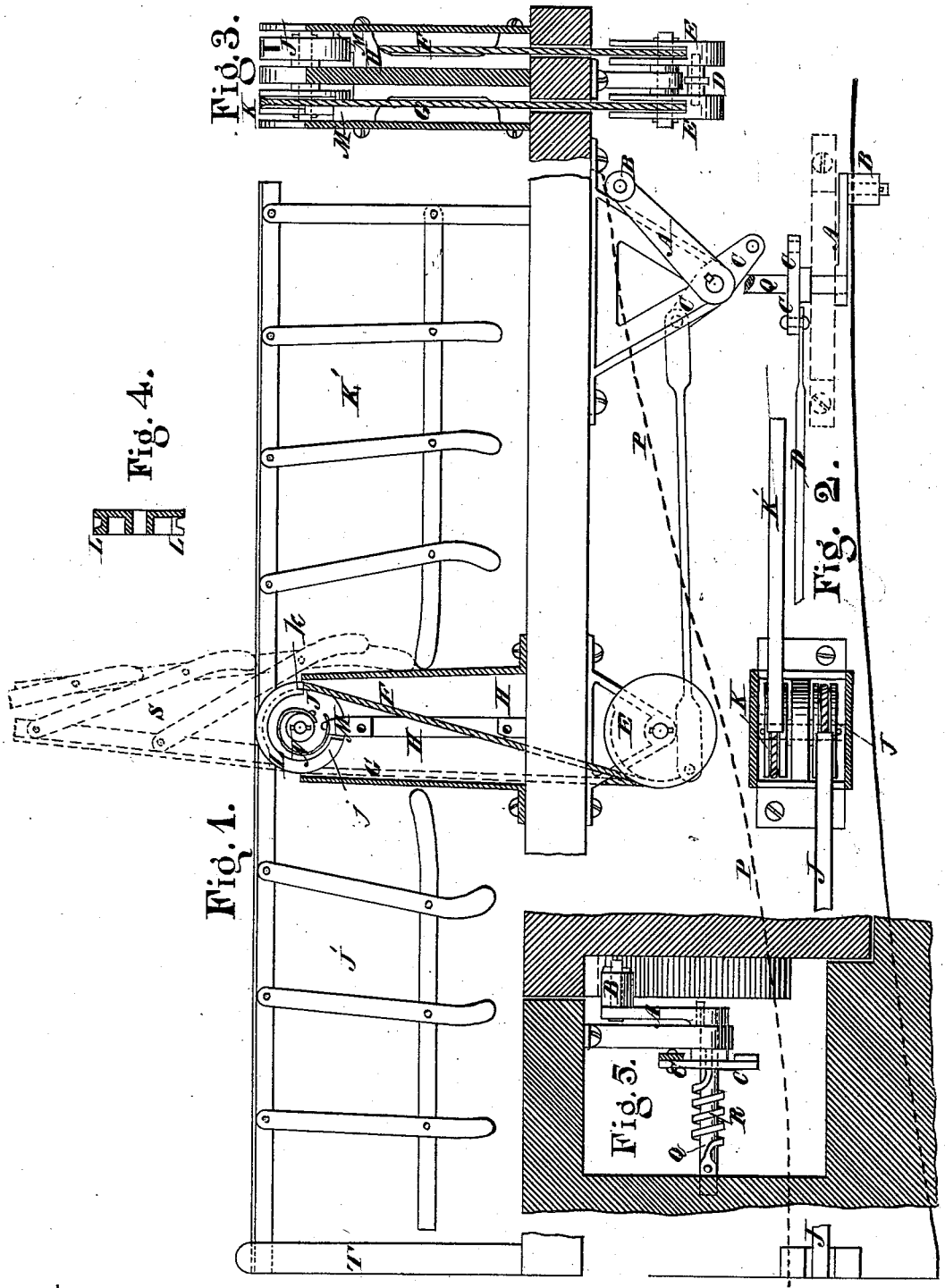
P. B. WIGHT.

Draw-Bridge Gate.

No. 201,316. Patented March 12, 1878.




WITNESSES

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# UNITED STATES PATENT OFFICE.

PETER B. WIGHT, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO HARVEY B. MERRELL, OF MORRISTOWN, NEW JERSEY.

## IMPROVEMENT IN DRAW-BRIDGE GATES.

Specification forming part of Letters Patent No. **201,316**, dated March 12, 1878; application filed January 9, 1878.

*To all whom it may concern:*

Be it known that I, PETER B. WIGHT, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Draw-Bridge Gates; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which they appertain to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a front elevation, showing the closed gates on one-half of the abutment, as seen from the bridge. Fig. 2 is a ground plan of one-half of the abutment. Fig. 3 is a section and elevation, showing the post supporting the gates and the pulleys beneath it. Fig. 4 is a vertical section of one of the wheels to which the gates are attached. Fig. 5 is a section in the direction of the roadway, taken through the abutment near its center, showing the crank, shaft, and spring used in communicating motion to the gates.

