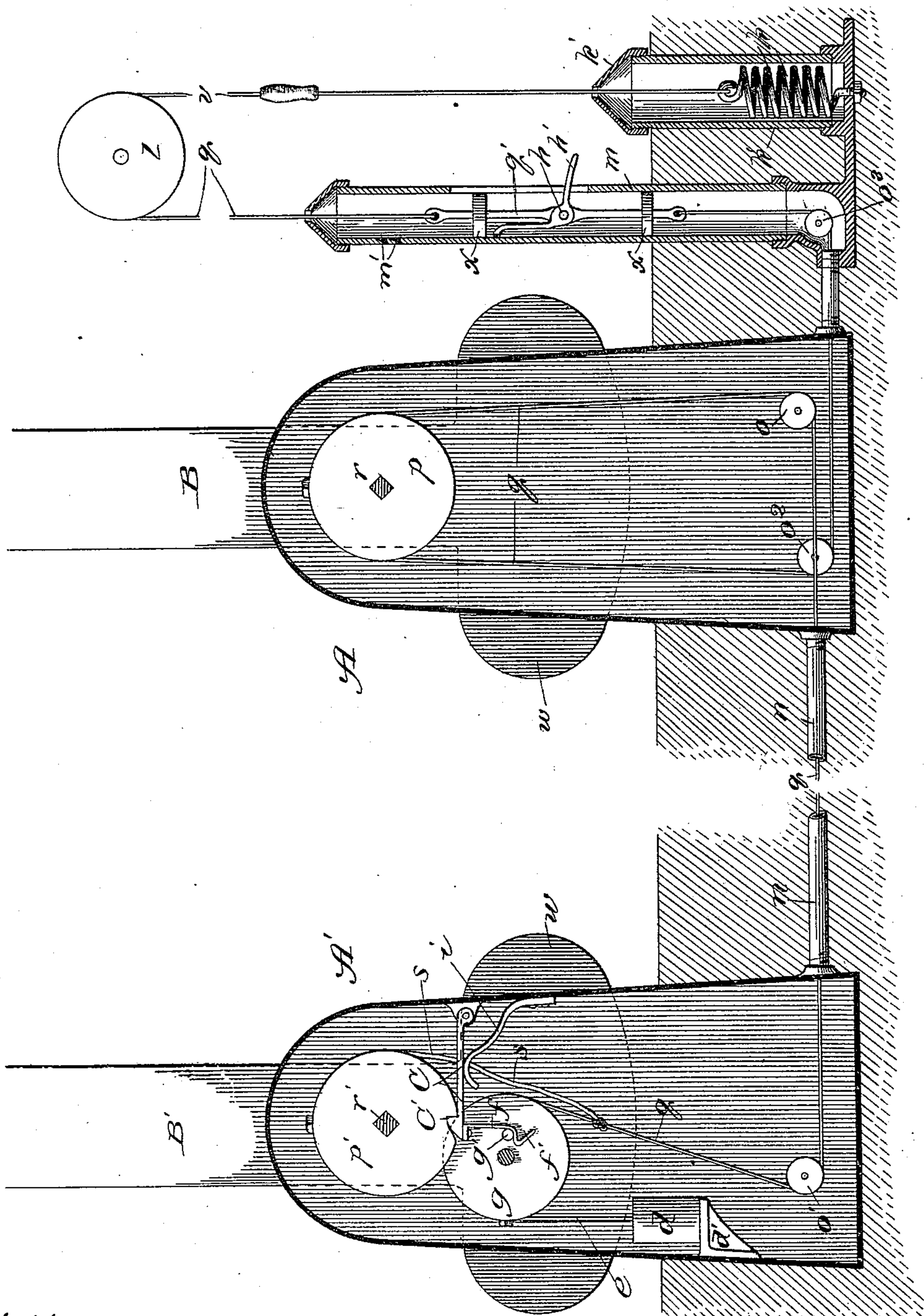


(No Model.)

M. B. MILLS.
RAILWAY GATE.

No. 442,755.

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UNITED STATES PATENT OFFICE.

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RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 442,755, dated December 16, 1890.

