

C. P. AUSTIN.  
Railroad-Gate.

No. 204,279.

Patented May 28, 1878.

Fig. 1.

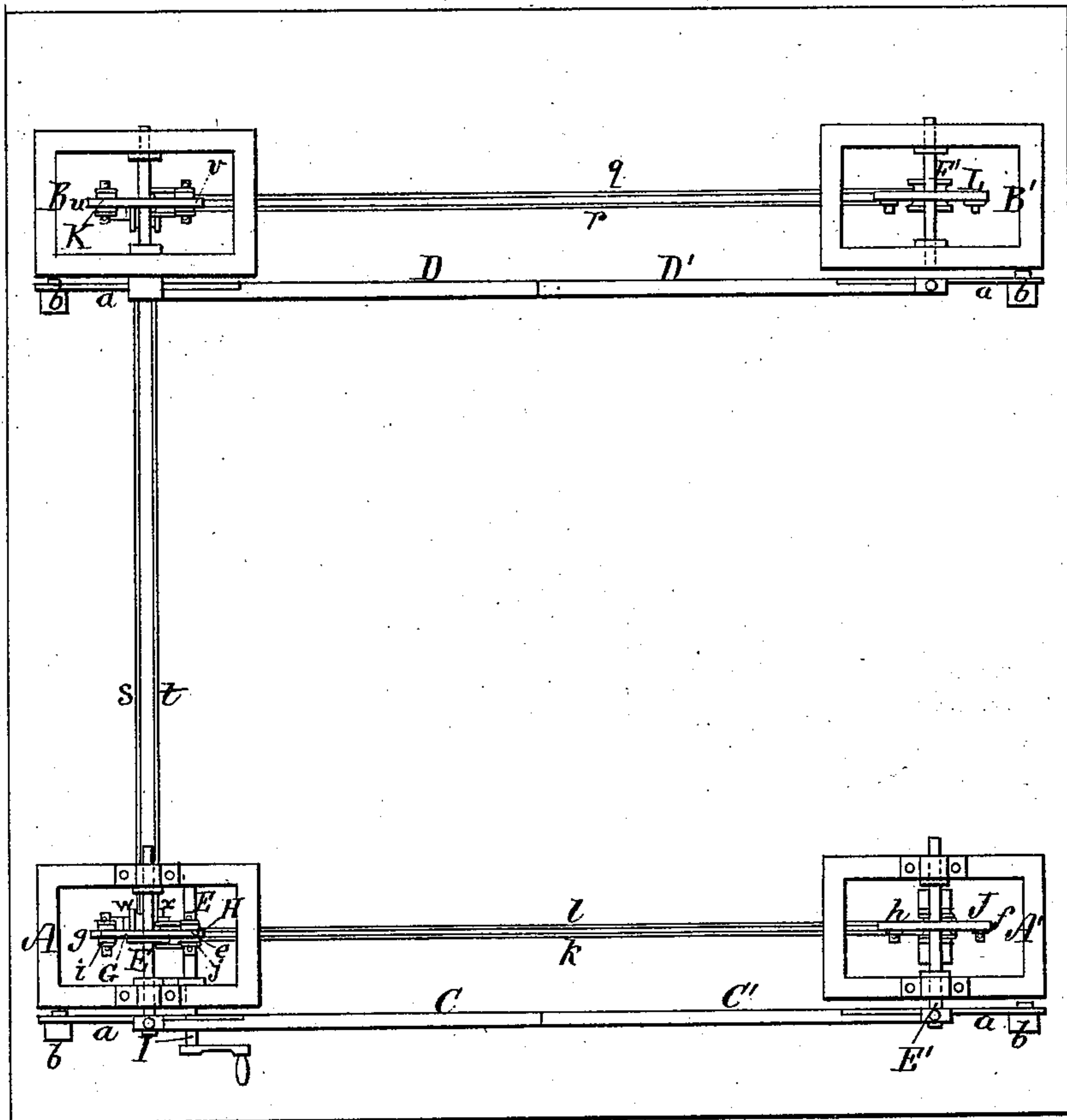
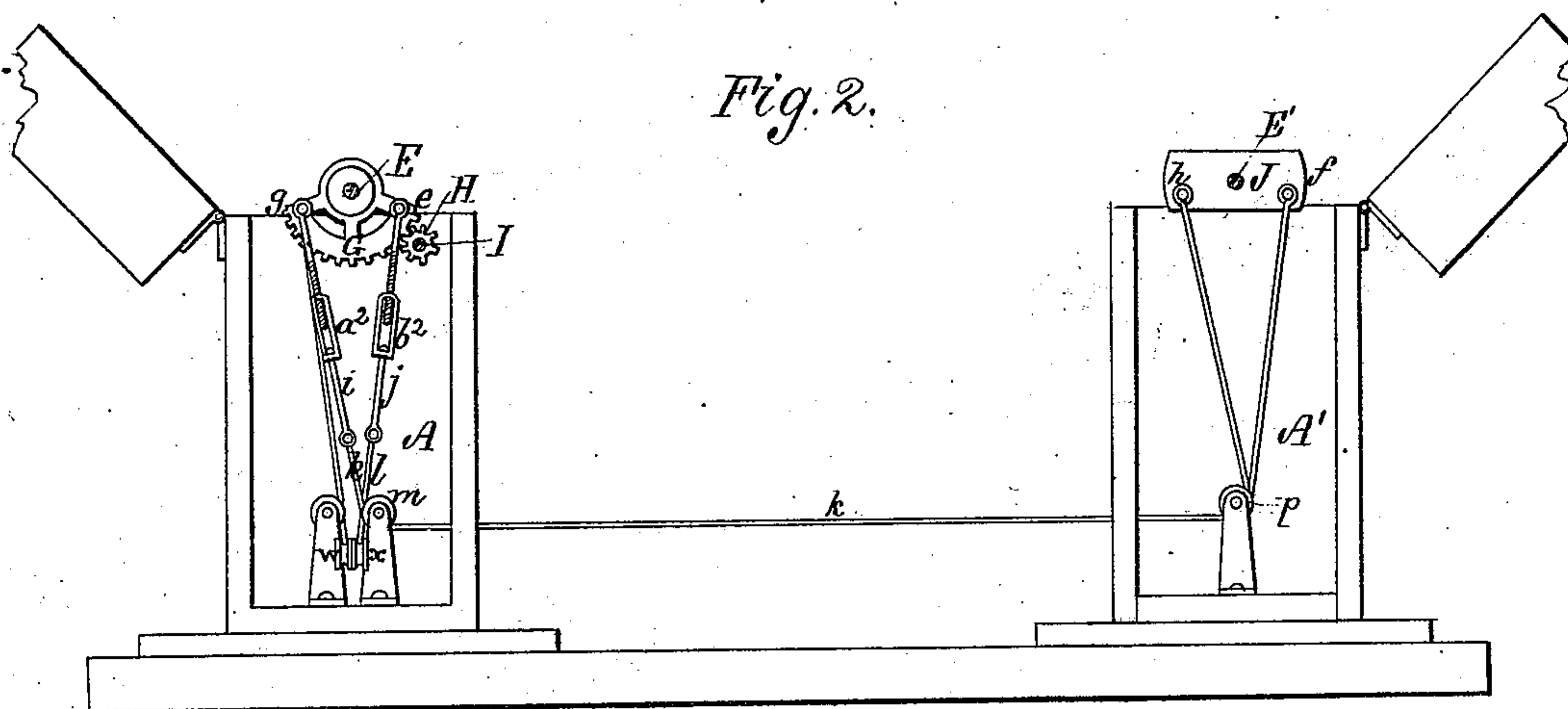


