

No. 798,690.

PATENTED SEPT. 5, 1905.

J. D. MILLER.  
RAILWAY CROSSING GATE.  
APPLICATION FILED DEC. 18, 1903.

2 SHEETS—SHEET 1.

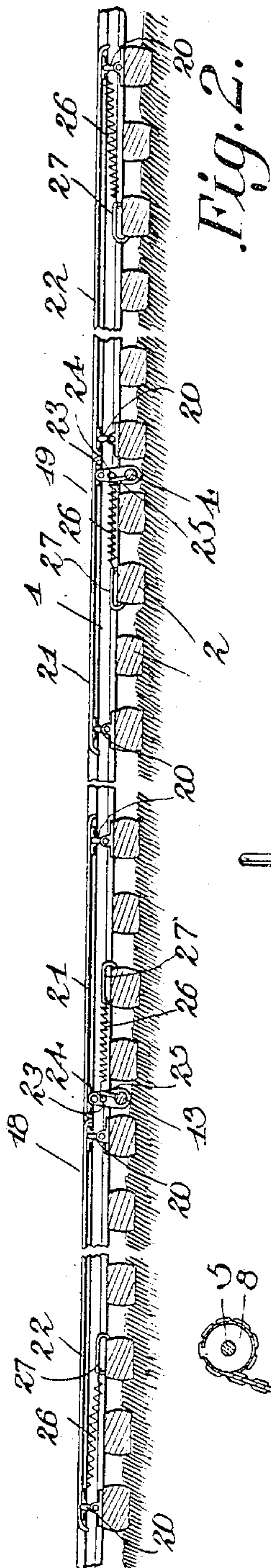


Fig. 2.

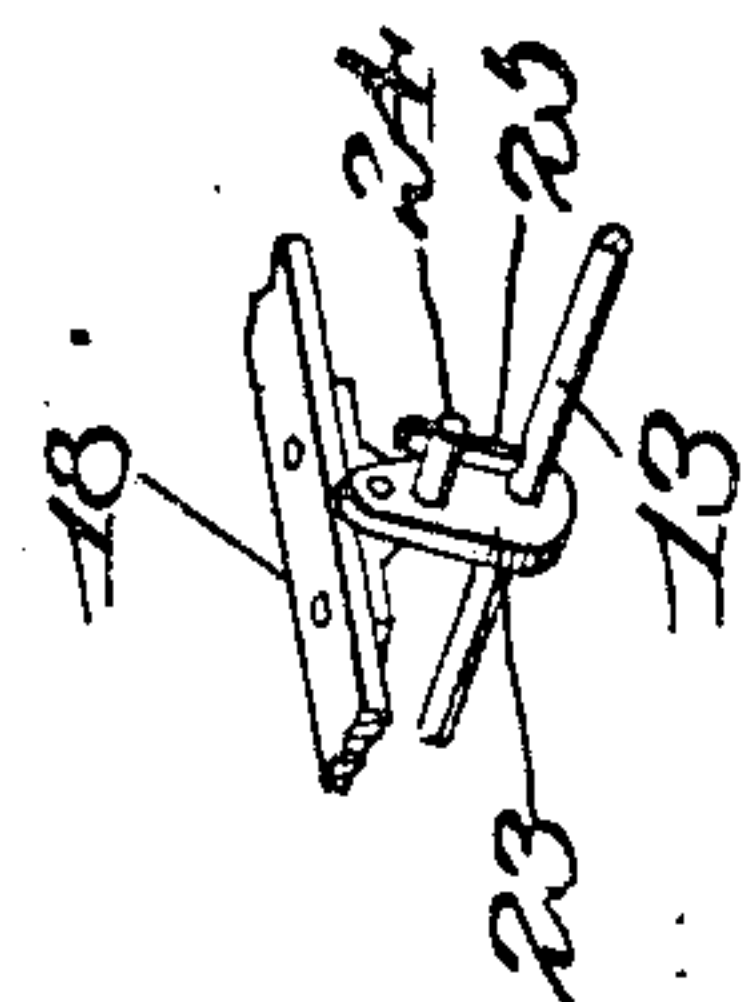


Fig. 8.

