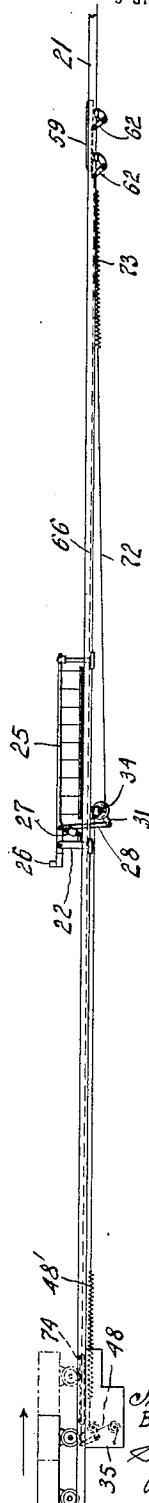
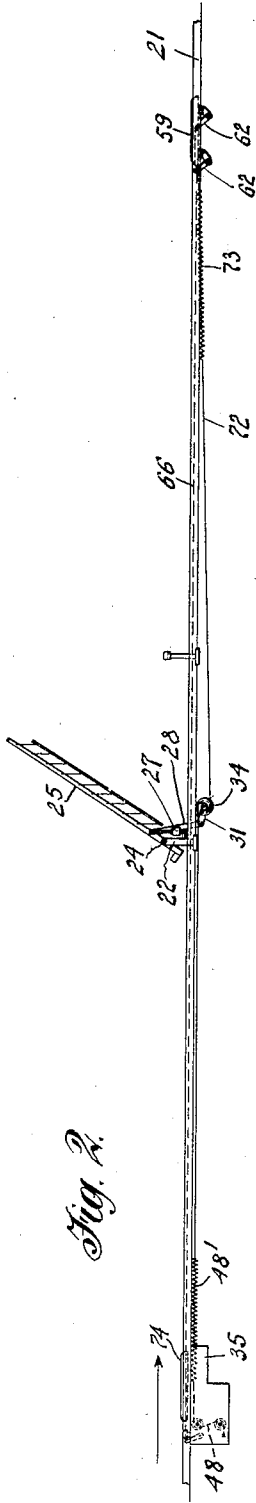
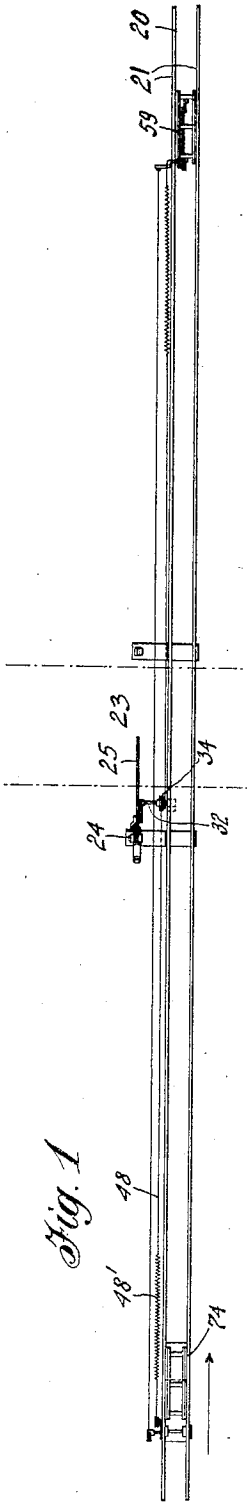


1,349,986.

M. STRELCHIK,
TRAIN OPERATED RAILWAY GATE.
APPLICATION FILED JULY 10, 1919.

Patented Aug. 17, 1920.

