

No. 612,581.

Patented Oct. 18, 1898.

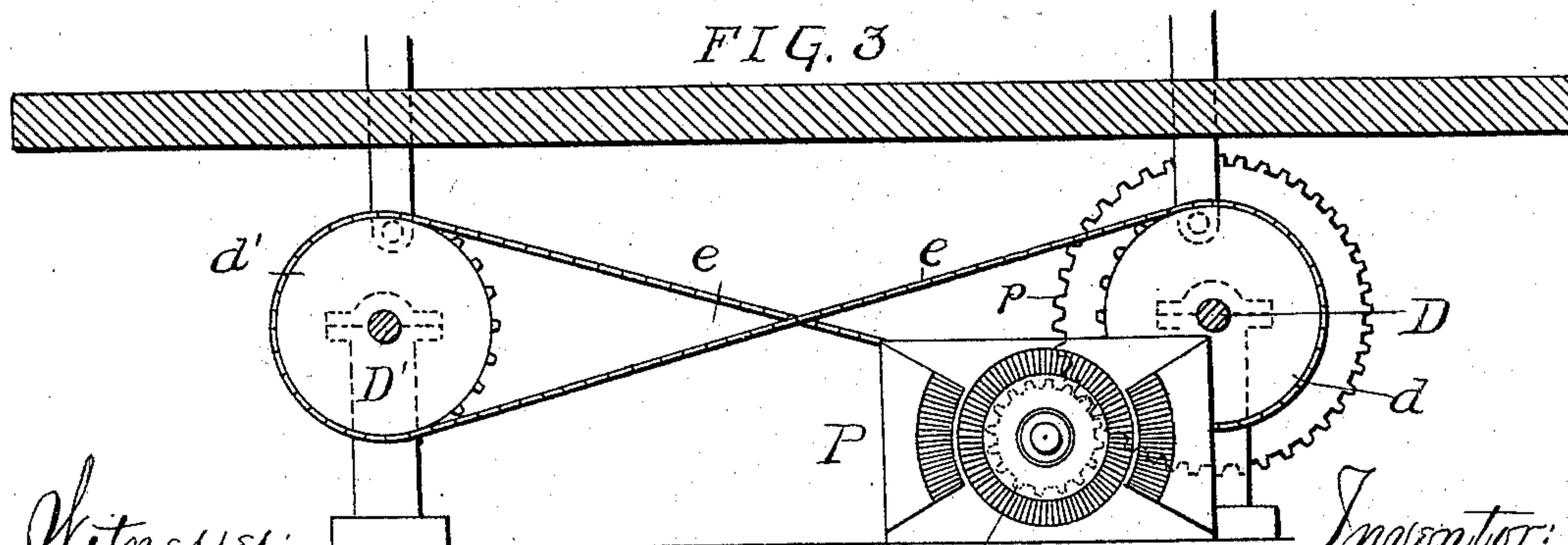
