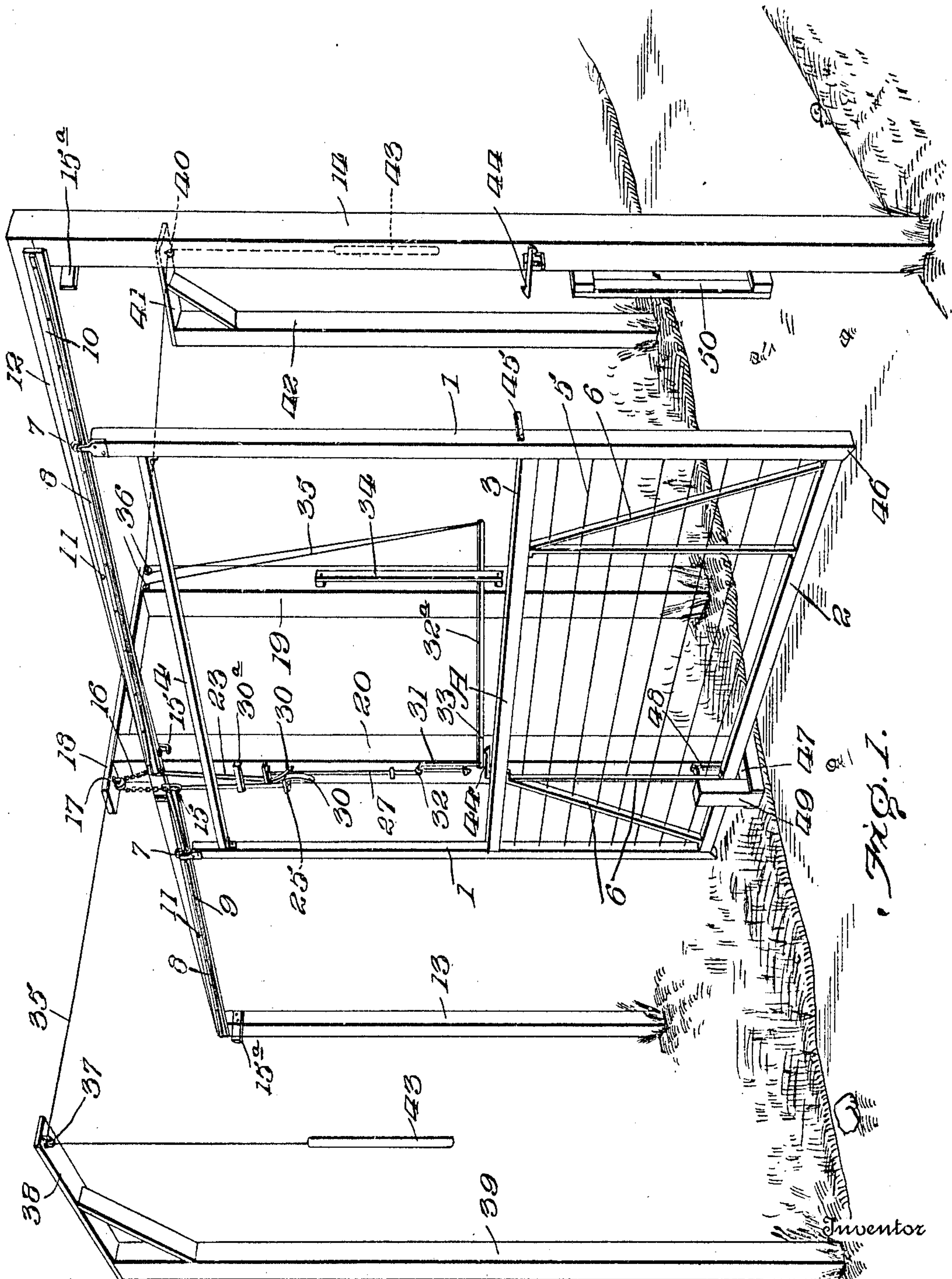


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GATE OPERATING MECHANISM.  
APPLICATION FILED SEPT. 14, 1909.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.