5 SHEETS—SHEET 1.

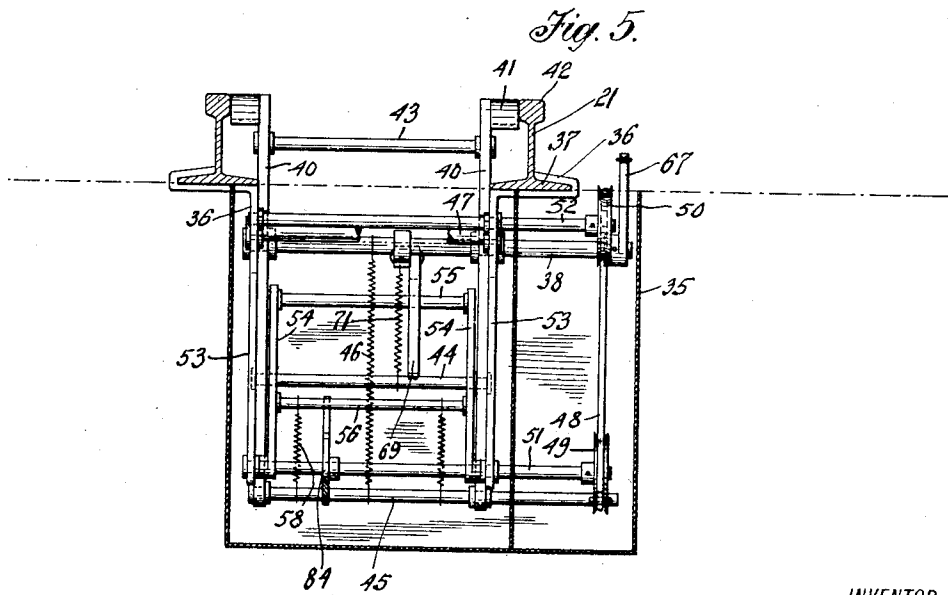
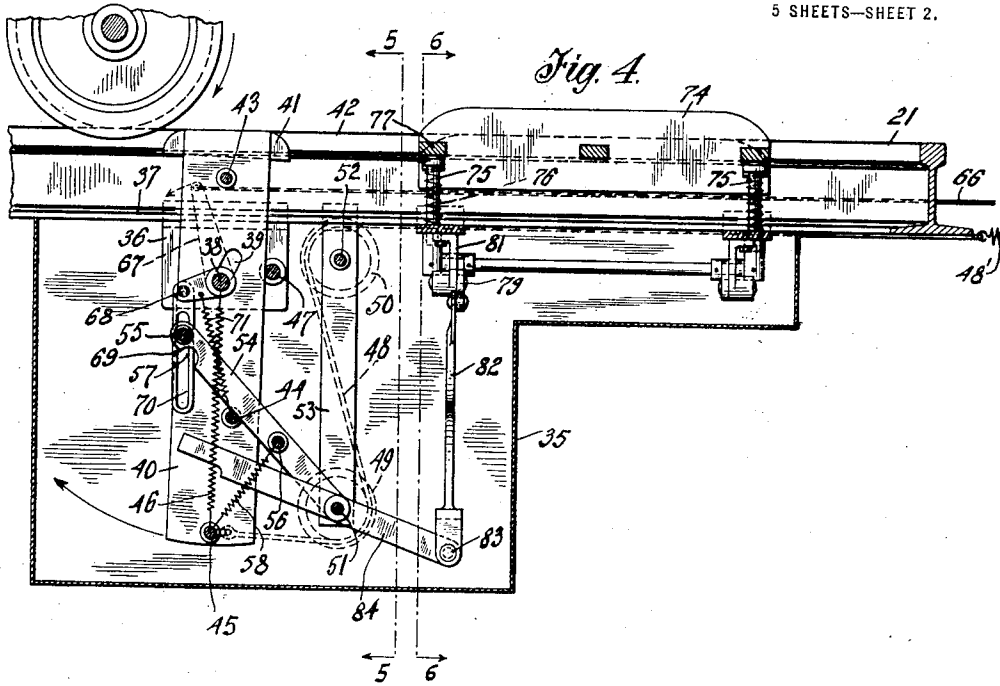


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 5 SHEETS—SHEET 2.