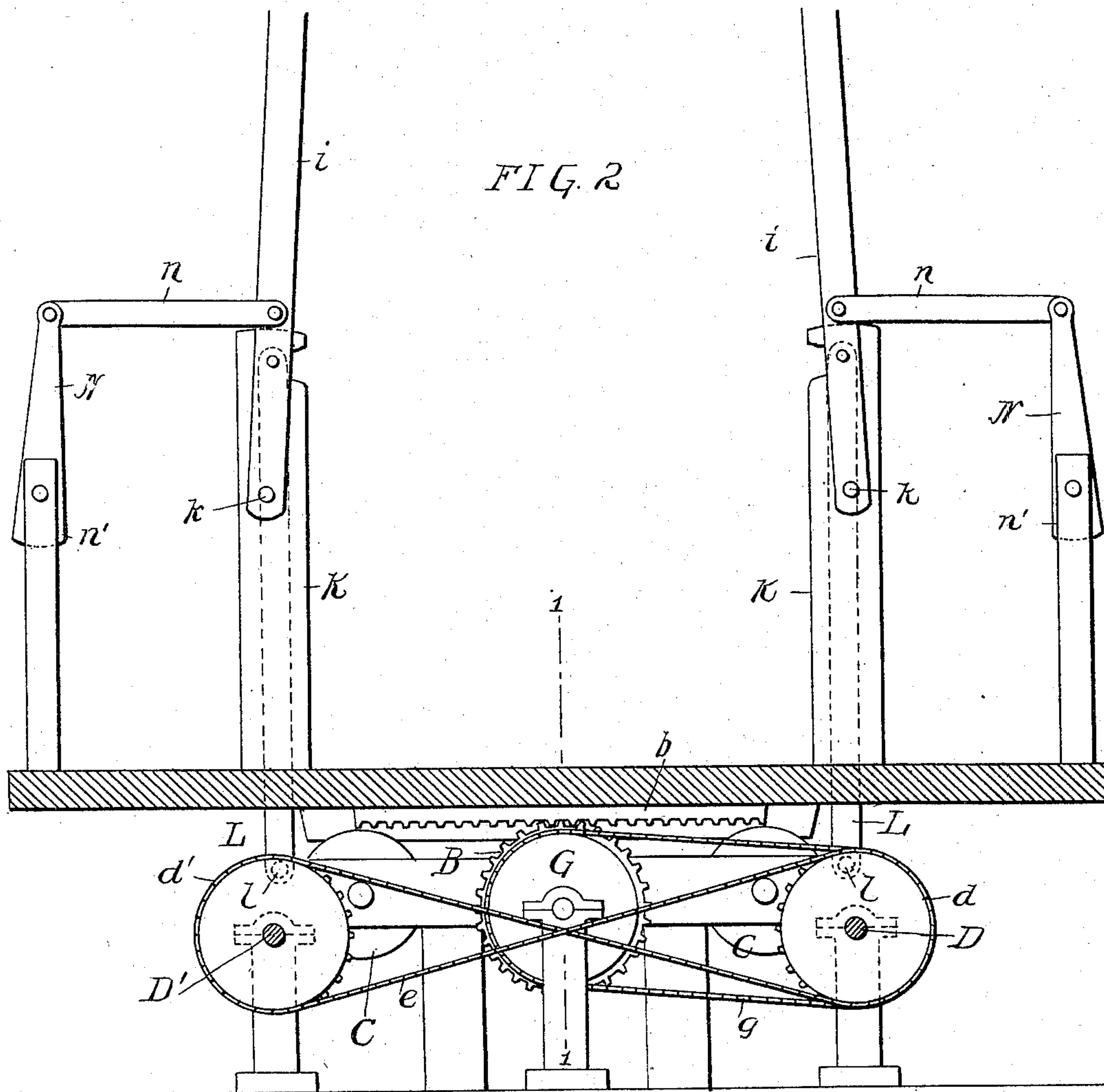
P. BONUS.

