(No Model.) 2 Sheets—Sheet 1.

A. G. MILLER.

GATE FOR RAILWAY CROSSINGS.

No. 344,540. Patented June 29, 1886.

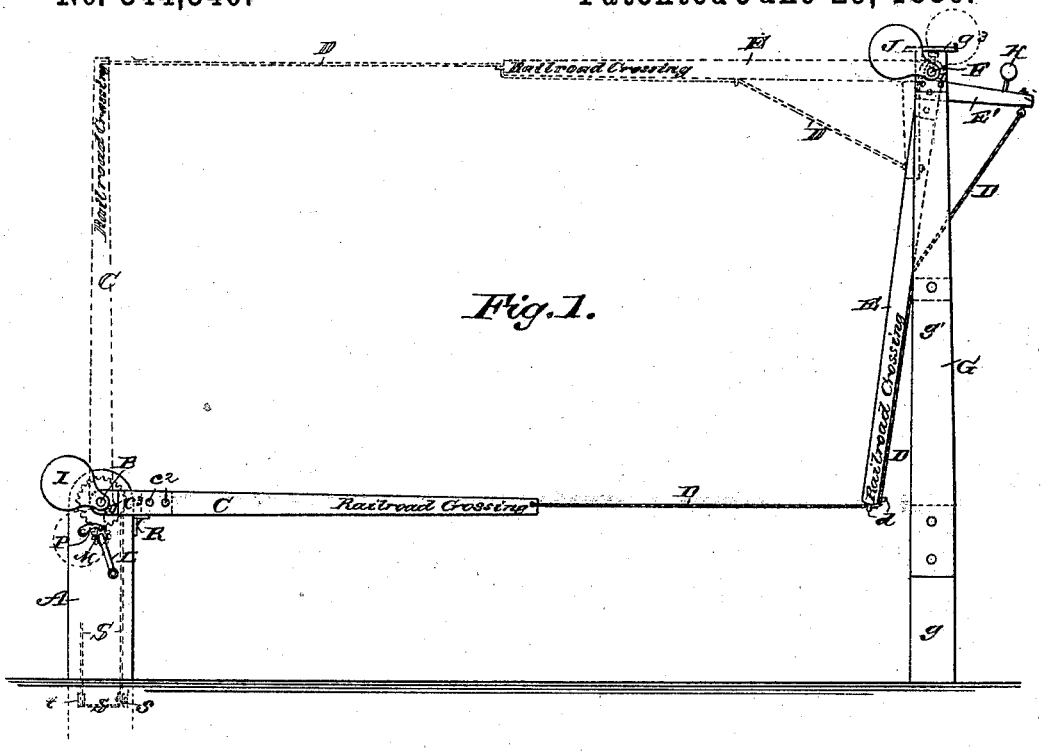


Fig. 1.

