(No Model.) 2 Sheets—Sheet 1.

G. C. & T. A. CORBIN.

RAILWAY CROSSING GATE.

No. 517,792. Patented Apr. 3, 1894.

FIG. 1.

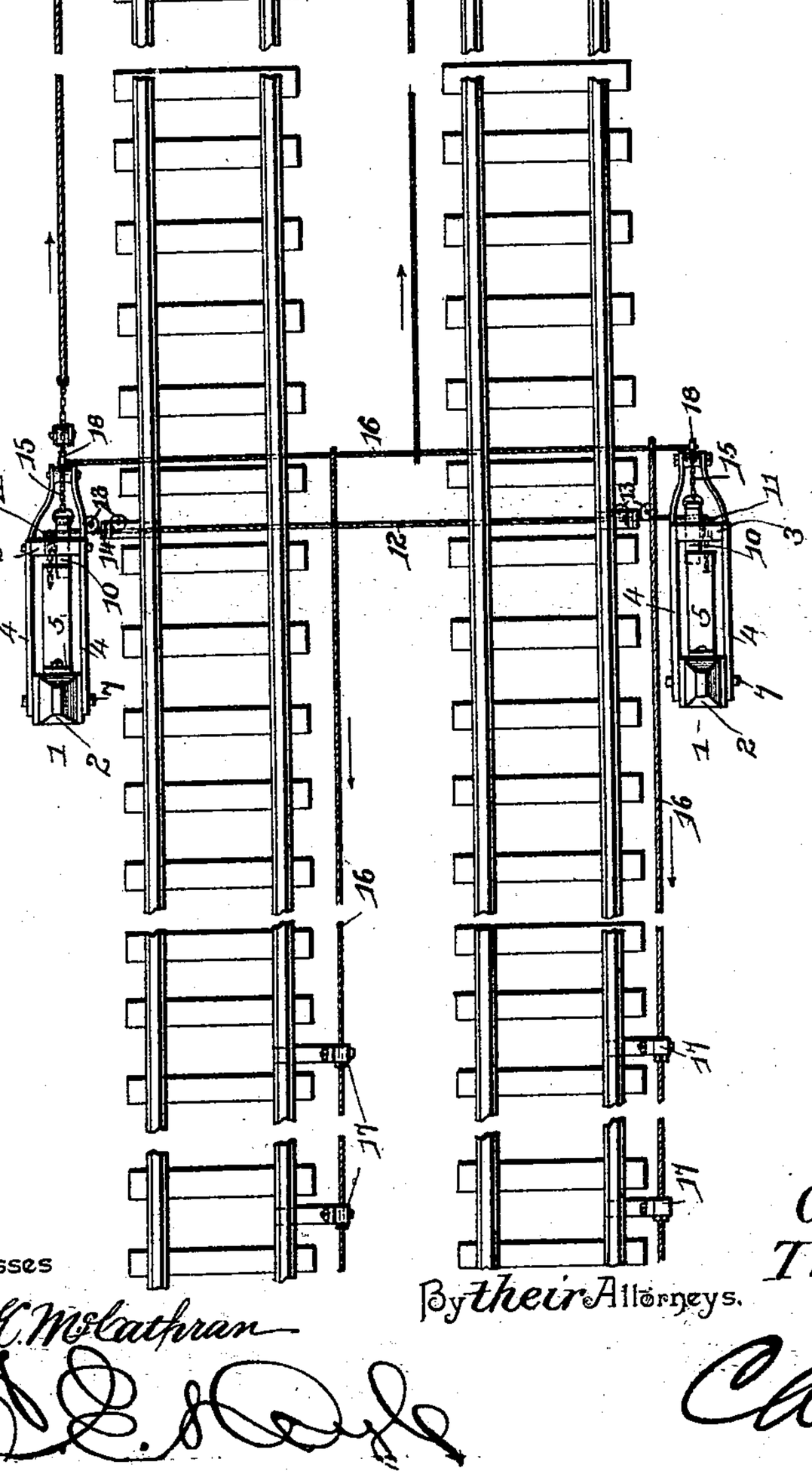
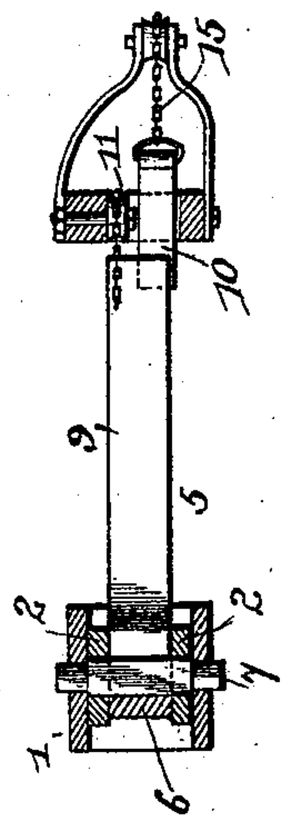


