

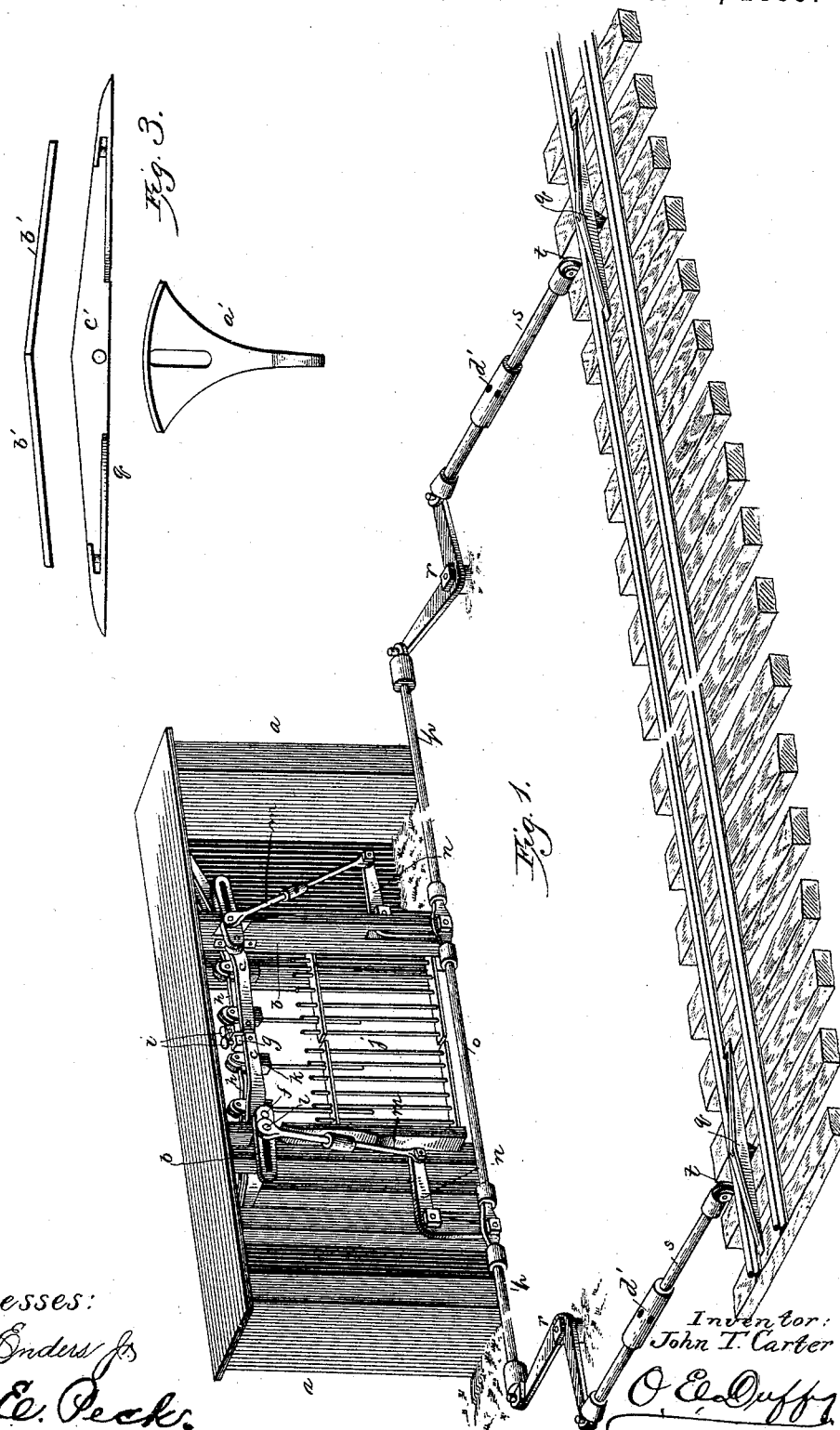
(No Model.)

