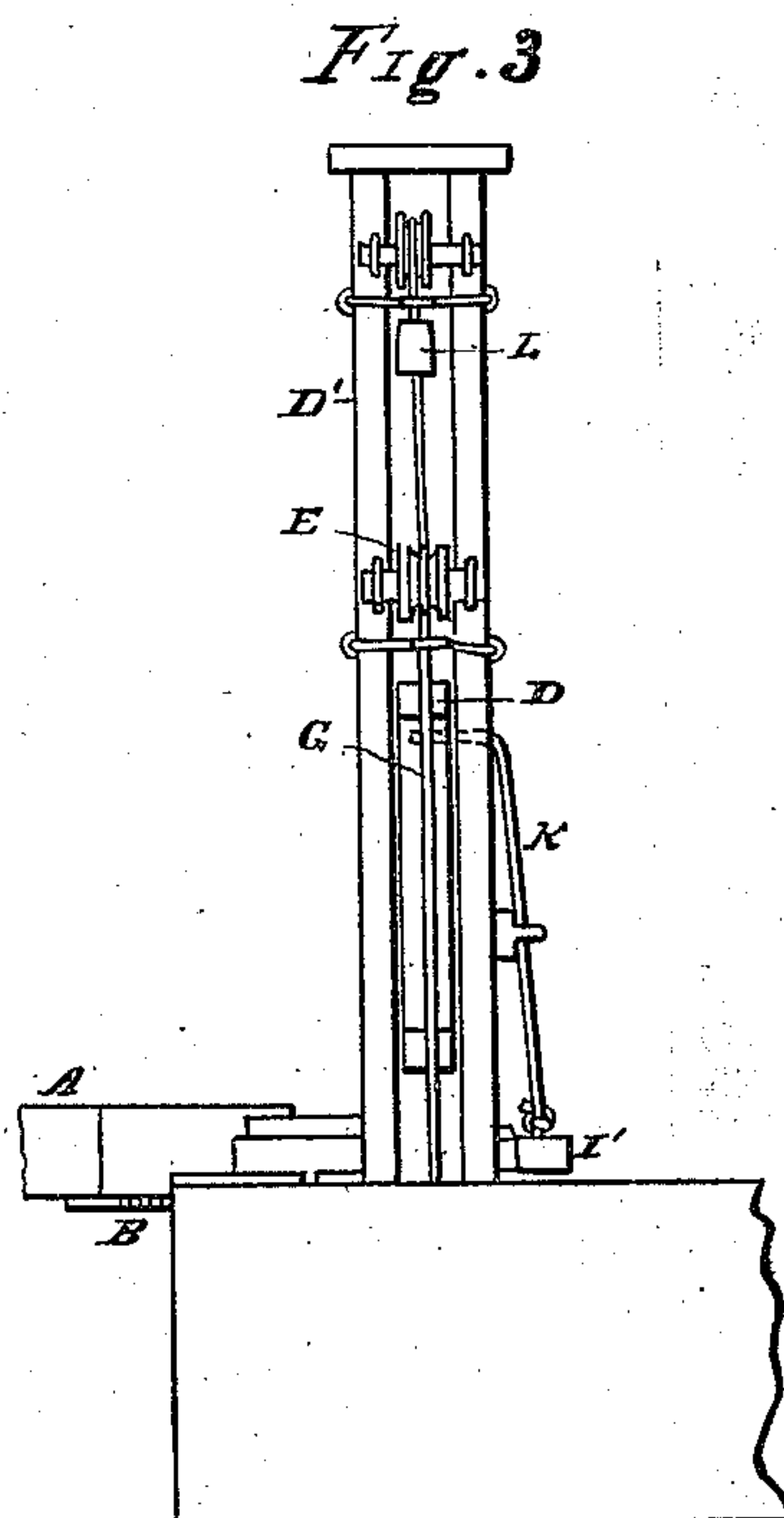
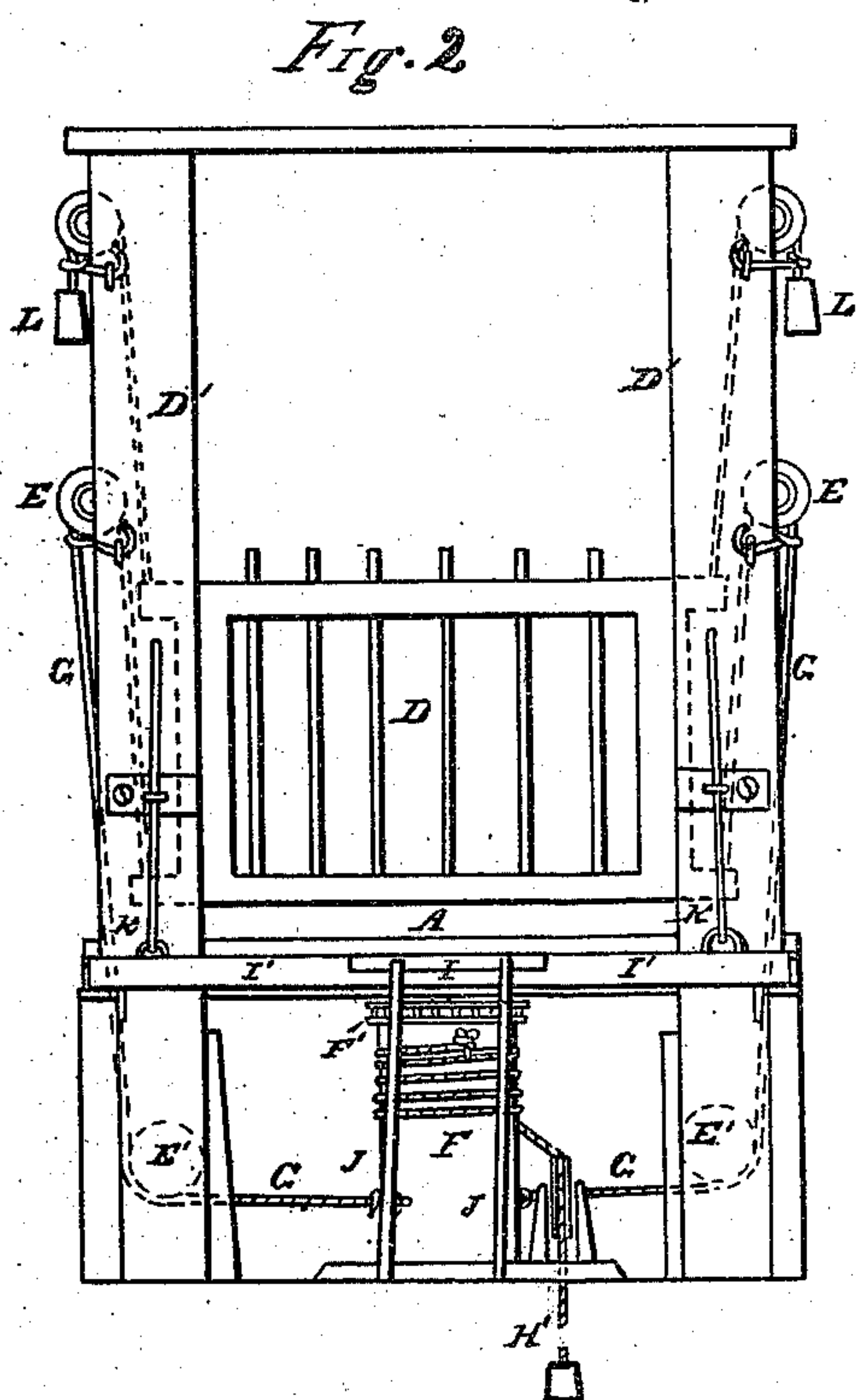