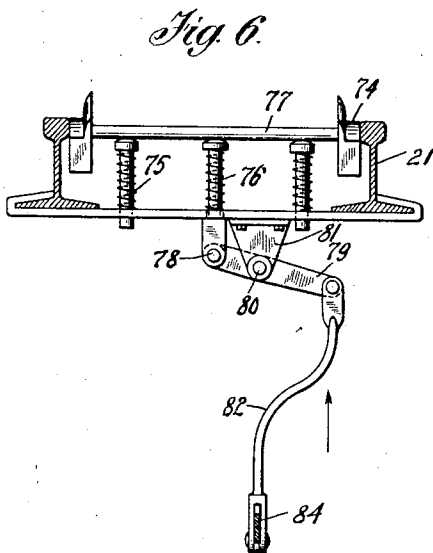
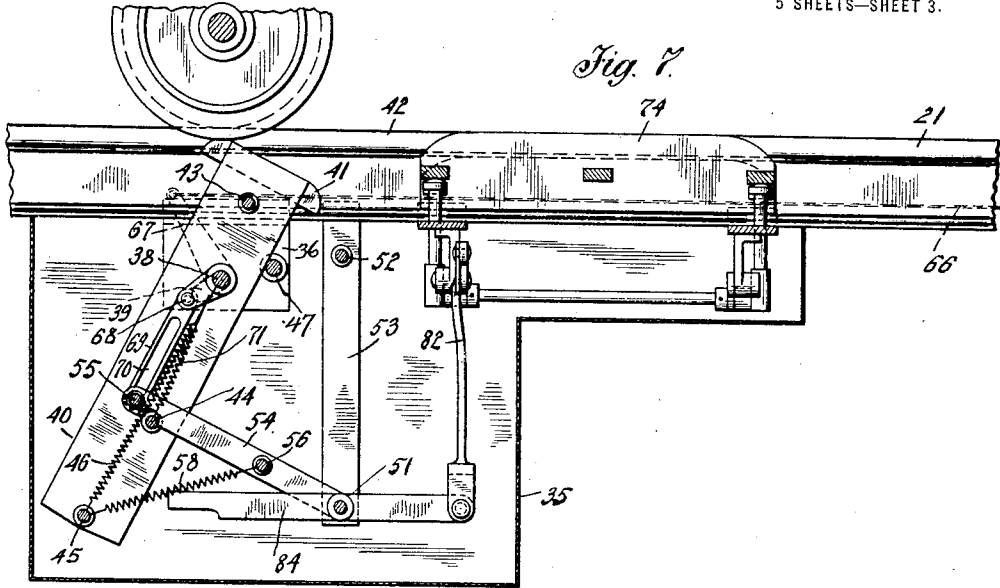
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5 SHEETS—SHEET 3.



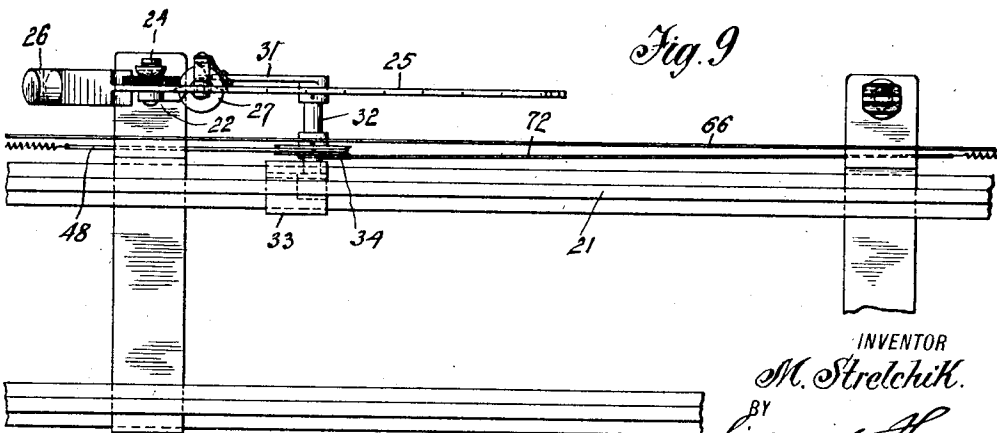
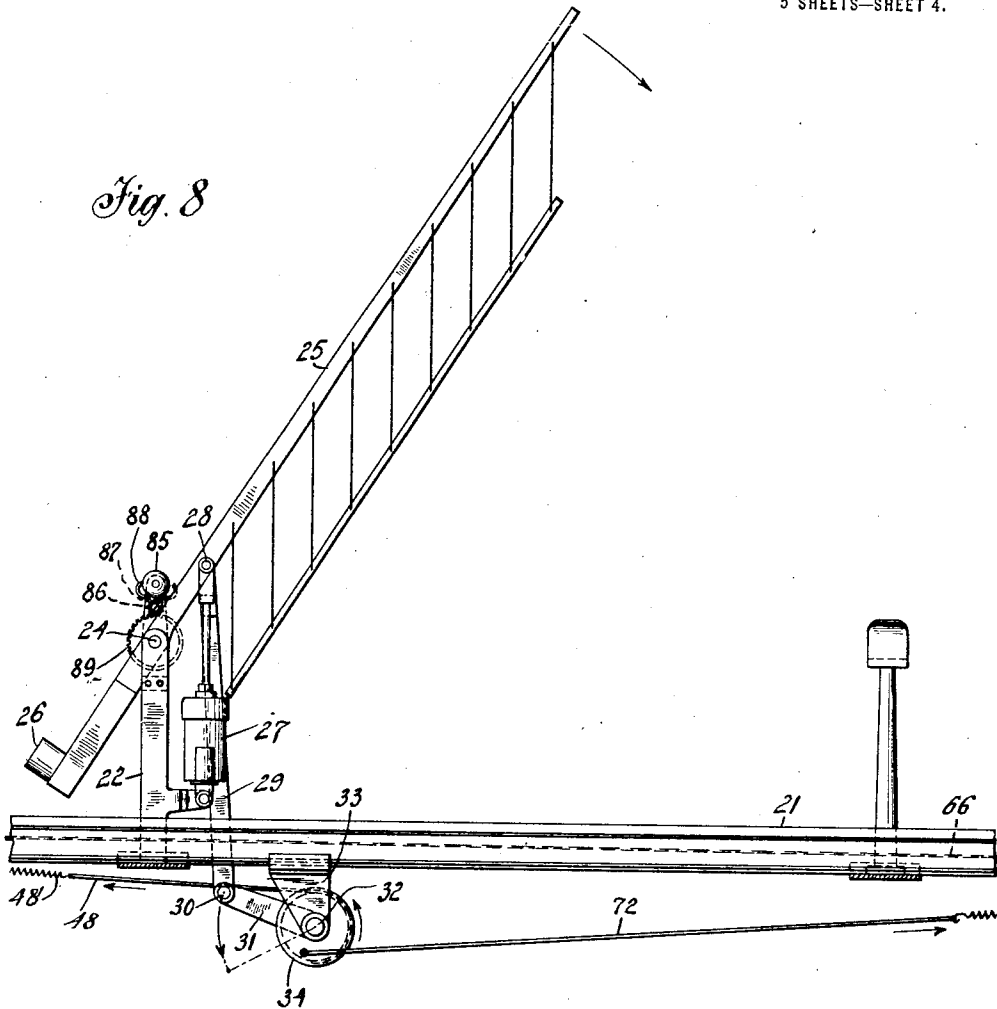
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