3 Sheets—Sheet 1.

J. T. CARTER.
RAILWAY GATE.

No. 418,109.

Patented Dec. 24, 1889.



Witnesses:

John O'Andrew for
H. E. Peck.

Inventor:
John T. Carter

O. E. Duff
Attorney.

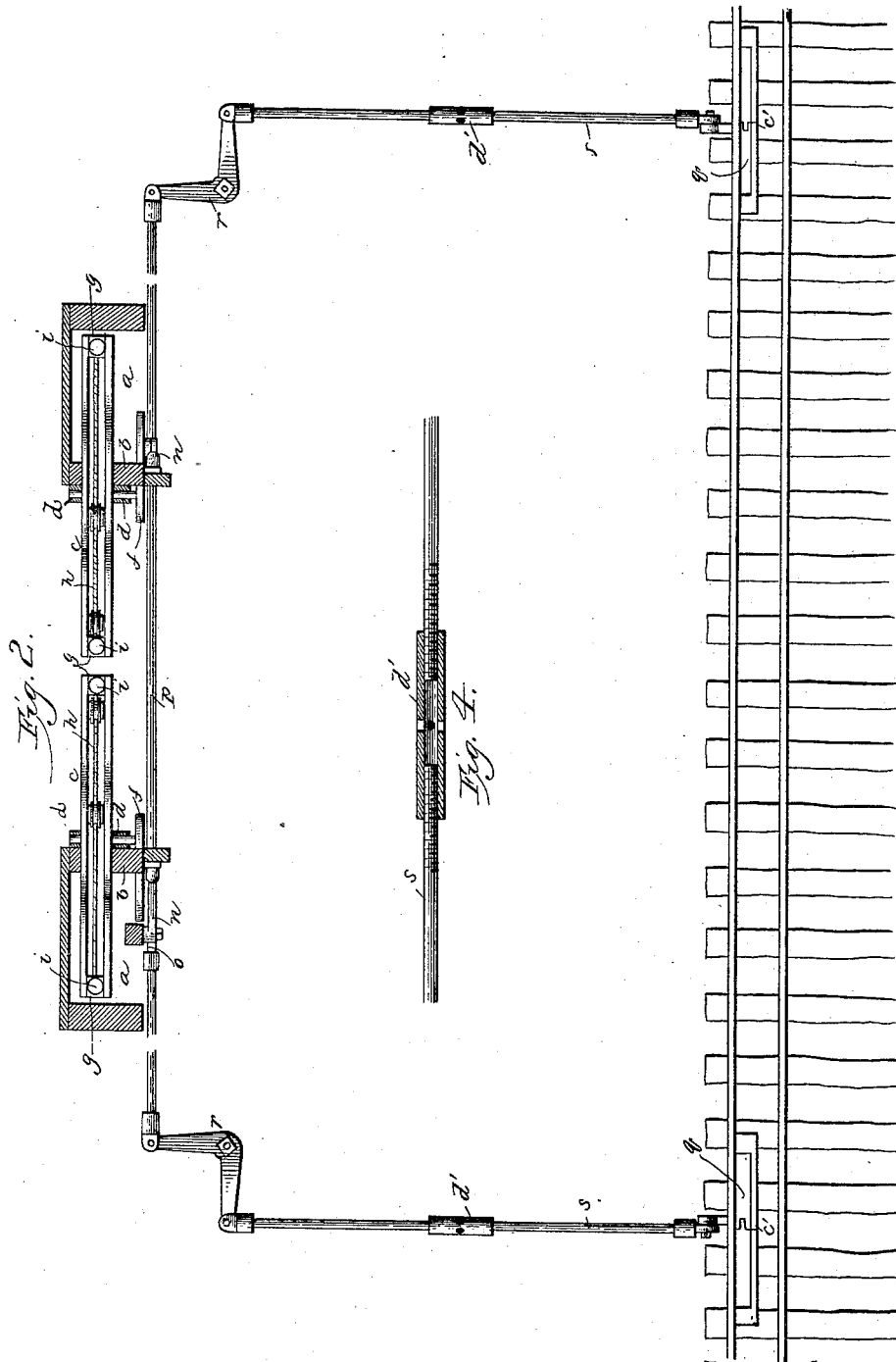
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3 Sheets—Sheet 2.

