

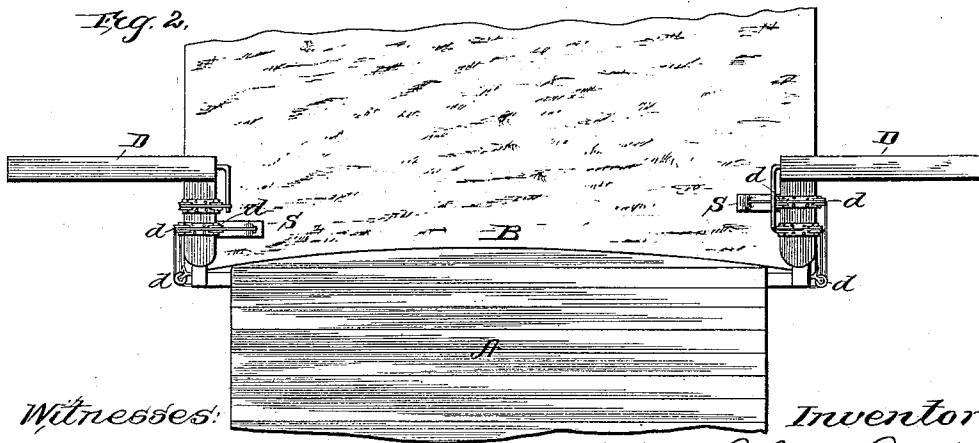
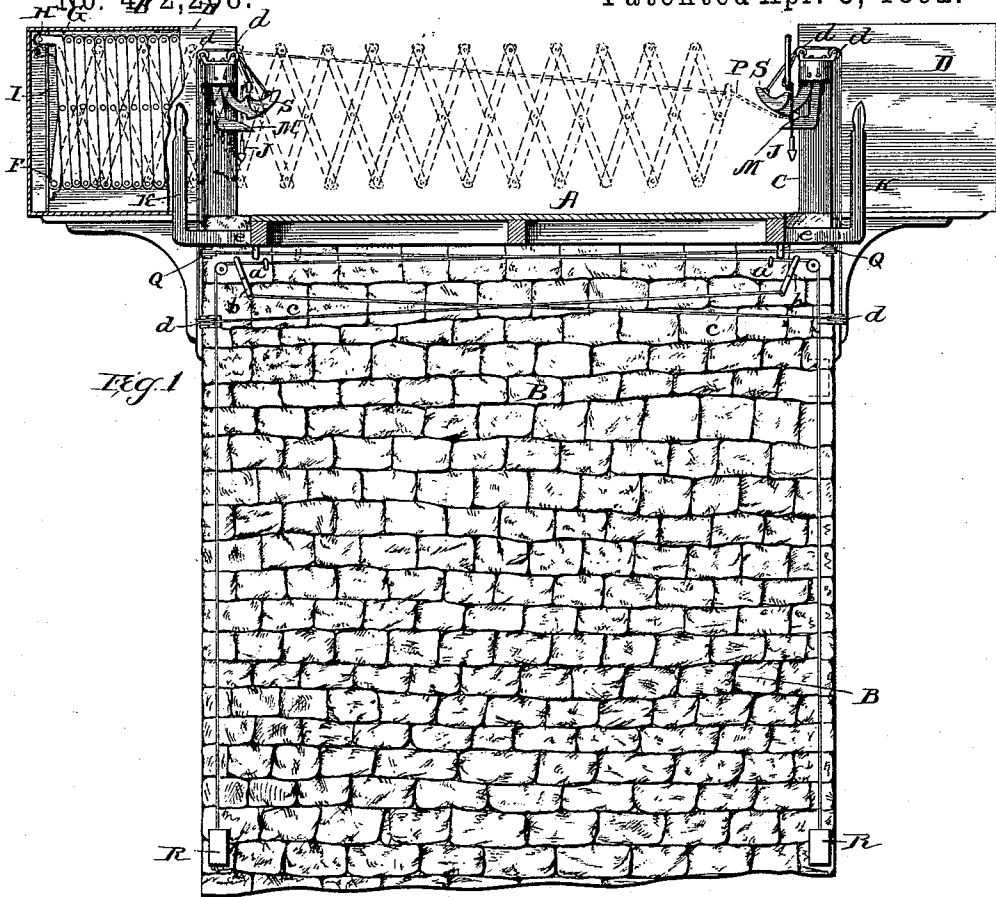
(No Model.)