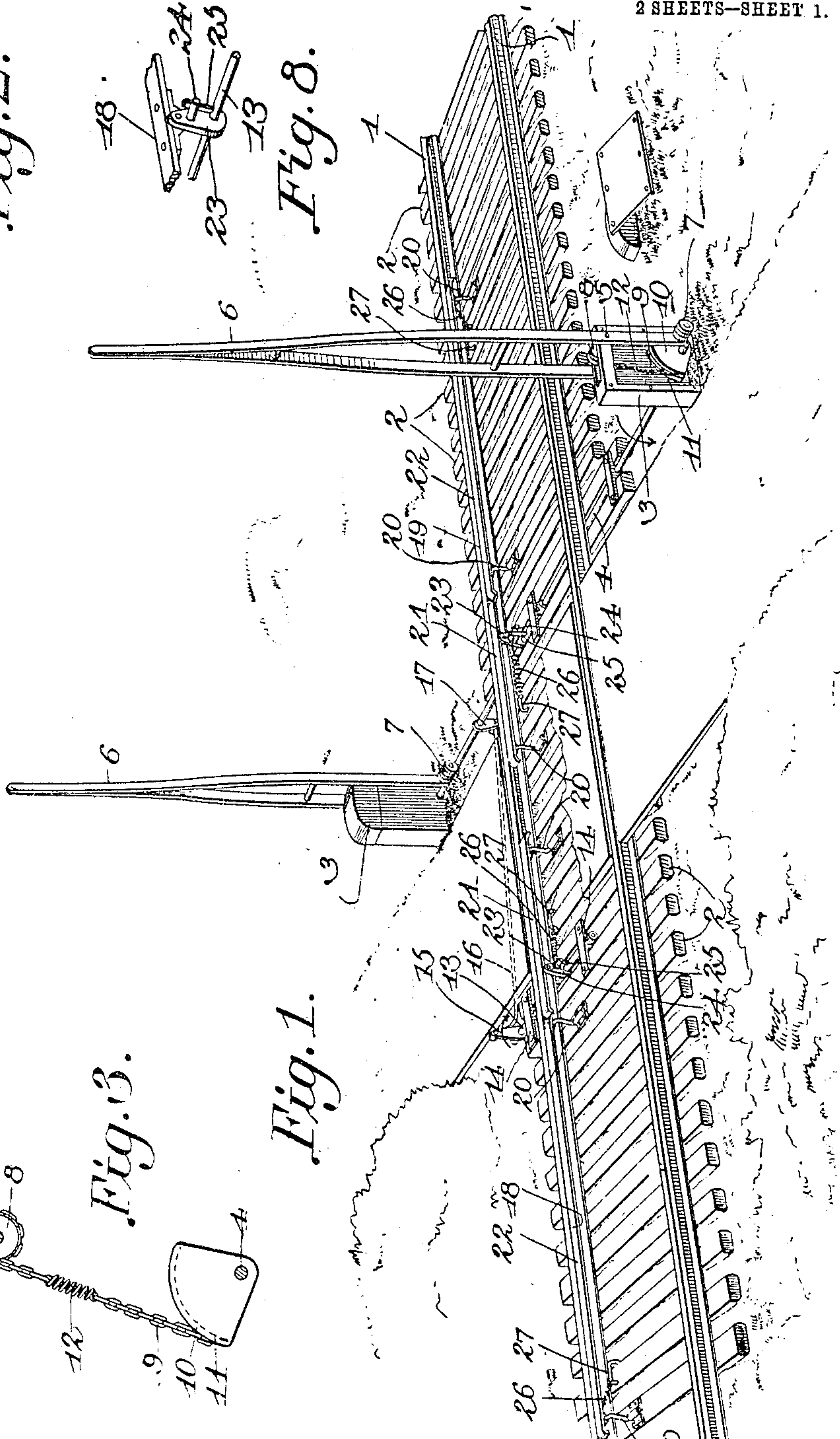


Fig. 1.