J. T. CARTER.
RAILWAY GATE.

No. 418,109.

Patented Dec. 24, 1889.



Witnesses:

John Enders for
E. C. Duffy.

Inventor:
John T. Carter

per O. E. Duffy
Attorney.

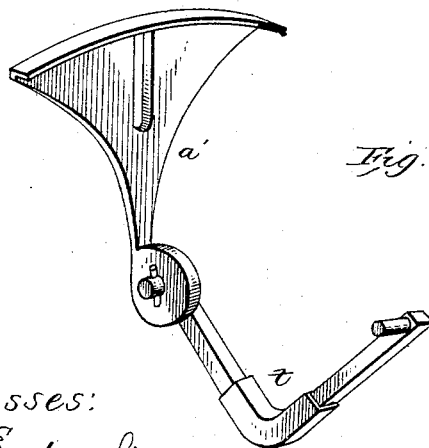
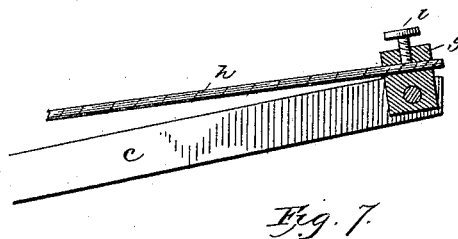
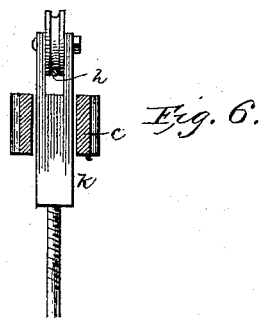
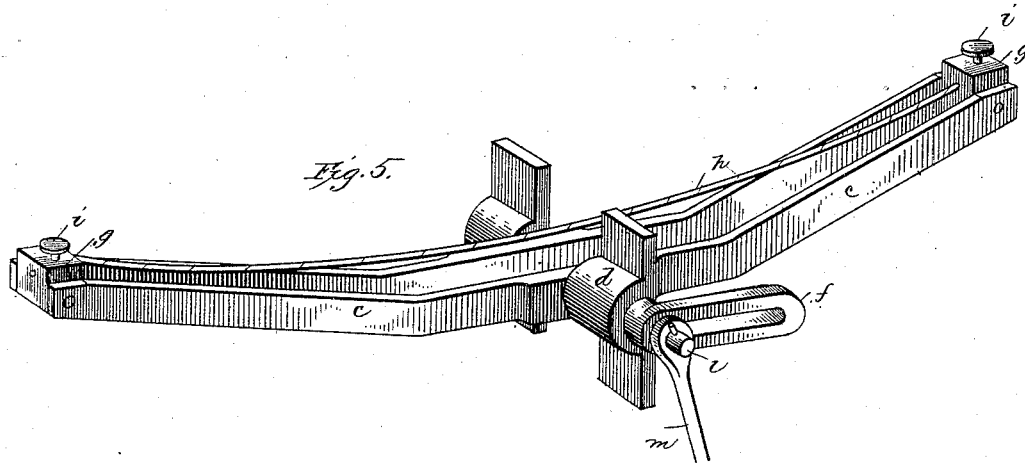
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3 Sheets—Sheet 3.

J. T. CARTER.
RAILWAY GATE.

No. 418,109.

Patented Dec. 24, 1889.



Witnesses:
John Enders for
S. C. Ruffy.