Fig. 11.

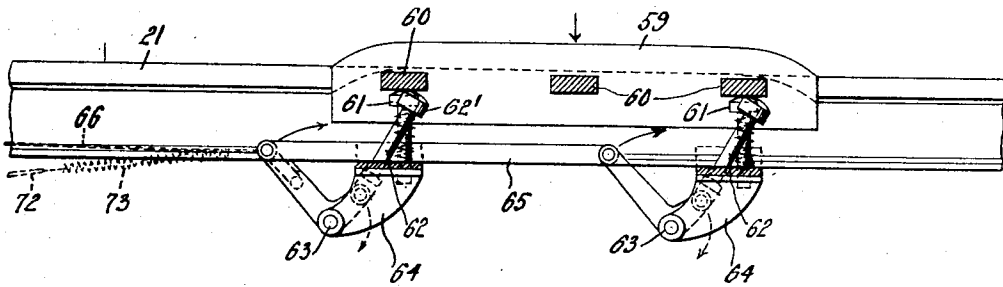


Fig. 10.

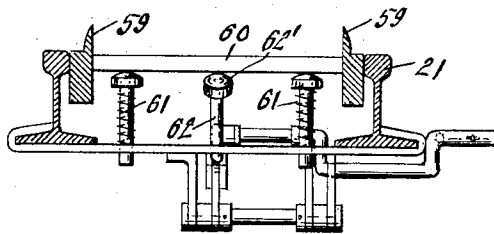
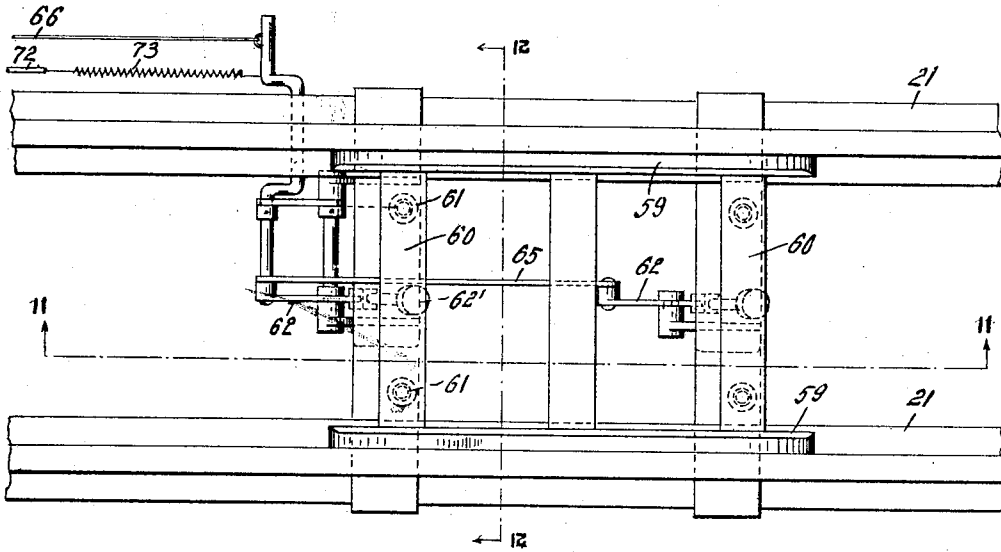


