

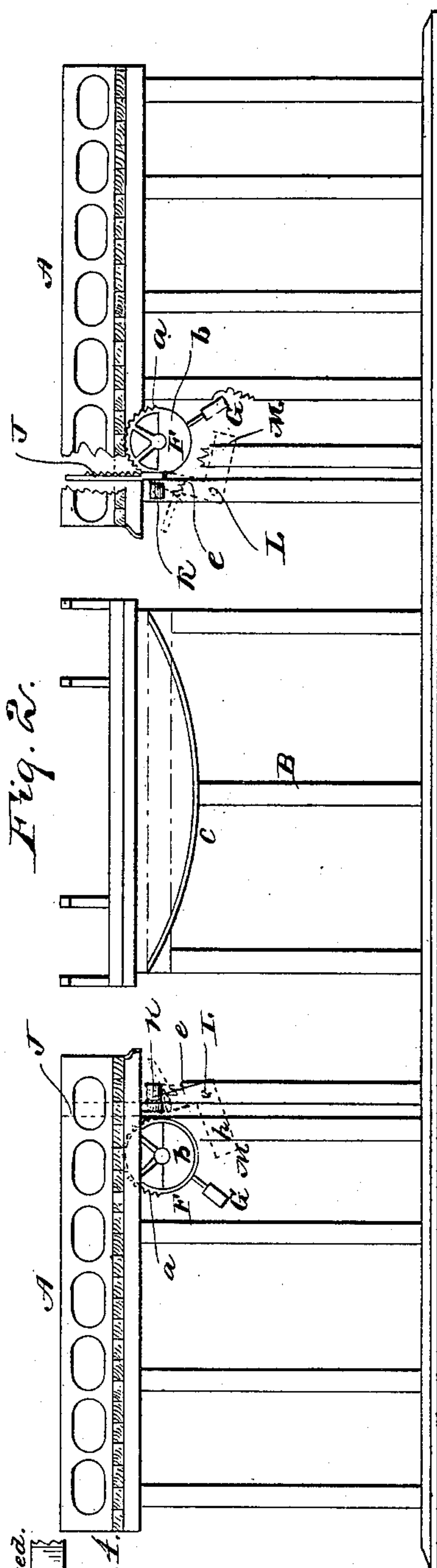
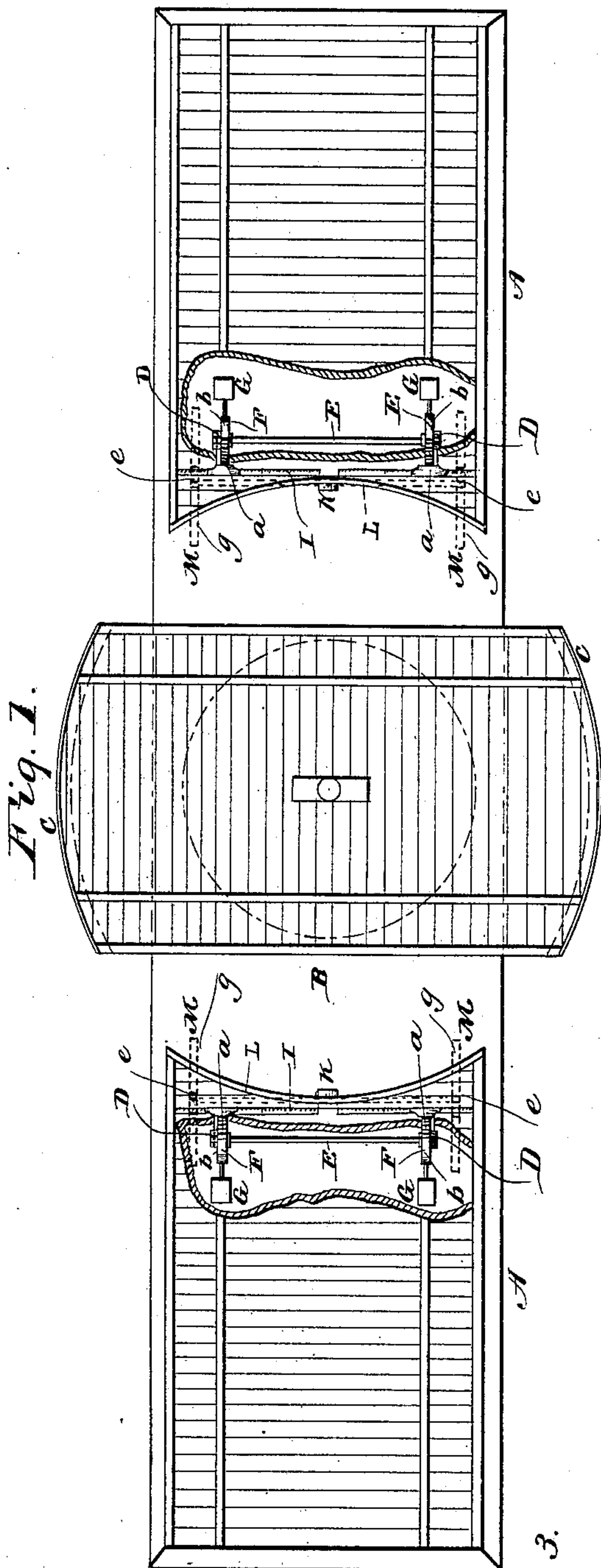
(No Model.)

