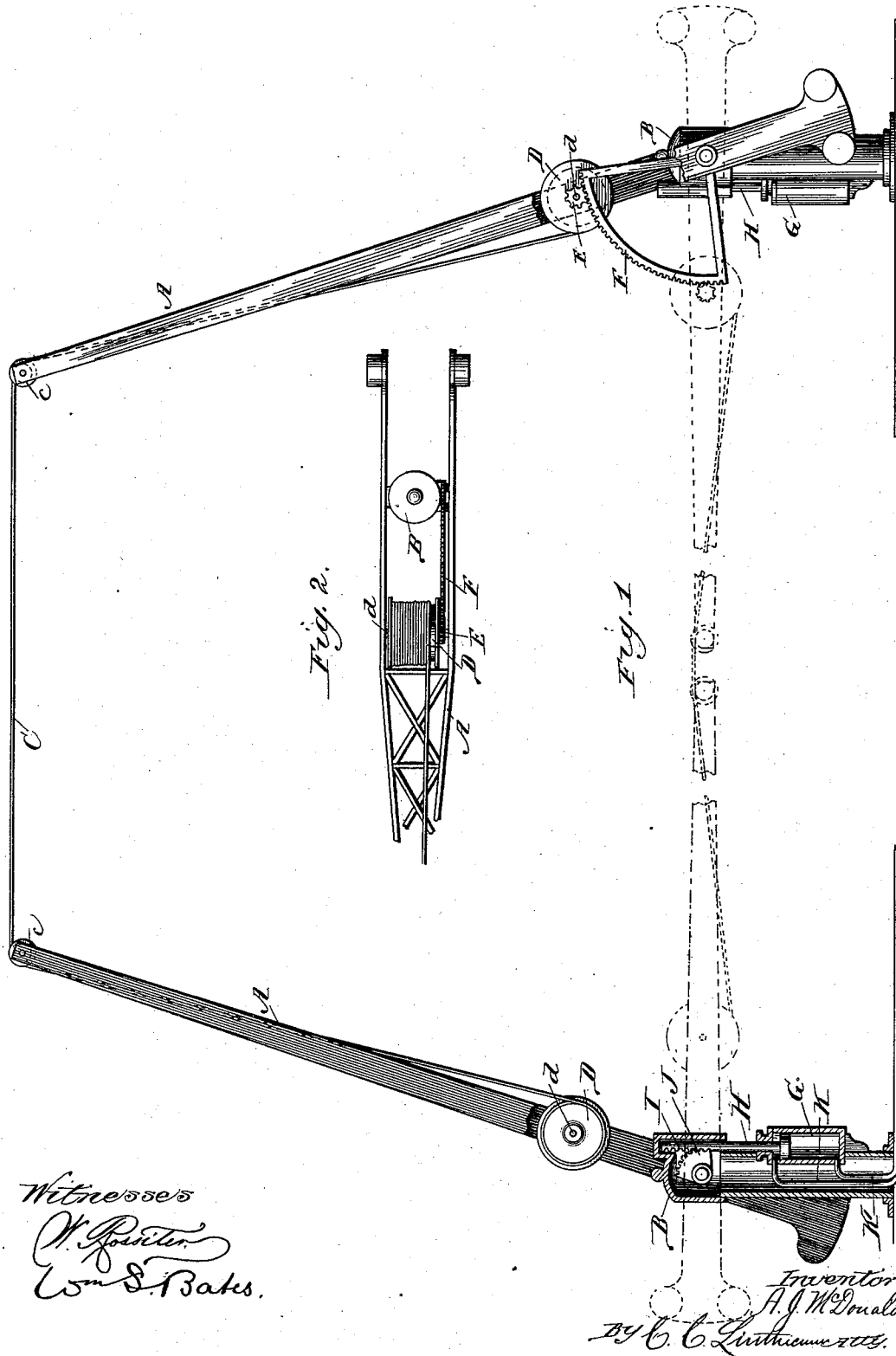


(No Model.)

A. J. McDONALD.  
TIE FOR RAILWAY GATES.

No. 383,967.

Patented June 5, 1888.



# UNITED STATES PATENT OFFICE.

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## TIE FOR RAILWAY-GATES.

SPECIFICATION forming part of Letters Patent No. 383,967, dated June 5, 1888.

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*To all whom it may concern:*

Be it known that I, ALEXANDER J. McDONALD, of Chicago, Illinois, have invented certain new and useful Improvements in Ties for Railway-Gates, of which the following is a specification.