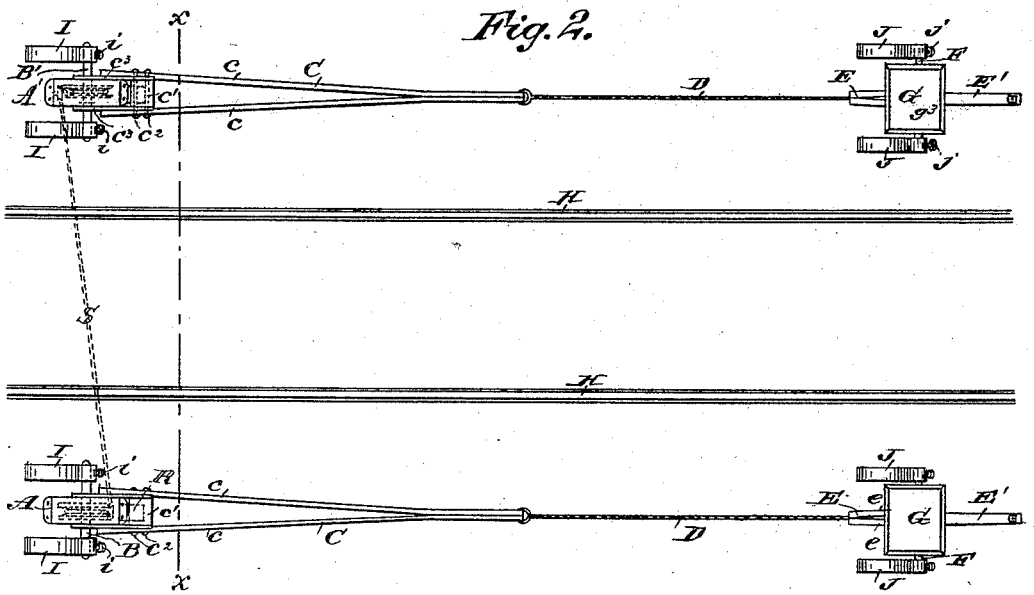


Fig. 2.

WITNESSES:

Otto Seyler

Jno. Mathew Ritter

INVENTOR:

A. G. Miller

BY Munn & Co

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

A. G. MILLER.

GATE FOR RAILWAY CROSSINGS.

No. 344,540. Patented June 29, 1886.

Fig. 3.

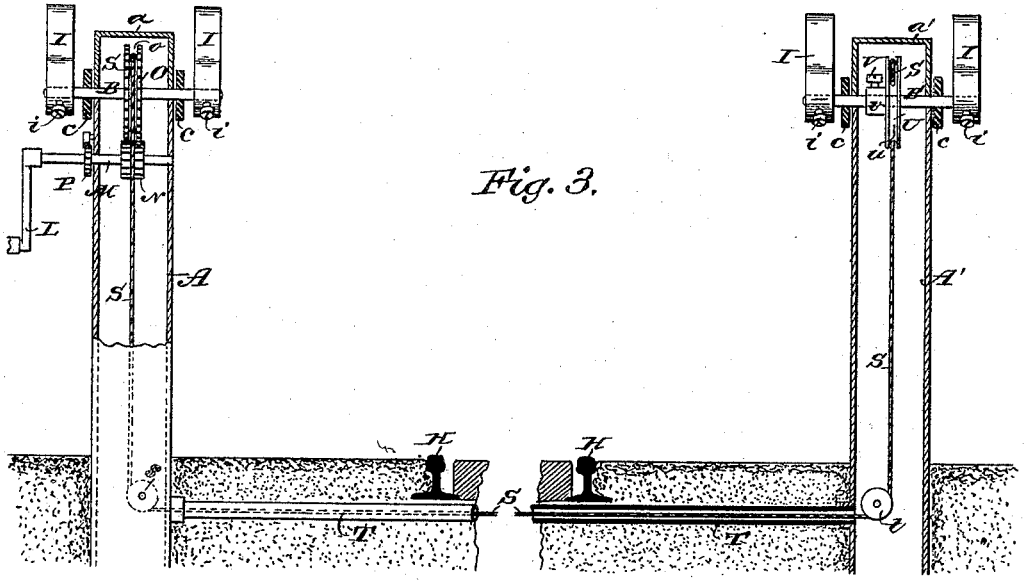


Fig. 4.

