

(No Model.)

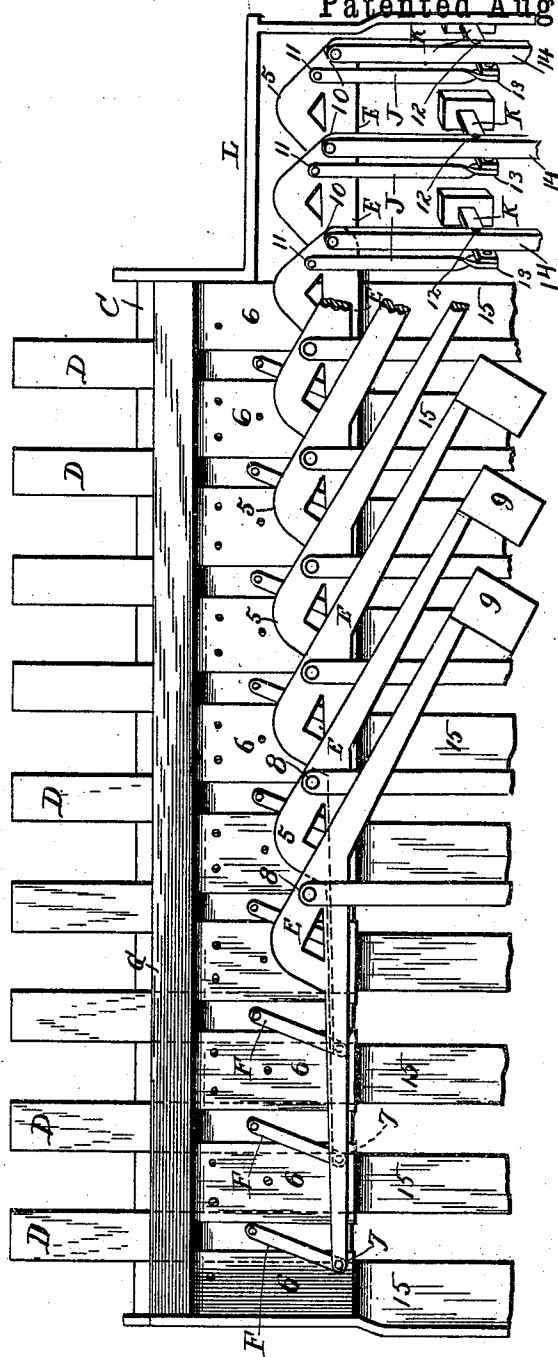
2 Sheets—Sheet 1.

A. H. MYERS.
AUTOMATIC BRIDGE GATE.

No. 504,169.

Patented Aug. 29, 1893.

Fig 1



Witnesses
C. C. Burdine
J. H. Cleas.

Inventor
Abraham H. Myers.
per John G. Manahan
His Attorneys

UNITED STATES PATENT OFFICE.

ABRAHAM H. MYERS, OF STERLING, ILLINOIS.

AUTOMATIC BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 504,169, dated August 29, 1893.

Application filed January 13, 1893. Serial No. 458,206. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM H. MYERS, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented a new and useful Automatic Bridge-Gate, of which the following is a specification.

My invention relates to improvements in automatic bridge gates, for closing the roadway, as the draw portion of the bridge is being swung open, and while it remains open.

In my invention, the road-obstructing bars reciprocate vertically, in suitable ways, (which latter are placed below the line of the road) and said bars are separately thrown up by weighted levers peculiarly arranged, when said levers are not forced downward by the passage over them, or resting upon them, of the draw.

One disadvantage heretofore met, in some classes of automatic bridge gates, has been that the draw was capable of operating said gate only in one direction. Experience has shown that it is essential to be able to move the draw back, in case it should casually have swung too far, or sometimes from the unexpected approach of a vessel from the direction to which the bridge is swinging.

The object of my invention is to provide vertically reciprocating bars, which operate independent of each other, and successively rise and close the approach as the draw is being swung from the same, and when all of such bars at their highest altitude they connectedly form a fence across the approach at the bridge face thereof, and as the draw is closed it successively forces said bars below the roadway. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view of the bridge face of the approach, showing the aforesaid vertical bars D in their position of shutting off the travel while the draw is open. Fig. 2 is a view of the outer end of the draw. Fig. 3 is a detail of one of the bars D and its operating lever, when said bar is at its limit of its up stroke. Fig. 4 is the same, with said bar at the limit of its down stroke, in the position it occupies when the draw is over it. Fig. 5 is a detail, looking from the draw, of a portion of the

means for raising the first three bars. Fig. 6 is a partial end view of the mechanism for lifting the said three bars.

Similar letters and numerals refer to similar parts throughout the several views.

As my improvement is adapted for application to any species of draw-bridge, I do not deem it necessary to show or describe parts which will be readily understood.

Referring to Fig. 2, A is the end of the draw which is provided on its lower side with a suitable plank B, set edgewise, and provided at one end with a shoe 1, adapted to ride over the central upward curves or crests 5 of the levers E, shown in Fig. 1, and thereby depress the vertical bars. The shoe 1, for convenience, will be called "the forward end of the draw." The draw normally rotates with shoe 1 foremost.

