

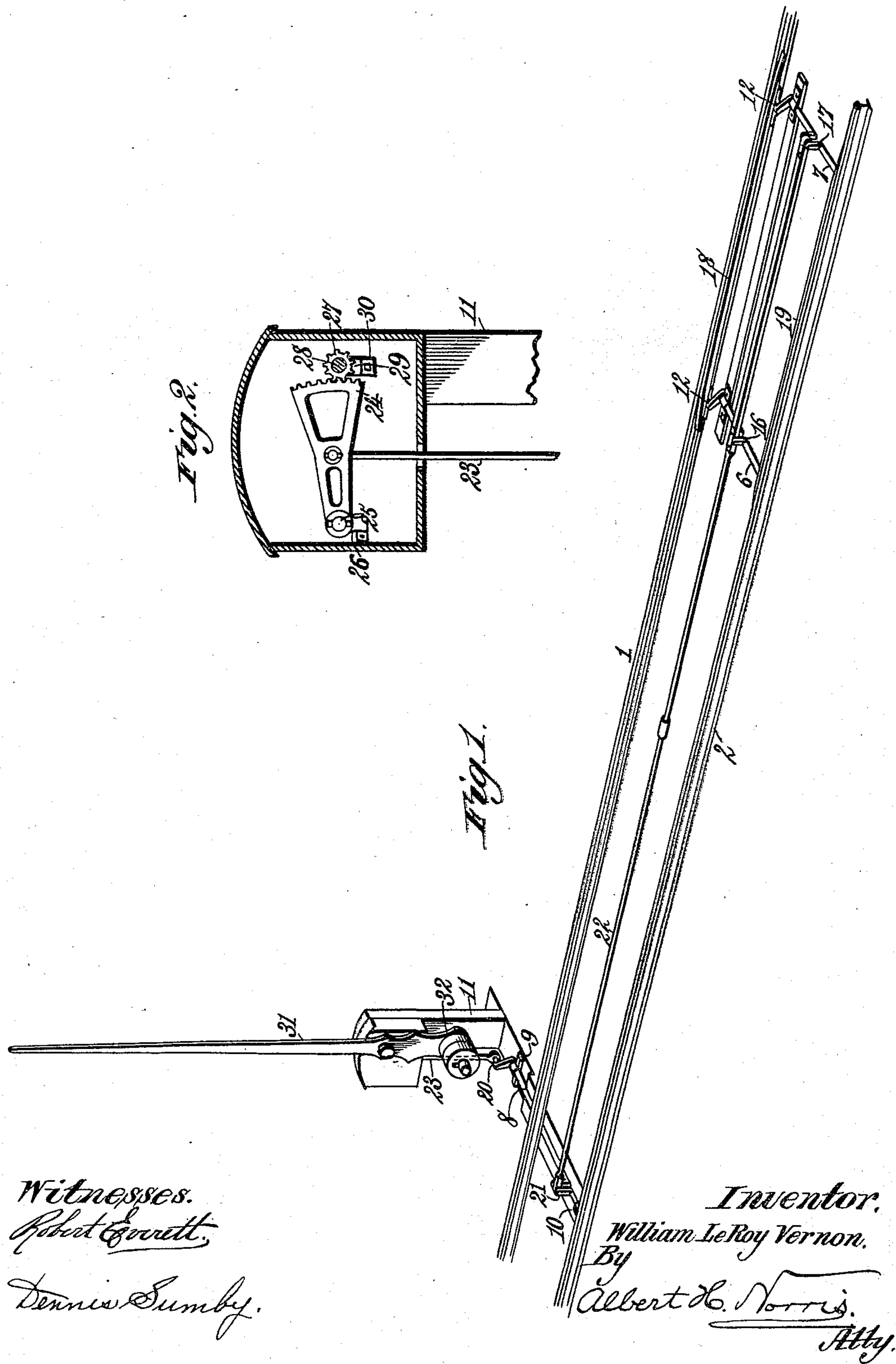
(No Model.)

2 Sheets—Sheet 1.

W. LE R. VERNON.
AUTOMATIC RAILWAY GATE.

No. 543,414.

Patented July 23, 1895.



Witnesses.
Robert Everett.

Dennis Sundry.

Inventor.
William LeRoy Vernon.