FIG. 5.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

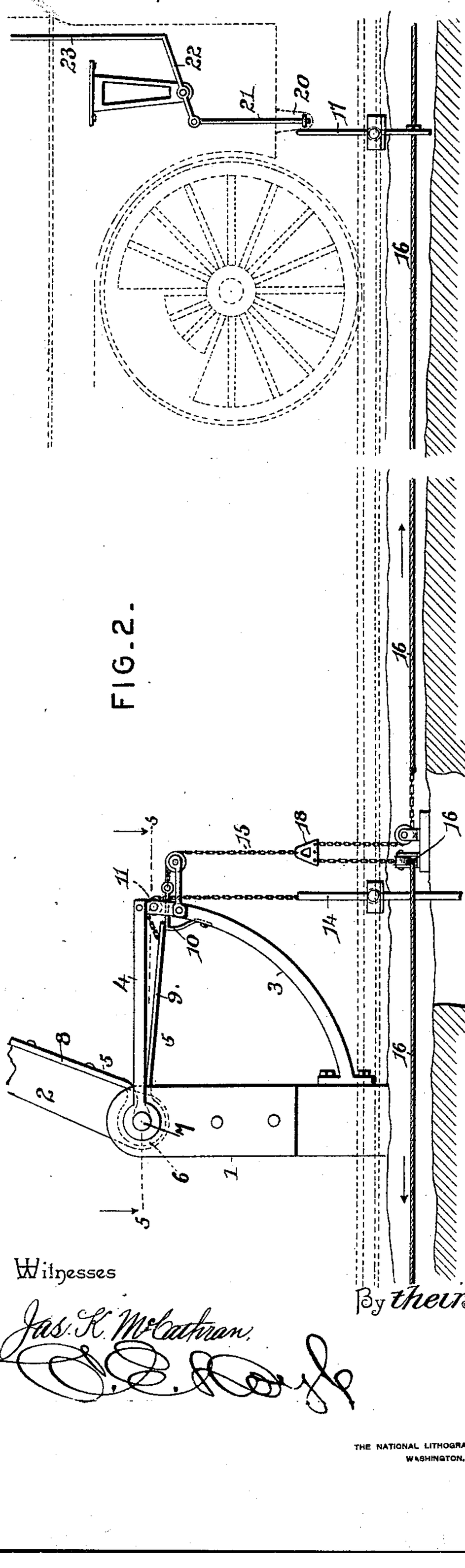


FIG. 3.