Fig. 2.



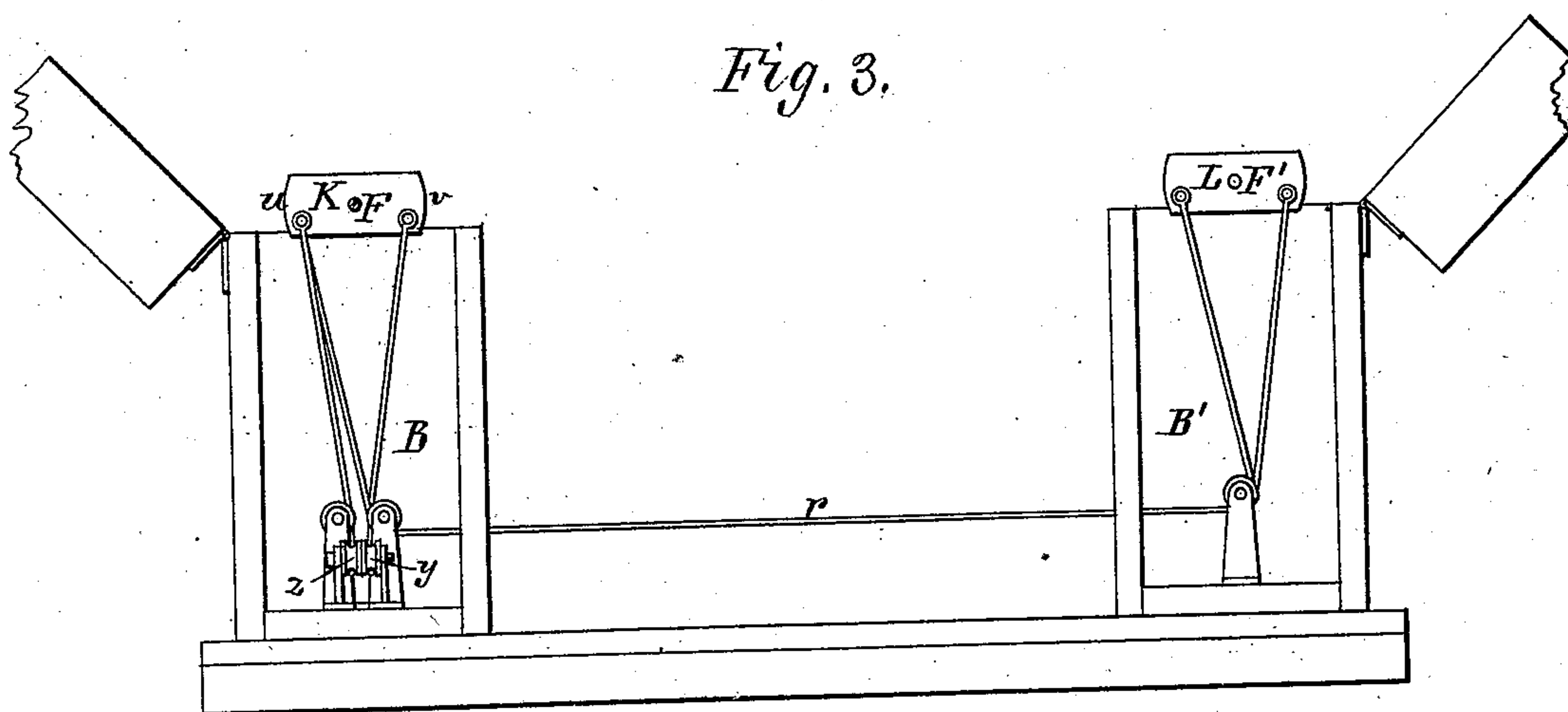
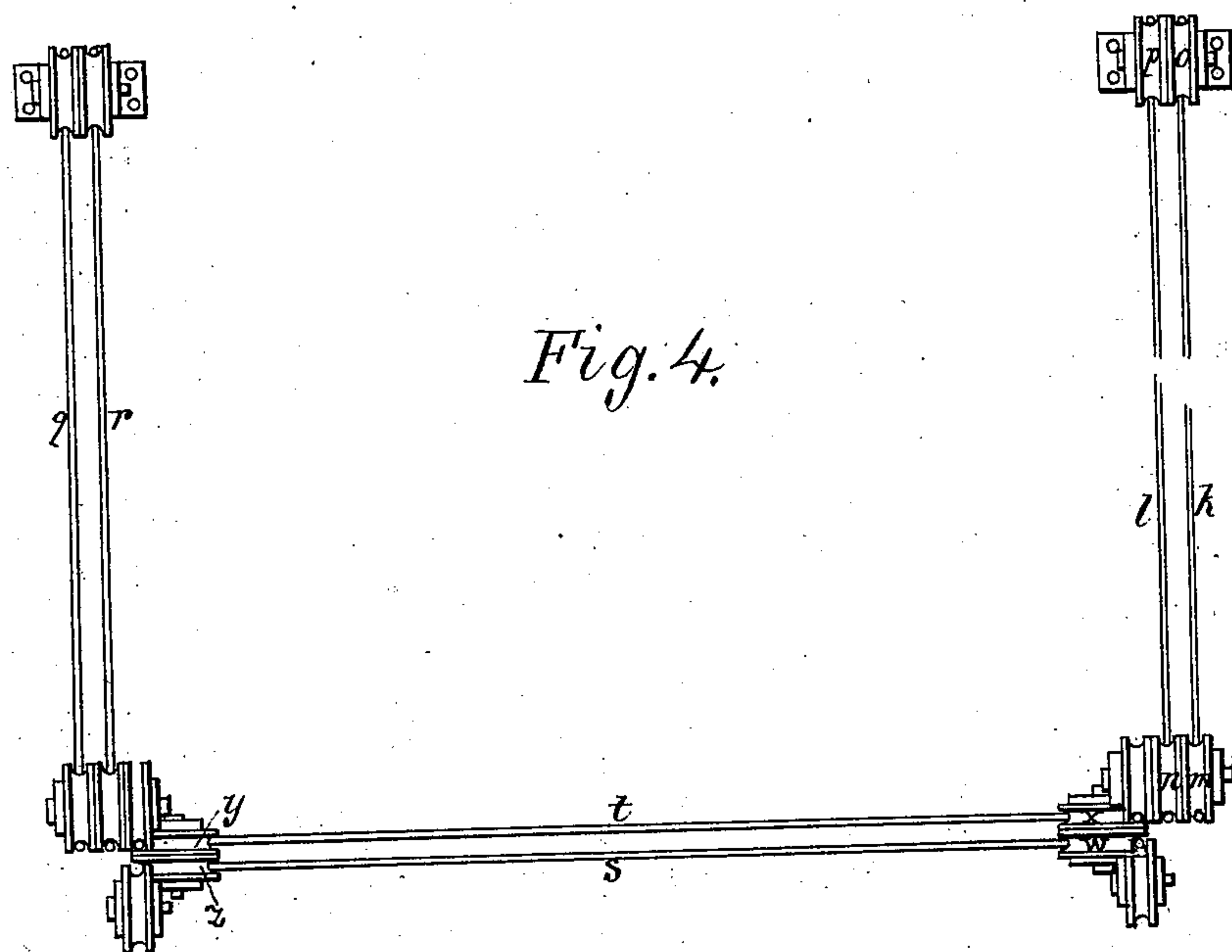