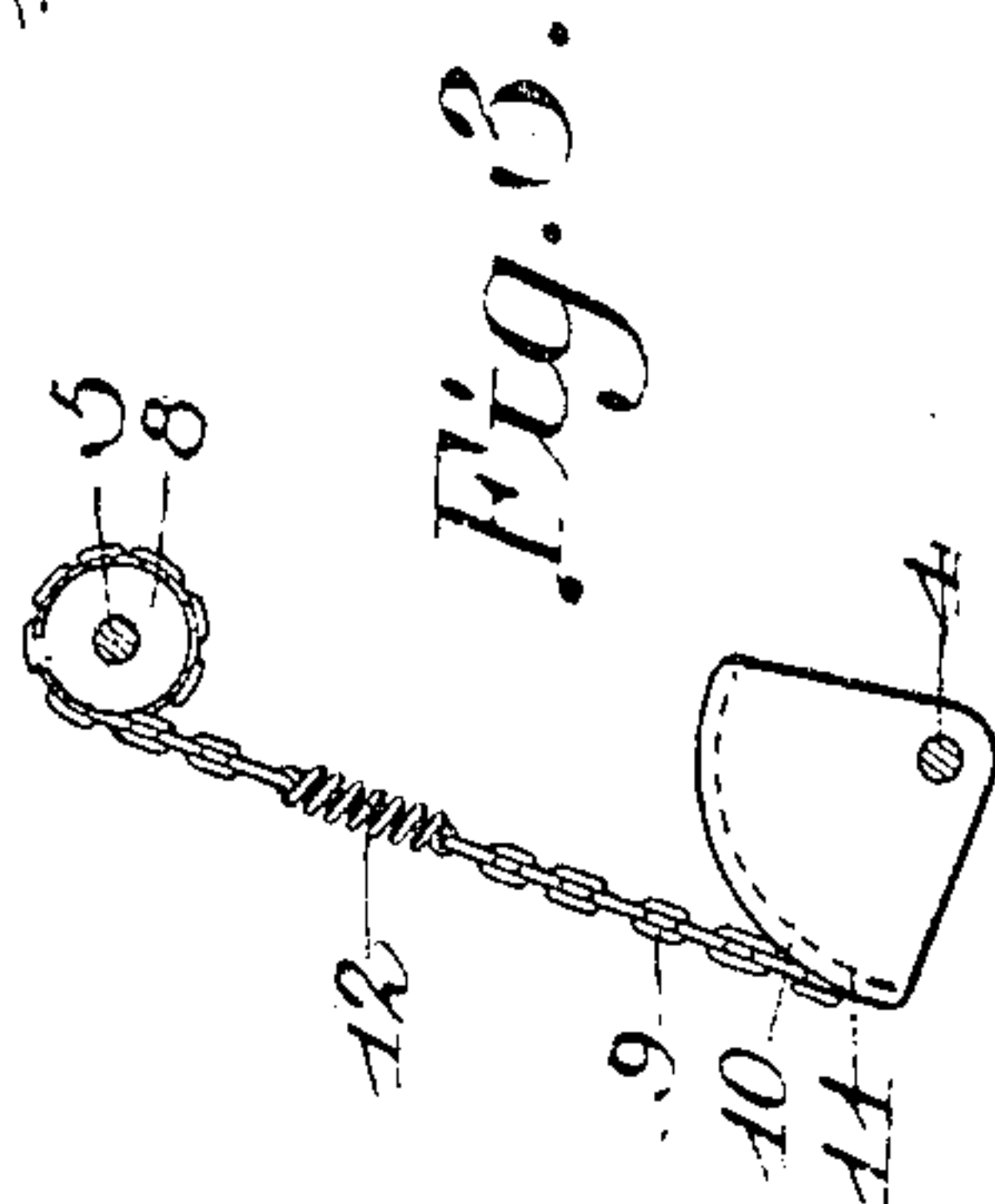


Fig. 3.