Fig. 12.

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UNITED STATES PATENT OFFICE.

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TRAIN-OPERATED RAILWAY-GATE.

1,349,986.

Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed July 10, 1919. Serial No. 309,928.

To all whom it may concern:

Be it known that I, MICHAEL STRELCHIK, a citizen of Hungary, and a resident of Glenfield, in the county of Lewis and State of New York, have invented certain new and useful Improvements in Train-Operated Railway-Gates, of which the following is a specification.

The present invention relates to train-operated railway gates, that is to say to crossing gates which are closed by the approach of a train toward the crossing and opened by the train as it passes beyond the crossing.

The main object of the invention is to provide a mechanism of the character mentioned, which is simple in construction and entirely automatic in operation.

A further object of the invention is to so devise the mechanism that it can be conveniently installed on already existing tracks, more particularly without necessitating material changes in the construction of the latter.

A still further object of the invention is to so construct the operating mechanism, that it can be made use of in connection with single-track railways and also with multiple-track roads.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a railroad track with the gate-operating mechanism, constructed in accordance with the present invention, in position thereon; Fig. 2 is a side elevation of the mechanism, with the gate in open position; Fig. 3 is a similar elevation thereof, with the gate in closed position; Fig. 4 is a side elevation of the gate closing device; Fig. 5 is a section taken on line 5—5 of Fig. 4; Fig. 6 is a section taken on

line 6—6 of Fig. 4; Fig. 7 is a side elevation of the gate closing mechanism, showing the elements in the positions which they occupy when acted upon by the wheels of the car trucks; Fig. 8 is a front elevation of the gate and part of the operating mechanism connected therewith; Fig. 9 is a plan view thereof; Fig. 10 is a plan view of the gate opening mechanism; Fig. 11 is a section taken on line 11—11 of Fig. 10; and Fig. 12 is a section taken on line 12—12 of Fig. 10.

In the drawings, the numeral 20 indicates a railroad track, its rails 21 being laid on cross-ties or sleepers (not shown). A gate-post 22 (see Figs. 8 and 9) is fixed at the crossing 23 in the ground, and to this post is pivoted at 24 a mast-gate 25, having a weight 26 on its butt-end of sufficient size to swing the gate into open position, when released. A dash-pot 27 is associated with the gate, to prevent a too sudden opening and closing thereof. This dash-pot may be of any suitable construction, a further description of which seems to be unnecessary, as it does not form part of the present invention. To the gate is pivoted at 28 an actuating bar 29, the other end of which is pivotally connected at 30 with a lever 31, the latter being fixed to a shaft 32. This shaft is journaled in hanger bearings 33, which depend from one of the rails adjacent the crossing. To the shaft is keyed, or otherwise rigidly attached, a pulley 34, which, in rotating in the direction of the arrow shown adjacent the same in Fig. 8 of the drawings, causes the gate to swing to closing position.