At the rear end of the plank B there is provided a projection 2, furnished with a depressing wheel 3, and an auxiliary retaining shoe 4. At the front end of the draw is shoe 1, and said shoe enters the approach C at its end L (Fig. 1), and as the central crest 5 of the lever E, at the opposite end of the approach, is some distance from said side, the depressing wheel 3 is required to be placed a corresponding distance beyond the adjacent edge of the draw, to engage, in the return of the draw, the first crest 5 before the draw has come in contact with the first bar D. The bars D are arranged, as shown in Fig. 1, between fixed vertical plank 15, forming with projecting metallic plates 6, attached to the face of plank 15, independent ways, between which plates there is sufficient interval to permit the movement of the pitman F, which is pivoted at its upper end to the inner face of the bar D, and at its lower end to the adjacent end 7 of the lever E. Each of the levers E is suitably pivoted, at 8, on the inner face of the approach, and is furnished, at its free end, with a weight 9. The relation of the parts is such that, when the draw is open, the weight 9 is down and the bar D is up, and that, as the draw, in closing, passes over the apex 5, it forces down the bar D through the medium of the end of lever E attached to the pitman F, and at the same time it raises the weight 9 into the position shown in Fig. 4 so that,

when the draw is closed, the weighted end of the lever E is nearly horizontal. The continuous bar G across the face of the approach, behind which the bars D reciprocate, serves to hold all of said bars mutually in line. The apex 5 of the levers E being slightly at the bar D side of the fulcrum 8 of levers E, downward pressure thereon, by either the shoe 1 or wheel 3, serves to throw the bar D down, as shown in Fig. 4, when the transverse plank B, shown in Fig. 2, resting upon all of the apices 5, holds the bars D down, and the deck of the draw A projects entirely over the bars D, forming a reasonably close joint with the deck H of the approach.

As the levers E are arranged along the face of the approach and parallel with said face, to operate them all in the mode shown in Figs. 3 and 4, will project the weighted ends of the bars D at the extreme right, in Fig. 1, too great a distance past the side of the approach. To obviate this, the three bars D, at the right end of the approach, are operated as shown in Figs. 5 and 6, in which the levers E are truncated at 10, and the lift of the weighted end of the lever is applied at 11 by means of a vertical pitman J, pivotally attached at its upper end to the lever E at 11, and pivoted at its lower end 13 to the front end of the lever K, fulcrumed at 12, on the uprights 14, which form part of the inner or bridge face of the extension box L. The lever K is extended at right angles with the lever E into the box L, there covered and provided with the weight 9.

The description of operations, shown in Figs. 5 and 6, applies simply to the three bars D, first operated by the shoe 1 of the draw A, the purpose being to avoid extending the levers E too far past the face of the approach. None of the working mechanism shown would extend more than a foot from the inner face of the approach C, and therefore can be very readily boxed against the face of the approach, to prevent injury thereto. Another advantage is that none of the parts project into the stream so as to either obstruct navigation, or to be liable to injury by collision from a passing vessel. There are no springs, wires, or ropes connected with the device, and the operations of the bars D are effected wholly by the weights 9 in one direction, and by the positive action of the draw on the apices 5 in the other direction. Conceiving the draw A as passing Fig. 1, entering at the box L side, the shoe 1 would engage the first apex 5. The front of the draw A would be so near the first bar D as to give the latter only time sufficient to drop to avoid being

struck by the edge of the draw, and the draw passes over the first bar D so soon after the downward movement of the latter that no gap is left. The same is true in the successive putting down of each of the following bars D, and the same is true in the retrogression of the draw when the wheel 3 puts the bars D down, directly in advance of the draw A.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In combination with the pivoted draw A, provided with a shoe 1 and wheel 3, the approach C, provided with a series of vertically reciprocating bars D arranged in separate ways along the inner face of said approach, the levers E provided with weights 9 and apices 5 slightly beyond their central pivot, and a pitman F connecting the unweighted end of levers E with the bars D, respectively; substantially as shown, and for the purpose described.

2. In combination with a suitable approach, a bridge draw, a series of vertical bars D independently seated, in suitable ways in the bridge face of said approach, and weighted levers E adapted to separately raise said bars, said draw A being provided with shoe 1, plank B, and wheel 3, adapted to separately depress said bars; substantially as shown, and for the purpose described.

3. In an automatic bridge guard, the combination of a series of vertical bars D, adapted to reciprocate vertically in the face of said approach, levers E suitably fulcrumed on the face of said approach, and pivotally connected at one end to the bar D, and provided at the opposite end with weights 9, and provided centrally, respectively, with apex 5 located slightly at the bar D side of the fulcrum 8 of said lever, and a draw A provided with means for forcing downward, and holding down said bars D, by pressure upon the apices 5; substantially as shown and for the purpose described.

4. In an automatic bridge guard, the combination of a series of vertical bars D seated in vertical ways in the face of the approach, and levers E pivoted about centrally, and provided at one end with the weight 9, and pivotally connected at the other end to the bars D, whereby said weighted end forces the bar D upward when the draw is open; substantially as shown and for the purpose described.

ABRAHAM H. MYERS.

Witnesses:

MARTHA W. BARRETT,
JOHN MYERS.