By
Albert H. Norris.
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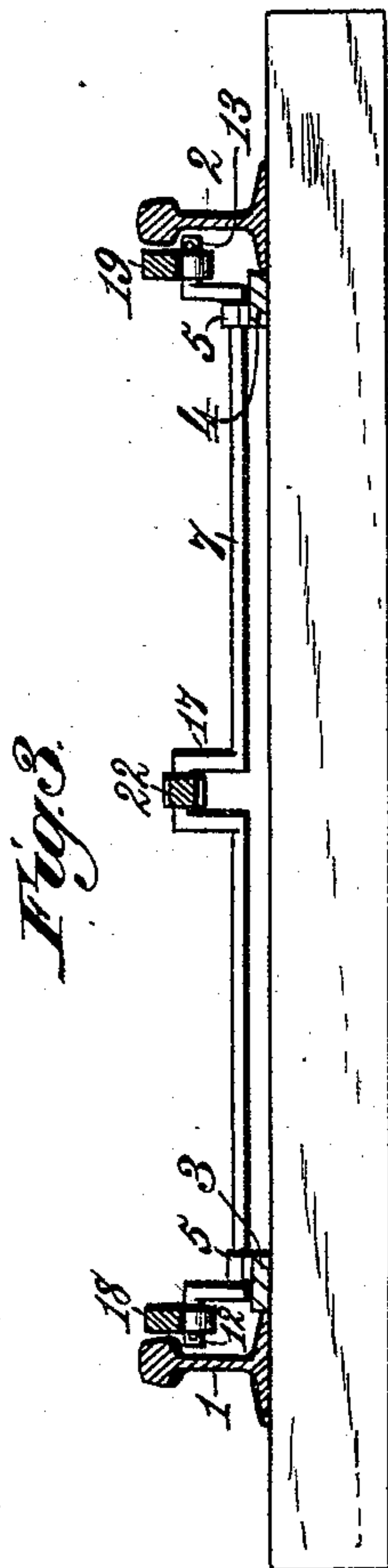
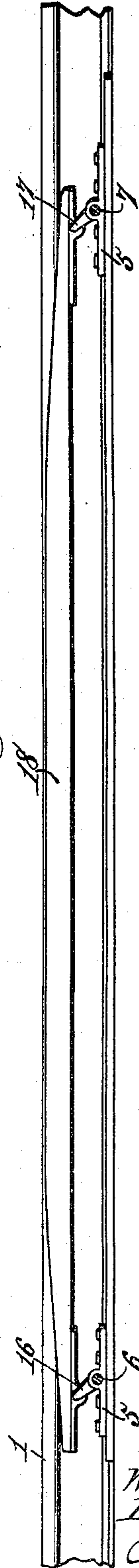


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM LE ROY VERNON, OF DANVILLE, VIRGINIA.

AUTOMATIC RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 543,414, dated July 23, 1895.

Application filed May 16, 1895. Serial No. 549,572. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LE ROY VERNON, a citizen of the United States, residing at Danville, in the county of Pittsylvania and State of Virginia, have invented new and useful Improvements in Automatic Railway-Gates, of which the following is a specification.

This invention relates to that class of gates which are used at railroad-crossings and are automatically closed by passing trains and opened by the power of a weight after the trains pass.

The objects of my invention are to improve the actuating mechanism of prior automatic gates of the character alluded to; to simplify the construction of parts and thereby render the gate more economical of manufacture and application; to provide a novel arrangement of parts, whereby certainty of action is obtained and the danger of parts breaking or jamming, owing to the swift movement of trains, is entirely avoided; to dispense with abrupt vertical projections designed to be struck by moving trains for operating the gate-closing mechanism, and to render automatic railway-crossing gates susceptible of more general use owing to simplification in the number of parts employed in the mode of operation of such parts.

To accomplish all these objects my invention consists, essentially, in the combination of transverse primary rock-shafts having crank-pins and cranks, a secondary rock-shaft having a crank-pin and a crank between its ends, a link connecting the cranks of all the rock-shafts, parallel depressible bars or rails arranged horizontally and loosely mounted on the crank-pins of the primary rock-shafts, a gate-arm weighted at one end, an oscillatory shaft carrying the gate-arm and provided with gear or pinion, a vertically-swinging gear engaging the gear or pinion of the oscillatory shaft, and a pitman connecting the swinging gear with the crank-pin of the secondary rock-shaft, all in such manner that when the depressible bars or rails are acted upon by the flanges of the car-wheels of a passing train the rock-shafts are turned, the connecting-link is moved lengthwise, and the swinging gear is moved vertically to turn the gate-carrying shaft and thereby close the

gate until the train passes, when the weighted end of the gate restores all the parts to normal position.