The gate closing mechanism, connected with the pulley 34, is disposed a suitable distance in front of the crossing 23, it being disposed within a casing 35, which is set in an excavation formed in the road bed. Into this casing extend two hangers 36, which are mounted upon the base flanges 37 of the rails and connected by a tie rod 38. This tie rod extends through forwardly inclined slots 39 in track-trips 40, the heads 41 of which are disposed adjacent to and in the level of the heads 42 of the rails, projecting thence substantially vertically downward and being connected by transverse tie rods 43, 44 and 45. A spring 46, connecting the tie rods 38 and 45, has a tendency to hold the track-trips in their raised positions. A stop bar 47, connecting the hang-

ers 36 in rear of the track-trips, limits the movement of the latter, as will hereinafter appear. The pulley 34, above referred to, is connected with the track-trips by a cable 48, one end of which is secured to the tie rod 45, while its other end is fastened to the said pulley. The cable runs over sheaves 49 and 50, carried by shafts 51 and 52, respectively, the said shafts being mounted on hangers 53, that project from the rails into the casing 35. Into the cable 48 is inserted a spring 48'.

With the track-trips coöperates a locking device, including two arms 54, that are oscillatably mounted upon the shaft 51 and connected by tie bars 55 and 56, the tie bar 55 being disposed adjacent the free ends of the said arms, and the tie-bar 56 intermediate the ends thereof. In proximity of the tie-bar 55 each arm 54 is provided with a notch 57, that is adapted to receive the tie-bar 44 on the track-trips, when the latter swing in the direction of the arrow shown in Fig. 4 of the drawings into the position shown in Fig. 7, thereby locking said trips in such positions. Springs 58, connected to the tie bars 45 and 56, cause the arms 54 to move to locking positions, when the track-trips are shifted, as above mentioned.

The gate opening and track-trip unlocking mechanism is disposed a suitable distance in rear of the crossing, and comprises two depressible rails 59, each of a length that is somewhat greater than the distance between any two adjacent wheel pairs of a train. These rails project a short distance above the treads of the rails 21, so as to be engaged by the wheels of the trucks and depressed thereby. The two rails 59 are suitably connected by tie-bars 60, some of which rest upon spring-pressed vertically movable studs 61, which have a tendency to hold the depressible rails in their elevated positions. Some of the tie-bars 60 bear also against bell-crank levers 62, which are fulcrumed at 63 to brackets 64, the latter depending from the rails. The free ends of the said fulcrumed levers are connected by a link 65. The front bell-crank lever is connected by a cable 66 with one arm of a bell-crank lever 67, that is fulcrumed to the tie-bar 38 between the hangers 36. To the other arm of the bell-crank lever 67 is pivoted at 68 a link 69, having a longitudinal slot 70, in which is seated the tie bar 55, connecting the arms 54 of the track-trip locking devices. A spring 71 is connected to the bell-crank lever 67 and to the tie-bar 44, connecting the track-trips 40. The front bell-crank lever 62 is also connected by a cable 72 with the pulley 34, in the said cable being interposed a spring 73, for a purpose hereinafter to be described.

The operation of this device is as follows:—When the gate is in its open posi-

tion, the track-trips and the elements connected therewith are in the positions shown in Fig. 4 of the drawings. The train runs in the direction of the arrow shown in Figs. 1 to 3, inclusive, and, as the front wheels of the locomotive travel over the trips, the latter are first depressed as far as the slots 39 therein will permit, and then swung around the tie bar 38 in the direction of the arrow shown in Fig. 4 of the drawings, as far as the stop 47 permits, thereby occupying the positions shown in Fig. 7 of the drawings. The locking members 54 slide on the tie-bar 44 downward, the spring 58 causing their notches 57 to engage with the tie-bar 44, whereby the trips are held in locked positions. As the trips are tilted, the cable 48 is shifted, causing the pulley 34 to move in the direction of the arrow shown in Fig. 8 of the drawings, which, in turn, shifts the lever 31 and the actuating bar 29, thereby closing the gate 25.

Simultaneously with the operation described, the tie-bar 55 on the locking arms 54 is caused to abut against the lower end of the slot 70 in the link 69, whereby the bell-crank lever 67 is shifted in the direction of the arrow shown adjacent the same in Fig. 4 of the drawings. By this operation, the heads 62' of the bell-crank levers 62 are caused to abut against the tie-bars 60 on the depressible rails 59.

