

(No Model.)

2 Sheets—Sheet 1.

C. EICKHORST & J. IDSTEIN.
BRIDGE GATE.

No. 466,401.

Patented Jan. 5, 1892.

Fig. 2.

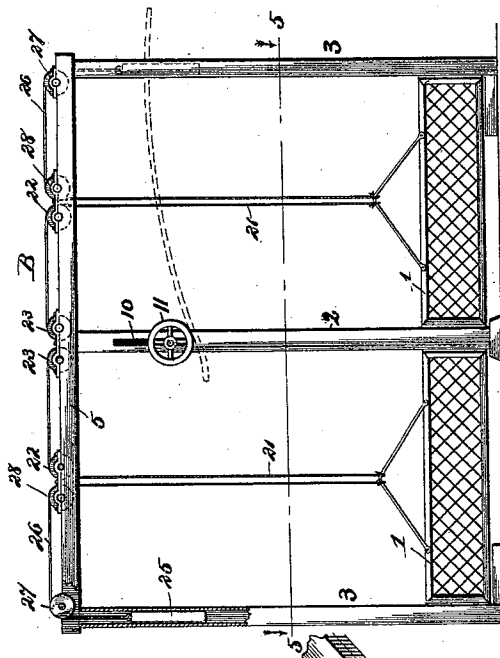
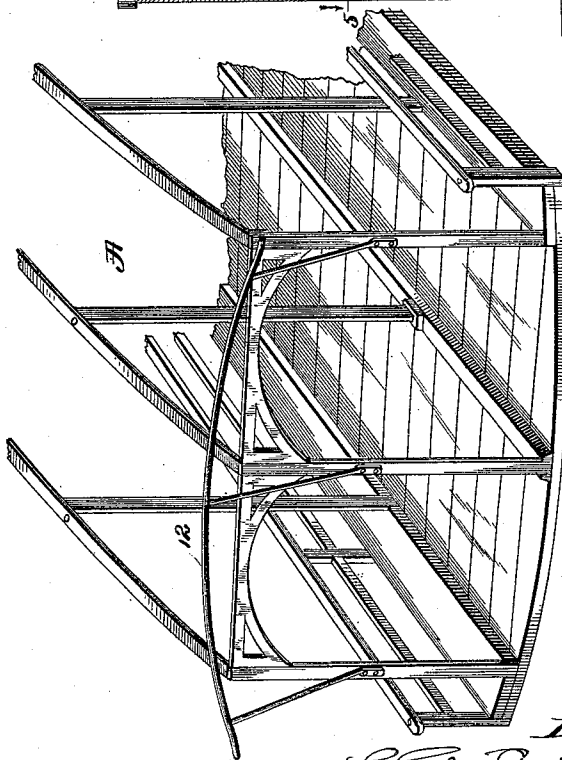


Fig 1



Witnesses:
 Wm. M. Rheem.
 J. M. J. J.

Inventors
Charles Beekman
and Joseph Odell
By Joseph Kennedy *Attys*

(No Model.)

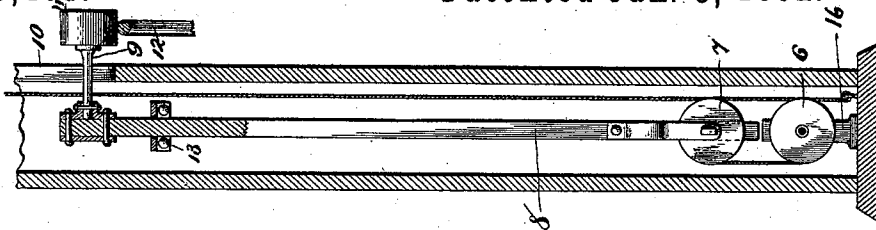
2 Sheets—Sheet 2.

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Fig. 6.



Figs.