Inventor:
John T. Carter:
per *[Signature]*
Attorney.

UNITED STATES PATENT OFFICE.

JOHN T. CARTER, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO
FRANK J. HILBERT, OF SAME PLACE.

RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 418,109, dated December 24, 1889.

Application filed April 25, 1889. Serial No. 308,550. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. CARTER, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Railway-Gates; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to an improvement in railroad-crossing gates.

15 The object of the invention is to provide an improved gate automatically closed and opened by a train approaching and leaving the crossing, which is exceedingly sure, quick, and reliable in its action, cheap, simple, and durable, and composed of a minimum number of parts, not easily broken or injured, and capable of ready repair or replacement, and wherein a slight movement only of the operating mechanism is required to operate the gates. These objects are accomplished by, and my invention consists in, certain novel features of construction and combinations of parts, more fully described hereinafter, and particularly pointed out in the claims.

30 Referring to the accompanying drawings, Figure 1 is a perspective view of a portion of a railroad-track at a street-crossing, the improved gate, and connections for operating the same, the side of the protecting gate-boxes being removed. Fig. 2 is a plan view of Fig. 1, the tops of the gate-boxes being removed. Fig. 3 is a detail view of the parts composing the operating-trip located upon the track, said parts being separated. Fig. 4 is a detail sectional view of an adjustable joint between two sections of the rod-connections between trips and gates. Fig. 5 is a detail perspective view of the swinging track-beam of one of the gates. Fig. 6 is a cross-section of the same. Fig. 7 is a sectional view of the track-holding clamp or clip at one end of a swinging track-beam. Fig. 8 is a detail perspective view of the operating and bell-crank lever of a trip.

50 The device primarily consists of a pair of trips located on the track on opposite sides

of the crossing and at a suitable distance from the same. Upon each side of the street at the tracks a pair of gate-boxes are located, and in these boxes the gates, when open, are 55 contained, the track-beams being balanced therein, and these swinging beams are connected with the trips by rods and levers, so that when a train approaches the crossing and depresses the trip on that side the outer 60 ends of the track-beams will swing down, thereby causing the gates to roll into position across the street, and when the train has passed the crossing and the other trip is depressed by the wheels the outer ends of the 65 beams will swing up, causing the gates to roll to their normal positions in the boxes.

In the drawings, the reference-letter *a* indicates the closed gate-boxes, located upon opposite sides of the street and at one side 70 of the railroad-track, these boxes being open at their sides toward the street, and upon each side of said openings a heavy vertical beam *b* is located to support the track-beam. Each box is provided with a track- 75 beam *c*, located in the upper portion of the same, and pivoted at its center between said beams *b*, so that one half of the beam will be located in the box and the other half extend out over the street. Each beam *b* is 80 provided with a journal-box *d*, rigidly secured to its side, and the swinging beam *c* is provided with gudgeons or journals mounted therein, one of them being extended through a box on one side and provided upon its end 85 with a crank-arm *f*, longitudinally slotted, to which a connecting-rod is secured and by which the beam is swung, as hereinafter set forth. This swinging track-beam is longitudinally slotted, as shown, or is formed of 90 two corresponding bars or plates secured together at their ends, so as to be held a suitable distance apart by blocks or clips *g*, which are preferably pivoted or journaled so as to have a slight rocking movement. These clips 95 or blocks are each provided with a transverse aperture in which the ends of a wire cable *h* or the like are secured by means of set-screws *i*, extending through the blocks into the aperture. This cable extends the length of the 100 beam directly over or in the longitudinal opening thereof and forms the track or sup-

port for the gate *j*, which is provided with hangers *k*, extending upwardly through the opening in the beam and having bifurcated ends embracing the track-cable, and rollers 5 journaled in said bifurcated ends bearing and running upon the cable. It will thus be seen that the rollers are so confined upon the cable that it is impossible for them to become accidentally detached therefrom, and they can 10 run upon the cable from one end of the longitudinal opening of the beam to the other end thereof. These gates are of such length that when the outer ends of the beams are swung up the gates will be completely housed in the 15 boxes; but when the outer ends are swung down the gates will slide out of their boxes toward each other and extend completely across the street.