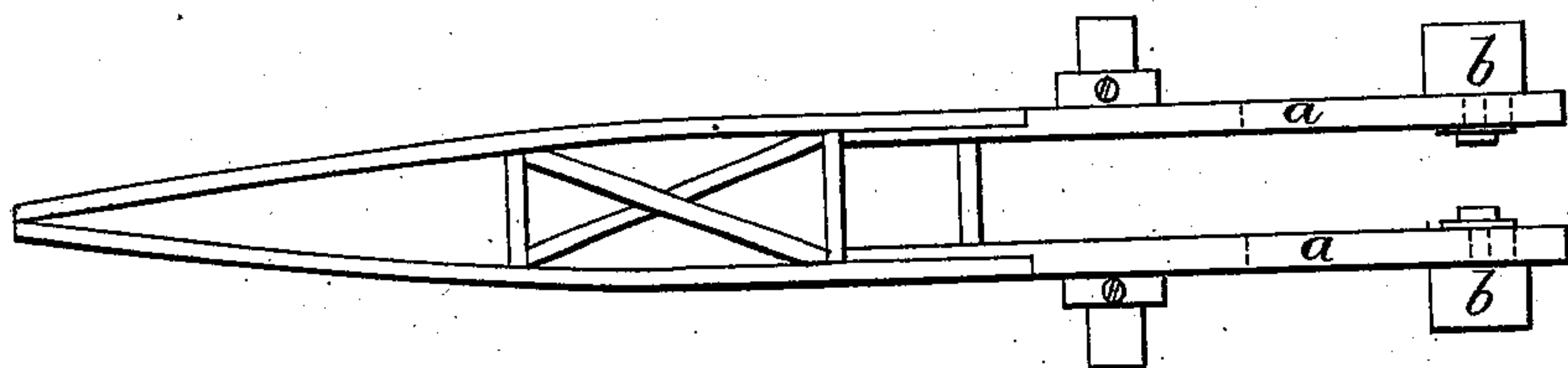
Witnesses.  
Louis A. Curtis.  
Wm. Finell Andrews