The object of this invention is to provide automatic gates on the abutments of draw-bridges, which shall be operated by the movement of the bridge, so that when the bridge is in line with the road, and open to traffic, the gates shall be opened, and shall be closed when the bridge is swung away from the abutments on its pivoted center. The bridge can move either way, and may be partially opened and closed again without disarranging the machinery. The gates will always be fully opened when the center of the bridge is nearly in line with the center of the roadway, and only at such times.

The motive power used in operating the gates is an inclined plane or cam, P, attached to the ends of the bridge. It is two-sided, sloping down from both sides of the bridge toward the center, where it is lower than at the ends. This is shown in dotted lines in Fig. 1, and the position at which it is shown is such as it has when the bridge is half its width over the abutment, and the cam has just come in contact with the friction-roller B on the end of the lever A, which is firmly attached to the shaft Q, as clearly shown in Fig. 2. A double crank, C, is also attached to the shaft Q, as shown in Figs. 1, 2, and 5, but loosely, so that it can play around it slightly. Attached to the crank C is a stiff coiled spring, R, which passes around the shaft several times, and is attached to it at its farther extremity, as shown in Fig. 5. The lever A is crowded down by the inclined plane passing over the friction-roller B, causing the shaft Q to revolve and carry with it the spring R and the loose double crank C, but in such a manner that when the crank C has moved far enough to do its work in opening the gates the action of the cam may carry down the crank A farther than would be necessary to operate the gates. Such a contingency may occur if the bridge vibrates; and to obviate it, it is intended that the cam shall always force the lever A down farther than is necessary for operating the gates. The spring should therefore be stiff enough to elevate the gates.

To the two ends of the double crank C are attached connecting-rods D, one for each side of the bridge. The connecting-rod shown in the drawings operates two gates on one side of the abutment, one crossing half of the roadway, and the other the footway. The rod is attached to a pivot between two pulleys, E, as shown in Fig. 3. These pulleys are immediately under the posts which carry the gates, as shown in Figs. 1 and 3. To the perimeters of the pulleys E are attached chain cables F and G, which are drawn downward by the revolution of the pulleys, as shown in Fig. 3. These chain-cables pass up through the abutment and over two pulleys, J and K, pivoted to a post, H, as shown in the same figure. The cable F is attached to the perimeter of the pulley J and lifts the gate J′, which is attached to the pulley J. The cable G is attached to the perimeter of the pulley K and lifts the gate K′, which is attached to the pulley K.

The gates are made with loose joints, so that when the top rails are lifted they assume nearly a straight line, stand erect, and pass each other, so as to occupy as little space as possible. The position of the gate K′ when raised is shown in dotted lines at S, Fig. 1. The gates counterbalance each other, so that no strain is

exerted on the post when they are raised, except that of the cables, which is downward.

The pulleys J and K are made flat on one side and hollow on the other, having raised rims L to hold the cables and gates, as seen in section in Fig. 4. These raised rims L are cut out for a distance of a little more than a quarter of a circle, as shown in Fig. 1. Attached to the post H are lugs M, as shown in Figs. 1 and 3. As the wheels J and K play around their axes they are arrested by the lugs M, which stand in the portions of the pulleys which have been cut out, and regulate the motion of the gates as they are thrown up and down. Within the recessed sides of the pulleys J and K are springs N, attached at one end to the top of the lug M, and at the other to the central hub of the pulleys J and K. One of these springs N is clearly shown in Fig. 1. The object of these springs is to throw the gates downward from a vertical position, and keep a constant strain on the cables F and G, and thus cause the crank-arm A to rise as the inclined plane attached to the under side of the bridge passes away from the friction-roller B by the movement of the bridge in opening. Thus it will be seen that the movement of the inclined plane in closing the bridge opens the gates by its pressure on the crank-arm, and closes them as it releases the crank, which always has a tendency, through the action of the spring and the weight of the gates exerted through the connecting machinery, to resume its normal position. The loose end of the upper rail of the gate, when the gate is down, rests in the upper end of a post, T, as shown in Fig. 1.

Having thus described my invention, what I claim is—

1. In automatic gates for draw-bridges, the combination of the inclined plane or cam P on the bridge with the lever A, shaft Q, crank C, spring R, rod D, pulley E, cable F, pulley J, and gate J′, arranged, as described, upon the abutment, for operating the gate J′ automatically, as set forth.

2. In combination with the devices for operating the gate J′, the cable G, pulley K, and gate K′, for operating the latter automatically, and at the same time with gate J′, as set forth.

3. In combination with mechanism for actuating the gates, substantially as described, spring R, shaft Q, and crank C, as and for the purpose set forth.

4. The double pulley E, in combination with the cables G and F and pulleys J and K, constructed and arranged to operate as and for the purpose set forth.

5. The double crank C, arranged loosely upon the shaft Q, and connected thereto by the coiled spring R, for operating a set of gates from each end of the crank.

In testimony that I claim the foregoing as my own invention I affix hereto my signature in presence of two witnesses.

PETER B. WIGHT.

Witnesses:
GEO. F. GRAHAM,
CHAS. F. STANSBURY.