The ends of the swinging beam extend 20 slightly upward, so that the strength of the same is increased and the cable can hang rather loose, so that the gate will not assume an inclined position when open or closed. The use of cable-tracks for the gates is a 25 great improvement, as the gates move a great deal easier and with less inclination of the beam, the rollers cannot be thrown from the cable, and the cable can be tightened or loosened by means of the clips, which on account 30 of their pivotal bearings adjust themselves to the movement of the cable as the rollers run upon the same.

As before mentioned, one journal of each track-beam is extended beyond the box and 35 provided with a longitudinally-slotted horizontal crank or lateral arm *f*. Each arm *f* is provided with a bolt *l*, extending through and adjustably clamped in the slot thereof, and the upper end of a rigid connection or rod *m* 40 is loosely secured to each bolt, while the lower end of each rigid connection *m* is loosely secured to the horizontal arm of a separate vertical bell-crank lever *n*. These two bell-crank levers are pivoted to the gate-boxes, 45 with their horizontal arms extending in the same direction, and with their lower vertical arms loosely connected by a rigid connection *o*, extending beneath the road, so that the two levers, and hence the two track-beams, will 50 be simultaneously operated. A rigid rod or connection *p* extends from the lower free end of each of the levers *n* along the railroad-track to a point opposite the position of one of the operating-trips *q*, and is loosely secured 55 to one arm of a horizontal bell-crank lever *r*, and the opposite arm of this bell-crank lever is provided with a rod or rigid connection *s*, extending therefrom to and loosely connected with a vertical bell-crank 60 lever *t*, located beneath the track, and at its other end pivoted to the lower end of a vertically-movable head *a'*, upon the upper end of which the upper ends of the hinged levers *b'* *b'* loosely bear, so that they will be de- 65 pressed by the flange of a passing car-wheel, and thereby depress the head and move the connections and rock the levers to swing the

track-beams. These trip-levers rest in and bear upon a casing *c'*, secured upon the track beside a rail. 70

The present invention is not limited to use with the peculiar tripping device herein shown, which device is not claimed *per se* in the present application, but is shown and 75 claimed in my patent, No. 402,505.

Thus when a train approaches the crossing the trip on that side will be depressed, thereby operating the levers and connections to draw down the track-beams, one trip simultaneously operating both gates by reason of 80 the connection between the vertical levers *n*, and when the train reaches the other trip it depresses the same and throws the track-beams up and restores the trip on the opposite side to its normal position. 85

The connections *ss* and rods *mm* are preferably formed in sections, having their ends threaded and adjustably connected by coupling-sleeves *d'*, (see Fig. 4,) so that these connections can be varied in length when de- 90 sired.

It is evident that the connections, levers, &c., will be suitably housed.

The great advantages of this device are obvious. There are no springs or parts easily 95 broken or injured, the amount of movement of the trips required to operate the gates is very small in proportion, and by means of the slotted crank-arms the swing of the beams can be varied. 100

It is evident that various changes and modifications might be made in the form and arrangement of the parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself 105 to the precise construction herein set forth, but consider myself entitled to all such changes and modifications.

What I claim is—

1. In a railway-gate, the combination of a 110 track-beam pivoted at the center of its length to swing in a vertical plane, a rolling gate carried by said beam, one of the journals of the beam being provided with a crank-arm, and mechanism connected with said crank- 115 arm to swing the beam in opposite directions, for the purpose set forth.

2. In a railroad-gate, the combination of a swinging track-beam pivoted at the center of its length, a gate carried by and provided 120 with rollers running upon the same and varying in position with the position of the beam, a lever connected with the pivot of said beam to swing the same, and mechanism located upon the track, operated by a passing train 125 and connected with and adapted to operate said lever, substantially as described.

