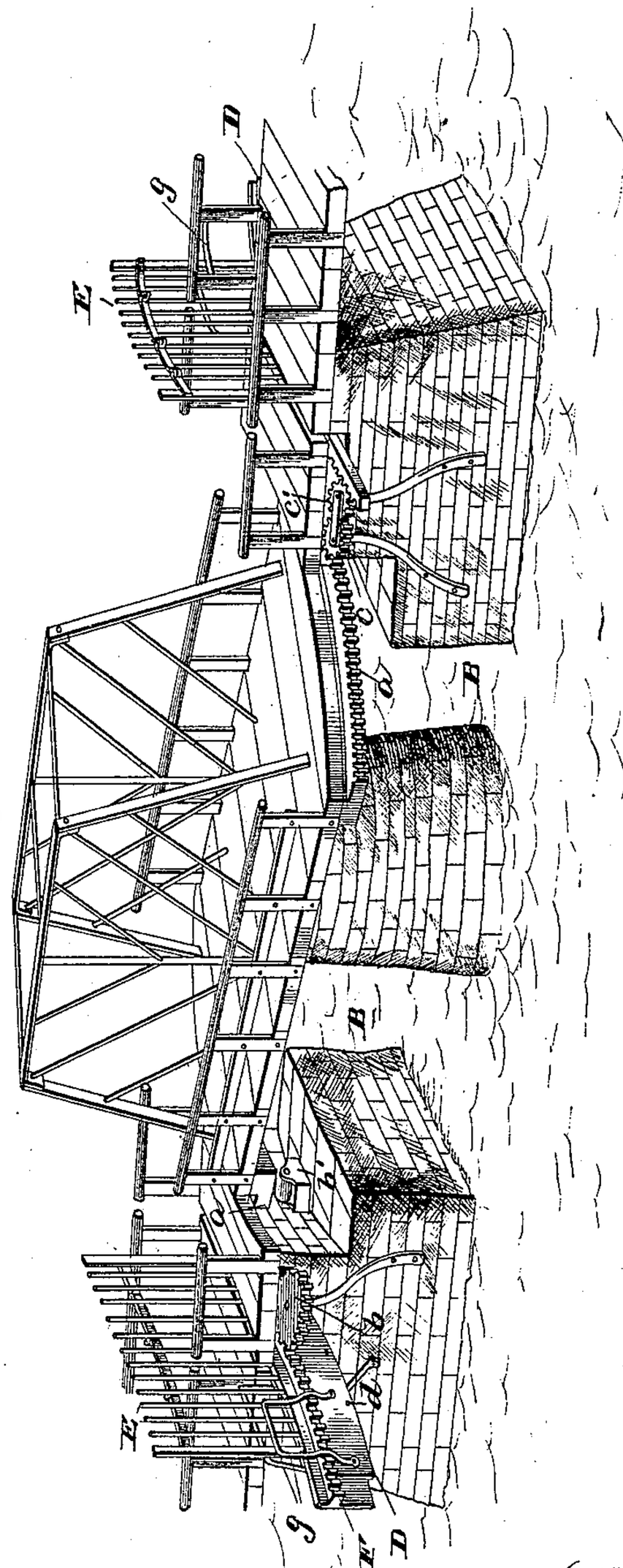
(No Model.) 2 Sheets—Sheet 1.

W. I. ADAMS & A. ROTZEL.

SLIDING GATE FOR DRAW BRIDGES.

No. 449,022. Patented Mar. 24, 1891.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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No. 449,022. Patented Mar. 24, 1891.

Fig. 2.