3 Sheets—Sheet 1.

C. DIETZ.
BRIDGE GATE.

No. 472,208.

Patented Apr. 5, 1892.



Witnesses:
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E. W. Hurdman

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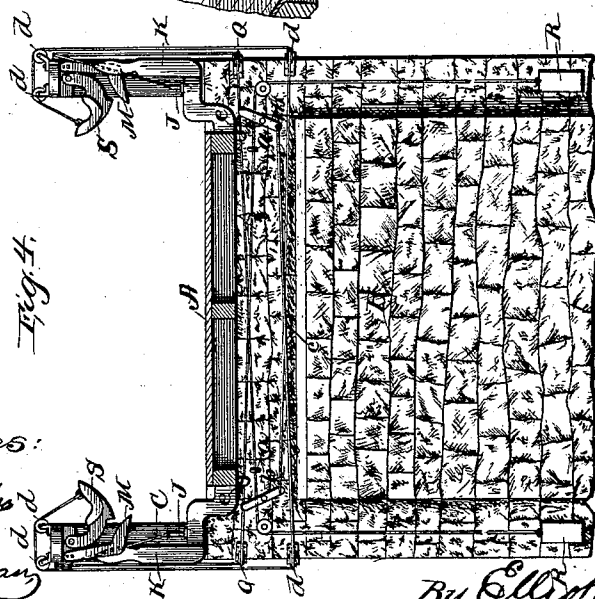
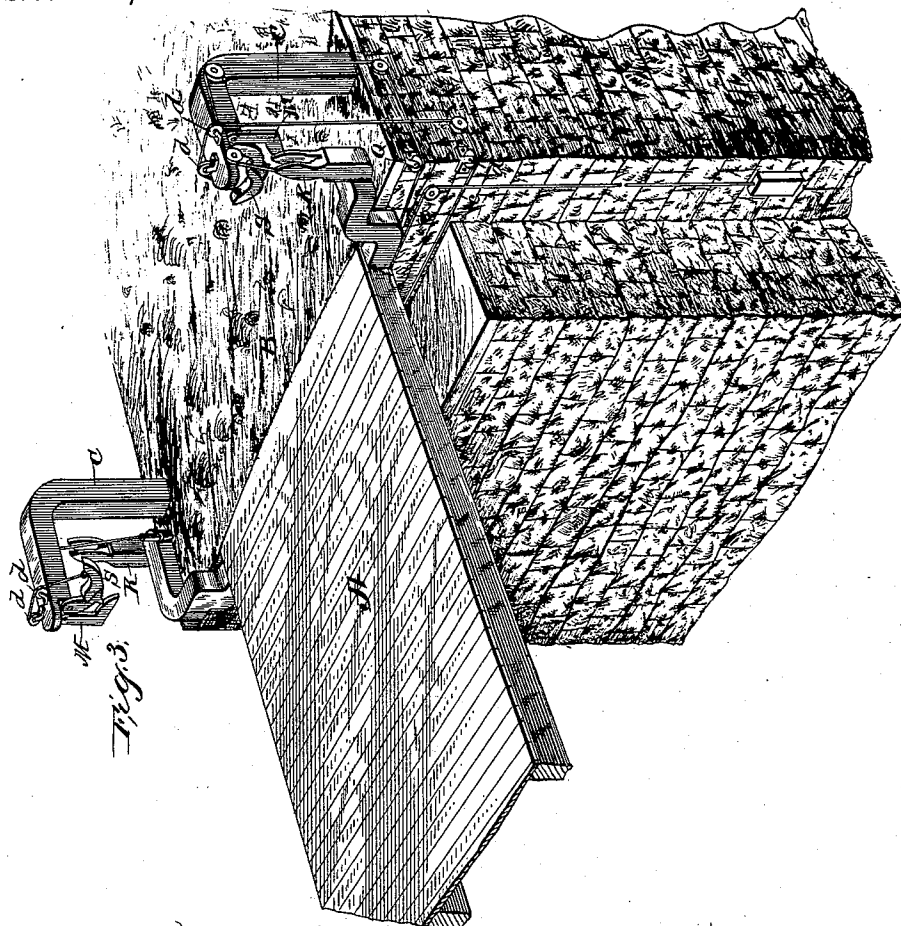
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3 Sheets—Sheet 2.