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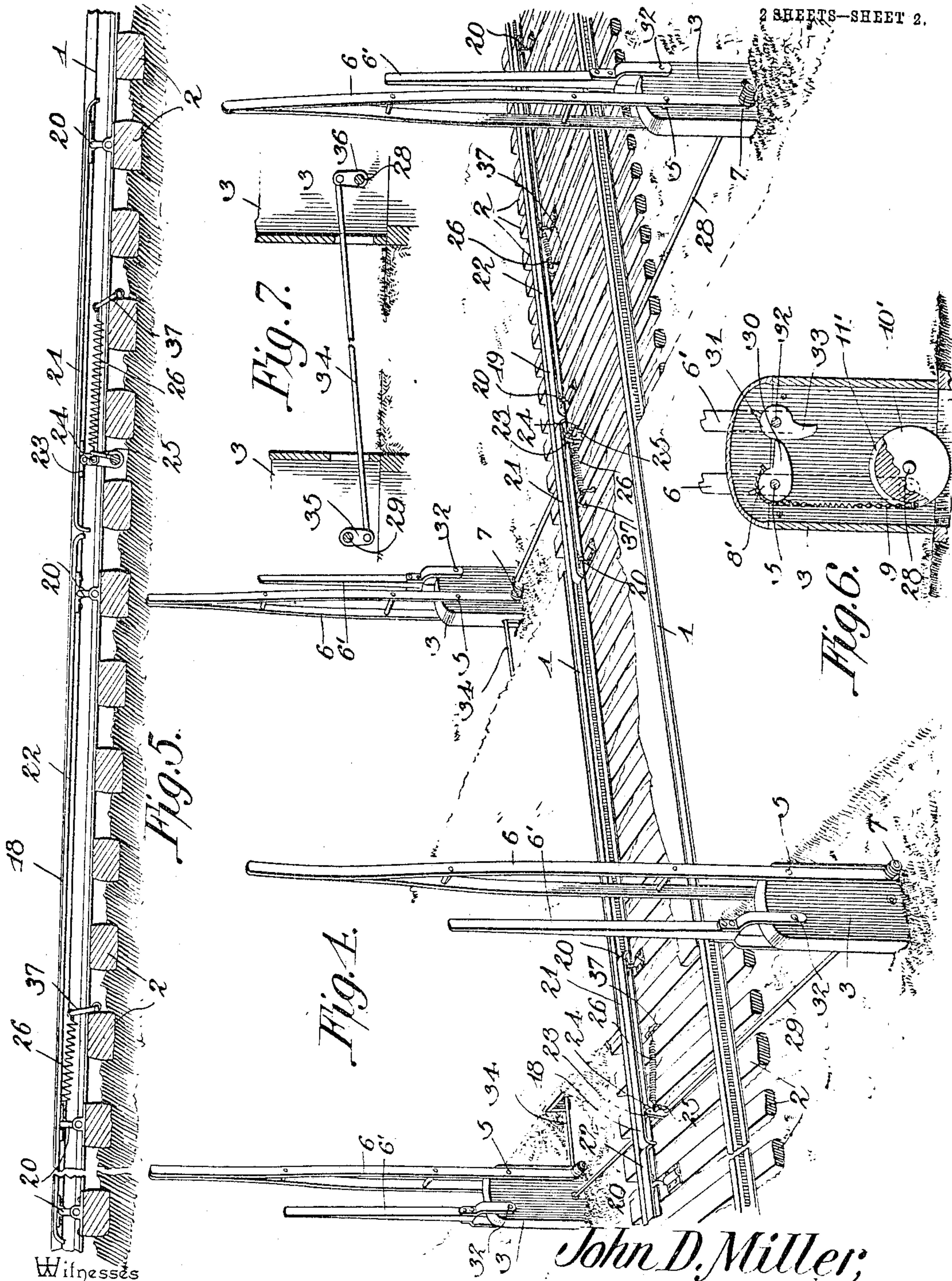


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# UNITED STATES PATENT OFFICE.

JOHN D. MILLER, OF SAN ANTONIO, TEXAS.

## RAILWAY-CROSSING GATE.

No. 798,690.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed December 18, 1903. Serial No. 185,737.

*To all whom it may concern:*

Be it known that I, JOHN D. MILLER, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented a new and useful Railway-Crossing Gate, of which the following is a specification.

