(No Model.)

G. A. WIEDENMAYER & S. BERGMANN.

DRAW BRIDGE.

No. 442,847. Patented Dec. 16, 1890.

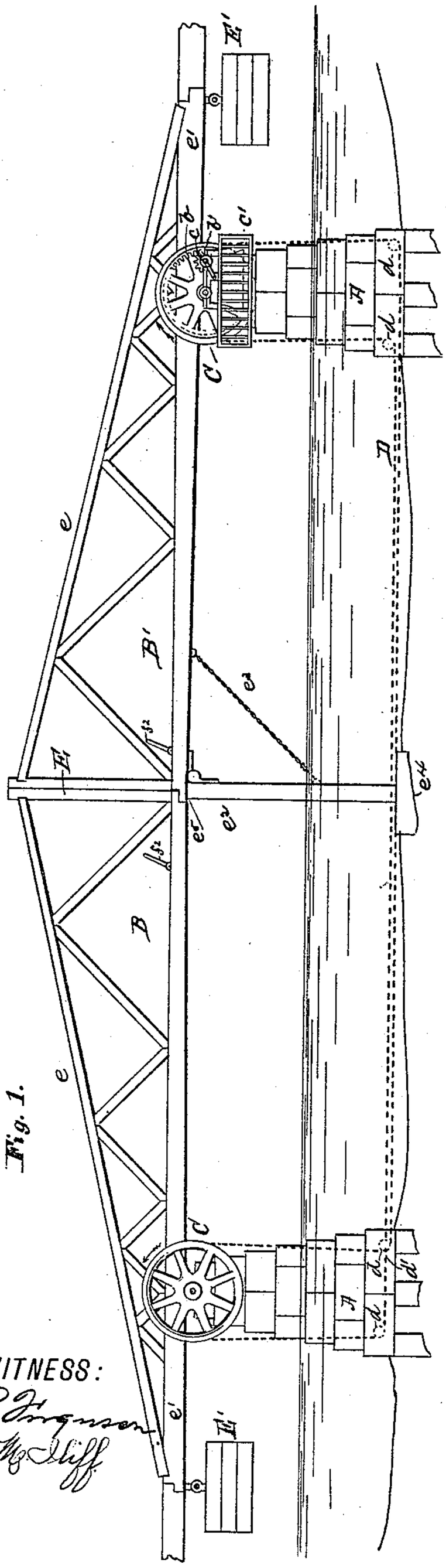

Fig. 1.

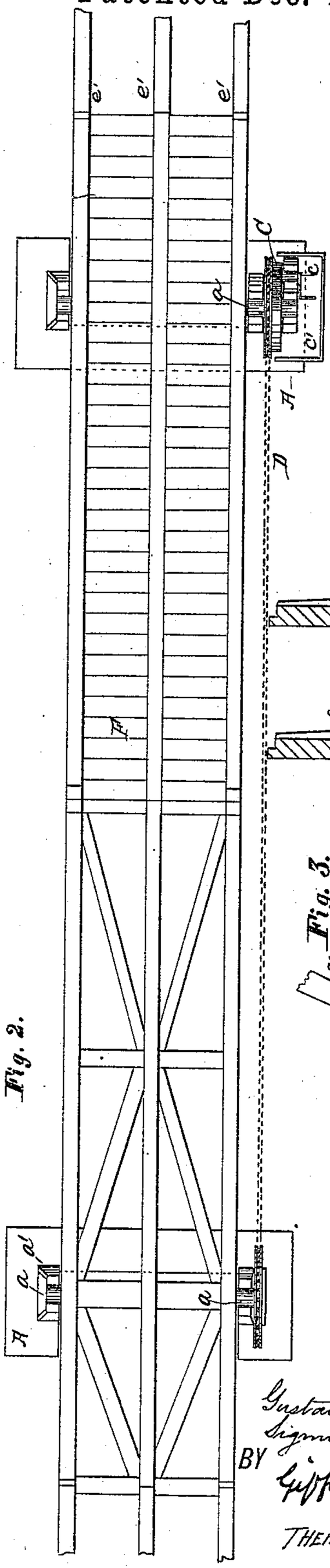

Fig. 2.

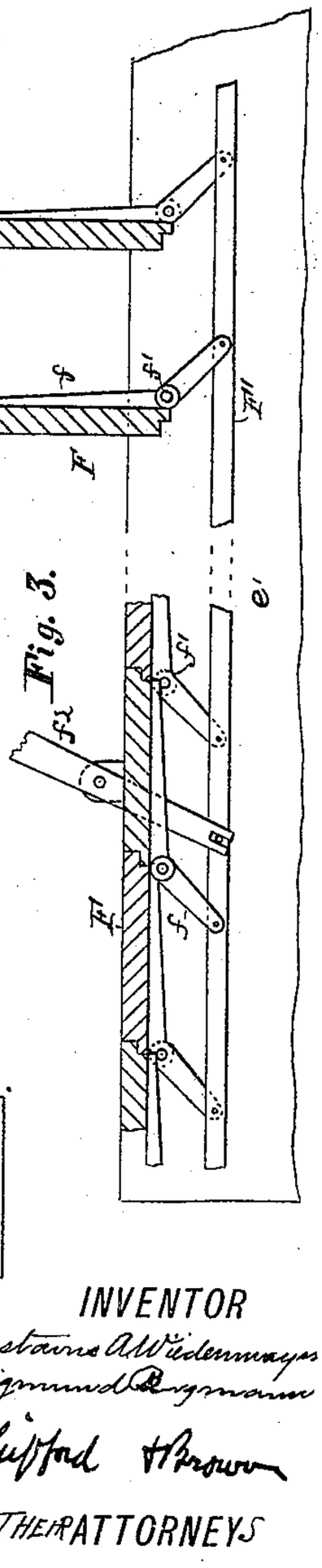

Fig. 3.

