



# UNITED STATES PATENT OFFICE.

THOMAS JOSEPH O'BRIEN AND EDGAR JULE WILSON, OF CHICAGO, ILLINOIS.

## BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 530,348, dated December 4, 1894.

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*To all whom it may concern:*

Be it known that we, THOMAS JOSEPH O'BRIEN and EDGAR JULE WILSON, both of the city of Chicago, Cook county, Illinois, have jointly invented certain new and useful Improvements in Automatic Gates for Swing-Bridges, as described in the following specification.

The object of this invention is to provide for swing bridges automatic gates which shall close when the bridge is opened and open when the bridge is closed and which may also be operated by the man in charge of bridge at any convenient place thereon.

Figure 1 of drawings is a general view of device as attached to bridge. Fig. 2 is a view from top with carriage removed showing jointed cam rails and slide. Fig. 3 is a vertical elevation showing rails with carriage and manner of supporting same. Fig. 4 is a top view and Fig 5 an end view of rail.

The same parts in the different drawings are designated by similar letters.

The following is a full description of the accompanying drawings.

Four swinging gates are placed two at each approach whose arms meet closing the roadway and having short arms working in an opposite direction closing the sidewalk. The short arms are not shown as they may be attached and moved by means in common use on swinging gates.

One gate only is shown as all are alike.

The device is shown as adapted to an iron street bridge.

The swinging arm A is supported by a box placed at side of roadway. This arm is carried by a shaft having a crank B connected by rod D to bell crank C below the street. The other arm of bell crank C is connected by rod E to slide F under end of bridge. Slide F moves in ways in block M secured upon the abutment. Slide F carries two rolls G, G, between which moves a cam rail suspended under end of bridge.

The cam rail H, H, as shown in Figs. 2 and 3 consists of two parts connected by a knuckle joint and is supported at each end by brackets I, I, secured to inner face of end beam of bridge in each of which is fixed a pin passing

through a slot in head of rail. The center of rail H H is supported by pin T passing through knuckle joint and fixed in a carriage J having a slot through which passes a pin carrying roll L. This pin is secured in a pair of brackets K, K, attached to inner face of end beam of bridge. Brackets K, K, are a sufficient distance apart to allow carriage J to pass freely between them, thus allowing it to have a reciprocating motion, carrying with it center of jointed rail H H.

Carriage J is connected by rods N and P and lever O to shifting lever Q upon the floor of bridge. Shifting lever Q is locked by a pawl entering notches in frame and released by a latch. A toothed segment R on pin of lever Q engages segment S on shaft not shown, extending across the bridge. A crank on this shaft is connected to a similar system of rods and lever as that shown, thus connecting lever Q to device at opposite end of bridge. This lever and connections operate the gates at right hand side of roadway. It is intended to use a similar device to operate the gates at left hand side of roadway.

The parts forming the connection between the bridge and abutment in the gates at right hand side, being placed in a different plane with respect to the line of motion as the bridge is turned, from those of gates at left hand side will avoid any interference between them, in whatever direction the bridge may be turned.

In its normal position the rail H H forms a V cam. When bridge is closed the rolls G, G, are at center thus holding slide at outer end of stroke holding the gate securely open. As the bridge is turned in either direction the slide is moved to inner end of stroke turning arm of gate one quarter revolution to closed position. When bridge is again closed the operation is reversed opening the gate. Throwing the shifting lever forward will move the center of rail forcing slide to inner end of stroke closing the gate. In this position the rail will move freely from between the rolls as bridge is turned. While bridge is open throwing the lever back will return rail to its original position thus making the device again automatic.

As the resistance of the gate will tend to

move the jointed rail when in action, it is intended that the connections shall be sufficiently rigid that locking the shifting lever will hold it securely in position.

5 Upon bridges having power the shifting rods may be moved by steam or hydraulic power or other well known means as may be desired.

We claim as an invention in the foregoing—

10 1. The combination of the cam rails H, H, connected by a knuckle joint, forming a cam whose angle may be changed, working between the rolls G, G, upon slide F opening and

closing the gate A by means of cranks B and C and connecting rods D and E.

15 2. The combination of the carriage J connected with the jointed cam rails H, H, by pin T and having a reciprocating motion operating to change the angle of the rails thus opening and closing the gate A.

THOMAS JOSEPH O'BRIEN.  
EDGAR JULE WILSON.

Witnesses:

A. J. OLIVER,  
W. H. OLIVER.