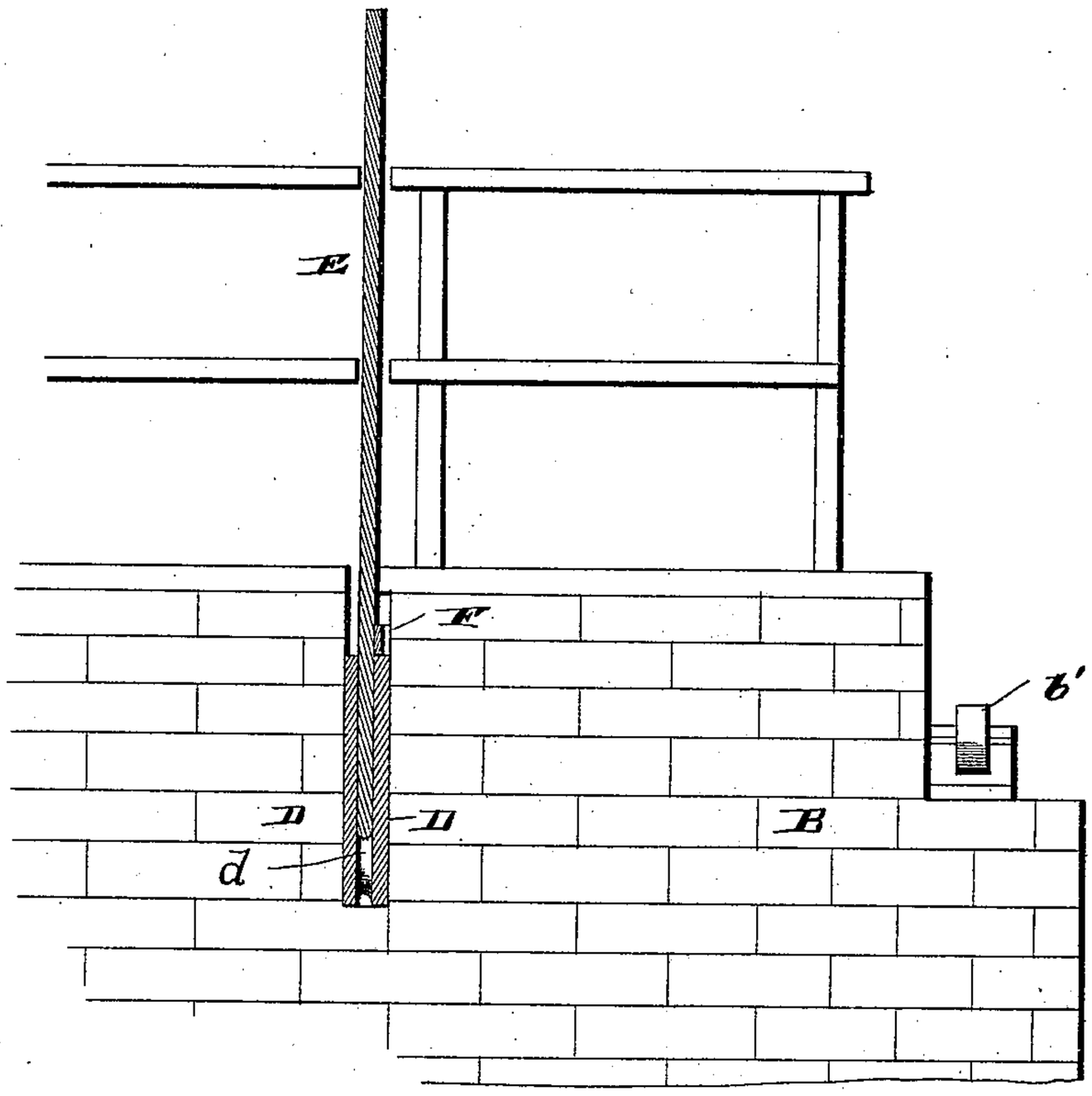

Fig. 3.