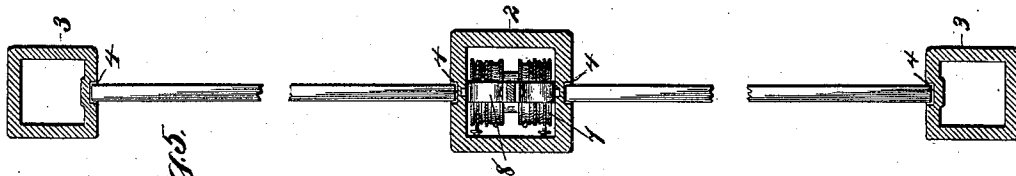


Fig. 4.

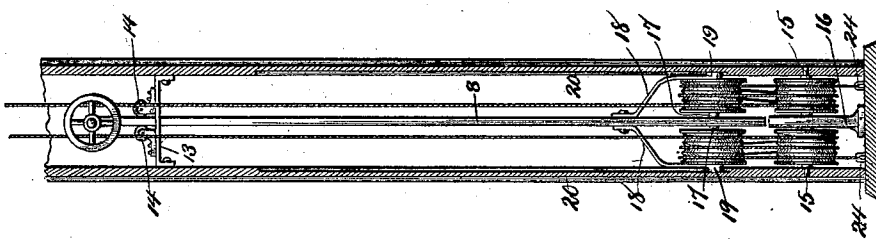
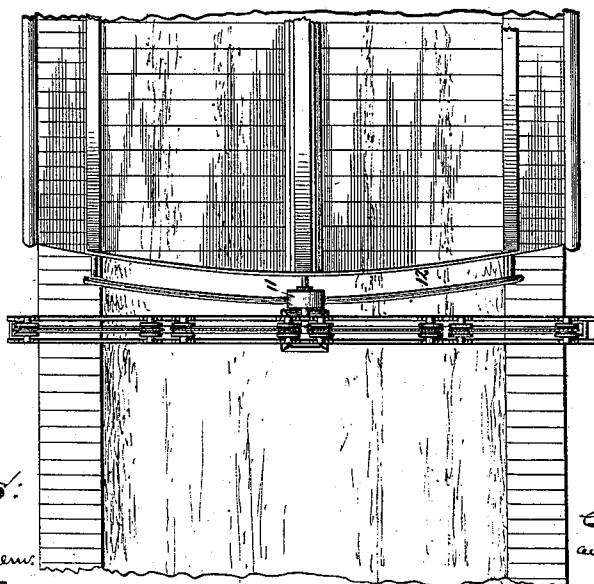


Fig. 3.



witnesses:

Wm. M. Rheum

Wm. H. H.

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By *Loth. Kennedy* *Attys*

UNITED STATES PATENT OFFICE.

CHARLES EICKHORST AND JOSEPH IDSTEIN, OF CHICAGO, ILLINOIS.

BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 466,401, dated January 5, 1892.

Application filed April 6, 1891. Serial No. 387,736. (No model.)

To all whom it may concern:

Be it known that we, CHARLES EICKHORST and JOSEPH IDSTEIN, citizens of the United States of America, residing at 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, reference being had therein to the accompanying drawings.

This invention relates to a novel construction in automatically operating bridge-gates, the object being to provide a device of this character of simple and durable construction.

The invention consists in the features of construction and combinations of parts hereinafter fully described, and specifically pointed out in the appended claims.

In the accompanying drawings, illustrating our invention, Figure 1 is a perspective view of the end portion of the bridge constructed in accordance with our invention. Fig. 2 is an end elevation of the abutment. Fig. 3 is a plan view of the end portions of the bridge and abutment. Fig. 4 is an end elevation of the devices for operating the gates. Fig. 5 is a cross-section on line 5 5 of Fig. 2; and Fig. 6 is a side elevation of the devices shown in Fig. 4, partly in section.

Referring to said drawings, A indicates as a whole the swinging or pivoted bridge, and B the abutment. In the particular construction herein shown the bridge is provided with a double roadway, and the abutment is provided with two gates 1 for said roadways. The abutment is provided with a central hollow post 2 and two side hollow posts 3. The said posts 2 and 3 are provided with upright guideways 4 on their adjacent sides, and the gates 1 have their end portions located within said guideways and slide thereon. A cross-support 5 is secured to the upper ends of said posts 2 and 3.