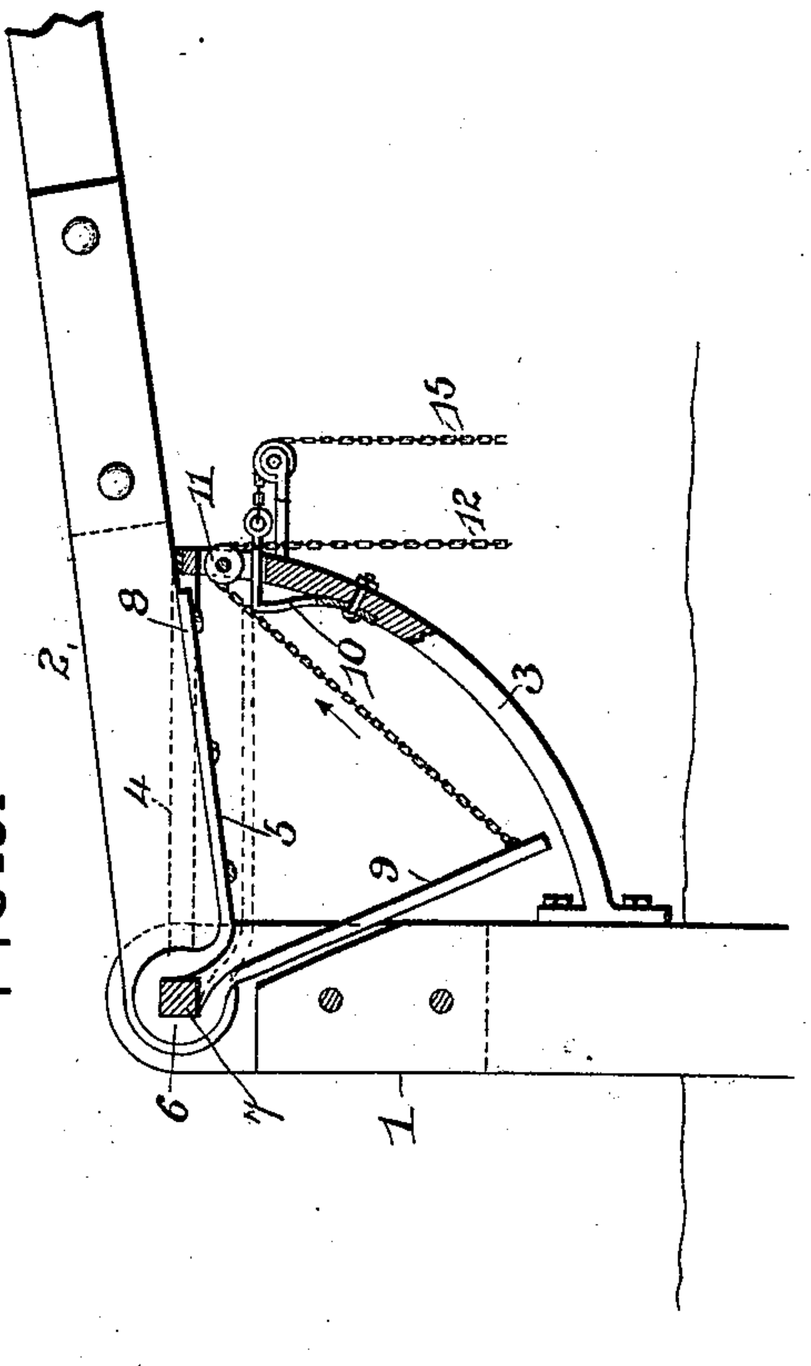
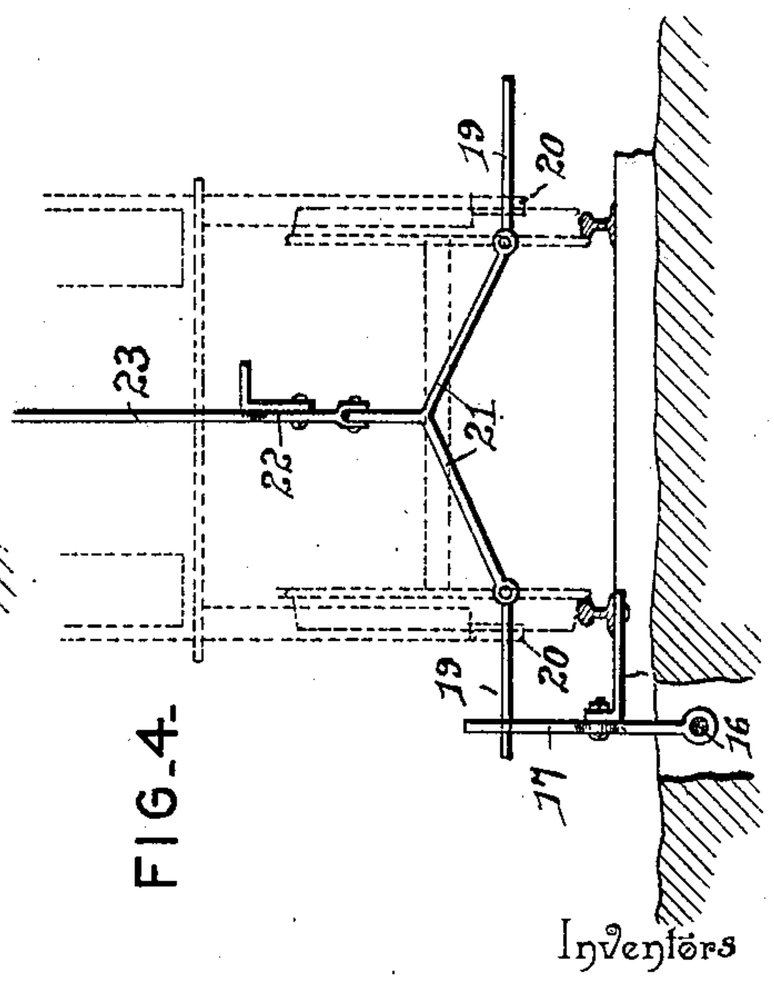