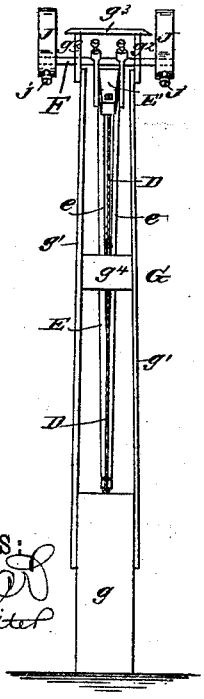
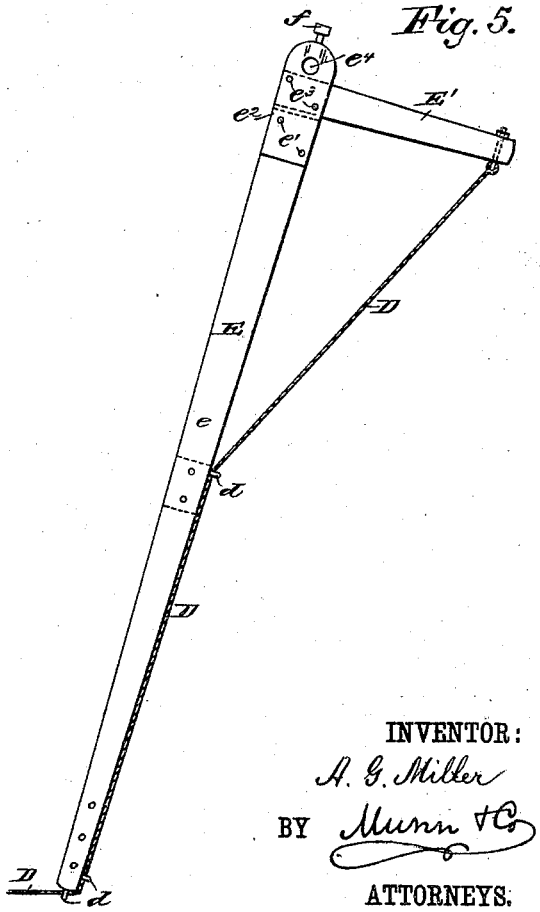


Fig. 5.



WITNESSES:

Jno. Mathew Reiter

INVENTOR:

A. G. Miller

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ABIUD G. MILLER, OF LEYDEN, NEW YORK.

GATE FOR RAILWAY-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 344,540, dated June 29, 1886.

Application filed July 21, 1885. Serial No. 172,206. (No model.)

To all whom it may concern:

Be it known that I, ABIUD G. MILLER, of Leyden, in the county of Lewis and State of New York, have invented a new and Improved Gate for Railway-Crossings, of which the following is a full, clear, and exact description.

My invention relates to safety-gates for railway-crossings, and has for its object to provide a simple, durable, inexpensive, and efficient gate of this character which will not freeze up, and may be operated quickly and easily in all weathers.

The invention consists in a gate comprising two arms, pivoted one at each side of the roadway crossing the railway-tracks, and connected by a cord or chain fixed to them, so that one arm will be swung up and down by the other arm for opening and closing the gate, together with counter-weights fixed to the gate-arms, to facilitate the easy operation of the gate, the gate being adapted for use as a single gate at one side of the railway-tracks, or as a double gate at both sides of the tracks.

The invention comprises, also, certain novel features of construction and combinations of parts of the gate, all as hereinfter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved railroad-gate, showing it closed. Fig. 2 is a plan view of the gate in like position. Fig. 3 is a transverse sectional elevation taken through the arms or barriers on the line *x x*, Fig. 2, and also through the posts which supports the arms. Fig. 4 is a rear view of one of the high gate-posts, and Fig. 5 is an enlarged side elevation of the arm or barrier of one of the high posts.

My improved railway-gate may be made of a single gate to bar the roadway at one side of the railway-track or as a double gate to bar the roadway at both sides of the railway-track.

For a single gate I use a low post, A, about four feet high, set firmly in the ground at one side of the roadway and railway-tracks, and having journaled in it near the top a shaft, B, to which is fixed an arm or barrier, C, which may swing through an arc of ninety degrees, or to both vertical and horizontal positions.

To the outer end of the arm C is attached a cord or chain, D, which is held in guide-eyes *d* at the end (and it may be along the edge) of a second arm, E, which is journaled by a shaft, F, to the head of a tall post, G, said arm E having a short arm, E′, projecting from it, to the end of which arm E′ the end of the cord D is connected. It is evident that as the arm C is swung from the horizontal position shown in full lines in Fig. 1 to the vertical position shown in dotted lines the arm E will be swung from the lower nearly vertical position which it has in full lines to the horizontal position at which it is shown in dotted lines, the connection of the cord D to the end of the short arm E′ of arm E affording the necessary leverage for swinging arm E up as the arm C rises. By swinging arm C back to horizontal position the arm E will be carried back or down to its first-described or closed position, at which the arm C and cord D will extend across the roadway, to prevent passage of vehicles or persons onto the railway-tracks H. When the arms are raised to open the roadway, the arm E will project horizontally in line with the cord D, toward the extremity of the arm C, and arm E and cord D will be held sufficiently above the road to allow the free passage of vehicles below them.