3. A railroad-gate swinging track-beam provided with a track formed by a cable, upon which the gate-rollers run, substantially as 130 described.

4. A swinging railroad-gate track-beam having a longitudinal opening the length thereof, blocks pivoted at the opposite ends

of said opening, and a cable or wire forming the track for the gate-rollers and secured to said blocks at its ends, substantially as described.

5 5. In a railroad-gate, the combination of a swinging track-beam having journals or pivots at the center of its length, a support for the same whereon the pivots are journaled, one of said pivots being extended and provided with a crank-arm, a vertical bell-crank lever located below the arm, a rod connecting one arm of said lever and the crank-arm, a trip upon the track, and connections between the same and the other arm of said lever, substantially as described.

15 6. A swinging track-beam of an automatic railroad-gate, fulcrumed at its center and having a longitudinal opening extending there-through, the ends of said beams being inclined upwardly, and a track for the gate-rollers secured to the ends of the beam and located above said longitudinal opening, substantially as described.

25 7. A swinging track-beam of an automatic railroad-gate, fulcrumed at its center, having a longitudinal opening or slot extending the length of the same, and a loosely-stretched cable extending the length of the beam above said slot and forming the track for the gate-rollers and adjustably secured at its ends at the ends of the beam, substantially as described.

35 8. A swinging track-beam of an automatic railroad-gate, composed of two parallel bars secured together and a distance apart by blocks pivoted between the ends of said bars, thereby forming a longitudinal opening the length of the beam, said blocks having openings therethrough, a cable extending the length of the beam and forming the track for the gate-rollers and passing through said openings of the blocks, and set-screws adjustably securing the ends of the cable in said blocks, substantially as described.

45 9. In a railroad-gate, the combination of a swinging track-beam pivoted at its center, a rolling gate carried by and varying in position with the position of said beam, a trip located on the railroad-track, and a vertical bell-crank lever fulcrumed beneath the center of said beam and having its vertical arm connected with and swung by the trip and its horizontal arm loosely connected with the center of said beam, whereby the beam is swung from its center by a car passing over the trip, substantially as described.

10. In an automatic railroad-gate, the combination of a swinging track-beam pivoted at the center of its length, a rolling gate carried by said beam and varying in position with the position of said beam, and a vertical bell-crank lever pivoted beneath the pivotal point of said beam and connected with the center of said beam to swing the same from its pivotal point in both directions to close or open the gate, substantially as described.

11. In an automatic railroad-gate, the combination of a swinging track-beam pivoted at the center of its length, a rolling gate carried by and varying in position with the position of the gate, a crank-arm rigidly connected with the center of said beam to swing the same in both directions, a pivoted lever, and a rod loosely connecting said lever and the crank-arm, for the purpose set forth.

12. In an automatic railroad-gate, the combination of the swinging track-beam pivoted at the center of its length, a longitudinally-slotted crank-arm rigidly-secured to a journal of said beam, a rolling gate carried by the beam, a bell-crank lever pivoted beneath said beam, an adjustable rod connecting one arm of said beam and said crank-arm, whereby the lever can swing the arm in either direction, and a bolt extending through said slot of the arm and adjustably securing said rod to said arm, substantially as described.

13. The combination of a pair of swinging track-beams located on opposite sides of a street at a railroad-crossing and pivoted at their centers, a rolling gate carried by each beam and varying in position with the position of the gate, a vertical bell-crank lever pivoted beneath the center of each beam and one arm of each lever connected with the center of its beam to swing the same in either direction, a rigid rod extending beneath the street and connecting the opposite arms of said levers, whereby the beams are swung simultaneously, and trips located on the track on opposite sides of the crossing and each connected with the lever on that side, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN T. CARTER.

Witnesses:

FRANK J. HILBERT,
C. M. WERLE.