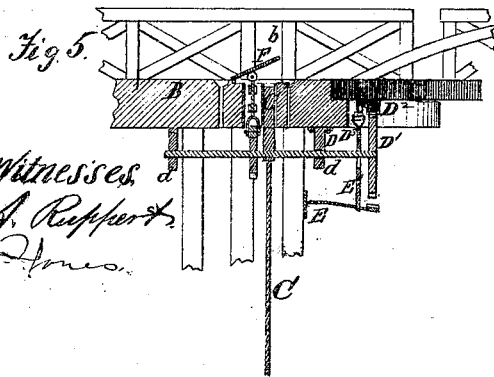
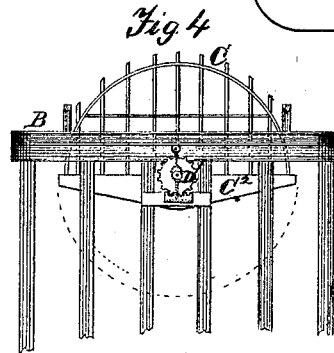
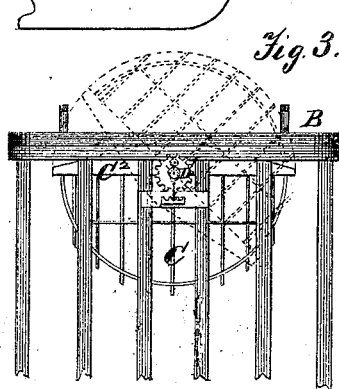
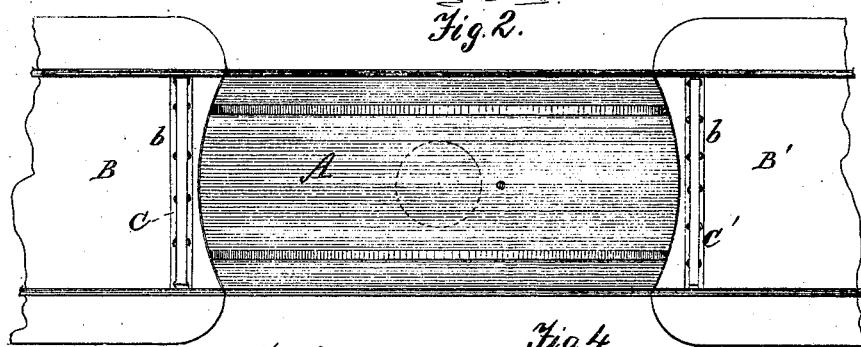
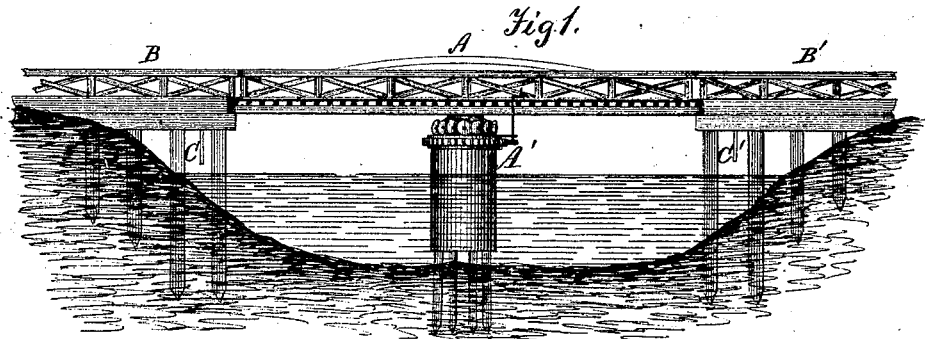


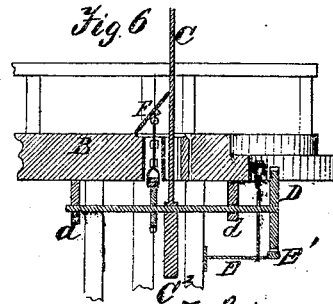
# F. Fairan, Draw Bridge.

No. 113,910.

Patented Apr. 18, 1871.



Witnesses  
A. Reppert  
James



F. Fairan  
Inventor  
D. T. Holloway & Co.

*F. Pairan.*

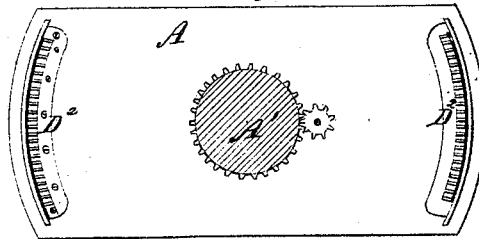
*2 Sheets, Sheet 2.*

*Draw Bridge.*

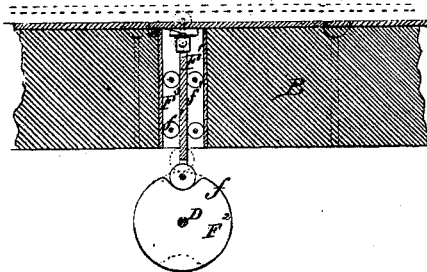
*No. 113,916.*

*Patented Apr. 18, 1871.*

*Fig. 7*



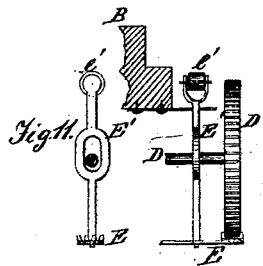
*Fig. 8*



*Fig. 9*



*Fig. 10*



*Witnesses:*  
*A. Ruppert.*  
*D. Jones.*

*F. Pairan*  
*Inventor.*  
*D. P. Holloway & Co.*  
*Attys.*

# UNITED STATES PATENT OFFICE.

FERDINAND PAIRAN, OF DAYTON, OHIO, ASSIGNOR TO HIMSELF AND HENRY MYER, OF SAME PLACE.