The arms C E and cord D will operate well without the aid of counterbalancing-weights; but I prefer to use such weights and provide weights I I, held by set-screws *i i* rigidly to the ends of the shaft B of arm C, and weights J J, held by set-screws *j j* to the ends of the shaft F, which carries arm E. Instead of the weights J J, a weight, K, may be fixed to the lateral arm E′ of arm E, as shown in Fig. 1, to counterbalance said arm E; but usually the weights J J will be preferred. I hang the weights I J to the shafts B F in such relative positions that as the arm E is swung partly up by arm C and cord D the weights J will swing past a vertical line drawn through the center of shaft F, and then will coact with the weights I, to assist in raising the arms, and also to hold the arms up when the gate is fully open, (see the dotted lines in Fig. 1,) and when the arms C E are swung down to close the gate the gravity of weights J will draw the

cord or chain D taut across the roadway. (See the full lines in Fig. 1.)

The gate C D E may be raised or lowered to open and close it by taking hold of the arm C and swinging it by hand; but I prefer to operate the gate by means of a crank, L, on a shaft, M, journaled in the hollow post A and carrying a pinion, N, which meshes with a gear-wheel, O, fixed to the shaft B, which carries the arm C, the gears N O being within the post, which has a suitable cap, *a*, to protect them from the weather. A ratchet-and-pawl device at P holds the shaft M from turning either way, and the pawl will be lifted from the ratchet when the crank L is to be turned to adjust the gate-arms and cord or chain.

To relieve the gears N O and ratchet and pawl P from the strain of supporting the arm C when lowered, I fix to the post A the bracket R, on which the arm may rest.

When a double gate is used, I will fix in a groove, *o*, formed in the periphery of gear-wheel O, one end of a rope or chain, S, which passes down through post A and under a guide pulley or sheave, *s*, therein, and thence through a box or tube, T, laid across beneath the railway-tracks H to the opposite short hollow post, A′, and under a guide-pulley, *t*, and thence to a grooved pulley, U, fitted loosely on the shaft B′, which supports the arm C of the opposite gate on said post. The pulley U has a hub, *v*, through which a set-screw, V, passes to bind the pulley to the shaft, and the pulley has a peripheral groove, *u*, in which the end of rope or chain S is secured, so that any slackness of the cord or chain may be taken up by removing the cap *a′* of post A′, then loosening the screw V and turning the pulley U on the shaft, and again tightening the screw. This provision for taking up the stretch or slackness of the rope or chain S insures the maintenance of a simultaneous movement of the four arms C E and cords D of the opposite gates, and causes the gates to open and close in unison.

The gearing N O is arranged to carry the gates to open and closed positions by one complete turn of the crank L, but may be otherwise proportioned, or the crank may be connected directly to the shaft B of arm C.

The short posts A A′ and their caps *a a′* will preferably be made of iron, and the arms C will preferably be made of opposite wood planks *c c*, bolted together at their outer ends and provided with a spacing-block, *c′*, which, with the planks, are all bolted at c^3 to metal side plates or cheek-pieces, c^3, in which the shafts of the arms are fixed; but the planks *c c* may extend backward to receive the shafts, and the metal plates c^3 be dispensed with, if desired.

I prefer to make the long posts, G, with iron bases *g*, and opposite wood planks, *g′ g′*, bolted thereto and to the flanges g^2 g^2, pendent from the metal cap plates g^3 of the posts, which flanges give metal bearings to the shafts F, to which the gate-arms E are fixed, a spacing-block, g^4, being bolted about centrally between the planks g^2 to stiffen the post. The cap-plates project over the heads of the post G, so as to protect the bearings of the shafts F from the weather.

