

(No Model.)

2 Sheets—Sheet 1.

A. LESNA.
BRIDGE GATE.

No. 541,860.

Patented July 2, 1895.

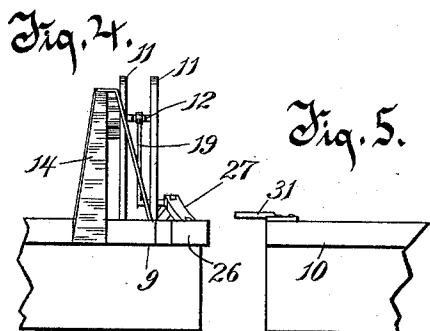
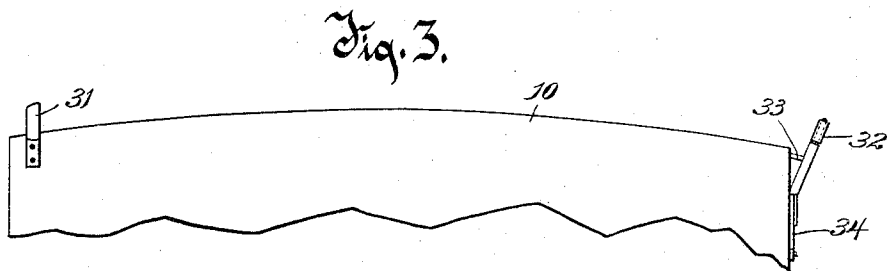
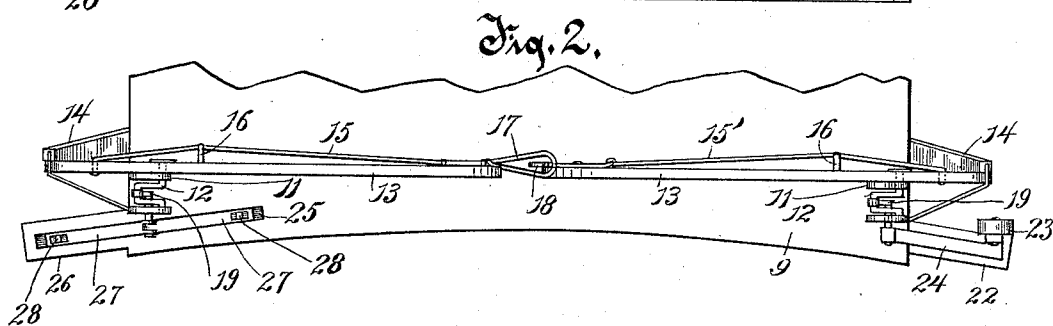
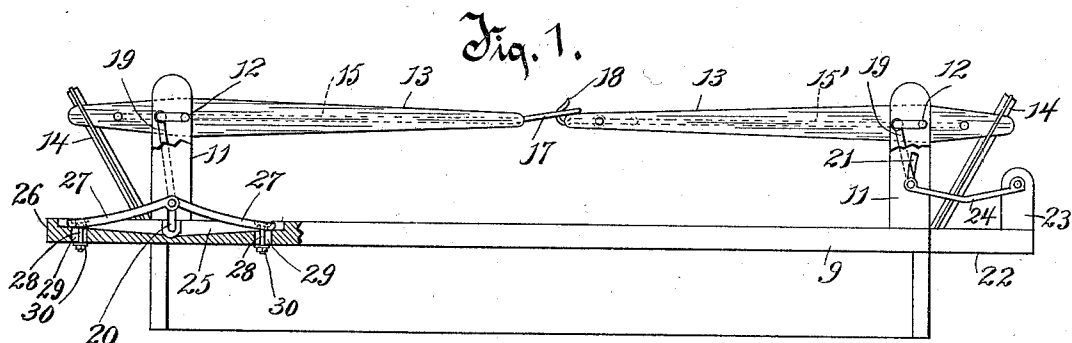


Fig. 5.

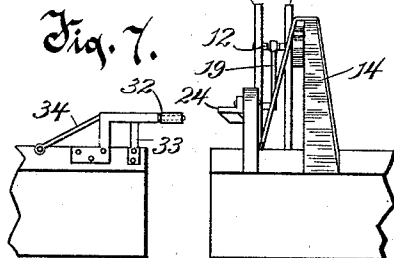
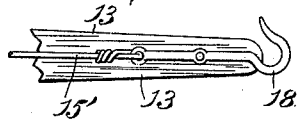


Fig. 7.

Fig. 8.



Witnesses.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 9.