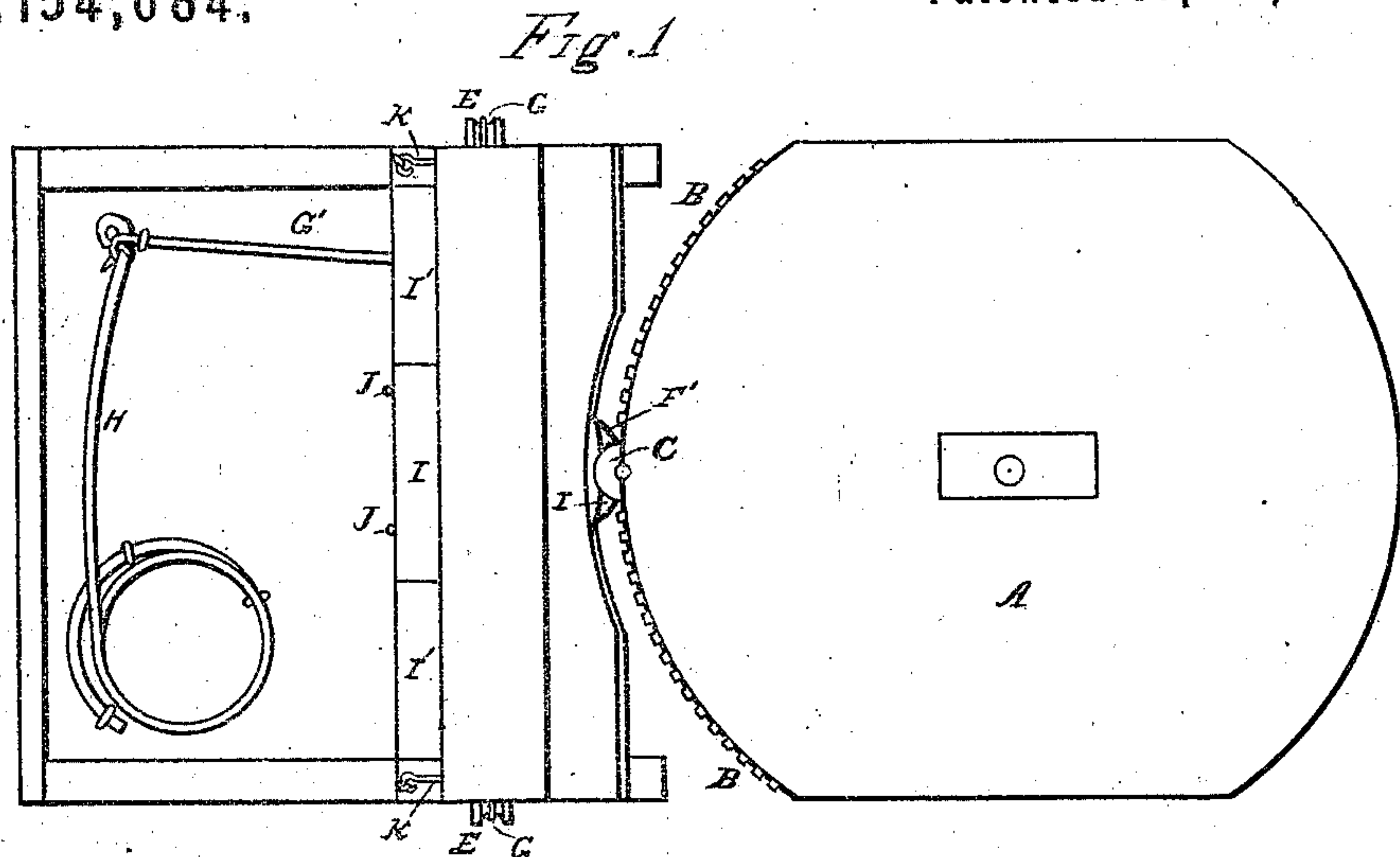


