(No Model.)

# J. S. PHILIP.

## BRIDGE GATE.

No. 301,751. Patented July 8, 1884.

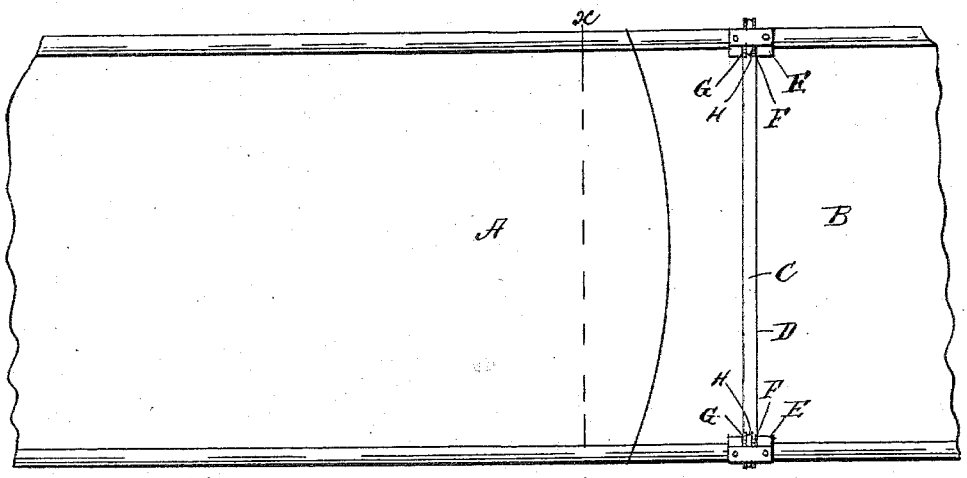


Fig 1

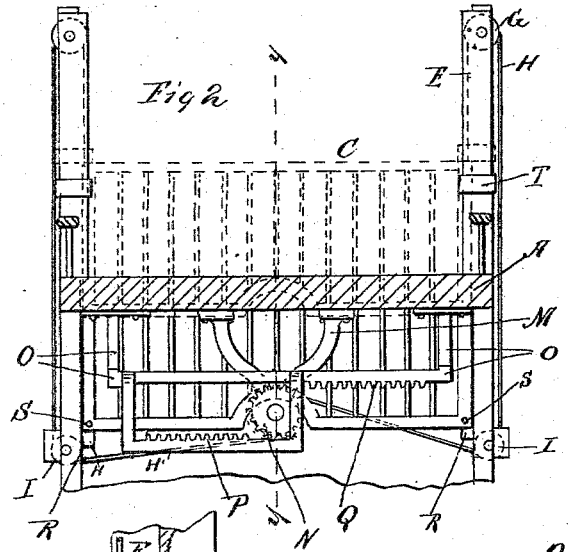


Fig 2

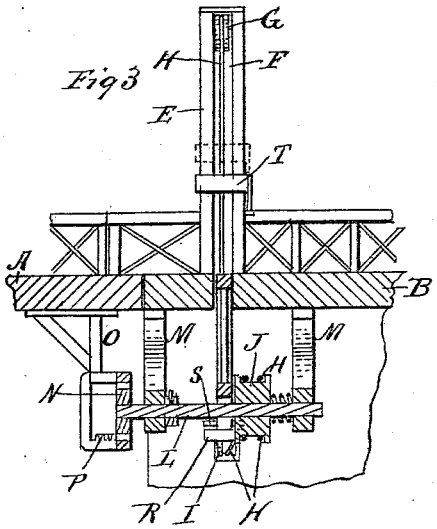


Fig 3

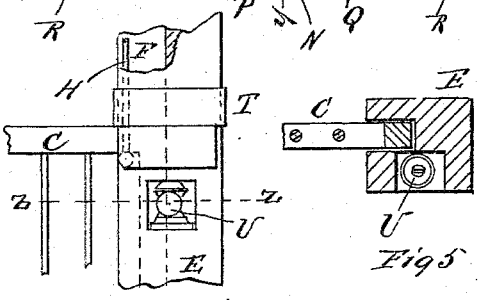


Fig 4




Fig 5

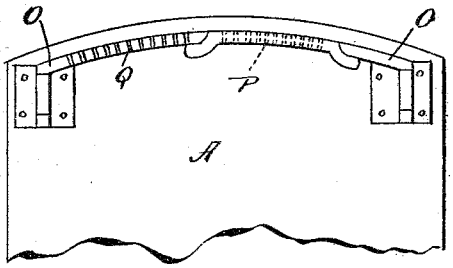


Fig 6

Witnesses
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# UNITED STATES PATENT OFFICE.

J. STUART PHILIP, OF CHICAGO, ILLINOIS.

## BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 301,751, dated July 8, 1884.

Application filed November 19, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, J. STUART PHILIP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bridge-Gates, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a portion of one end of the bridge, with a portion of the approach to the bridge and gate. Fig. 2 is a transverse and sectional view taken on the line *x x*, looking toward the gate. Fig. 3 is a sectional view of the gate and a portion of the approach to the bridge, taken on the line *y y*, Fig. 2. Fig. 4 is a side elevation of the detached portion of one of the gate-posts, showing the signal-light to indicate that the bridge is open. Fig. 5 is a transverse sectional view taken on the line *z z*, Fig. 4. Fig. 6 is a bottom view of the end of the bridge, with its attachments, which serve to open and close the gate.