FIG. 4.



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UNITED STATES PATENT OFFICE.

GEORGE C. CORBIN AND THOMAS A. CORBIN, OF NORTH DANVILLE, VIRGINIA.

RAILWAY-CROSSING GATE.

SPECIFICATION forming part of Letters Patent No. 517,792, dated April 3, 1894.

Application filed December 20, 1893. Serial No. 494,206. (No model.)

To all whom it may concern:

Be it known that we, GEORGE C. CORBIN and THOMAS A. CORBIN, citizens of the United States, residing at North Danville, in the county of Pittsylvania and State of Virginia, have invented a new and useful Railway-Crossing Gate, of which the following is a specification.

Our invention relates to a railway-crossing gate, the object in view being to provide a crossing gate which is completely under the control of the engineer of the train approaching the crossing, the construction of the same being simple, comparatively inexpensive, and efficient, and being such that it may be operated from a train moving in either direction toward the crossing and upon any one of a series of tracks passing the same gate.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is a plan view of a crossing gate embodying our invention, shown applied to a double-track road. Fig. 2 is a side view of the gate-operating mechanism and co-operating parts, and showing the device carried by the engine for actuating the same. Fig. 3 is a similar view of the gate-operating mechanism, showing the position of the parts when the gate is closed. Fig. 4 is a detail view of the actuating devices carried by the engine. Fig. 5 is a horizontal section on the line 5—5 of Fig. 2.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the stands, which are erected respectively at opposite sides of the track and support the pivotal gate-arms 2, which may be of the ordinary or any preferred construction. Secured to the stand, upon its inner side, or the side toward which the gate is lowered when closed, is an arc-shaped bracket 3, having a horizontal upper side or rest 4, which is designed to support the gate when in its closed position.

5 represents an actuating spring, provided with a central eye 6, which extends around the pivotal point 7 of the gate, one leaf 8 of said spring being secured to the under or inner side of the gate-arm 2. The other leaf, 9, of said actuating spring, is arranged to operate within the arc-shaped bracket 3. Supported by said bracket, near its upper inner angle, is a spring-latch 10, so disposed as to engage the free end of the leaf 9 of the actuating spring, when said leaf is elevated to the substantially horizontal position which is shown in Fig. 2. Connected to the free end of the leaf 9 is a cable, chain, or other flexible connection, which passes over a direction-pulley 11, near the upper inner angle of the bracket 3, thence extends downward and around suitable direction-pulleys and transversely across the track to the opposite gate, as shown at 12 in Fig. 1. To an intermediate point of this cable or chain, and between two contiguous direction-pulleys 13, is attached the lower end of a gate-opening lever 14, the upper end of such lever extending a suitable distance above the bed of the track, as shown clearly in Fig. 2. Connected to the spring latch 10 is a trip cable or chain 15, and connected to this trip cable or chain, by means of the rods, wires, cables, or chains 16, are the trip-levers 17. A union 18 is employed to connect the wires, chains, or cables 16 to the trip cable or chain 15, and any number of the parts 16 may be employed to suit the number of tracks passing the gate.