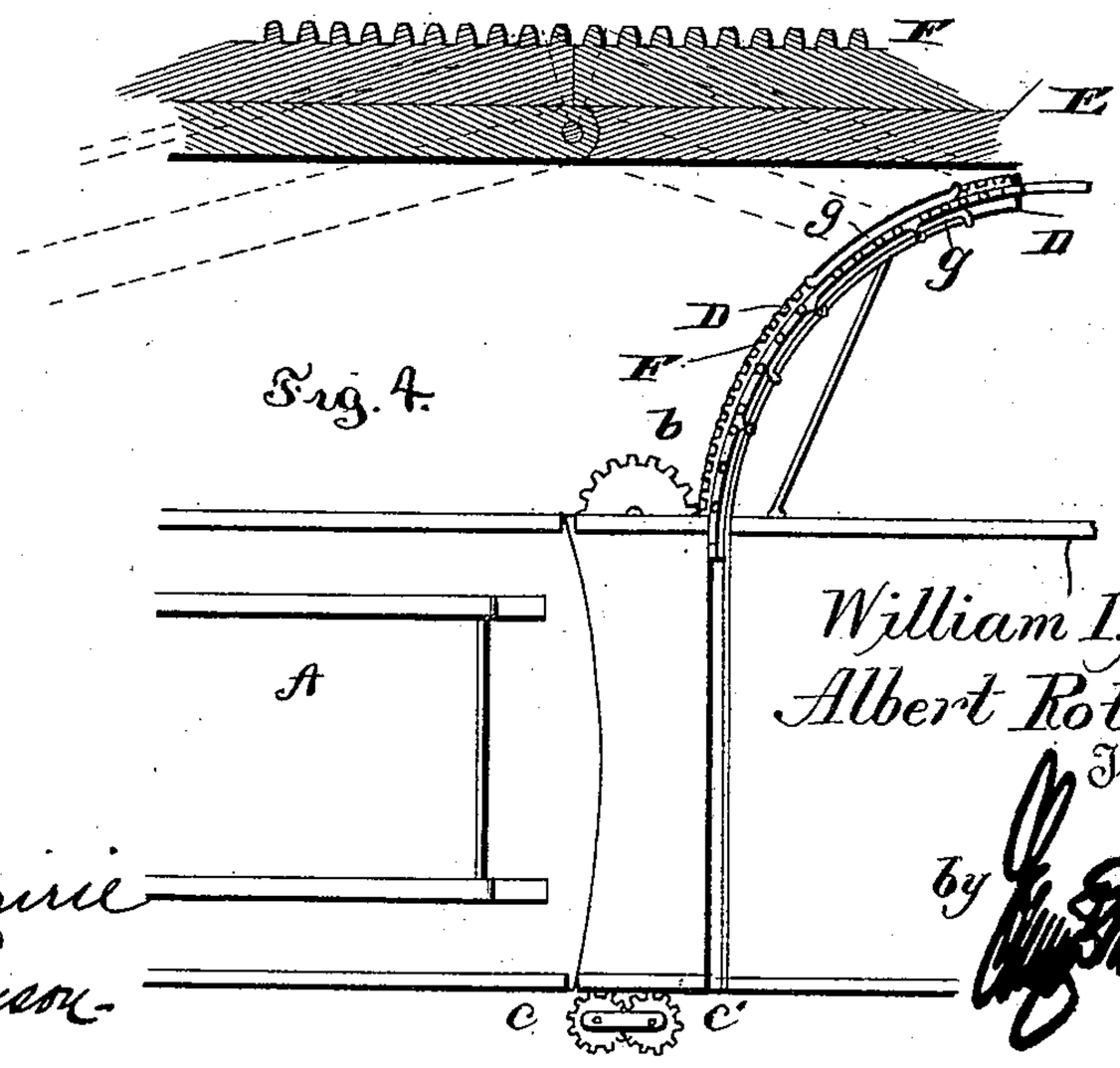

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM I. ADAMS AND ALBERT ROTZEL, OF KENSINGTON, ILLINOIS.

SLIDING GATE FOR DRAW-BRIDGES.

SPECIFICATION forming part of Letters Patent No. 449,022, dated March 24, 1891.

Application filed June 24, 1890. Serial No. 356,549. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM I. ADAMS and ALBERT ROTZEL, citizens of the United States of America, residing at Kensington, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sliding Gates for Draw-Bridges; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains 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.

