

(No Model.)

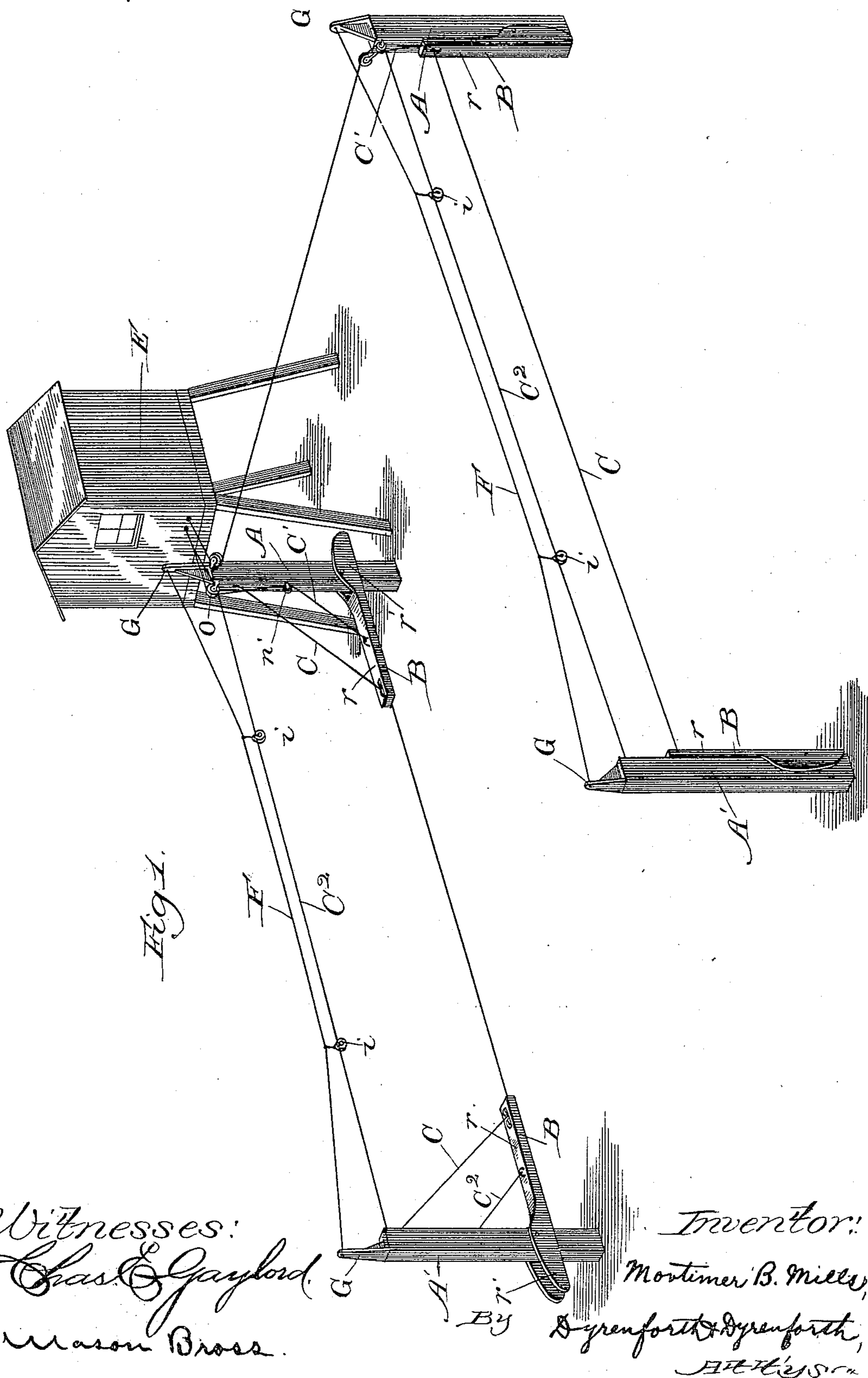
2 Sheets—Sheet 1.