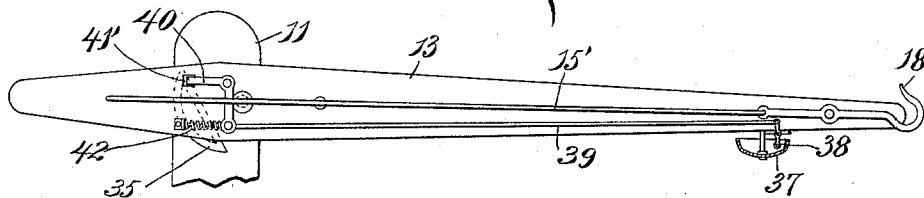


Fig. 10.

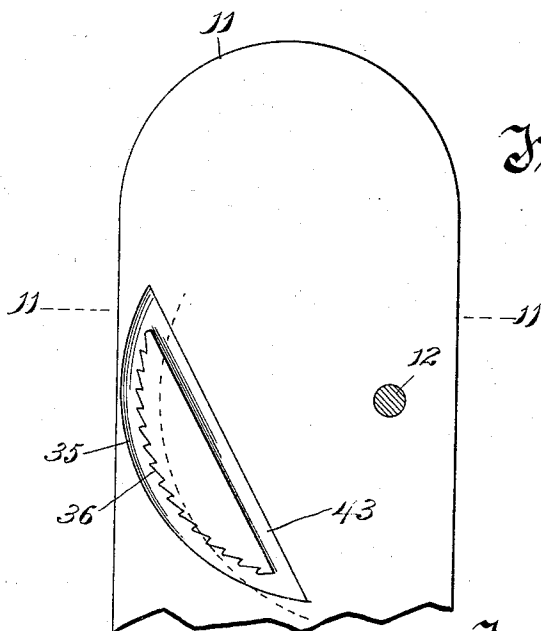
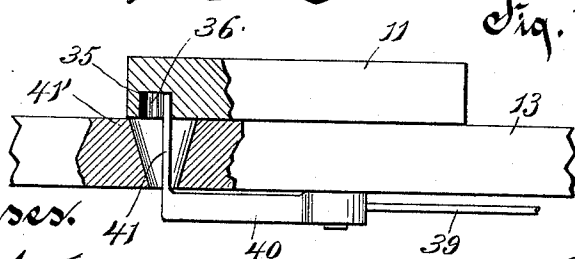


Fig. 11.



Witnesses.

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UNITED STATES PATENT OFFICE.

AL LESNA, OF OCONOMOWOC, WISCONSIN, ASSIGNOR OF ONE-HALF TO
FERDINAND MEYER, OF SAME PLACE.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 541,830, dated July 2, 1895.

Application filed April 9, 1895. Serial No. 545,103. (No model.)

To all whom it may concern:

Be it known that I, AL LESNA, of Oconomowoc, in the county of Waukesha and State of Wisconsin, have invented a new and useful Improvement in Bridge-Gates, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in bridge gates.

One of the objects is to provide a construction in which one of the gate arms in raising is adapted to have a slight initial lead or movement in advance of the other arm, whereby a latch loop on the first-named arm is adapted to engage a hook or catch on the other arm; and, vice versa, when the gate arms descend, the arm carrying the hook or catch is adapted to reach the limit of its down movement slightly in advance of the other arm whereby the loop latch on said other arm is adapted to be engaged over the hook.

A further object contemplated by my invention is the provision of a construction of such character that the bridge gate is successfully and satisfactorily operated by mechanism disposed entirely above the bridge and its abutment.

With the above, and other, objects in view, in which simplicity of construction is an important feature, the invention consists of the devices and parts, or their equivalents, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a front elevation of a bridge abutment, with parts broken away. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a plan view of the end of the bridge. Fig. 4 is a side elevation of a fragment of the end of the bridge abutment. Fig. 5 is a side elevation of a fragment of the end of the bridge which is in alignment with that side of the abutment illustrated in Fig. 4. Fig. 6 is an elevation of the opposite side of a fragment of the bridge abutment to that shown in Fig. 4. Fig. 7 is a side elevation of a fragment of the end of the bridge which is in alignment with that side of the abutment illustrated in Fig. 6. Fig. 8 is a fragmentary detail of the end of one of the gate arms, showing the hook pivoted thereto. Fig. 9 is

an inner face view of one of the gate arms, showing gong mechanism attached thereto. Fig. 10 is a detail elevation of the standard shown in Fig. 9, and Fig. 11 is a horizontal section of Fig. 10, on the line 11—11, when the gate-bar 13, and the bell-crank lever are properly arranged adjacent to the standard 11.

Like numerals of reference denote like parts throughout the several views.