J. LADWIG.  
Draw-Bridge Gates.

No. 154,684.

Patented Sept. 1, 1874.



WITNESSES  
W. F. Harbach  
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# UNITED STATES PATENT OFFICE

JOHN LADWIG, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN DRAW-BRIDGE GATES.

Specification forming part of Letters Patent No. 154,684, dated September 1, 1874; application filed August 7, 1874.

*To all whom it may concern:*

Be it known that I, JOHN LADWIG, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bridge-Gates, of which improvements the following is a full, clear, and exact description, which will enable others skilled in the art to which my invention appertains, to make and use the same, reference being had to the accompanying drawing forming a part hereof, and in which—

Figure 1 is a top or plan view of a bridge-gate embodying my invention; Fig. 2, an end elevation of the same; and Fig. 3, a side elevation of a part thereof.

Like letters of reference indicate like parts.

In the drawing, A represents a draw-bridge, of that class which swings on the center. B B are racks arranged horizontally on the ends of the bridge, and lying in segments of a circle, of which the center of the bridge is the center. C is an anti-friction roller carried by the bridge, and arranged between the racks B B, and in a line passing longitudinally through the center of the bridge. Both ends of the bridge are provided with a roller, C, as well as with the racks B B. A fixed push-piece may be employed in lieu of the roller C. D is a vertically-sliding gate arranged across the approach to the bridge, and moving in the upright ways D' D'. E E' are pulleys arranged in the ways D' D'. F is a vertical drum arranged beneath the bridge approach, and F' is a pinion on the upper end of the said drum, and arranged for engagement by the racks B B. G G are cords attached to the gate and arranged over the pulleys E E', and then attached to the drum F, as shown. Instead of attaching the cords G G to the same drum, each cord may be attached to a separate drum, each arranged to engage the racks B B. G' is a cord also attached to the drum F and to spring H, for the purpose of reversing the rotation of the said drum when the pinion F' is released by the racks B B. I is a yielding piece attached to the cross-bar I', and J J are springs resting against the said cross-bar and forcing it and the piece I toward the roller C. The forward movement of the parts I I' is limited by reason of the contact of the

part I' with the uprights D' D', but this forward movement may be limited by means of any suitable stops. K K are hooks or catches hinged at their lower ends to the cross-bar I'. The central parts of these hooks play freely in eyes attached to the uprights D' D', and the upper ends of the hooks are arranged to engage and support the gate.

As soon as the gate begins to swing open the roller C leaves the piece I, which is then forced forward by the springs J J. The catches K K are thus drawn from the gate, which then falls and shuts off all approach to the bridge. In order to prevent the gate from falling with too great force, it may be counterweighted, as shown at L, Fig. 2. When the bridge is returned to its original position, one of the racks engages the pinion, thus rotating the drum and winding the cords G and G' thereon. By this means the gate is raised to its original position. By the time the gate has reached its proper position the roller C strikes the piece I, and the hooks K K are thus thrown forward so as to support the gate, and by the time the gate is thus supported the inner end of the rack leaves the pinion, and the spring H then reverses the rotation of the drum, thus unwinding the cords and allowing the gate to descend the next time the bridge is opened. Instead of employing the spring H for the purpose mentioned, a weight may be used, as shown at H', Fig. 2. A gate operated in this manner may be arranged at each approach.

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

The combination of the bridge A, provided with the racks B B, and with the push-pieces C C, the yielding part I I', provided with the tilting-hook K K, one or more self-reversible drums, F, provided with the pinion F', and the gate D connected to the said drum or drums by means of the cords G G, all substantially as specified, and for the purposes set forth.

JOHN LADWIG.

Witnesses:

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