M. B. MILLS.

GATE.

No. 343,249.

Patented June 8, 1886.



Witnesses:
Chas. E. Gaylord.
Mason Bross.

Inventor:
Mortimer B. Mills,
Dyrenforth & Dyrenforth,
ATTORNEYS.

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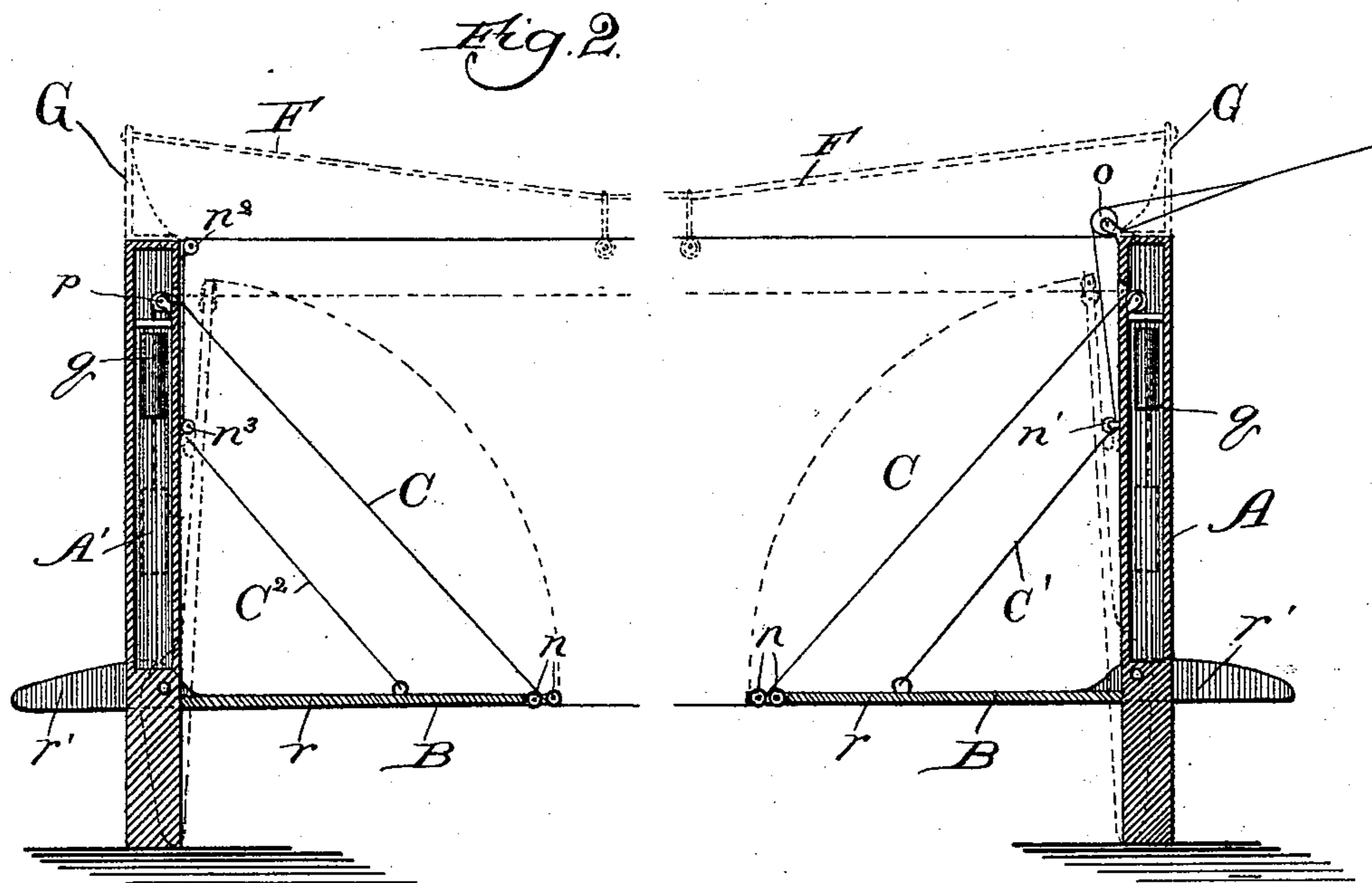
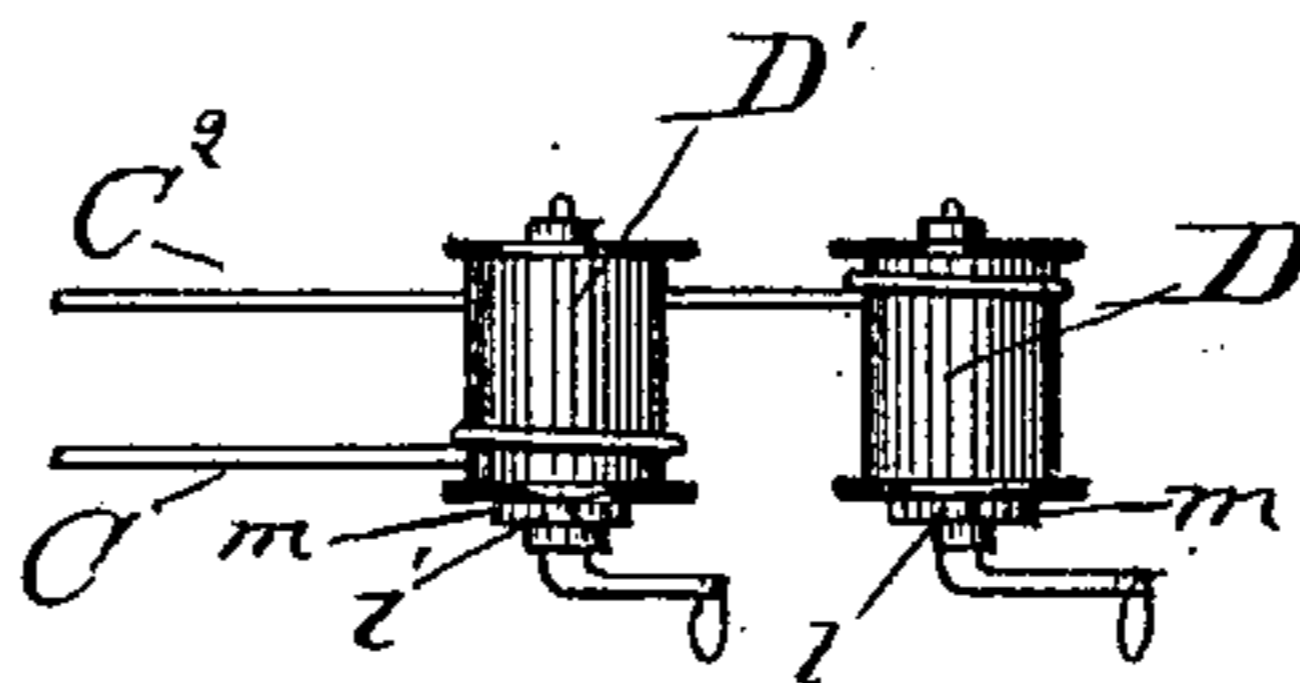