## IMPROVEMENT IN GATES FOR DRAW-BRIDGES.

Specification forming part of Letters Patent No. 113,916, dated April 18, 1871.

*To all whom it may concern:*

Be it known that I, FERDINAND PAIRAN, of Dayton, in the county of Montgomery and State of Ohio, have invented a certain Improvement in Gates for Draw - Bridges; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a side view of the draw-bridge and piers or abutments, forming a continuous roadway. Fig. 2 is a plan view thereof. Fig. 3 is an end view of one of the piers, showing the position of the gate when the draw is closed. Fig. 4 is an end view of the piers, with the gate turned up across the roadway, the position it occupies when the draw is open. Figs. 5 and 6 are sections of the end of the piers abutting against the draw-bridge. Fig. 7 is a bottom view of the draw. Fig. 8 is a transverse section of one of the piers, to show the manner of operating the cover which closes the opening for the gate. Figs. 9, 10, and 11 are views of detached parts, to be hereinafter referred to.

The same letters are used in all the figures in the designation of identical parts.

This invention relates to that class of draw-bridges which, in opening and closing them automatically, operate gates arranged on the permanent spans of the bridge or piers, with which the draw forms a continuous roadway when it is closed.

My improvement consists in the details of construction and arrangement to be generally explained in the following description, and specifically pointed out in the claims.

A in the annexed drawing represents the draw-bridge, turning upon a central pier, A', in the ordinary manner; and B B' are the piers or permanent spans of the bridge, abutting against the ends of the draw when it is closed, and made of segmental form at their terminations to correspond with that of the ends of the draw. A short distance from the outer end of each span or pier a transverse narrow opening, b, is formed, extending entirely across the roadway, through which the gates C C' operate. As these gates are precisely alike and are operated by similar mechanisms, I shall confine myself to describing one of them only and the parts necessary for its operation.

The gate C is semicircular in form, and secured at the center of the straight bar C<sup>2</sup> upon a horizontal shaft, D, which is arranged lengthwise under the pier B, having its bearings in suitable hangers *d d*, suspended therefrom.

The outer overhung end of the shaft D extends under the draw and carries a spur-wheel, D<sup>1</sup>, which meshes into and is driven by a segmental rack, D<sup>2</sup>, fastened upon the under side of the draw, as best seen in Fig. 7. The arrangement of the gate on the shaft with reference to this toothed rack is such that when the draw is closed the gate will be wholly below the surface of the span or pier to which it is attached. As soon as the draw begins to move in opening it the gate will be revolved, making a half-revolution, so as to bring its principal portion above the pier and spanning the roadway, as shown in Fig. 4, before the end of the draw is entirely separated from the pier.

The toothed rack on the draw is made of the required length to just give this half-turn to the gate, and then leave the wheel D<sup>1</sup> stationary, in which position the latter is firmly held by a spring-pawl, E, permanently secured at one end to a fixed part of the pier, and terminating at the other end in a toothed head for engaging with the teeth of the wheel D<sup>1</sup>.

The rack D<sup>2</sup> is provided with a rail, D<sup>3</sup>, upon its outer or convex side, the under surface of which is beveled off at the ends, and which rides on and depresses a vertical bar, E', just before the rack engages the wheel D<sup>1</sup>. The foot of this bar, resting or bearing upon the spring-pawl E, will disengage the latter from the wheel D<sup>1</sup>. This bar is guided in a plate, e, and the shaft D passing through a loop formed in it, as shown in Figs. 10 and 11, and in its upper forked end it carries a roller, e', to reduce the friction between it and the rail.

F represents a plate or board arranged over the opening b in the pier, and hinged thereto at one edge. It is thrown up simultaneously with revolving the gate to bar the roadway by means of a vertical bar, F<sup>1</sup>, carrying a friction-roller at each end, one of which comes in contact with an incline on the under side of the board, and the other with a cam, F<sup>2</sup>, fastened on the shaft D. The moment the gate

is entirely below the pier this bar falls into the depression *f* of the cam, to permit the board to fall by its own gravity.

The bar  $F^1$  may slide between friction-rollers  $f' f'$ , arranged in a box,  $F^3$ , in the pier, as clearly shown in Figs. 8 and 9.

Along each side of the board or plate  $F$  a gutter,  $G$ , is formed in the flooring of the pier, to drain off the rain-water and prevent it from dripping upon the operative parts of the gate. This board, protecting the gate from being damaged by passing vehicles, may be provided with springs at the ends to insure its closing over the gate as soon as the latter is lowered. The gate should be nicely balanced by weighting the bar  $C^2$  in the proper manner.

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

1. The combination of the gate  $C$ , revolving in a vertical plane, and draw-bridge  $A$ , substantially as set forth.

2. The combination of the revolving gate  $C$ , hung upon a horizontal shaft,  $D$ , gear-wheel  $D^1$ , and toothed rack  $D^2$  of the draw-bridge  $A$ , substantially as set forth.

3. In combination with the elements enumerated in the preceding claim, the rail  $D^3$ , slide-bar  $E'$ , and spring-pawl  $E$ , arranged to operate substantially as set forth.

4. In combination with the gate  $C$ , the protecting-cover  $F$ , substantially as set forth.

5. The combination of the cover  $F$ , slide-bar  $F^1$ , and revolving cam  $F^2$ , arranged to operate substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FERDINAND PAIRAN.

Witnesses:

D. P. HOLLOWAY,  
B. EDWD. J. EILS.