SAFETY GATE FOR DRAWBRIDGES.

(Application filed Oct. 6, 1897.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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SAFETY-GATE FOR DRAWBRIDGES.

SPECIFICATION forming part of Letters Patent No. 612,581, dated October 18, 1898.

Application filed October 6, 1897. Serial No. 654,208. (No model.)

To all whom it may concern:

Be it known that I, PETER BONUS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Safety-Gates for Drawbridges, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain improvements in safety-gates for drawbridges and like structures, and has for its object to provide an improved form of gate which may be operated automatically by the turning of the draw-section or by suitable devices operating independently of the movement of the draw-section.

In the accompanying drawings, Figure 1 is a sectional elevation on the line 1 1, Fig. 2, of a safety-gate constructed in accordance with my invention. Fig. 2 is a transverse sectional elevation of the same on the line 2 2, Fig. 1. Fig. 3 is a view similar to Fig. 2, illustrating a modification of the invention, and Figs. 4 and 5 are perspective details more specifically referred to hereinafter.

Referring to the drawings, A is the turn or draw section of the bridge, mounted on rollers a , which are adapted to travel on an annular track a' in the usual manner. At the extreme end of the section A is secured a rack-bar b , which intermeshes with the teeth of a gear-wheel B, mounted on a shaft b' , arranged in suitable bearings on the shore-piers. The turn-section A is guided and partly supported at its opposite ends by a rail c , adapted to grooved wheels C, mounted in a frame C'.

The shaft b' is arranged at about the longitudinal center of the roadway, and on either side are short shafts D D', on which are secured sprocket-wheels $d d'$, respectively, the two sprocket-wheels being connected to each other by a link belt e . On the shaft D is also situated a sprocket-wheel f , connected by a link belt g to a sprocket-wheel G on the central shaft b' , the arrangement of the various sprocket-wheels and link belts being such that on the movement of the turn-section A the shafts D D' will be revolved in opposite directions.

Each shaft D D' is made in two or more sec-

tions connected by a suitable coupling d^2 , which will permit of longitudinal movement of the sections of the shaft under the influence of varying degrees of temperature. The coupling may be of the form illustrated in Fig. 4, in which the opposite sections of the couplings are provided with registering ribs and grooves, or may be of the character illustrated in Fig. 5, in which the opposite sections of the couplings are coupled by a pin-and-slot connection.

On the roadway at each end of the turn-section are two safety-gates I I', the gate I being located at a point very close to the edge of the turn-section and the gate I' being located at some considerable distance therefrom—say forty or fifty feet—in order to arrest traffic before a too-close approach to the edge of the turn-section.

The roadway-gates i are pivoted at k to vertical posts K and are so arranged that they may assume either a vertical or horizontal position to close or to open the roadway. Each of the sprocket-wheels $d d'$ is provided with a crank-pin l , connected by a link L to the gate-sections i , and in a similar manner the outer end portions of the shafts D D' are provided with disks M, having crank-pins m , connected by links m' to the gate-sections of the gate I', so that on the turning of the operating-shaft both gates will be opened or closed at the same time.

To the side rails or to suitable posts on the sides of the roadway are pivoted secondary gates N, which may be moved across the foot-paths on either side of the roadway by links n , which connect them to the gate-sections i . The lower ends of the gates N are weighted, as at n' , in order that they may normally tend to assume a vertical position.

In operation the turning of the section A causes a rotative movement of the shaft b' , which movement is transmitted by the connecting link belts to the shafts D D' and so effects, through the crank-pins $l m$, the turning of the gate-sections to either the open or the closed position.

In some cases, where it is not desirable to effect the opening or closing of the gates by the movement of the turn-section, I may employ a suitable electric motor P, connected

by gearing p to one or other of the gate-operating shafts $D D'$, the shafts being coupled together by the link belts e and sprocket-wheels $d d'$, so that they will be operated simultaneously.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination, the turn or draw section of a bridge, safety-gates arranged in pairs at each end of the turn-section, each pair of gates being separated and placed at different intervals in the length of the roadway, with mechanism connecting the pairs of gates and adapted to simultaneously effect the opening and closing of the same, substantially as specified.

2. The combination, with the turn-section of a bridge of safety-gates arranged in pairs at each end of the turn-section, each pair of gates being separated and placed at different intervals in the length of the roadway, operating-shafts extending between the pairs of gates and adapted to effect the opening and closing of the same, and couplings arranged in the length of the shafts to permit expansion or contraction of the sections thereof, substantially as specified.

3. In combination, a rack-bar carried by the turn-section of the bridge, a gear-wheel mounted upon the stationary section of the bridge and with which said rack-bar is adapted to mesh, a sprocket-wheel carried upon the same shaft with the gear-wheel, sprocket-wheels G and d , a chain for connecting the first-named sprocket-wheel with the wheel f , a wheel carried upon the same shaft with the wheel f , a cross-chain for connecting the wheels $d d'$, crank-pins carried by the sprocket-wheel, links attached to said cranks, gates supporting posts, gate-sections pivoted thereto and with which said links connect, secondary gates N , and links n connecting said secondary gates to the main-gate sections, substantially as specified.

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

PETER BONUS.

Witnesses:

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