Fig. 3.



Witnesses:
Chas. E. Gaylord.
Mason Bros.

Inventor:
Mortimer B. Mills,
By Dyrenforth & Dyrenforth,
ATTORNEYS

UNITED STATES PATENT OFFICE.

MORTIMER B. MILLS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE SAFETY GATE COMPANY, OF SAME PLACE.

GATE.

SPECIFICATION forming part of Letters Patent No. 343,249, dated June 8, 1886.

Application filed August 6, 1885. Serial No. 173,692. (No model.)

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 certain new and Improved Gate; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates, particularly, to safety-gates for railway-crossings, commonly used to afford in the road barriers to the passage of vehicles on the approach to the crossing of a locomotive or train.

It is my object to provide a gate for the foregoing purpose which shall comprise a construction of very great simplicity and cheapness, and which shall at the same time be effective under all circumstances, owing to a lack of liability to become inoperative.

With my present invention it is desired to avoid the employment of pneumatic or other automatically-operating force to actuate the gate, thereby rendering it unnecessary to place any portion of the mechanism under ground, which, under the most favorable conditions, presents the objection that the parts are at least inconvenient of access for purposes of repair, and that in the winters of severe climates the necessity for such repair is liable to occur with annoying frequency.

My invention consists in the general construction of my improved gate, and in certain details of the constructions and combinations of the parts forming the same, all as herein- after more particularly set forth and claimed.

Referring to the drawings, Figure 1 is a perspective view of my invention, showing a pair of gates of my improved construction on each side of a space corresponding with a railway-crossing, representing one gate as lowered and the other as raised, the operation of raising and lowering being performed from a watch-house properly located; Fig. 2, a vertical sectional view of a gate, showing details of its construction, and indicating by dotted lines the manner of its operation; and Fig. 3, a detail view showing windlasses for winding and unwinding the actuating ropes or cables of the gates, provided with suitable dog mechanism.

A and A' are gate-posts, sunk into the ground a sufficient distance to afford to them desired stability in their respective positions. To a distance preferably of about three feet above the ground the posts are solid, but hollow, as shown, throughout the remainder of their height, which may be about twenty feet.

B B are bars, or, as I prefer to term them, "levers," owing to the function which they perform, as hereinafter described. The levers B comprise each a solid forward portion, *r*, having a bifurcated rear portion, *r'*, preferably of the form shown, to embrace opposite sides of the solid portion of a post, to which it is pivotally secured at a point preferably about three feet above the surface of the ground, and at about the same distance from its own rear extremity.

C is a cable, having a weight, *q*, secured to each extremity, one weight being located within the hollow part of each post A and A'. The cable C is supported toward its opposite ends upon pulleys *p* on bearings within the posts, and extends through an opening in the forward extremity of the part *r* of each lever B, between friction-pulleys *n*, journaled therein.

C' is another cable, secured at one end to the forward part, *r*, of a lever, B, behind the cable C, and extending under a pulley, *n'*, on the post A, toward the center of its inner side, and over a pulley, *o*, on the upper extremity of the post A, and secured to the cable C², which passes under the pulley *o*, and extends thence across to the top of the post A', passing around pulleys *n*² and *n*³, supported in suitable bearings upon the post and secured to the part *r* of the adjacent lever B, as shown. From the point of junction of the cables C' and C² they lead to a windlass, D, in a watch-house, E, suitably located, and the windlass is provided with a ratchet, *m*, and dog *l*, of common construction and for the usual purpose.

When circumstances require the posts A and A' to be a great distance apart, which will necessitate the use of a cable, C², of correspondingly great length, the latter may require supporting between the posts. A suitable means for this purpose is shown in the drawings to comprise a cable, F, secured at

its opposite ends to vertical extensions G upon the upper ends of the posts and carrying rings i, through which the cable C² passes.

The operation of the gate is as follows: The cable C mainly affords the barrier portion. By turning the windlass D in one direction the cables C' and C² operate to raise the levers B to vertical positions against the inner sides of the posts A and A', the form of the levers and manner of their adjustment permitting them to lie, when thus raised, with their upper or rear sides in contact with their respective posts. With the raising of the levers the cable C is also raised, the weights q, at its opposite extremities, descending to take up whatever slack may be occasioned by the difference in the lengths of the hypotenuses when the levers are down, and the opposite sides when the levers are up, of the triangles described by the resultant positions of the cable C. The levers B are not balanced; but the forward portion, r, of each is somewhat heavier than the combined weight of its rear portion, r', and the adjacent weight q, whereby it will fall when released to afford the barrier at the crossing by its own gravity, the fall of course being properly controlled by the operator at the windlass. The length of the levers B, upon which depends the height to which the cable C may be raised, is usually about fifteen feet, though this is necessarily regulated according to municipal requirements in such matters.