W. JOHNSTON & W. J. TAYLOR.

DRAW BRIDGE GATE.

No. 321,975.

Patented July 14, 1885.



Witnesses:  
*C. W. Ashwell*  
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*Bridge Open.*

*Fig. 3.*

*Bridge Closed.*

*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

WILLIAM JOHNSTON AND WILLIAM J. TAYLOR, OF MENOMINEE, MICHIGAN.

## DRAW-BRIDGE GATE.

SPECIFICATION forming part of Letters Patent No. 321,975, dated July 14, 1885.

Application filed December 1, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM JOHNSTON and WILLIAM J. TAYLOR, citizens of the United States, residing at Menominee, in the county of Menominee and State of Michigan, have invented a new and useful Improvement in Draw-Bridge Gates, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to draw-bridge gates; and it has for its object to provide a device of this character whereby when the bridge is opened the gate will be sprung into position on each side of the draw to close the passage to all comers, and thus prevent accident to man and beast, and when the bridge is returned to its normal position the gate is dropped out of the way, so that passengers will be allowed to go to and fro without any possibility of danger.

With these ends in view the said invention consists in certain details of construction and combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a plan view of a portion of the bridge with the draw open and the two gates on each side thereof elevated to debar the passage of all comers, the bridge being broken away to show the arrangement of the parts. Fig. 2 is a side elevation of the same partly broken away. Fig. 3 is a detached view of a portion of the bridge and gate, showing the catches which hold the latter when the bridge is open. Fig. 35 4 is a similar view, showing the gate down and the catches unlocked, the bridge being closed.

Like letters are used to indicate corresponding parts in the several figures.

40 Referring to the drawings, A designates a portion of the bridge of the usual construction, having near the middle of its length, or at any intermediate point thereof, the swinging draw B, which is provided with suitable operating means, (not necessary to be shown here,) whereby said draw may be opened at will to permit the passage of large vessels. On each end of the draw, which is centrally pivoted in the usual manner, is formed a curved shoe, C, which depends downwardly, (see Fig. 2,) and is adapted to operate the gate to close

the same, and when the draw is opened the shoe is withdrawn to allow the gate to rise for the purpose stated. To the under side of the bridge, on each side of the draw, is supported a pair of brackets, D D, (on each side of the bridge,) in which brackets is journaled the ends of a shaft, E. The latter is disposed transversely across the bridge, and has its ends, within the brackets, provided with the wheels F F, which have one-half of their circumference formed with teeth *a*, the other half being weighted or formed solid, as at *b*, to which solid portion is fitted a lever, G, weighted on the outer end, H, as will more fully appear.

65 I designates the gate arranged transversely across the bridge, and working through a slot or opening provided in the same forward of the shaft E. Each end of the gate is provided with a rack-bar, J, arranged to be engaged by the teeth of wheels F F, and projecting from the front of the gate near the center is a small wheel or roller, K, over which the shoe C on the ends of the draw is adapted to ride easily and without friction.