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DRAW-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 442,847, dated December 16, 1890.

Application filed March 3, 1890. Serial No. 342,440½. (No model.)

To all whom it may concern:

Be it known that we, GUSTAVUS A. WIEDENMAYER, of Oceanic, county of Monmouth, and State of New Jersey, and SIGMUND BERGMANN, of New York, county and State of New York, have invented a certain new and useful Improvement in Draw-Bridges, of which the following is a specification.

We will describe a draw-bridge embodying our improvements, and point out the novel features in claims.

In the drawings, Figure 1 is a side view of a bridge embodying our improvement. Fig. 2 is a top or plan view thereof. Fig. 3 is a detail of the roadway of bridge, showing the planking in the two extreme positions.

Similar letters of reference designate corresponding parts in all the figures of the drawings.

Referring by letter to the drawings, A designates piers or abutments at each side of a water-course, and B B′ designate the two sections of a bridge. Each section of the bridge is provided near the outer end with trunnions *a*, turning in bearings *a′*, secured to the piers.

A trunnion of each section is extended through its bearing and has a sprocket-wheel C rigidly secured to it. These sprocket-wheels are quite large, in order to gain leverage in operating the bridge. One of the sprocket-wheels is shown as provided with internal cogs or teeth *b*, which engage with a pinion *b′*, rotating with a crank-shaft *c*, provided with a crank accessible to an operator standing on a platform *c′*. Of course each one of the sprocket-wheels may be provided with the internal teeth and operating mechanism.

An endless sprocket-chain D extends from one sprocket-wheel to the other, and as it is necessary that the chain should cross the stream below the draft-line of vessels we provide guides, here shown in the forms of pulleys *d*, at the side of the piers, under which the chain runs. The chain is here shown as crossed at *d′*, so that when operated the sprocket-wheels will rotate in reverse directions, as indicated by the arrows, in order to raise or lower the sections of the bridge.

The bridge-sections we have shown as provided with center stanchions E and brace-rails *e*, extending from the upper portion of these stanchions to the outer end of the string-pieces *e′*, and the sections may be further braced by means of stanchions and knees between the brace-rails and stringers, as shown.

As a further means of supporting the bridge-sections when closed, we provide swinging standards e^2. These standards are pivoted or hinged to the opposite stringers of one of the bridge-sections, and a flexible connection e^3 is provided between the standards and stringers to prevent the standards from swinging beyond the base e^4, upon which the lower ends of the standards are designed to rest. It is evident that when the sections are raised the standards will swing against the stringers out of the way of passing vessels. A lap-joint e^5 is made at the meeting ends of the two sections, so that both sections will be supported by the standards.

As the fulcrum-point of the sections is near the outer ends, we provide the outer ends with a counter-balance, here shown in the form of suspended weights E′. This vertically-swinging bridge may be placed in positions where a horizontally-swinging bridge could not be placed—that is, in cities or towns where buildings are constructed closely against the sides of the bridge.

When the bridge-sections are in their raised position, it is desirable that provision be made for passage of wind through the bottom or road-bed of the bridge. We therefore secure the planking F to angle-irons *f*, which are pivoted at *f′* to the stringers *e′* and have their shorter arm pivoted to a shifting-rod F′, which is operated by means of a lever f^2.

Having described our invention, what we claim is—

1. In a draw-bridge, the combination, with piers, of two vertically-swinging bridge-sections having trunnions turning in bearings on the piers, sprocket-wheels on a trunnion of each section, one of said sprocket-wheels having internal teeth, a pinion engaging with said teeth, a crank-shaft, and an endless sprocket-chain connecting the sprocket-wheels and running under guides, substantially as specified.

2. In a draw-bridge, the combination, with

piers, of a bridge-section having trunnion-bearings on the respective piers, a sprocket-wheel on a trunnion of each of said sections, a sprocket-chain connecting said wheels, guides for the chain, crank mechanism engaging with one of the sprocket-wheels, swinging standards on one of said bridge-sections, a lap-joint between the sections, and counter-balances on the sections, substantially as specified.

3. In a draw-bridge, the combination, with piers, of two vertically-swinging bridge-sections having trunnion-bearings on the piers, a wheel on an extended trunnion of each of the bridge-sections, a connection between the wheels running under guides, and means, substantially such as described, engaging with one of the wheels for operating the bridge-sections, substantially as specified.

4. The combination, with swinging bridge-sections and mechanism, substantially such as described, for operating the same, of the bed or roadway consisting of the planking secured to pivoted angle-irons and a shifting rod and lever, substantially as specified.

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