rack-bars are supported from the downward projecting bridge-posts R on the arms S′ of the elbow-cranks S, the latter being pivotally supported on the posts at the elbow by pivot-bolts T. A wire cable or chain U is supported by pulleys V underneath the bridge on all sides and is connected with the downward-projecting arms S″ of the elbow-crank S. This cable is kept at the proper tension by the link-nuts W.

X is a hand-lever pivotally attached to the bridge-frame and connected at its lower end to the cable U with its upper end projecting above the level of the bridge between the side-walk and the driveway, the cable being held in line with the lower end of the lever at the point of connection by the pulleys V′. The movement of the lever is thus communicated to the racks G through the cable U and elbow-cranks S to adjust the racks to the desired position before opening the bridge.

It will be observed that as the ends of the bridge swing in opposite directions the rack-bars at each end are necessarily adjusted in opposite directions, thus balancing each other and making the adjustment easy.

When the bridge is turned completely around no adjustment is needed for closing the bridge, but when closed by a reverse movement, it is necessary to change the relative adjustment of the rack-bars by a reverse movement of the lever X.

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

1. The bridge gates and actuating mechanism, consisting in the combination of the sliding gates housed in boxes at each side of the abutment and adapted to be pushed out over the side-walk and road-way, with the curved double rack bar adjustably located underneath the end of the bridge and supported therefrom, the pinion supported from the abutment and adapted to be engaged by either rack of said rack bar, means for communicating the motion of said pinion to the gates, and means for adjusting said rack bar with either the upper or lower rack in engagement with said pinion, substantially as described.

2. The bridge gates and actuating mechanism, consisting in the combination of the sliding gates supported at each side of the abutment and provided with rack bars near the lower edges, the gate actuating pinions adapted to engage the teeth of said rack bars to close and open said gates, together with the adjustable double rack bar located on said bridge, gearing located on the abutment and adapted to engage therewith, connections between said gearing and said gate actuating pinions, and means for adjusting said double rack bar to actuate the gearing in one direction with opposite movements of the bridge, substantially as described.

3. The bridge gates and actuating mechanism, consisting in the combination with the bridge of the double curved rack bars G adjustably supported at each end of the bridge, the pinion supported from the abutment at each end of the bridge and projecting between the upper and lower racks of said rack bar, means for adjusting said bar with either rack in engagement with said pinion, gates located at each side of the abutment, and connections between said pinion and said gates adapted to communicate the motion of the former to the latter, substantially as described.

4. The bridge gates and actuating mechanism, consisting in the combination with the bridge, of the double curved rack bars G, adjustably mounted on the bridge upon pivotally supported elbow cranks, the cable connected with the other arms of said elbow cranks, and the lever for actuating said cable, together with the gearing to which said rack bars are adapted to be adjusted, and the gates connected with said gearing and adapted to be actuated by the latter, substantially as described.

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

WILLIAM R. BREHMER.

Witnesses:

LEVERE H. C. WHEELER,

JAS. B. ERWIN.