75 L designates a rod or shaft arranged similarly to the shaft E, but lower down and forward of the same, the ends of this rod or shaft L being journaled in one of the posts of the bridge on each side. Upon each end of this rod or shaft, within the supporting-posts, are mounted automatic catches M M, angular in form, (see Figs. 3 and 4,) which are pivoted on the shaft at the junction of the two arms of the catch. The vertical arm *e* is notched at the upper end on the inner side to form an engaging finger, *f*, arranged to catch around the lower end of the gate to hold the latter in its elevated position, and is provided with a forwardly-extending arm, *g*, which is depressed by the shoe C when the draw is closing. The other arm, *h*, of the catches M lies horizontal in its normal position, and, being longer and weighted, serves to throw the vertical arm backward when the gate is being raised.

95 The operation of our invention will be readily understood from the foregoing description, taken in connection with the annexed drawings. When the draw B is in its normal position, the shoes C at each end thereof bear at the center (which is the lowest part of the shoes) upon the roller K, so as to hold the gates down



on each side, and thus permit the passage of persons across the bridge. When the draw is opened, the shoes ride over the rollers, relieving the gate from all pressure and allowing the same to act under the preponderating influence of the weighted wheels F, the latter engaging the racks on the ends of the gates and elevating the parts to the position shown in Fig. 2. As the gate is being raised by the means stated it relieves the pressure on the horizontal arms *h* of the catches M, which arms *h* act, as hereinbefore explained, to throw the vertical arms *e* backward, the engaging finger *f* catching under the lower end of the gate (see Fig. 3) and holding the latter in its raised position until the draw is closed, so as to debar the passage to all comers. As will be understood, the gates, when elevated, reach to a point as high as the railing along the side of the bridge to prevent the passage of any one across the bridge while the draw is open. In closing the draw the shoes ride over the forwardly-extending arms *g* of the catches M, throw the vertical arms *e* outward, and withdraws the fingers *f* from engagement with the gate. The latter being released, the riding of the shoes C over the roller K depresses the gate, turns the wheels F, and elevates the weighted levers G. It will be observed that the lowest point of the shoes is at the center, so that when the roller reaches that point, or, rather, when the central point of the shoes reaches the roller, the gate will be entirely depressed and will not further bar the passage of persons across the bridge. By this means the gates will not be entirely lowered until the draw has been fully closed, and thus accidents owing to partly-closed draw-bridges will be entirely avoided.

It will be apparent that instead of a roller a small projection or lug may be used to effect the same purpose; but we prefer the arrangement shown, as it will obviate friction and enable the parts to work with greater ease.

Our invention provides means for automatically lowering the gates by the closing of the draw, and for elevating the same by the opening of the draw, no manual power being necessary, except such as is employed to shift the draw around in the manner well known in the art. It will be seen that when the gate is lowered its lower end bears against the upper face of the horizontal arm *h* of the catches M, and immediately, when the pressure on the roller K begins to decrease by the opening of the draw, the weighted wheels F preponderate

and gradually elevate the gate to the position shown in Fig. 2. The detached views, Figs. 3 and 4, illustrate clearly the operation of these catches.

Our invention is capable of application to any of the numerous styles of draw-bridges. It will not work out of order, and provides simple and efficient means for the purposes intended.

We are aware that it has been proposed to construct draw-bridges with gates which are worked automatically upward to debar the passage of man and beast when the draw is open, and which drop down out of the way by the closing of the draw. We are also aware that to provide the draw with a curved shoe is old. Likewise, that it is old to place a roller or projection on the gate to be operated by the draw. Furthermore, that it is not broadly new to provide catches for holding the gate in its raised position, said catches being operated by the closing of the draw to allow the gate to drop down; but heretofore the means which actuated the gate did not at the same time work the catches. Separate and additional means were used to work both the gate and the catches. In our improvement the shoes on the draw act upon the gate and the outwardly-extending arms of the catches at the same time.

Having described our invention, we claim—

1. In a draw-bridge gate, the combination, with the draw, of the gates working across the passage-way of the bridge, and automatic catches comprising the horizontal arm *h*, the vertical arm *e*, and the outwardly-extending arm *g*, as set forth.

2. In a draw-bridge gate, the combination, with the draw provided with a depending shoe at each end, of the gates working across the passage-way of the bridge and provided with a roller or projection to be acted upon by the shoe, means for automatically raising or elevating the gate as the action of the shoe ceases, and automatic catches provided with outwardly-extending arms to be operated by the shoes at the same time, as set forth.

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

WILLIAM JOHNSTON.  
WILLIAM J. TAYLOR.

Witnesses:

JOSEPH FLESHIEM,  
ED. V. CONLEY.