My invention relates to railroad-crossing gates, and has for its objects to produce a simple inexpensive device of this character in which the gates may be moved automatically to closed position by a passing train and one in which the gates will swing automatically to open position after the train has passed.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view illustrating the preferred form of embodiment of my invention. Fig. 2 is a detail sectional elevation of the same. Fig. 3 is a detail view of one of the gate-operating devices. Fig. 4 is a perspective view of a modified form of embodiment of the invention. Fig. 5 is a detail longitudinal sectional elevation of the same. Fig. 6 is a sectional elevation, on an enlarged scale, through one of the gate stands or boxes. Fig. 7 is a detail sectional elevation showing the connection between the operating-shafts. Fig. 8 is a detail perspective view showing the link-and-pin connections between one of the shafts and its operating member.

Referring to the drawings, 1 designates the railway-rails, and 2 the cross-ties supporting the same, these parts being of the usual or any preferred construction and material, as they constitute no part of my invention.

In accordance with my invention and as seen in Figs. 1 to 3 I erect on opposite sides of the railroad and at one side of the crossing a pair of gate stands or boxes 3, between which there extends transversely of the rails a primary operating-shaft 4, having bearing at its opposite ends in the respective boxes or cases 3. Each box 3 has extended transversely there-through adjacent to its upper end a shaft or pintle 5, upon which is fixed a gate 6, having its normally lower end weighted, as at 7, there being also fixed upon the shaft 5, which is designed for rotation, a pulley or its equivalent 8, connected by a chain or other connecting

element 9 with an actuating member 10, preferably in the form of a segmental block fixed upon the end of shaft 4 within the casing 3, said block being provided upon its periphery with a groove 11, which during operation of the device receives the chain 9. The chain is formed in two sections connected by a normally contracted spring 12 for a purpose which will hereinafter appear.

Disposed on the opposite side of the crossing from shaft 4 is a secondary shaft 13, journaled for rotation in suitable bearings 14, attached to the ties and having a fixed normally upstanding crank-arm 15, connected by a link 16 with a fixed depending crank-arm 17 on shaft 4, whereby rotation of one of said shafts in one direction will impart an opposite rotation to the other.

Arranged parallel with and adjacent to the inner face of one of the rails 1, in position to be operated upon by the car-wheel flanges, are two sets of actuating members 18 19, sustained by rock-shafts or members 20, pivoted to the ties 2, said actuating members being preferably in the form of horizontal plates, each made in two independent sections 21 22, arranged end to end and normally in contact. The sections 21 are connected with the respective shafts 4 13, each by means of a link 23, which loosely engages the shaft and carries a horizontal pin or finger 24, engaging a vertically-upstanding pin or finger 25, fixed to the shaft, the actuating members being maintained in their normal non-depressed positions by means of springs 26, connected with the respective sections 21 22 and slidingly engaged with loops or guides 27, attached to the adjacent ties 2.

In practice a train approaching from either direction will first depress section 22 of the actuating member being operated upon and, owing to the sections of said member being in normal contact, will impart a forward longitudinal movement to the section 22 and likewise to the section 21 in a direction toward the crossing, at the same time depressing the latter section, which action in the instance of member 18 serves, through link 23 and pins 24 25, to rotate the shaft 13 in the direction of the arrow and through the medium of link 16 and crank-arms 15 17 rotate shaft 4 in the direction for swinging the gates 6 downward across the crossing, while in the



instance of member 19 such operation of the shaft 4 will be direct through the medium of link 23 and pins 24 25. As shaft 4 rotates it swings segmental blocks 10 downward, there-  
 5 by exerting a downward pull on chain 9, which positively moves the gates to closed position, the latter being automatically returned to open position by weights 7 after the train has passed. It is to be noted that as the sec-  
 10 tions 21 of the operating members move longitudinally toward the crossing the springs 21 will slide along the bearings 27 and that movement of the members longitudinally away from the crossing will expand the  
 15 springs, thus placing them in condition to return the members to normal position, while at the same time the pin 23 will swing away from and out of contact with pin 24, thereby not affecting the gates. As the train ap-  
 20 proaches toward member 18 and moves section 21 of the latter toward the crossing the spring 26, owing to its sliding connection with loop 27, may slide freely on the latter in the manner just explained to permit free move-  
 25 ment of the section, while at the same time the section 21 of member 19 will move longitudinally away from the crossing, thus placing its spring 26 under tension for returning the parts to normal position after the train  
 30 has passed. As the gates reach the completion of either their opening or closing movement they will necessarily undergo a certain amount of oscillation on their axes, which motion will be taken up or compensated for by  
 35 springs 12, thereby preventing jarring of the gate-operating mechanism.