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To all whom it may concern:

Be it known that I, MORTIMER B. MILLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Railway-Gates, of which the following is a specification.

My invention relates to an improvement in the class of gates commonly employed at railroad-crossings, and comprising each a pair of arms supported to be swung through a vertical plane toward each other, to extend over the crossing and form the barrier and from each other to raise the barrier; and it relates particularly to a gate, in the class stated, in which the swinging arms are so tied together as to cause the raising or lowering of one to raise or lower with it the other. In a gate involving the construction thus generally outlined means should be and are frequently provided to lock the arms when raised against the tendency of wind blowing in the direction against the back of either to lower them.

One object of my improvement is to provide very simple but effective means to prevent the action referred to of the wind, and a further object is to provide an improved construction as to details of a railway-crossing gate of the variety thus generally set forth.

The accompanying drawing shows by a broken sectional view, diagrammatic in its nature, a railroad-gate provided with my improvements.

A and A' are the posts, which are preferably hollow, as shown.

B and B' are the arms, which are weighted at their rear ends, as indicated at *w*, to cause them to tend to rise to the positions in which they are illustrated. The arms are supported on shafts *r* and *r'*, journaled in the posts and carrying pulleys *p* and *p'* or equivalents thereof.

A cable *t* or analogous flexible medium is secured at one end to the periphery of the pulley *p'*, (which should be grooved,) passes thence about a guide-pulley *o'* near the base of the post A', through an underground conduit *n* between the posts, about a guide-pulley *o* in the post A to the pulley *p* in the latter, where it is secured. The cable, of course, extends around the pulleys *p'* and *p* in opposite directions to enable it to produce the de-

sired simultaneous raising or lowering of the gate-arms. From the inner side of the periphery of the pulley *p* the cable extends about a suitable guide *o''* out of the post A to the operating mechanism, (ordinarily provided in a properly-located cabin, not shown,) about a guide-pulley *o'''* in the base of a vertical guide-tube *m*, wherein a stiff rod *q'*, having guides *x*, forms a link in the cable, which passes thence over a pulley *l* in an elevated position in the cabin, and is connected at its end with a stiff spring *k* in a housing *k'*, the resistance offered by the spring to the raising of the arms B and B' being proportioned to be somewhat less than that exerted by the weighted ends *w* of the two gate-arms. In one inner side of the tube *m*, near its upper end, are ratchet-teeth *m'* (one or more) to be engaged, as hereinafter described, by a dog *h*, pivoted in proper position on the rod *q'* and extending at its rear end to form a pedal *h'* through a vertical slot in the opposite side of the guide-tube.

It should here be stated that when the arms B and B' are in their normally-raised positions the cable *q* throughout a portion thereof adjacent to the pulley *p'* is slack, as shown at *s*, which is caused by providing it in such length between the points at which its opposite ends are fastened as to prevent its being drawn taut by the assumption of the gate-arms of their raised positions. From a proper point below the pulley *p'*, however, the cable is maintained taut by means hereinafter described.

In the post A', I provide a dog C, normally held by a spring *i* in engagement with a tooth C' on the pulley *p'*, whereby wind blowing against the back of the arm B' or of the arm B may not lower it, though sufficiently forcible to overcome the weights *w*, but will be effectually resisted by the locking effect of the dog. Adjacent to the pulley *p'* and extending into the path of the cable *q* is a pulley *g*, journaled in the post A' and provided eccentrically with a stud *g'* to engage with a hook-shaped spring *f*, depending from the free end of the dog C and having a guide-extension *f'*. A branch cable *e* is secured between its extremities to the periphery of the pulley *g* and at one end to the cable *q*, and has secured to its opposite end a weight *d* suf-

sufficiently heavy to maintain the cable q taut between the end at the spring k and the point of attachment of the branch e , and a rest d' should be provided for the weight when in its normal position with the gate-arms up.