The invention is illustrated by the accompanying drawings, in which—

Figure 1 is a perspective view showing a portion of a railway-track with my improved automatic gate mechanism arranged in operative connection therewith. Fig. 2 is a detail sectional view showing the gear connection between the shaft of the gate-arm and the link by which said shaft is rotated. Fig. 3 is a detail transverse sectional view showing one of the primary rock-shafts, and Fig. 4 is a detail longitudinal sectional view.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numerals 1 and 2 indicate the rails of a railway-track, and 3 and 4 longitudinal beams or girders secured to the railway-ties, and carrying bearings or brackets 5, in which the transverse primary rock-shafts 6 and 7 are journaled. The secondary transverse rock-shaft 8 is journaled in suitable bearings or brackets 9 and 10 at a point opposite a post, standard, or upright frame 11. The primary rock-shafts are provided at their ends with crank-pins 12 and 13, and intermediate their ends these rock-shafts are constructed with cranks 16 and 17. The pins 12 and 13 support the depressible bars or rails 18 and 19, which are arranged in horizontal planes beside the railway-rails. The ends of the depressible bars or rails are gradually and uniformly curved downward, so that the flanges of the car-wheels will gradually move the bars or rails longitudinally and depress the same instead of suddenly throwing them downward with great force.

The secondary rock-shaft 8 is provided at one end with a crank-pin 20 and between its ends with a crank 21. The cranks 16, 17, and 21 are connected by a link 22 in such manner that when the depressible bars or rails 18 and 19 are moved longitudinally and depressed by the car-wheel flanges the link 22 is moved lengthwise and the secondary rock-shaft 8 is turned in its bearings for closing the gate, as will hereinafter appear.

The crank-pin 20 of the secondary rock-

shaft 8 is connected with the lower end of a vertical pitman 23, having its upper end pivotally connected with a segment-gear 24, adapted to swing in a vertical plane on or
 5 with a shaft 25 arranged in a supporting-bracket 26. The segmental gear 24 engages a gear or pinion 27, rigidly secured to an oscillatory shaft 28, mounted in a bearing 29 on a supporting-bracket 30. The oscillatory
 10 shaft 28 carries the gate-arm 31, which gate-arm is of the ordinary form, and is provided with an overweighted end 32 of sufficient power to open the gate and reset all the parts to normal position when the train passes.

15 I desire it to be understood that the proportions illustrated in the drawings are not working proportions, and that the drawings are simply designed to illustrate the general arrangement of the parts, and not the exact
 20 relation of parts in practical use. In practice the depressible bars or rails will be of suitable length, the several rock-shafts will be located at some distance apart, and the link connecting the cranks of the rock-shafts will
 25 be of comparatively great length, and therefore the link should be made up of many sections properly secured together.

For the reasons stated I do not wish to be understood as confining myself to the exact
 30 construction of bars, rails, and links illustrated in the drawings, as these parts may be of any construction suitable for the purpose in hand.

The brackets 26 and 30 are rigidly secured
 35 in a boxing mounted on the upper end portion of the post, standard, or upright frame 11, and the latter is arranged in proper juxtaposition to the railway-track, so that when the gate-arm is lowered it will project over,
 40 or partially over, the crossing which is to be guarded while a train passes.

The several essential parts of my invention, except perhaps the gate-arm, may be composed of iron, steel, or any other metal

suitable for the purpose. As regards the 45 gate-arm, it may be of wood or any other material.

The rock-shafts should be so set and the extent of depression of the depressible bars or rails so adjusted or regulated that the 50 cranks of the rock-shafts will not be thrown so far as to place them on the dead-center, as this would interfere with or obstruct the automatic resetting of the parts to their normal position after a train has passed. The throw 55 of the cranks can be controlled in any suitable manner—as, for instance, by arranging the depressible bars or rails at such elevation that they can only be depressed a definite distance by the flanges of the car-wheels. 60

Having thus described my invention, what I claim is—

The combination of transverse, primary rock-shafts having crank pins and cranks, a secondary rock-shaft having a crank pin and 65 a crank, a link connecting the cranks of all the rock-shafts, parallel, depressible bars or rails arranged horizontally and loosely mounted on the crank pins of the primary rock-shafts, a gate-arm weighted at one end, a 70 standard, post, or frame having a bracket provided with an oscillatory shaft which carries the gate-arm, a gear or pinion rigid on the said shaft, a vertically swinging gear engaging the gear or pinion of the shaft, and 75 a pitman connecting the swinging gear with the crank pin of the secondary rock-shaft, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 80 nesses.

his
 WILLIAM X LE ROY VERNON.
 mark

Witnesses:

F. L. WALKER,
 JAMES M. LEY.