A lantern casting a light of a desired color may be hung centrally upon the cable C to indicate at night from a distance by its position the raised or lowered condition of the gate.

As the two gates shown in Fig. 1 are operated independently, their operating-windlasses D and D' being placed in such close proximity as to permit one operator simultaneously to control both, further description is not necessary, since the foregoing applies to either or both.

I am aware that the construction of a gate having posts carrying arms pivotally secured upon them, and a cable connecting the arms, to form with the latter when lowered a barrier, is not broadly new, inasmuch as a patent has already been issued for a gate consisting of bars on posts and provided with weights, and combined with a rope attached to the top of one bar, passing over a pulley on the other bar, and connected to a drum, whereby the bars are pulled down together, and the rope forms a part of the gate when the bars are down.

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

1. A gate comprising, in combination, posts carrying arms or levers pivotally secured thereon to be raised or lowered, a cable weighted at its opposite extremities connecting together the arms or levers and supported toward its opposite extremities, and means, substantially as described, for actuating the arms

or levers to raise and lower them, together with the cable, as set forth.

2. A gate comprising, in combination, hollow posts carrying arms or levers pivotally secured thereon to be raised or lowered, a cable connecting together the arms or levers, and supported toward its opposite extremities on pulleys within the posts, and having secured to each extremity a weight movable within the posts, and means, substantially as described, for actuating the arms or levers to raise and lower them, together with the cable, as set forth.

3. A gate comprising, in combination, posts A and A', hollow throughout a part of their extent, bifurcated arms or levers B, pivotally secured upon the posts, a weight, q, within each post having a gravity, which, combined with that of the portion of an arm or lever, B, behind the pivotal point thereof, is less than that of the portion of the arm or lever forward of its pivotal point, a cable, C, having secured to each extremity a weight, q, and extending over pulleys p in the posts through openings formed in the arms or levers B toward their forward extremities, and provided with friction-pulleys n, and means, substantially as described, for actuating the said arms or levers to raise and lower them, together with the said cable, as set forth.

4. A gate comprising, in combination, posts A and A', hollow throughout a part of their extent, bifurcated arms or levers B, pivotally secured upon the posts, a weight, q, within each post having a gravity, which, combined with that of the portion of an arm or lever, B, behind the pivotal point thereof, is less than that of the portion of the said arm or lever forward of its pivotal point, a cable, C, having secured to each extremity a weight, q, and extending over pulleys p in the posts through openings formed in the arms or levers B toward their forward extremities, and provided with friction-pulleys n, cables C' and C², secured each at one extremity to an arm or lever, B, and extending around pulley mechanism provided for them upon each post to a common point, and means, substantially as described, for winding or unwinding both cables C' and C² simultaneously, whereby the barrier formed by the arms or levers B and cable C is raised or lowered, as set forth.

5. A gate comprising, in combination, posts A and A', hollow throughout a part of their extent, bifurcated arms or levers B, pivotally secured upon the posts, a weight, q, within each post having a gravity, which, combined with that of the portion of an arm or lever, B, behind the pivotal point thereof, is less than that of the portion of the said arm or lever forward of its pivotal point, a cable, C, having secured to each extremity a weight, q, and extending from the posts over pulleys p therein through openings formed in the arms or levers B toward their forward extremities, and provided with friction-pulleys n, a cable, C', secured at one end to one arm or lever B, and

passing thence around pulleys upon the post A, a cable, C², secured at one end to the other arm or lever B, and passing thence around pulleys upon the post A' to the cable C', with
5 which it is connected, means, substantially as described, for supporting the cable C² between the posts, and means, substantially as described, for winding and unwinding both cables C' and C² simultaneously, whereby the barrier formed by the arms or levers B and cable C is raised or lowered, as set forth.

MORTIMER B. MILLS.

In presence of—

MASON BROSS,
ROCKWELL SAYER.