The operation is as follows: To lower the gate-arms from their raised positions in which they are illustrated, the operator pulls upon the cable q at the length v thereof to overcome the resistance of the weights in the system of mechanism, and the strain thus exerted is materially supplemented by the resilient force of the spring k tending to resume its normally-compressed condition from the distention in which it is shown. The primary result of this action is to turn the pulley g in the direction which forces the stud g' past the spring f , in passing which it pulls the free end of the dog C from engagement with the pulley p' , thereby freeing the latter. The secondary effect is to take up the slack s in the cable q , and thenceforth during the continued exertion of the strain of the operator turn the pulleys p' and p to produce simultaneous lowering of the gate-arms. When the arms have reached their relative positions of forming the barrier, the pivotal dog h will have been raised into position to engage with a notch or tooth m' , into which it falls by the gravity of its engaging end, and it there holds the gate-arms against their tendency to rise by the weights which control them to that end. To produce the rise of the gate-arms the operator releases the dog h by stepping upon the pedal-extension h' thereof, (at the same time assisting the release by pulling the length v of the operating-cable,) when the arms are free to rise, in doing which the weight d descends, pulling the cable to the taut condition described, thereby also turning the pulley g in the direction to guide its eccentric g' against the extension f' of the spring f into the hook of the latter, and permit the dog C to re-engage with the pulley p' when it reaches the proper position to permit such engagement.

The construction thus described may be variously changed as to details without thereby departing from my invention. Thus, to cite one obvious change, the spring k may be supplanted by a weight, though the spring is greatly preferable.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a railway-gate having arms B and B' , supported on posts and weighted to assume, automatically, their raised positions, pulleys p and p' or the like on the arm-shafts, a cable q , tying the arms at their said pulleys, to cause the raising or lowering of one arm to raise or lower with it the other and sufficiently long to be slack near one of said pulleys with the arms raised, a weight d , connected with the cable to maintain it taut below the slack, and a dog C , normally engaging with said pulley to lock the raised arms and connected with and controlled from the cable, substantially as and for the purpose set forth.

2. In a railway-gate having arms B and B' , supported on posts and weighted to assume, automatically, their raised positions, pulleys p and p' on the arm-shafts, a cable q , tying the arms at their said pulleys, to cause the raising or lowering of one arm to raise or lower with it the other, and slack near the pulley p' with its arm B' raised, a spring-dog C , normally engaging the pulley p' and provided with an extension f , a pulley g , having an eccentric g' to engage the said extension, and a weight d , connected over the pulley g by a branch cable e with the cable q , substantially as and for the purpose set forth.

3. In a railway-gate having arms B and B' , supported on posts and weighted to assume, automatically, their raised positions, pulleys on the arm-shafts, a cable q , connecting the arms at the pulleys, to cause the raising or lowering of one arm to raise or lower with it the other, and operating mechanism comprising a spring k , to which the cable is secured, a link q' in the cable, a suitable guide m , having a ratchet-tooth m' , and a dog h , pivotally supported on the link, substantially as described.

4. In a railway-gate having arms B and B' , supported on posts and weighted to assume, automatically, their raised positions, pulleys on the arm-shafts, a cable q , connecting the arms at the pulleys, to cause the raising or lowering of one arm to raise or lower with it the other operating mechanism comprising a spring k , to which the cable is led and secured, a link q' in the cable, a suitable guide m , having a ratchet-tooth m' , and a dog h , pivotally supported on the link, and a dog C , normally engaging a pulley on an arm-shaft to lock the raised arms and controlled from the cable, substantially as and for the purpose set forth.

5. A railway-gate comprising, in combination, arms B and B' , supported on posts A and A' and weighted to assume, automatically, their raised positions, pulleys p and p' on the arm-shafts, a cable q , tying the arms at their said pulleys, to cause the raising or lowering of one arm to raise or lower with it the other, and slack near the pulley p' with its arm B' raised, a spring-dog C , normally engaging the pulley p' and provided with an extension f , a pulley g , having an eccentric g' to engage the said extension, a weight d , connected over the pulley g by a branch cable e with the cable q , and operating mechanism comprising a spring k , to which the cable is led and secured, a link q' in the cable q in a guide-tube m , having a ratchet-tooth m' , and a dog h , pivotally supported on the link and extended into a pedal h' , the whole being constructed and arranged to operate substantially as described.

MORTIMER B. MILLS.

In presence of—

J. W. DYRENFORTH,
M. J. FROST.