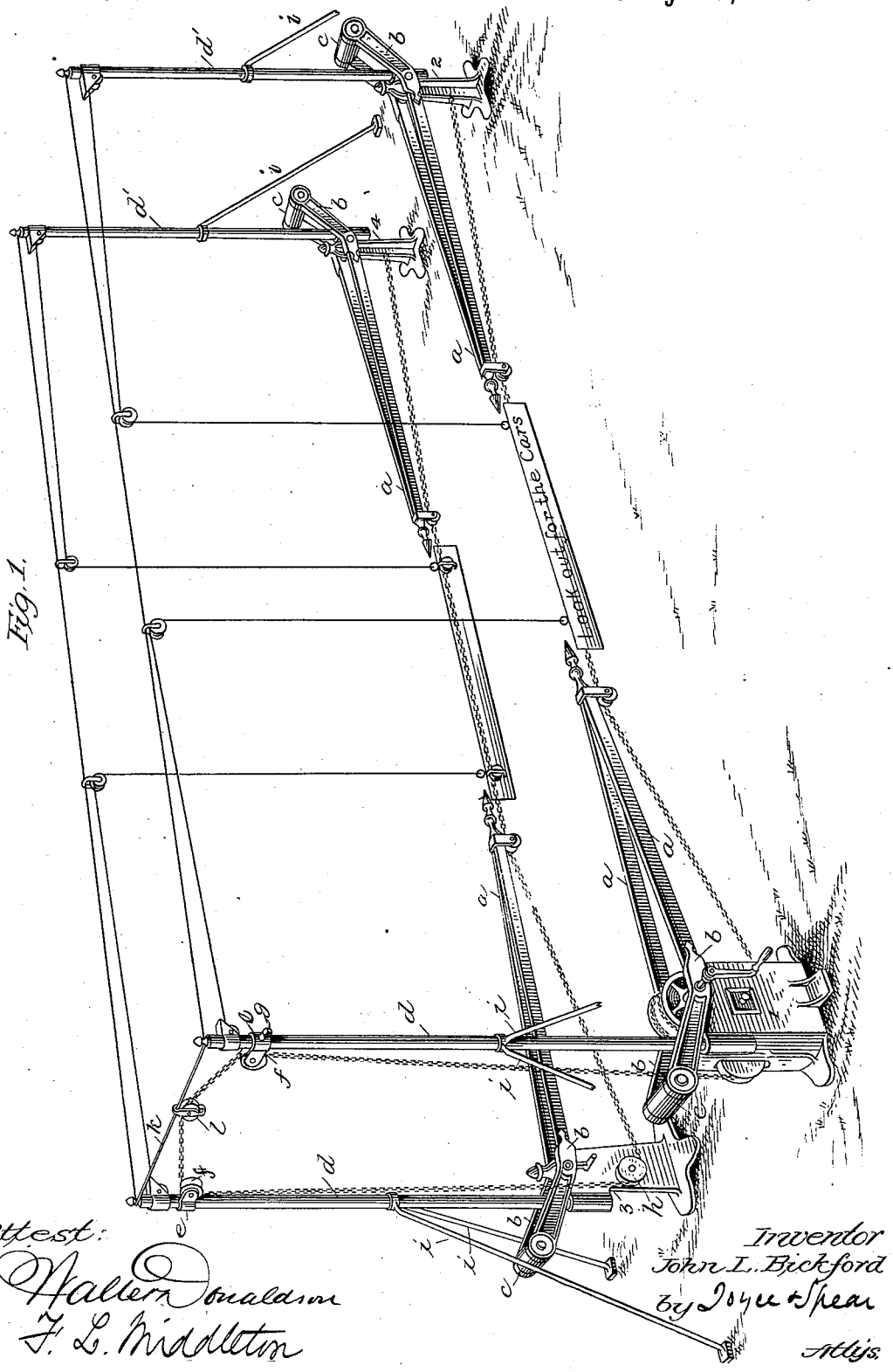
(No Model.) 2 Sheets—Sheet 1.

J. L. BICKFORD.

RAILWAY GATE.