Our invention relates to improvements in sliding or movable gates for bridges.

The object of the invention is to provide for a draw or swinging bridge gates which will close the roadway when the section of the bridge is turned to open the draw; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a portion of the draw-span, partly swung, and of the approach thereto, the gate being closed. Fig. 2 is a sectional view of the end of the bridge and its approach. Figs. 3 and 4 are detail views.

A refers to the draw or swing bridge, which is mounted in the usual manner upon a suitable foundation, and the ends of this bridge at the base of the platform or roadway carry curved rack-bars *a a*, which are adapted to mesh with the teeth of the horizontal cog-wheels *b*, supported in suitable frames on the same sides with the abutments B B. Beneath the rack-bars *a a* is located a guide, which contacts with the rollers *b'*, supported by the abutment upon which a portion of the weight of the bridge rests when being opened or when closed. On the opposite side of the abutments B and on a line with the cog-wheels *b* are rigidly supported smaller cog-wheels *c* and *c'*, which mesh with each other, the cog-wheel *c* meshing with the rack-bar *a*, secured to the bridge A, while the cog-wheel *c'* abuts with the rack attached to the lower edge of the sliding gates.

To each of the abutments B of the bridge are rigidly secured projecting arms or supports D D, having suitable brace-rods, and these bars or supports extend through the abutments B B, which are slotted or provided with openings, through which the gates can move at right angles with the roadway. The supports D, though extending beneath the roadway at right angles therewith, curve to one side after they leave the abutment, so that they will not interfere with the passage-way between the bridge-support and abutment. The angle bars or plates which form the support D are provided with rollers *d*, upon which the lower edge of the gate E rests, and just above the upper edge of these supports D the gate-sections are provided with rack-bars or toothed sections F, with which the cog-wheels *b* and cog-wheel *c'* are adapted to mesh.

The gates E are preferably made up of a series of sections having proper joints, and the toothed sections F are hinged to each other, so as to allow the gates to move around the curved portion of the supports.

The draw-bridge A is operated in the usual manner, and when turned parallel with the roadway the gate will be opened and supported upon the rollers carried by the supports D D, while the upper portion of the gates lies between the bars or frames *g g*, which maintain the gates in a vertical position when projected beyond the roadway. As soon as the bridge is turned the rack-bars *a* upon said bridge engage with the cog-wheels *b b* and throw the gates across the roadway. This closing of the gate is done at the commencement of the movement of the draw in its usual direction. Should, for any reason, it be desired to turn the draw in an opposite direction from that which it is usually turned, the rack-bar will engage with the gear-wheel *c*, which, meshing with the gear-wheel *c'*, changes the direction of rotation and throws the gates open and out upon the supports D. If desirable, the supports D D may be extended at right angles with the abutments B without departing from our invention, and in practice it will only be necessary to provide the gates at that portion which moves upon the curved supports with a link or jointed rack-bar.

We are aware that prior to our invention it has been proposed to provide a swinging bridge with a rack-bar, which engages with cog-wheels carried by the abutments to oper-

ate gates to obstruct the roadway when the drawer is open, and we do not claim such construction, broadly, as our invention.

We claim—

1. The combination, with a swinging bridge carrying rack-bars *a a*, of abutments having cog-wheels *b b*, and gate-supports D, extending across the roadway and beyond the abutments B, said gates carrying flexible rack-bars and jointed sections, substantially as set forth.

2. The combination, with a swinging bridge having curved rack-bars *a*, suitably-supported cog-wheels *b b*, *c c*, and *c' c'*, arranged as shown, so as to be in a line with the rack-bars *a*, of sliding gates E, a portion thereof being made up of jointed or hinged sections, flexible supporting-plates carrying toothed sections F, projecting gate-supports D D, having rollers *d*, and guides *g g* for supporting the gate-sections when beyond the roadway, substantially as shown, and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM I. ADAMS.
ALBERT ROTZEL.

Witnesses:
FRANK H. PORTER,
HARVEY W. MURPHY.