My improvement relates to that class of inventions which have movable gates located at the approach to pivoted swinging bridges which have mechanisms for operating the gates as they are opened and closed, so that when the bridge is swung around to allow vessels to pass it the devices attached to the bridge operate upon mechanisms which throw a gate across the roadway-approach to the bridge, to prevent teams or people from falling into the river when the bridge is open, and also remove the gates from the roadway-approach when the bridge is closed or brought into position for use as a roadway.

My invention consists in the devices and combination of devices hereinafter fully described, by means of which the bridge, in its movement made while being opened or closed, opens and closes the gate at the roadway-approaches to the bridge, and also displays and conceals a signal to indicate when the bridge is open.

In the accompanying drawings, A represents one end of a pivoted draw-bridge, which is so pivoted as to turn laterally upon its center to allow vessels to pass through it. The same mechanism is attached to each end of the bridge, so that the gate will be opened and closed by the bridge at each approach at the same time and in the same way and by the same devices.

B represents one of the roadway-approaches.

C is a gate, which is made to rise and fall vertically through a suitable slot or opening, D, which extends across the roadway B. This slot or opening is just wide enough to admit of the gate rising and falling through it. The top of the gate just fills this opening when the bridge is closed and the roadway open for passage, the gate being beneath the roadway, as clearly shown in Fig. 3.

E are posts, one of which is firmly secured at each side of the roadway-approach to the bridge. These posts have a groove, F, in their sides toward the roadway, in which the ends of the gate slide as the gate is moved up and down.

G are grooved wheels journaled in the tops of the posts.

H are wire ropes, one of which is attached to each end of the gate, and passes over the grooved wheel G, and also over the grooved wheel I, located beneath the roadway, to the drum J, one of these wire ropes being secured to each end of the gate and both passing to the drum J. They are wound on said drum when the drum is revolved and raise the gate across the roadway.

L is a shaft, with bearings in suitable hangers or timbers, M, located beneath the roadway-approach to the bridge. This shaft carries and revolves the drum J.

N is a cog-wheel attached to the shaft L and revolves with it. This shaft L projects from beneath the roadway-approach to the bridge under the end of the bridge, and the cog-wheel N is held in the position under the end of the bridge, where it comes in contact with and is made to revolve by cog-racks that are rigidly connected to the end of the bridge.

O is a frame securely attached to the end of the bridge and carries two cog-racks, P and Q. When the bridge is closed and the gate is open or in position below the roadway-approach to the bridge, as shown in Fig. 3, one of the cog-racks P and Q is on each side of the cog-wheel N. When the bridge-tender commences to turn the bridge to open it, if he turns it one way, the cog-rack Q immediately comes in contact with the cog-wheel N, and if he turns it

the other way, the cog-rack P comes in contact with the cog-wheel N, so that whichever way the bridge is moved the cog-wheel N is made to turn the shaft L and wind the wire-ropes H upon the drum J, and raise the gate to a position shown by dotted lines in Fig. 2, where it remains until the bridge is nearly closed again. When the bridge is nearly closed, if it is being closed from one direction, the cog-rack P strikes the cog-wheel N; if from the other direction, the cog-rack Q strikes the cog-wheel N and revolves it in the opposite direction from what it had been previously revolved, unwinds the wire ropes from the drum J, and the weight of the gate causes it to fall through the roadway-approach to the bridge into the position shown by full lines in Fig. 2 of the drawings, it completing its descent just as the bridge is closed.

R are supports on which the gate rests when lowered beneath the roadway, and S are pins projecting from the gate to serve as stops to prevent the gate from being raised entirely out of opening D, which extends across the roadway. The stops strike against the under side of the roadway-bed for that purpose.

T are sliding plates, placed loosely on the posts E in such a position that they will be made to slide up and down on the posts by the gate as it is raised and lowered, as above described.

U is a lamp placed in the recess of the post E, where it is exposed to view when the plate T is raised, as indicated in Fig. 4 of the drawings, and is covered or hidden from view by the plate T when the gate is lowered and the plate slides down on the post into the position shown in Figs. 2 and 3. These lights are placed in the posts where they will be seen by people approaching the bridge, and serve for the purpose of indicating that the bridge is open. When the bridge is closed and the gate lowered, the plate T slips down over the lights and obscures them, so that people know that the bridge is closed and the roadway open in condition for passage.

I am aware that I am not the first to devise mechanism whereby the opening or closing of a draw operates at the same time to shut or open a gate, or to display signals; and I do not lay claim to such mechanism, broadly.

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

1. The combination of the shaft L, supported in suitable bearings under the roadway-approach to the bridge, the cog-wheel N, rigidly attached to the shaft L, the drum J, rigidly attached to said shaft L, the cog-racks P and Q, supported in a frame attached to the end of the bridge, which have a direct contact with the cog-wheel N on the shaft L, the gate C, and mechanisms connecting the shaft L with the gate, substantially as specified and shown.

2. The gate C, posts E, pulleys G and I, cords H, drum J, shaft L, the cog-wheel N, attached to the shaft L, and cog-racks P and Q, supported on a frame attached to the end of the bridge and arranged to act directly upon the cog-wheel N, which is attached to the drum-carrying shaft, all as specified and shown.

3. The gate C, posts E, signals U, and sliding plate T, the gate acting directly upon the sliding plate to display and conceal the signal as it is raised and lowered, substantially as specified and shown.

J. STUART PHILIP.

Witnesses:
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