No. 345,568. Patented July 13, 1886.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

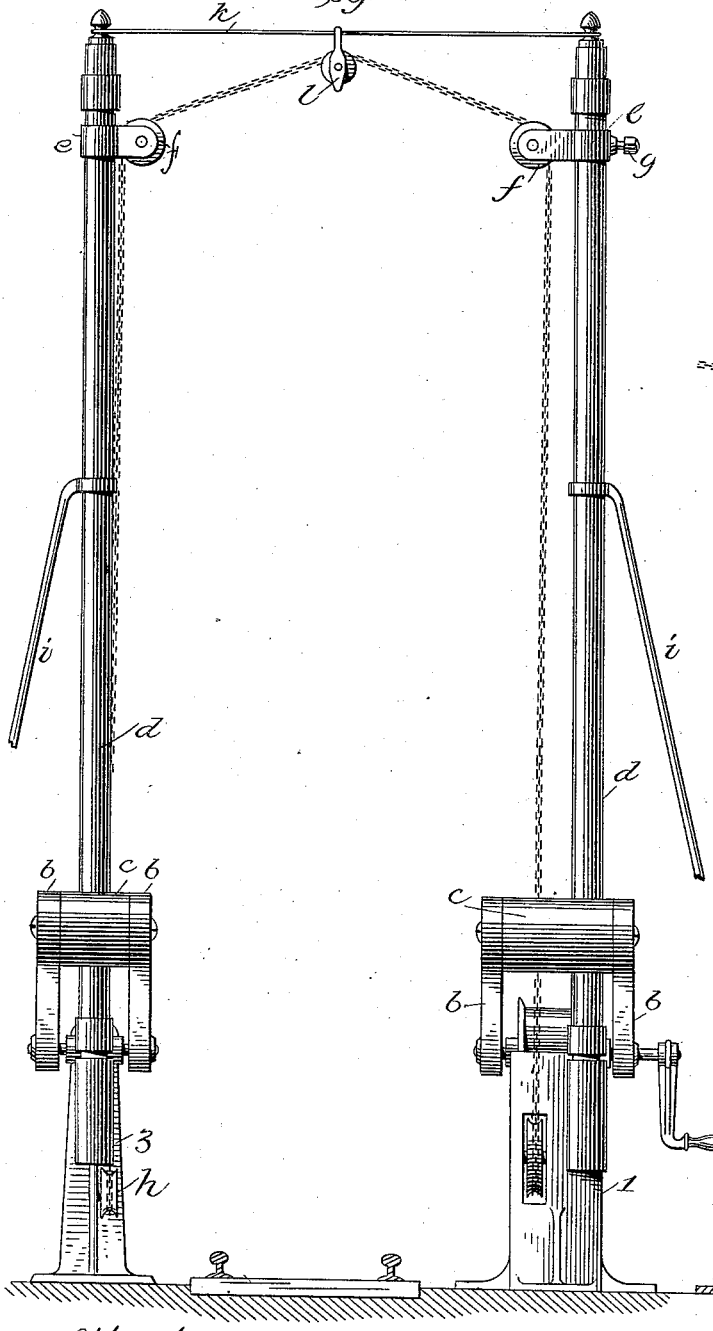
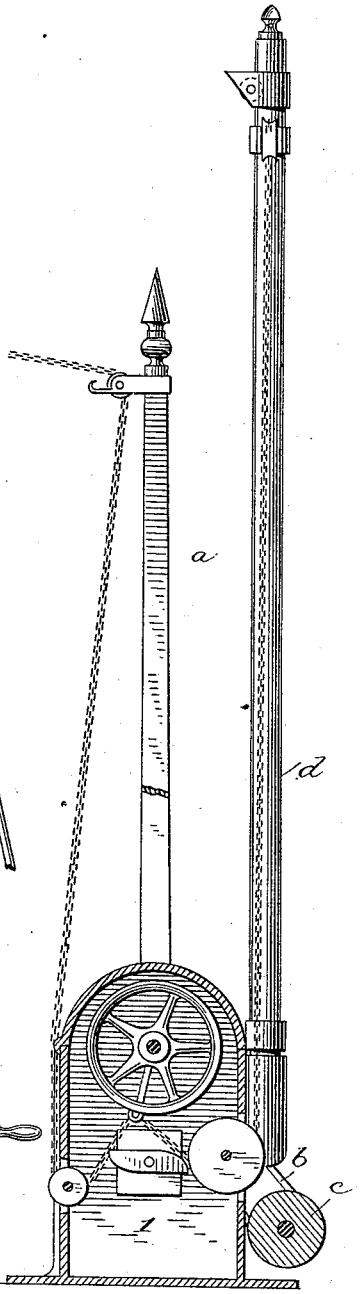


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN L. BICKFORD, OF BROOKLYN, ASSIGNOR TO THE COPELAND MANUFACTURING COMPANY, OF NEW YORK, N. Y.

RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 345,568, dated July 13, 1886.

Application filed September 5, 1885. Serial No. 176,262. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. BICKFORD, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Railway-Gates; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to railway-gates, and is an improvement on that class of gates represented in Letters Patent Nos. 316,747 and 326,828, granted to the Copeland Manufacturing Company April 28 and September 22, 1885, respectively.