Inventor.  
C. P. Austin.  
J. H. Curtis. Atty.

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# UNITED STATES PATENT OFFICE.

CYRUS P. AUSTIN, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN RAILROAD-GATES.

Specification forming part of Letters Patent No. 204,279, dated May 28, 1878; application filed May 2, 1878.

*To all whom it may concern:*

Be it known that I, CYRUS P. AUSTIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Railroad-Gates, of which the following is a specification:

This invention relates to "railroad-gates," so called, or gates employed to obstruct highways over railway-crossings when trains are passing, the class of gates to which my improvements appertain being those in which pairs of bars, operating together upon each side of the highway, swing vertically in arcs of circles upon an axis and meet at the center of said highway, the two pairs of bars being connected by cords and pulleys, or their equivalents, in such manner as to move and close the street simultaneously.

The drawings accompanying this specification represent, in Figure 1, a plan view of a pair of gates embodying my improvements. Figs. 2 and 3 are vertical sections, and Fig. 4 a plan, of the mechanism for operating the gate-bars. Fig. 5 is a view of one of the gate-bars as I propose making it.

In these drawings, A A' B B' represent four upright hollow standards or posts, the same being disposed at the four corners represented by the intersection of a railway-track with a highway. C C' D D' are the gate-bars, which are supported, near one end, each by a rock-shaft, E E' or F F', which is supported in bearings in the upper part of each respective post, the arrangement of each gate bar and shaft being such that the bars are susceptible of movements in vertical planes, in arcs of circles parallel with the railway-track, upon the shafts as centers, in order that, when lowered into a horizontal position, they may obstruct the highway and prevent access of teams or pedestrians to the railway-track, and when raised to a vertical position they shall present a prominent signal to passers that the highway is open and no danger exists.

To counterbalance the weight of the body of each gate-bar, and thereby relieve its operative mechanism, I add to its shorter arm *a* a weight, *b*, and I attach this weight, as shown in the accompanying drawings, in an adjustable manner, in order that its position with respect to the fulcrum of the bar may be varied, by which means I am enabled at all times to provide an

equipoise for the bar, and counteract the effects of moisture, snow, or ice, &c., which would change the weight of such bar.

Each gate-bar is secured to its shaft by a set-screw or its equivalent, in order that its position upon such shaft may be varied should the extremities of either pair of gates fail to coincide when lowered into a horizontal position across the highway.

To operate the gate-bars C C' simultaneously by power applied to one of them, I proceed as follows: I affix to the shaft E of the gate C a sectoral toothed rack, G, while engaging this rack is a pinion, H, affixed to a rock-shaft, I, which is mounted in the upper part of the post A, and alongside of and parallel to the said shaft E, the outer end of the shaft I protruding beyond the post, and being provided with a crank or other means of partially rotating it.

Rocking motions of the pinion impart corresponding motions to the sectoral rack G, and consequently swinging movements of the bar C in a vertical plane. Therefore, by turning the shaft I in one or the other direction, the gate, if closed, is raised into a vertical position, and if open is lowered into a horizontal position.

To operate the gate-bar C' simultaneously with the gate-bar C, I affix to the shaft E' of the former a head or double-crank plate, J, and connect one corner—for instance, *e*—of the rack G with the opposite end *f* of the said head, and the corner *g* of the rack with the end *h* of said head, whereby rocking movements of the rack are followed by corresponding movements of the head.

The particular means which I show in this instance for connecting the extremities of the rack G and head J consist in metallic rods *i j*, connected with the corners of the rack, and cords or chains *k l*, connecting these rods with the head, the said cords or chains passing about pulleys *m n*, disposed in the lower part of the post A, and pulleys *o p* in the post A'. The rods *i* and *j* are provided with turn-buckles *a<sup>2</sup> b<sup>2</sup>*, by means of which any undue slack in the cords or chains (or rods, if rods are used) may be taken up; and these turn-buckles, in addition to performing this, also serve as a means of disconnecting one gate from the others, and enabling one, two, three, or all the gate-bars to be used.



To each shaft F or F' of the opposite pair D D' of gate-bars I affix a head, K or L, and I connect these heads by chains or cords *q* or *r*, in manner similar to the connections of the rack G and head J, in order that a movement of the shaft F and gate-bar D shall produce a corresponding simultaneous movement of the shaft F' and gate-bar D'.

To operate all four gate-bars simultaneously by power applied to the shaft of one, (for instance, of the bar C,) I employ two additional cords or chains, *s t*, and with these cords or chains I connect the corner *e* of the rack G with the corresponding end *u* of the head K, and the corner *g* of the rack G with the end *v* of said head K, the result being that a rocking movement of the rack G and shaft E impart similar movements to the head K and shaft F, while the shafts E' and F' follow the movements of the shafts E and F, as before stated.

Pulleys *w x* and *y z* are placed, respectively, in the lower parts of the posts A and B, to guide the cords or chains *s t*.

By the employment of the rack G and head J, I provide a positive mechanical movement which avoids slip or play, and I am also ena-

bled, by varying the proportions of the pinion H with respect to the rack G, to obtain all the power desired to overcome the friction of the parts.

It will be seen that the entire operative mechanism of my device is covered and protected from the effects of dust, rain, snow, and ice.

I claim—

1. The combination of the shafts E E', gate-bars C C', and rack G and head J, the rack and head being connected by the tension-rods *i j* and cords or chains *k l*, as explained, and the whole being substantially as and for the purposes stated.

2. In general combination, the gate-bars C C' D D', shafts E E' F F', sectoral rack G, and heads J K L, the rack G and head J being connected by the cords *k l*, as stated, and the heads K and L by the cords *q r*, while the rack G and head K are connected by the cords *s t*, the whole being substantially as and for the purposes stated.

CYRUS P. AUSTIN.

Witnesses:

F. CURTIS,

L. A. CURTIS.