The devices for operating the gates are located within the hollow central post 2 and comprise, broadly, a block-and-tackle mechanism having a stationary member 6 and a movable member 7. A rope or cable is trained around the pulleys of these members and is connected with the gate, so that when the movable member is operated the gate will be raised or lowered.

The particular devices for operating the

movable member 7 comprise an upright bar 8, located within the post 2 and carrying said movable member 7 at its lower end. An arm or projection 9, secured to the upper end portion of the bar 8, projects through an upright slot 10 in the side of the front post next to the bridge and is provided at its end with a friction-roller 11. This friction-roller is located in position to be engaged by a cam 12, secured to the end of the bridge A. The said cam 12 has its highest part located at the center of the end portion of the bridge, and from said highest part the cam curves gradually downward. It will be understood that when the bar 8 is elevated the gates are opened or elevated, and vice versa, so that when the end of the bridge arrives opposite the abutment the said cam has lifted the bar to the upward limit of its movement, and, further, that when the bridge swings in either direction the cam will allow the bar to descend, and thereby close the gates. The said bar 8 passes through a guide-aperture in a plate 13, secured within the post 2 and located near the upper end of said bar. Guide and friction rollers 14 are supported in bearings upon said plate and are located to bear against the said bar 8.

The particular construction of the block-and-tackle mechanism and its connection with the gates is as follows: It will be understood the mechanism for operating each of said gates is the same, and that my invention could be applied to a bridge having a single gate by suitable modifications. The pulleys 6 of the lower or stationary member are supported upon suitable shafts 15, bearing in the sides of the post, and in a standard 16, secured to the bottom of the post and located centrally therein. The pulleys 7 are supported upon shafts 17, which are supported at their inner ends in bearings in the lower end portion of the bar 8. Arms 18 project downwardly from opposite sides of the bar 8 and are provided with suitable bearings for the outer ends of the shafts 17. The lower ends of said arms are provided with guides 19, which are located within upright guideways 20 in the sides of the post, thereby serving to steady and control the movement of the lower end of the bar and the pulleys 7. The cables or ropes 21 are secured to the upper edges of the gates 1 and extend upwardly and over sheaves 22 and 23

on the cross-support 5 and then down through the post and trained around the pulleys 6 and 7, and are then secured to a stationary part, preferably the bottom of the post, by means of the eyes 24.

The operation is as follows: The weight of the gates is sufficient to pull the pulleys together, as shown in Figs. 4 and 6, so that when the cam does not engage the friction-roller 11 the gates will fall and close the roadway. When, however, the cam lifts the friction-roller bar and pulleys 7, the cable will be drawn in and will lift the gates. It is obvious that by use of the block-and-tackle mechanism the vertical movement of the pulleys 7 is multiplied, and the cable 21 will elevate the gates to the desired height. Counterbalance-weights 25 are located within the side posts 3 and are connected with the gates by cables 20 26, passing over sheaves 27 and 28 upon the said cross-support 5.

We claim as our invention—

1. The combination, substantially as hereinbefore set forth, of a bridge having a cam, a gate, a cable secured at one end to said gate and at its other end to a stationary support and trained around movable and stationary pulleys, and a projection secured to and mov-

ing with said movable pulleys and located in the path of said cam.

2. The combination, substantially as hereinbefore set forth, of a bridge having a cam, a gate, a cable secured at one end to said gate and at its other end to a stationary support and trained around movable and stationary pulleys, and a bar secured to and moving with said movable pulleys and having a projection located in the path of said cam, said bar being located between guide-rollers 14.

3. The combination, substantially as hereinbefore set forth, of a bridge having a cam, a gate, a cable secured at one end to said gate and at its other end to a stationary support and trained around movable and stationary pulleys, said movable pulleys being supported in bearings in a bar, and arms 18, projecting from said bar, guide 19 on said arms engaging guideways 20, and a projection on said bar located in the path of said cam.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES EICKHORST.
JOSEPH IDSTEIN.

Witnesses:

WILLIAM H. LOTZ,
HARRY C. KENNEDY.