In Figs. 4 to 7 I have illustrated a modification of the device which is identical in construction and operation with that above de-  
 40 scribed, except in the particulars hereinafter pointed out.

In the present instance I have erected upon each side of the crossing two boxes or stands disposed upon opposite sides of the track and  
 45 have provided a pair of operating-shafts 28 29, each extended transversely of the rails between a pair of the boxes, in each of which there is disposed and fixed upon the operat-  
 50 ing-shaft an actuating member 10', which in the present instance is in the form of a wheel or disk having a peripheral groove 11' and connected by an element 9, identical with that heretofore described, with a member 8', fixed  
 55 upon shaft 5, on which is also fixed the gate 6, weighted at its lower end. The member 8' is similar to member 8, previously described, except that in the present instance it is pro-  
 60 vided with a cam-finger 30, designed to engage a member 31, fixed upon a shaft 32 and having a cam-finger 33. The shaft 32 is jour-  
 naled for rotation in the box 3 and carries a supplemental gate 6', designed in practice to

swing transversely of a sidewalk or footway lying at the side of and parallel with the main roadway. 65

The shafts 28 29, which are connected with and operated by members 18 19 in a manner identical with that heretofore described, are connected one with the other by means of a link 34, engaged at one end with a depending  
 70 crank-arm 35, fixed upon shaft 29, and at its other end with an upstanding crank-arm 36, fixed upon shaft 28, whereby when one of said shafts is rotated in one direction the other will be reversely rotated, as heretofore explained. 75  
 In this instance the springs 26, which serve to return the members to normal non-depressed position, are engaged at one end with the members and at the other with loops 37, pivoted to the ties and adapted to swing down-  
 80 ward on their pivots under the influence of outward longitudinal movement of the members.

In the operation of this form of the device, supposing the train to be approaching from  
 85 the left, the member 18 will be depressed, thereby rotating shaft 29 toward the crossing, which serves through the connection 34 to rotate shaft 28 also toward the crossing, thus causing the primary gates 6 to swing down-  
 90 ward transversely of the latter in the manner previously described. As the gates 6 swing downward the member 8', which through its cam-finger 30 engaging member 31 normally maintains supplemental gate 6' in an upright  
 95 position, gradually releases and permits the latter to swing downward simultaneously with the primary gate, the downward movement of the supplemental gate being automatic through gravity. After the train has passed  
 100 the weights 7 will cause the primary gates 6 to rise to normal position, which as they rise will through the coöperation of the cam mem-  
 105 bers 8' and 31 automatically raise the supplemental gates in a manner which will be readily understood. A similar operation of the parts will follow upon a train approaching and passing from the right.

From the foregoing it will be seen that I produce a simple inexpensive device which is  
 110 admirably adapted for the attainment of the ends in view. It is to be understood, however, that I do not limit myself to the precise details herein set forth, inasmuch as minor changes may be made without departing from the  
 115 spirit of the invention.

Having thus described my invention, what I claim is—

The combination with a railway, of a gate pivotally sustained adjacent thereto, said gate  
 120 being movable to open or closed position, a rotary operating-shaft, means operable by a passing train for rotating said shaft, a flexible connecting element between the gate and

shaft, whereby the latter may swing the gate  
to one of said positions, means for automatic-  
ally returning the gate to normal position,  
and a spring disposed within the flexible ele-  
5 ment for taking up shocks upon return of the  
gate to the latter position.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in  
the presence of two witnesses.

JOHN D. MILLER.

Witnesses:

J. H. JOCHUM, Jr.,

J. ROSS COLHOUN.