C. DIETZ.
BRIDGE GATE.

No. 472,208.

Patented Apr. 5, 1892.



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(No Model.)

3 Sheets—Sheet 3.

C. DIETZ.
BRIDGE GATE.

No. 472,208.

Patented Apr. 5, 1892.

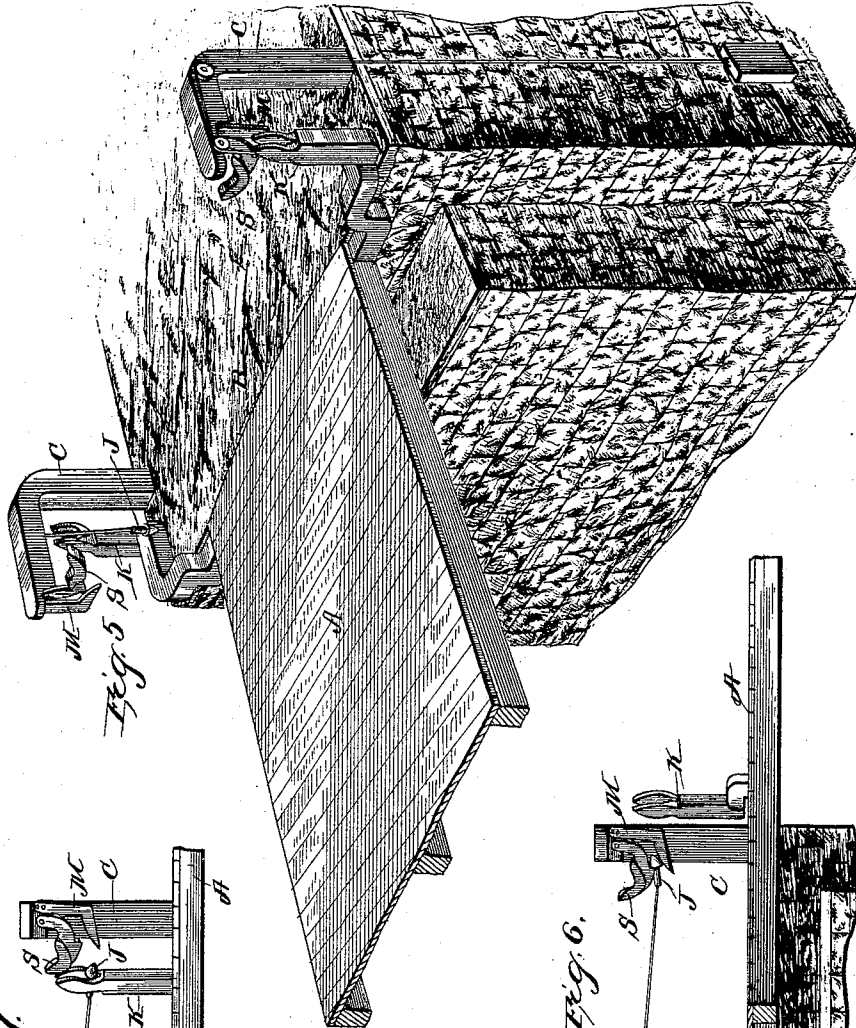


Fig. 1.

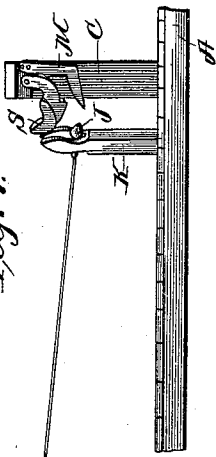


Fig. 6.