Referring to the drawings, the numeral 9 indicates a bridge abutment and 10 the bridge. Projecting upwardly from the abutment, at opposite sides, are sets of standards 11, 11, in the upper ends of which are journaled crank-shafts 12, 12. One end of each of these crank-shafts passes through the innermost standard of a set. These extended ends are connected rigidly to gate arms 13, 13, so as to turn said gate arms therewith. The outer ends of the gate arms extend beyond the sides of the abutment and pass between guides 14, 14.

The numerals 15, 15' indicate wire cables, which run longitudinally with the inner sides of the gate arms, and are secured at their outer ends to said gate arms. At points intermediate their extremities they are forced out laterally by screws or bolts 16, 16 projecting from the gate arms. Cable 15 terminates in a loop 17, which projects beyond the end of the bridge arm, while the end of cable 15' is coupled to the end of a medially pivoted hook 18. Between the respective sets of standards are arranged links 19, 19. The upper end of each link is connected to a crank shaft 12, while the lower end is bent at right angles. The angularly bent end of the link shown at the left hand of Fig. 1 is passed through an elongated slot 20 in the standard, while the angularly bent end of the link shown at the right of Fig. 1 is passed through an elongated curved slot 21.

Extending upwardly from a lateral projection 22 at the right hand side of the bridge abutment is a lug 23. The outer end of a doubly inclined cam surface 24 is secured to this lug, while the inner end of said cam surface is secured to the end of the right angular extension of the link 19.

The bridge abutment has formed therein, at its left hand side, near the outer front edge,

an elongated recess 25, said recess being prolonged or extended into a lateral projection 26. Bars 27, 27 fit in this recess. These bars are hinged together and the hinged joint is
 5 connected to the angularly bent end of the link 19. Pins or bolts 28, 28 depend from the outer ends of the bars and pass through elongated slots 29, 29. The lower ends of these pins or bolts receive thereon nuts 30 30, where-
 10 by any possibility of said pins or bolts being accidentally withdrawn from the slots is avoided.

Secured to the top of the bridge, at the left hand side thereof, and projecting beyond the
 15 edge of said bridge, is a contact arm 31. An arm 32 is secured to, and extends obliquely from, the right hand side of the bridge, the arm being braced and securely held by means of braces 33 and 34.

It will be seen from the drawings that each bar 27 is somewhat longer than the respective
 20 inclines of the doubly inclined cam surface. In consequence of this, in swinging the bridge in either direction from an open to a closed
 25 position, the arm 31, as the bridge approaches the closed position, contacts with one or the other of the bars 27, in accordance with the direction of the swing of the bridge, before
 30 the arm 32 comes into play. The bars, therefore, are depressed, and through their connection with the link 19 cause a turning of the left hand crank shaft, and a consequent slight upward
 35 turning of the left hand gate arm. By this construction, therefore, the left hand gate arm is turned sufficiently to unhook the loop
 40 17, before any turning whatever is imparted to the right hand gate arm. The moment the contact 32 reaches the doubly inclined cam surface 24, then the right hand gate is also
 45 turned by its crank shaft, owing to the upward movement of the inner end of said cam. When the bridge is completely closed the contact arm 31 will have reached the hinge joint
 50 of the bars 27, while the contact arm 32 will have reached the apex of the doubly inclined cam surface. In this position of the contact
 55 arms, the gate arms are raised to the limit of their movement, and are held in this position, so long as the bridge remains closed. If, now,
 60 it is desired to open the bridge, as it swings around in either direction, the contact arm 31 passes down one of the bars 27, allowing the two bars to rise upwardly at their hinge joint,
 65 while the contact arm 32 leaves the apex of the doubly inclined cam surface, permitting the inner end of said surface to descend, and thereby through its link 19 and crank shaft
 12 causing the descent of the right hand gate arm. As the length of the incline of this
 cam is less than the length of the bar 27, the contact arms 32 will leave the incline of the
 cam before the contact arm 31 has ceased to act upon the bar 27, consequently permitting
 the right hand gate arm to reach the limit of
 its down movement slightly in advance of

the left hand gate arm, thereby permitting the loop 19 to readily engage over the hook 18.

The cables 15, 15', are provided for the purpose of relieving the gate arms of strain; and
 70 effectually preventing said arms breaking, in case a street car, or other heavy vehicle, travels close enough to strike against the gate. As will be observed the cables are held out laterally from the arms by means of
 75 the screws or projections 16, 16, so that these cables will directly receive the impact.