The actuating device, which is adapted to be carried by the engine and to be operated by the engineer, consists of the horizontal laterally-slidable trip-pins 19, arranged in guides 20, and connected by means of links 21 to a rocking-lever 22. To the other end of said lever is connected a pull-rod 23, which is adapted to extend up into the cab of the engine within convenient reach of the engineer. By pulling upon the rod 23 the trip-rods 19 are extended laterally a sufficient distance to cause one of them to engage the upper end of the trip-lever 17, as shown clearly in Fig. 4, thus drawing the connection 16 in the direction indicated by the arrow in Fig. 2, and disengaging the spring-latch 10 from the extremity of the leaf 9 of the actuating spring. It is designed to provide the gate-arm with counterbalancing devices and have the upper or operative portion of the arm of a weight sufficiently in excess of the counterbalancing devices to cause said upper or operative portion to drop by gravity to its closed

position when the actuating spring is released by the withdrawal of the latch 10. Thus, when the latch is disengaged from the spring the gate-arm assumes the position shown in Fig. 3 and remains in such position until the trip-pin, which is carried by the engine, encounters the gate-opening lever 14, whereupon the flexible connection 12 is drawn in the direction indicated by the arrow in Fig. 3, and the loose leaf 9 of the actuating spring is elevated at once to the position shown in dotted lines in said Fig. 3, and engaged at its free end with the latch. This contraction of the spring is accomplished instantly by the movement, however rapid, of the gate-opening lever 14, the members or arms of such lever being proportioned to produce the desired extent of movement of the connection 12 to raise the spring to the said position. Immediately upon the contraction of the spring the energy of the latter is exerted to raise or open the gate-arm; and as the strength of the spring is somewhat in excess of the difference in weight between the operative portion of the arm and the above-mentioned counterbalancing devices, the arm will be elevated and held in such position until the disengagement of the leaf 9 from the latch 10 is caused by the approach of another train. Inasmuch as the connections 16 extend in both directions from the gate, the latter may be opened by a train approaching from either direction, whether backing or moving forward; and it will be equally obvious that the gate may be opened by the movement of the gate-opening lever 14 in either direction. Although this gate-opening lever is shown directly between the gate-stands, it will be understood that it may be arranged at any desired distance from the gate at either or both sides thereof.

From the above description it will be obvious that the spring is not under tension in either position of the gate. The weight of the latter, or the excess of weight over that of the counterbalancing devices, is to a certain extent supported, to prevent the gate from closing, but as the gate-arms are in almost vertical positions the strain upon the spring is small compared with that which is sustained thereby during the elevation of the arm. When the arm is in its lowered position the spring is entirely relaxed.

In adapting the device as above described to gates of various kinds, and in adapting the same to be operated from any one of a series of adjacent tracks, it will be understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described our invention, what we claim is—

1. The combination with a gate-arm, of a leaf-spring having one of its leaves attached to the gate-arm, a lever operatively connected to the free leaf of said spring, a locking device arranged to engage the free leaf of the spring when the latter is in its contracted position, a trip-lever connected to said locking devices, and means for operating the levers to contract and release said spring respectively, substantially as specified.

2. The combination with a gate-arm, of an actuating leaf-spring having one of its leaves secured to the arm, a spring-actuated latch to engage the extremity of the free arm of the spring, a gate-opening lever operatively connected to the free leaf of the spring, a trip-lever operatively connected with the said latch, and trip-pins adapted to be carried by the rolling stock and provided with operating devices, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

GEORGE C. CORBIN.
THOMAS A. CORBIN.

Witnesses:
JOHN H. SIGGERS,
HORACE G. PIERSON.