The gate shown in the first patent is composed of pivoted bars connected by chains or ropes at their upper ends, which chains or ropes extend to a drum in one of the posts, the chain upon the side opposite to that on which the drum is placed being carried under the track to the said drum. Power is applied to wind up the chains, and thus draw down the bars to close the roadway. Counter-weights are provided upon the ends of the bars to lift the bars to an open position after the train has passed. Passing the chain beneath the tracks to the drum has been found to be objectionable, for the reason that water running down the chains fills up the channel through which the chain passes from one side of the track to the drum upon the other, and in cold weather this water is liable to freeze and entirely stop the working of the gate. Again, in order to run the chain beneath the track, numerous pulleys were necessary in order to direct the chain from its vertical position to the horizontal position at right angles to the said vertical position, a great deal of friction being caused thereby, in addition to the strain upon the rope or chain.

The object of my invention is, primarily, to obviate these difficulties by carrying the chains to the drum over the tracks of the railroad, instead of beneath them.

In the drawings, Figure 1 is a perspective view showing the gate-bars down. Fig. 2 is an end view. Fig. 3 is a detail view, in section.

In the drawings I have represented my improvements as embodied in a railway-gate containing some of the features of the said patents. The gate-bars *a* are preferably of wood, and are secured to metal frames *b*, which are pivoted upon supporting-standards set in proper position on either side of the railroad and roadway. These frames *b* carry counter-weights *c* upon their ends, as shown, which may be adjustable, if desired. From sockets in the supporting-standards 1 2 3 4, upright posts *d d d' d'* extend to a suitable height, being connected to each other in the direction of the gate-bars, and carrying devices for supporting the chains or ropes between the ends of the gate-bars, whether raised or lowered. This is the construction shown in the last-mentioned patent, No. 326,828, and further description herein is unnecessary.

To the upper part of each of the posts *d d* an adjustable collar, *e*, is secured, having a pulley, *f*, held between its ends, and this collar may be adjusted to any angle by loosening the set-screw *g*. The chain or rope on the same side of the track on which the drum is placed extends from the standard 2 of its gate-bar over a pulley on the end of said bar; thence to a pulley on the end of the bar opposite, and thence to the drum through an opening in the inclosing standard or casing 1, in the ordinary manner. Upon the opposite side of the railroad the rope or chain of the companion gate extends across the roadway from the standard 4, in the manner just described, to a pulley, *h*, on the standard 3; thence upward alongside the post *d*, over the pulley on the collar *e*; thence across over the pulley on the opposite collar, and thence downward, entering the casing 1 through an opening in the rear of the drum, to which it is secured. It will be apparent that this construction obviates the necessity for all underground connections, and removes the rope or chains beyond every possibility of being affected, by the weather, while at the same time they are in a position accessible for repairs. The strain upon the posts is counteracted by braces *i i*, as shown.

In order to steady the posts *d d*, I connect the ends, as shown in Fig. 1, by a wire, rope, chain, or rod, *k*, as this is necessary where the distance is great from one side of the tracks to the other. To the center of this wire *k*, I suspend a pulley, *l'*, and carry the rope or chain

through it, thus guiding the chain and preventing all sagging. I have shown but one of these pulleys; but it will be understood that more may be used, if found necessary or desirable.

Instead of the chains shown, any flexible connecting medium may be used.

I claim as my invention—

1. In combination, a gate consisting of counterweighted bars pivoted upon supporting-standards on opposite sides of the roadway, and one side of the railway, the rope or chain attached to one standard passing over a suitable pulley on the end of one gate-bar, and over a pulley on the end of the other bar, forming a connection between the two gate-bars, a like gate with rope or chain on the opposite side of the railway, posts having pulleys on their upper ends, and a winding-drum on one side of the railway, one of the ropes or chains being arranged to pass over a pulley near the pivoted end of the bar, thence up and over the pulley on the top of the post, across to and over the pulley on the top of the post on the opposite side, and down to the drum, substantially as described.

2. In a railway-gate, the combination of gate-bars pivoted on standards, chains connecting said gate-bars. posts extending from the standards at one side of the roadway carrying supporting-pulleys, and a connecting-wire for the top of said posts having a supporting device suspended therefrom, the chain of one set of bars passing over pulleys on the ends of the said bars to a pulley on the standard 3, thence to and over the pulleys on the upright posts and over the suspended pulley, and thence to the drum, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN L. BICKFORD.

Witnesses:

F. L. MIDDLETON,

W. C. DUVALL.