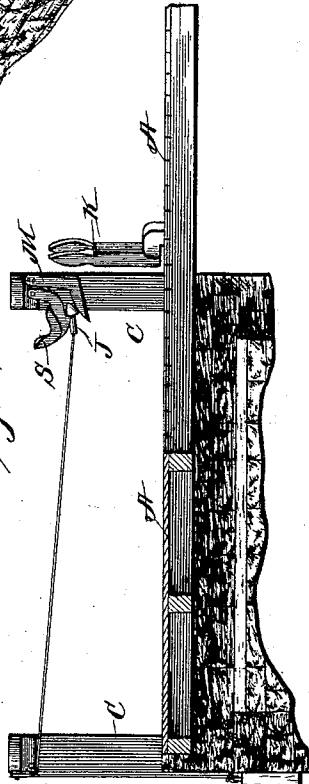
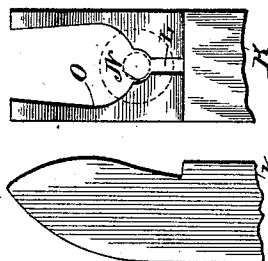


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHARLES DIETZ, OF CHICAGO, ILLINOIS.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 472,208, dated April 5, 1892.

Application filed October 4, 1890. Serial No. 367,067. (No model.)

To all whom it may concern:

Be it known that I, CHARLES DIETZ, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bridge-Gates, of which the following is a specification.

This invention relates to improvements in bridge-gates for automatically closing and opening the approach to a draw-bridge upon the closing or opening of the bridge, which prior to this invention, so far as I am aware have usually been suspended above the roadway and lowered by the opening of the bridge, or else sunk in suitable chambers below the surface and raised by the opening of the bridge. Both of these modes of operation are objectionable in practice, because the entire approach to the bridge will be closed simultaneously with or immediately after the opening of the bridge, thereby preventing the escape of persons on the bridge at the time it begins to swing, and also rendering foot-passengers and teams liable to be caught by the gate, and, on the other hand, when the bridge is closing a part of the approach will be open before the bridge is swung into position.

The prime object of this invention is to have a bridge-gate of such character that while it closes and opens simultaneously with the opening and closing of the bridge still the bridge and approach will always be unobstructed when any portion of the bridge opposes the approach, whether in opening or closing the bridge, although the rest of the approach not opposed by the bridge will be closed. In other words, the gate closes only that portion of the approach opened by the bridge or opens that portion of the approach closed by the bridge as rapidly as the bridge moves either in opening or closing.

Another object is to have a gate so operating capable of use in connection with draw-bridges of any character, whether of the half-swinging type or revolving.

These objects are obtained by the devices illustrated in the accompanying drawings, in which—

Figure 1 illustrates a bridge-gate embodying my invention, adapted for use in connection with either a revolving or half-swinging bridge; Fig. 2, a plan view thereof; Fig. 3, a

perspective view of a gate similar to Fig. 1, but illustrating the use of the cable alone as the gate; Fig. 4, a section through the bridge, showing the abutment and the gate-operating mechanism in elevation; Fig. 5, a view similar to Fig. 3, showing my gate adapted for use in connection with a half-swinging bridge; Fig. 6, a sectional elevation showing the bridge open and the gate closed; Fig. 7, a similar view showing the gate about to be closed or opened, and Fig. 8 a detail elevation of the carrier for the gate-knob.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the bridge, B the abutment, and C supporting-posts mounted upon the abutment or approach at each corner thereof outside the usual footways, so that the operative parts supported thereby will be out of the way and safe from tampering. Upon each side of the abutment or approach adjacent to the post is located a housing D, in which is contained a gate E, preferably of the lazy-tongs or expansible type, the inner lever F of which is pivotally secured at its lower end to the housing, while the companion lever G carries an anti-friction roller H on the upper end thereof, which travels upon a guideway I and serves, in conjunction with the other lever, to maintain the gate in proper position throughout its movements. These gates operate alternately, according to the direction in which the bridge is swung, one of them following the bridge when swung open in one direction and the other when the bridge is swung in the opposite direction. These gates are operated through the medium of knobs J, depending from arms upon the front ends of the gates in the path of movement of carriers K, mounted upon each corner of the bridge and by which the respective knobs are caught and carried to the opposite side of the abutment or approach, drawing after them or extending the gates, so as to close the approach as rapidly as it is opened by the bridge, the knobs being released from the carriers when they reach the opposite side of the approach, while the bridge continues its movement. To this end both the knob and the carrier have a peculiar shape, best