I make the gate-arms E preferably of opposite planks, *e e*, bolted together at their outer ends, and bolted at *e′* at their inner ends to a spacing-block placed between them, and by the same bolts are held to the arm, the metal side plates or cheek-pieces, e^2, which project so as to receive between them the short arm, E′, which is bolted at e^3 to the plates e^2, which plates project beyond the arm E′, and are apertured at e^4 to receive the shaft F, to which each arm is fixed by a set-screw, *f*, or otherwise.

The arms C E have painted on or attached to them a sign reading "Railroad Crossing," or equivalent warning, and may have lanterns attached to them for use at night.

I make special mention of the fact that there are no pulleys used in connection with the arms C E and cord D, which form the gate proper, which is an important advantage the gate has over gates wherein cords or chains forming part of the gate have to run through pulleys as the gate-arms rise and fall as the gate opens and closes, as the cords or chains with pulleys are liable to be frozen up, so that the gate will not operate easily, if at all, and my improved gate may be made at less cost than such gates with pulleys, and is more simple and durable.

I am aware that short weighted bars for closing the walk have been pivoted at the side of the bars that close the roadway, the said bars being connected so that they will all be operated together, and I therefore do not claim such invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A gate for railway-crossings, consisting of posts at opposite sides of the roadway, bars pivoted to the said posts in different horizontal planes, the lower bar in its normal position extending vertically and the upper bar extending horizontally toward the lower bar, and a flexible connection between the free ends of the said bars, whereby when the lower bar is swung into a horizontal position the free end of the upper bar will be swung downward, and the said lower bar and the flexible connection will form a barrier, substantially as herein shown and described.

2. In a gate for railway-crossings, the combination, with the posts A G, at opposite sides of the railway, of two bars, C E, pivoted to said posts in different horizontal planes, the bar C in its normal position extending vertically and the bar E horizontally toward the bar C, a chain or cord, D, connecting the free ends of the said bars, and counterbalancing-weights on the said bars, substantially as and for the purpose set forth.

3. In a gate for railway-crossings, the combination, with the posts A G, set at opposite

sides of the roadway, of two arms, C E, connected at their free ends by a cord or chain, D, and pivoted, respectively, to said posts A G at points about as high from the ground as the arms stand horizontally when the gate is closed and opened, respectively, and said arm E having a lateral arm, E′, to which the cord D is attached, substantially as herein set forth.

4. In a gate for railway-crossings, the combination, with the posts A G, set at opposite sides of the roadway, of two arms, C E, connected at the ends by a cord or chain, D, and pivoted, respectively, to said posts A G at points about as high from the ground as the arm stands horizontally when the gate is closed and opened, respectively, and the gears N O, crank L, and ratchet and pawl P, substantially as herein set forth.

5. In a gate for railway-crossings, the combination, with two pairs of posts, A G A′ G, set at opposite sides of the roadway and railway, substantially as specified, of two pairs of arms, C E C E, connected at their free ends by cords or chains D D, and pivoted at points about as high from the ground as the arms stand horizontally when the gates are closed and opened, respectively, the sheave O on the shaft of arm C on post A, the sheave U on the shaft of arm C on post A′, and the cord or chain S, crossing the railway-tracks and secured to the said sheaves, substantially as shown and described, whereby the pair of arms at each side of the railway-track may be operated simultaneously, as set forth.

6. In a gate for railway-crossings, the combination, with two pairs of posts, A G A′ G, set at opposite sides of the roadway and railway, substantially as specified, of two pairs of arms, C E C E, connected at their free ends by cords, as at D D, and pivoted at points about as high from the ground as the arms stand horizontally when the gates are closed and opened, respectively, the sheave O on the shaft of arm C on post A, the sheave U, held adjustably on the shaft of arm C on post A′, and the cord or chain S, crossing the railway-tracks and secured to the said sheaves, substantially as specified, whereby the pair of arms at each side of the railway-track may be operated simultaneously, and the slack of the cord S may be taken up, as set forth.

ABIUD G. MILLER.

Witnesses:
S. A. JOHNSON,
M. J. HOYT.