The invention not only possesses the advantage of being simple in construction and effective in operation, but furthermore as all
 80 the operative parts are arranged above and on the top of the bridge abutment, and on the top of the bridge, respectively, the device is thereby adaptable for any form of draw-
 85 bridge, and at the same time the parts are always readily accessible so that repairs can be made and damaged parts replaced.

On Sheet 2 of the drawings is represented improved gong mechanism, adapted for sounding
 90 an alarm during the time the gate arms are in the act of closing. To obtain this result, I have shown one of the standards 11 as provided with a curved recess 35, the bottom
 95 edge of said recess being provided with a series of notches 36. To the under edge of the gate arm 13, is secured a gong 37, while to the face of said arm is pivoted medially a hammer
 100 38. The upper end of this hammer is connected to a rod 39 extending part of the longitudinal distance of the gate arm. Its outer end is connected to the end of one arm of a
 105 pivoted bell-crank lever 40. The other arm of said bell-crank lever is provided with spring extension 41 at right angles thereto, said extension passing through a slot 41' in
 110 the gate arm, and adapted to ride in the curved recess 35. One end of a spring 42 is attached to the downwardly-extending member of the bell-crank, and the other end of
 115 said spring is attached to the gate arm. The opposite ends of the curved recess 35 join the ends of a straight obliquely arranged connecting recess 43. When the gate arms are
 120 descending, the arm to which the gong mechanism is attached will of course carry extension 41 upwardly in the curved recess, and as said extension is jumped from one notch
 125 36 to another, the bell-crank lever is turned upon its pivot, which of course has the effect of exerting a pull on rod 39, which rod thereby actuates the hammer and sounds the gong
 130 intermittently during the descent of the gate arm. When the extension 41 reaches the upper end of the curved recess, the gate arm will have reached the limit of its travel, and the gate, therefore, will be completely closed.
 Now, when the gate arms are again opened up, the extension 41 passes into the straight
 recess 43, and travels therein back to the starting point of the curved recess, so that
 on the opening of the gate arms the gong is

not sounded. It is, of course, obvious that if desired, both gate arms may be provided with this gong mechanism. In practice, however, the arrangement shown in the drawings will be sufficient.

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

1. The combination, of a movable contacting part, pivoted gate arms, one carrying a hook or catch, and the other an engaging loop, devices attached to the gate arms and adapted when operated to cause the turning of said arms upon their pivots, mechanism connected to said devices, and adapted, when acted upon in one way by the movable contacting part, to cause, through said devices, the down turning of the gate arms in such manner that the arm carrying the hook or catch will reach the limit of its down movement in advance of the other arm, and, when said mechanism is acted upon by the movable part in an opposite way, to cause the upturning of the gate arms, the initial movement of the gate arm carrying the engaging loop occurring slightly in advance of the initial movement of the arm carrying the hook or catch, substantially as set forth.

2. The combination, with swinging gate arms, of cables secured thereto, one of said cables provided at its inner end with a hook or catch, and the other with an engaging loop, substantially as set forth.

3. The combination, of swinging gate arms, hinged bars, a connection between said hinged bars and one of the gate arms, a doubly inclined cam surface, a connection between one end of this cam and the other gate arm, and means for operating, one in advance of the other, said hinged bars and the doubly inclined cam surface, substantially as set forth.

4. The combination, of swinging gate arms, hinged bars, a connection between said hinged

bars and one of the gate arms, a doubly inclined cam surface, each incline thereof being of less length than the respective hinged bars, a connection between one end of this cam surface and the other gate arm, and a movable part carrying contacts adapted, respectively, to engage the hinged bars and the doubly inclined cam surface, substantially as set forth.

5. The combination, of crank shafts, gate bars mounted thereon, an abutment, hinged bars on said abutment, a link connecting said bars with the crank shaft of one of the gate arms, a doubly inclined cam surface, a link connecting this cam with the crank shaft of the other gate arm, and a swinging bridge carrying contacts adapted, respectively, to engage the hinged bars and the doubly inclined cam surface, substantially as set forth.

6. The combination of standards, one of the standards having a curved recess with a notched edge, the ends of said curved recess connected by a straight recess, gate-arms pivoted to the standards, a spring-controlled bell-crank lever pivoted to a gate arm, one of the members of said bell-crank lever provided with an extension fitting the curved recess, a rod connected to the end of the other member of the bell-crank lever, a pivoted hammer having its upper end connected to the inner end of the rod, and a gong adapted to be acted upon by the free end of the hammer, as the gate arm descends and the extension is jumped from one notch to another, substantially as set forth.

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

AL LESNA.

Witnesses:

ARTHUR L. MORSELL,
ANNA V. FAUST.