

(No Model.)

A. J. SMITH.
BRIDGE GATE.

No. 463,393.

Patented Nov. 17, 1891.

Fig. 1.

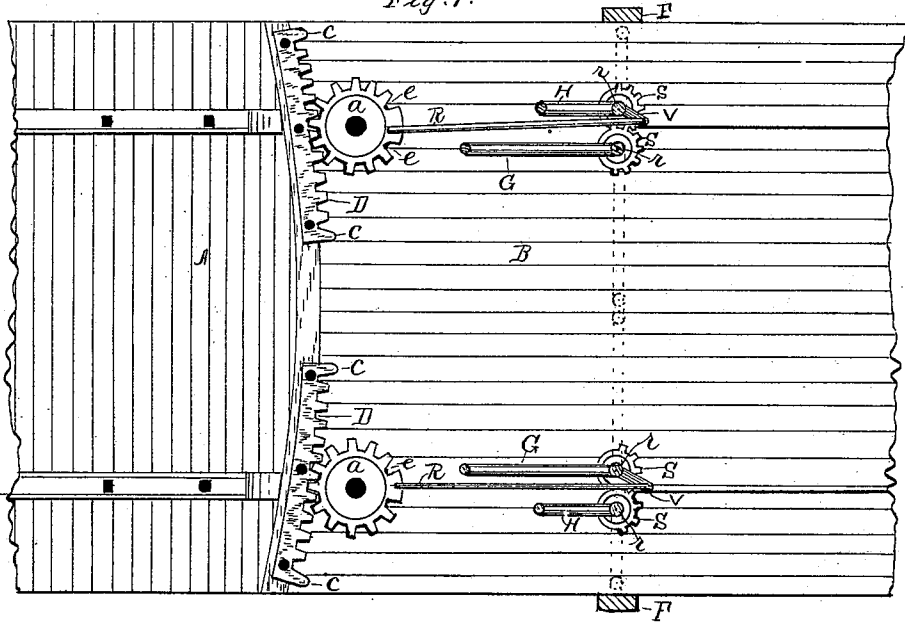


Fig. 2.

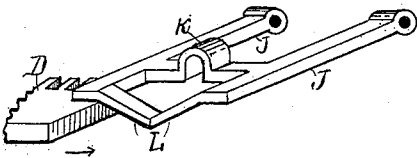


Fig. 3.

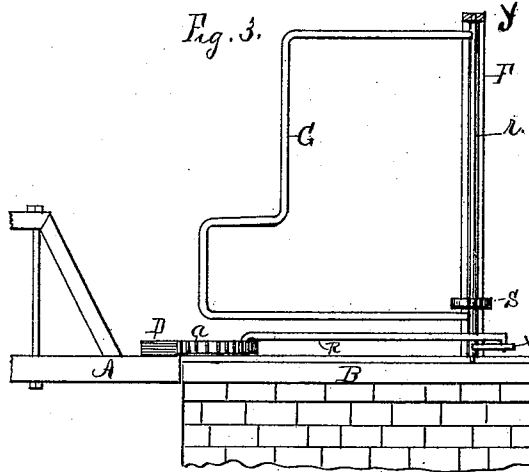
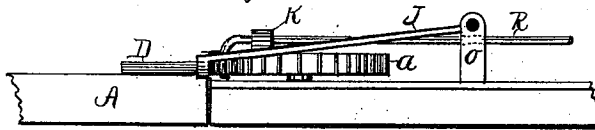


Fig. 4.



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BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 463,393, dated November 17, 1891.

Application filed July 25, 1891. Serial No. 400,683. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN J. SMITH, a citizen of the United States of America, residing at Coal City, in the county of Grundy and State of Illinois, have invented certain new and useful Improvements in Bridge Gates, of which the following is a specification, reference being had therein to the accompanying drawings and the letters of reference thereon, forming a part of this specification, in which—

Figure 1 is a top plan view of a section of a swing bridge and of a road approach, and of the rack and cog mechanism for operating gates for opening and closing the approach to travel. Fig. 2 is a perspective view of the lock for locking the pinions with which the gates are connected, for securing the gates closed when the bridge is closed to travel. Fig. 3 is a side elevation of a portion of the bridge and one of its approaches, and one of the gates, and Fig. 4 is a side elevation of a portion of the bridge and one of its approaches, and a side view of one of the pinions and its lock.