adapting them for the intended purpose, the former having an enlarged head and the latter a crotch in the upper free end thereof of different widths at different parts of its length—such, for instance, as the narrowest portion L at the bottom of the notch—to permit the passage of the releasing-finger M, to be described further on, the middle and larger portion N serving as a rest for the body of the knob, but of less diameter than the head and finally the upper and widest portion O of greater diameter than the head and designed to permit the escape of the knob from the carrier when elevated by the releasing-finger, as described further on. Obviously, however, the middle portion of the crotch may be dispensed with and the notch formed with but two dimensions; but the use of this middle portion is preferred as insuring greater security in the engagement of the knob by the carrier. It will of course be understood that while the gates are on a line with each other the carriers and their respective knobs are arranged sufficiently out of line to permit the passing of the respective carriers freely by and without engaging the knob intended for the other carrier.

To the front end of each gate is secured a cord, chain, or cable P, working over suitably-arranged pulleys Q, and having attached to the other end thereof a weight R, of sufficient gravity to draw the gate back to its normal position within the housing when the gate is relieved of the weight of the knob J by the carrier; but when the knob hangs from the gate unsupported by the carrier the weight will not be sufficient to draw the gate and knob back to their normal positions.

To secure the catch and release it from the carrier when it reaches the opposite side of the approach and at the same time secure the gate in its extended position, I employ the releasing-finger M, rigidly secured to and suspended from the post C in the path of movement of the carrier, which enters the lower portion L of the notch in the carrier and, being provided with an inclined face, operates to lift the head of the knob until it registers with the enlarged portion O of the notch, when the carrier will pass on, leaving the knob resting upon the releasing-finger, and simultaneously with this action the prongs of the carrier formed by the notch will strike and lift a catch S, pivotally secured to the post C, so that the head of the knob may pass beneath said catch, which drops behind and engages the head, so as to prevent its retraction. Should the bridge be of the half-swinging type—that is, swing half-way round and back again—or should it be desirable to only swing the bridge half-way, the carrier on its return will pass by the head of the knob, and then striking the catch will release the knob, which will drop into the notch in the carrier and be carried thereby back to its normal position, the gate at the same time being withdrawn or retracted by the weight R, which is

sufficient to operate the same when relieved from the weight of the knob. Thus it will be seen that the gate will follow the bridge out and close the approach as rapidly as it is opened by the bridge and open the approach as rapidly as the bridge closes, thereby leaving that portion of the approach opposed by the bridge always unobstructed, both in opening and in closing the bridge.

In adapting my apparatus for use in connection with a revolving bridge a slightly-different running of the cables is necessary. For instance, they must cross over the face of the abutment, as clearly illustrated in Fig. 1, and each of the weighted cables is provided with a button *a*, which comes at one side of the abutment when the bridge is closed, but moves over to the opposite side of the abutment when the bridge is open, and there is also provided a trip *b* at each side of the abutment, consisting of an upright bar pivoted about the center of length thereof and at its lower end enlarged or weighted in any obvious manner, so as to normally assume approximately an upright position, and connected at its lower end by a cord *c*, running over suitably-arranged pulleys *d*, with the catch S. These buttons and trips are located in the path of movement of a projection or striker-arm *e*, located at each corner of the bridge, (see Fig. 1,) so that as the bridge revolves its incoming end first operates the trip so as to elevate the catch and release the gate-knob, immediately after which it strikes the button on the weighted cord attached to the gate and operates to draw the gate back, bringing with it the knob, the line of movement or construction of the button and striker-arm being such that when the bridge is entirely closed the button will be disengaged from the striker-arm, so that the bridge in its farther movement in again opening will not affect the operation of the gate in the usual manner. It will be observed that in a gate so operated the approach is closed only as the bridge opens and opens only as the bridge closes in the same manner as the half-swinging bridge.