The swinging bars of railway-gates are usually of considerable length, (eighteen to fifty feet,) and are pivotally supported near one end to posts set usually at the sides of the streets. It is desirable that they shall be as light as possible consistent with proper strength, so that they may be easily operated with small power. As thus constructed, these bars are easily affected by strong winds, whereby they are thrown out of line and their prompt and easy operation interfered with. A further and greater difficulty is experienced from the breaking of these arms by teams running or being driven against them. In consequence a considerable amount of trouble and expense is incurred in maintaining such gates.

The object of my invention is to provide means for tying or anchoring these swinging bars to each other, whereby to keep them in line, prevent their being broken, and secure their positive and simultaneous action. To these ends I employ a flexible connecting medium, preferably a wire cable, which passes over sheaves in the ends of the bars, and the ends of which cable are secured, respectively, to drums on the bars, preferably at or near their pivotal points. These drums are mounted on shafts carrying pinions, which pinions enmesh with toothed segments rigidly secured upon the posts or other stationary portion of the gate. The cable is of such length, and the drums, pinions, and toothed segments are of such proportions, one to another, that said cable is always taut in all positions of the gate-bars.

In the accompanying drawings I have illustrated my improvement in connection with a railway-gate, the motive power of which is furnished by cylinders located in the posts, and adapted to operate said gate-arms by means of toothed segments on the arms, with which racks on the piston-rods mesh, the power being furnished by compressed air or other suitable motor; but it will be understood that this tie may be employed on gates operated in other ways.

In said drawings, Figure 1 is a side elevation, partly in section, of a pair of gate-bars so located as to close the space between them, and showing the posts with their cylinders, pistons, racks, &c.; and Fig. 2 is a plan view of part of one of the gate-bars, showing particularly the drum and cable wound thereon.

In said drawings, A A are the gate-bars, which are pivoted to the posts B.

C is the cable. c c are sheaves on the ends of the gate-bars, over which the cable passes, and D D are the drums to which the cable is secured. These drums are secured upon shafts d d, which turn freely in their bearings in the gate-bars. These shafts carry pinions E, which mesh with toothed segments F, the latter being secured, preferably, upon the gate-posts, with their centers of curvature at the centers of motion of the bars.

G G are the cylinders, H H the piston-rods, and I the racks on the piston-rods.

J are the segments with which the racks engage to operate the bars.

K K' are the pipes communicating with the cylinders above and below their pistons, respectively, and through which the compressed air or other operating medium is forced.

In operation, as the pistons are forced upward and the gate-arms raised, the drums are revolved by the rolling of the pinions on the toothed segments and the cable pays out. As the bars descend, the drums are revolved in the opposite direction and the cable is wound upon the drums.

As before stated, the cable is of such length and the drums and gearing of such proportions that the cable is always drawn taut over the sheaves c c. It is obvious that said cable may be of wire, rope, chain, or other flexible material. It will be observed that the secured ends of the cable are near the pivots of the bars, and I construct the sheaves so that the cable cannot be thrown off them, from which it results that the ends of the bars are securely tied together, and any shock received is transmitted through the cable to the bars at the point where the drums are fixed. It will be apparent from the above description that the bars are securely tied or locked to each other in all positions which they assume, and that one cannot move without the other, and thereby it results that the wind or other ex-

traneous force does not affect their simultaneous action or proper relative positions. These cables are easily detached, when it is desired to move a house or other tall object between the gates, by disconnecting one end from its drum.

I claim—

1. The combination, in a railway-gate, of gate-bars pivoted upon supports and adapted to be turned upon their pivots to open and close the crossing, drums mounted upon said bars toward their pivotal points, pinions secured to turn with said drums, and toothed segments, with which said pinions mesh, secured to a fixed part of the gate, and a cable secured to the drums and passing over sheaves secured to the gate-bars toward their outer

ends, whereby the swinging of the gate-bars operates to take up and pay out the cable, substantially as described.

2. In a railway-gate, the combination, with the gate-bars A, pivoted to posts B, of a cable, C, sheaves c at the ends of the gate-bars, drums D, mounted on said bars and carrying pinions E, which pinions mesh with segments F, secured to a fixed part of the gate, whereby the swinging of the gate-bars operates to rotate the drums and to pay out and take up the cable, substantially as set forth.

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Witnesses:

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