The invention relates to certain improvements in gates for swing bridges, which improvements are fully set forth and explained in the following specification and claims.

Referring to the specification, A represents one end of a swing bridge, and B represents a section of the approach thereto. Only one end of the bridge and only one approach are necessary to be shown, as it is intended that each end of the bridge shall be alike and provided with the same gate mechanism.

D D are toothed racks secured on the upper surface of the bridge-floor and arranged, respectively, one near each corner of the bridge. In order not to be an obstruction to travel, these racks are set down into the bridge so as to have their upper surface flush with the upper surface of the bridge. It is intended that the racks and pinions shall be set so near the sides of the roadway and be of such small dimensions that they may be covered and be entirely out of the way of travel, and be located on the line of the trusses of the bridge as near as possible. In Fig. 1 these racks and pinions are exaggerated in size so as to be shown plainly.

a a are pinions pivotally connected to the

roadway approach B in such manner as to mesh respectively with said racks and be rotated thereby as the bridge and its said racks move in either direction. One of said racks and its pinions are located lower than the other, so that neither rack will engage both pinions at either end of the bridge when the bridge is turned entirely around.

The racks and pinions are exaggerated in the figures for the purpose of better illustrating them.

The gates are arranged to close both the roadway and the sidewalk.

The gates are shown at G and H, r r being the gate-posts, having their lower ends journaled in a suitable box in the roadway and their upper ends journaled in a cross-beam y crossing the roadway and supported by the beams F, one arranged at either side of the roadway outside of the sidewalk. These posts r r are connected at any suitable place, but preferably near their lower ends, by means of the cog-wheels or sectors S S, so that they with their respective gates G H may be turned together.

V V are arms connected to one of the posts r of each pair of gates, and are connected, respectively, with the pinions a a by means of the connecting-rods R R, so that when said pinions are rotated they will, through the medium of said pitmen and arms, turn the gates in either direction, as shown in the full and broken lines in Fig. 1. When the bridge is swung away from its approaches and the gates are turned across the roadway and sidewalks, as shown in the broken lines, it is necessary to lock said pinions so they will not turn and permit the gates to open. This is accomplished by means of the lock J, shown in Figs. 2 and 4. This lock is placed over the pinion and is pivotally attached at its rear end to the standard-boxes O on the roadway. Its forward end extends over the pinion and is formed with a depression L, forming an incline to be engaged by the segment D, as the bridge may turn in either direction. A loop or recess K is formed in the lock to fall down over and inclose the ends of the connecting-rod when the pinion is turned to bring it forward at the time the gates are closed, and prevents lateral move-

ment of said rod and turning of the pinion until the bridge returns and its racks D pass under the inclined end L of the lock and raise it up to free the loop K from the connecting-rod immediately before the pinion is engaged by the rack, the rack holding the lock up disengaged from the connecting-rod so long as the rack and pinion are engaged. Said Figs. 2 and 4 show the lock in the position it would be in when locking the device and show the rack D as it would appear when approaching the lock to elevate it, as above stated.

The racks are provided at their ends with the larger cog-teeth *c*, and the pinions are provided with corresponding deeper recesses for receiving said teeth for the purpose of rendering the rack more certain to engage the pinion from either direction.

In operation, the bridge may turn in either direction or turn entirely around, and the racks and pinions will operate to open and close the gates simultaneously at each end, as stated, so they will close the gates across the roadway and sidewalk when the bridge is closed to travel, as shown in the broken

lines, and open the gates when the bridge is open to travel, as shown in the full lines.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. The combination, with the swing bridge A and its approach B, of the racks D, pinions *a*, connecting-rods R, and the gates G H *r*, having the arms V, substantially as and for the purpose set forth.

2. The combination, with the swing bridge A and its approach B, of the pinions D, pinions *a*, connecting-rods R, locks J, having the inclines L and recess K, and gates G H *r*, having the arms V, substantially as and for the purpose set forth.

3. In the bridge-gate shown and described, the combination of the racks D, pinions *a*, connecting-rods R, and the lock J, having the inclines L and recess K, substantially as and for the purpose set forth.

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