In Figs. 3 and 4 I have shown the gate-operating devices, but omitted the gate proper, because in some instances the cable alone stretched across the approach may be deemed sufficient to subserve the purpose of a gate, or the cable may have attached thereto hanging ropes or slats which are housed at the side in substantially the same manner as the gate herein shown, but which give more the appearance of a gate or fence than providing an actual gate, as in the preferred construction. With the cable strung as in the first four figures of the drawings they are adapted for use upon a bridge, which either revolves or turns completely around in operation in either direction or which may swing only half-way around in either direction and thence back to position, and if in practice it should be practicable to revolve or swing the bridge always in the same direction obviously only one gate

need be employed upon the approach. It also frequently occurs in practice, for lack of space or other reasons, that the bridge is never revolved or turned completely around, but is simply swung half-way around and then back to position. With this class of bridge the buttons on the weighted cables, as well as the trips for releasing the catch, would be dispensed with and the cables strung in substantially the same manner as that illustrated in Figs. 5 and 6, it being unnecessary to have the cables extend across the face or end of the abutment as the gates are always opened and closed by the same carrier, and with this construction, if desired, the weight on the cable may have sufficient gravity to draw back both the gate and knob where a gate is employed.

A bridge-gate constructed in accordance with my invention embodies numerous advantages over the prior forms of gates, chief among which is the closing of the approach only as the bridge opened it and opening it only as the bridge closes, thus leaving that portion of the approach opposed by any part of the bridge at all times unobstructed, so as to permit the escape of persons from the bridge until it is entirely beyond the approach, but at the same time closing all the rest of the approach not opposed by the bridge.

This bridge-gate is also economical and durable in construction and possesses the maximum degree of efficiency for the reasons above stated, while at the same time avoiding all danger to life or property.

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

1. In a bridge-gate, the combination, with the bridge and the carrier attached thereto, of the gate located at one side of the abutment, the knob suspended therefrom in the path of movement of the carrier, and the releasing-finger located at the opposite side of the abutment in the path of movement of the carrier, substantially as described.

2. In a bridge-gate, the combination, with the bridge and the carrier attached thereto, of the gate located at one side of the abutment, the knob suspended therefrom in the path of movement of the carrier, the releasing-finger located at the opposite side of the abutment, also in the path of movement of

the carrier, and the catch opposing said finger, substantially as described.

3. In a bridge-gate, the combination, with the bridge and the carrier attached thereto, provided with a notch of different diameters along its length, of the gate located at one side of the abutment, the knob provided with an enlarged head of less diameter than the widest portion of the notch in the carrier and suspended from the gate in the path of movement of the carrier, the releasing-finger provided with an inclined working face arranged to enter the notch in the carrier below the knob, and the catch located above said finger and adapted to be elevated by the carrier, substantially as described.

4. In a bridge-gate, the combination, with the bridge, the carrier attached thereto, the gate located at one side of the abutment, and the knob suspended therefrom in the path of movement of the carrier, of the releasing-finger located at the opposite side of the abutment, also in the path of travel of the carrier, the catch opposing said finger, a trip for elevating said catch operated by the bridge, a weighted cable attached to the gate, and a button thereon arranged to be struck by the bridge, so as to retract the gate, substantially as described.

5. In a bridge-gate, the combination, with a draw-bridge, the carrier attached to the corners thereof, but out of line with each other, the gates located at opposite sides of the abutment, and a knob suspended from each gate in the path of movement of the respective carriers, of the releasing-fingers located at the opposite sides of the abutment, also in the path of travel of the respective carriers, a catch opposing each finger, a trip located at each side of the abutment and connected with so as to elevate the respective catches when operated by the bridge, a weighted cable attached to each of said gates and extending across the face of the abutment, and a button on each of said cables at opposite sides of the abutment arranged to be struck by the bridge, so as to retract the respective gates, substantially as described.

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