When the first wheel pair of the locomotive depresses the rails 59, the bell-crank levers 62 move in the direction of the arrows shown in Fig. 11 of the drawings, exerting, by the intermediary of the cable 66, a pull on the bell-crank lever 67, which, in turn, lifts the arms 54 of the locking device, unseating the tie bar 44 from the notches 57 therein. The springs 46, 58 and 71 return then the elements of the gate-closing mechanism into their normal position, shown in Fig. 4 of the drawings. It is to be observed, however, that the gate will not open, inasmuch as the cable 72, connecting the pulley 34 and the front bell-crank lever 62, does not permit a motion of the said pulley in a direction opposite to that of the arrow shown in Fig. 8 of the drawings. This movement cannot take place until the last wheel pair has been disengaged from the rails 59. When this occurs, the springs of the studs 61 return the rails 59 to their elevated positions and the weight 26 on the gate 25 swings the latter around its pivot 24 into open position, returning the pulley 34 to normal position (Fig. 8). The springs 48' and 73 are inserted into the cables 48 and 72, respectively, to take up the slack in the cables during the operations described.

In case a train travels on the track in a direction opposite to the normal traffic, the track-trips would move up and down continuously, as far as the slots 39 therein per-

mit. To prevent this, depressible rails 74 are mounted in rear of the track-trips, said rails being each of a length that is somewhat greater than the distance between any two adjacent wheel pairs of the train, they being held in their elevated positions, in which they project above the rail heads, by spring-pressed slides 75. A spring-pressed slide 76 bears against a tie-bar 77, connecting the depressible rails 74, said last-mentioned slide being pivoted at 78 to a bell-crank lever 79, the latter being fulcrumed at 80 to a hanger 81, that is supported by the rails 21. To the bell-crank lever 79 is pivoted a link 82, the other end of which is pivoted at 83 to an actuating lever 84, the latter being oscillatable upon the shaft 51 and of a length that permits its free end to engage the tie-bar 45 on the track-trips 40. If a train travels from the crossing toward the track-trips, the first pair of locomotive wheels depresses the rails 74, which, by the connections mentioned, shift the track-trips downward as far as the slots 39 permit. These trips are held in their lower positions until the last pair of wheels has passed over the depressible rails 74, when the said rails are brought back by the springs on the slides thereon to their normal positions, the track-trips being raised by the spring 46.

The device herein described is designed for railroad tracks, on which trains normally travel in a given direction. Normally, of course, there are two gates at a crossing, both of which may be actuated by the device herein described, they being connected each by an actuating bar 29 and lever 31 with the shaft 32.

In case of a single-track railroad, whereon trains travel in both directions, obviously, on each side of the gate there must be provided a gate-closing mechanism and a gate-opening device.

The cables connecting the elements of the device may be led in closed channels or on posts, to insure their proper operation. As this feature is not new and no claim is made thereto, illustration of the same seems to be unnecessary.

With the gate may be associated an audible signal, such as a bell. This bell, denoted in the drawings by the numeral 85, is mounted upon the gate post 22, and adjacent the said bell is rotatably carried by the said gate post a pinion 86, from the face of which protrude pins 87, adapted to coop-

erate with the hammers 88 of the bell. The pinion meshes with a gear 89, that moves with the gate 25 around its pivot 24. As the gate swings into closing or opening position, the gear 89 turns the pinion 86, and the latter actuates the bell hammers.

What I claim is:—

1. In a train-operated railway gate, the combination with a post, of a gravity opened gate hinged thereto, a rotatable member, an actuating bar pivoted to said rotatable member and said gate, track-trips in front of said gate, a connection between said track-trips and said rotatable member, trip locking means movable with said track-trips, depressible members in rear of said gate, a connection between said depressible members and said rotatable member, means in engagement with said locking member for disengaging the same from said trips, a connection between said depressible members and said last-mentioned means, depressible members in rear of said trips, and means actuated by said last-mentioned depressible members for causing said trips to move out of the path of the wheels of a train moving from said gate toward said track-trips.

2. In a train-operated railway gate, the combination with a post, of a gravity opened gate hinged thereto, a rotatable member, an actuating bar pivoted to said rotatable member and said gate, track-trips in front of said gate, a connection between said track-trips and said rotatable member, trip locking means movable with said track-trips, depressible members in rear of said gate, a connection between said depressible members and said rotatable member, means in engagement with said locking member for disengaging the same from said trips, a connection between said depressible members and said last-mentioned means, depressible members in rear of said trips, and means actuated by said last-mentioned depressible members for causing said trips to move out of the path of the wheels of a train moving from said gate toward said track trips, said last-mentioned depressible members being each of a length that is greater than the distance between any adjacent two pairs of wheels of a train running on the track associated with said gate.

Signed at New York, in the county of New York and State of New York, this 16th day of June, A. D. 1919.

MICHAEL STRELCHIK.