Witnesses  
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By

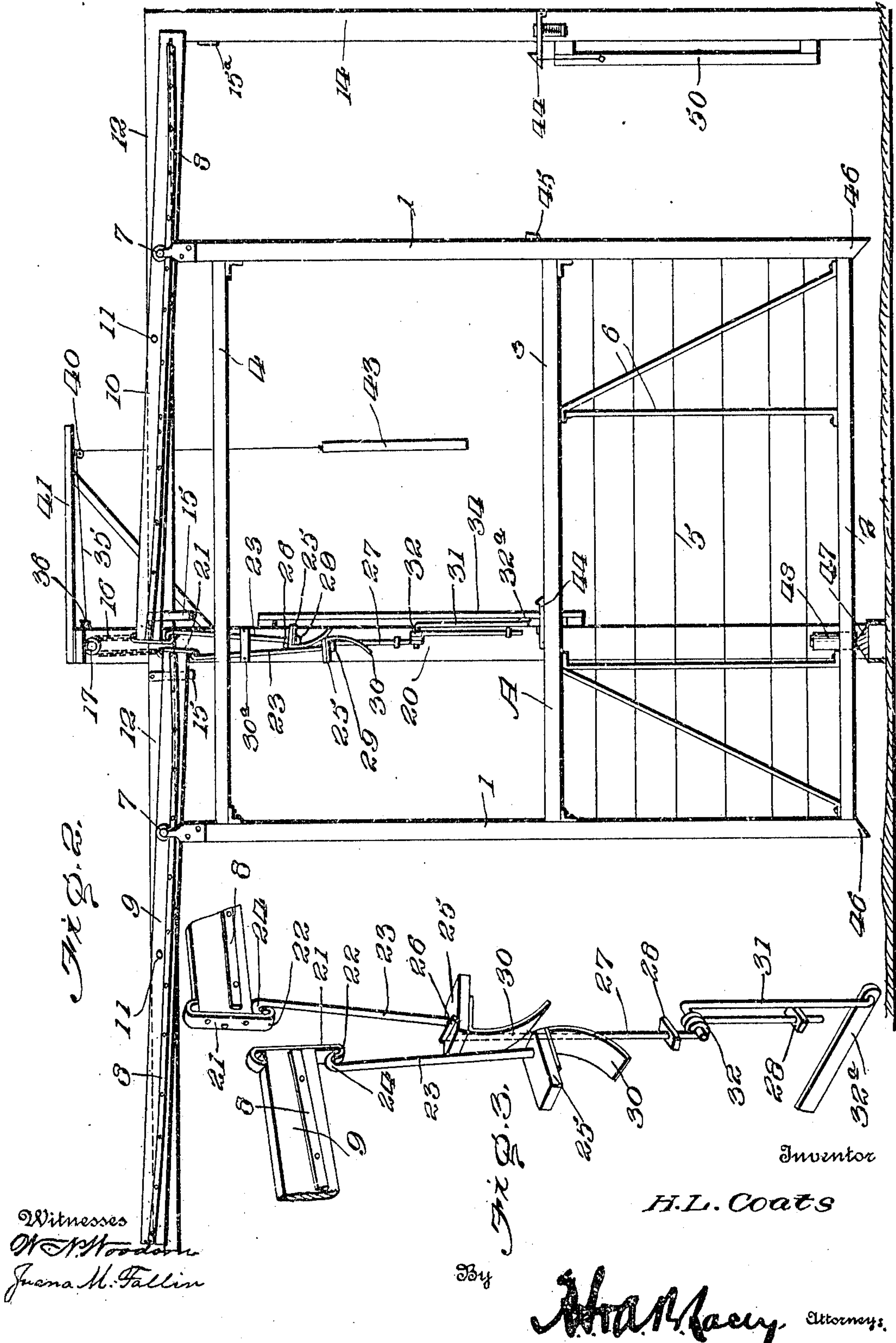
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# UNITED STATES PATENT OFFICE.

HENRY L. COATS, OF MOSCOW, IDAHO.

GATE-OPERATING MECHANISM.

950,659.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed September 14, 1909. Serial No. 517,661.

*To all whom it may concern:*

Be it known that I, HENRY L. COATS, citizen of the United States, residing at Moscow, in the county of Latah and State of Idaho, have invented certain new and useful Improvements in Gate-Operating Mechanisms, of which the following is a specification.

This invention comprehends certain new and useful improvements in gates for highways, of that class which are designed to be operated at a distance when approaching the gate from either side, without the necessity of alighting from a vehicle, and the invention has for its primary object a simple, durable and efficient construction of device of that character which will embody few and simple parts that may be cheaply manufactured and easily assembled.

The invention also has for its object a gate of this type which embodies a pair of tilting rail carrying beams and a gate proper suspended therefrom and arranged to roll along the rails in one direction or the other according to the direction in which the beams are tilted, the parts being so correlated that an actuation of the hand controlling devices will open the gate, if the gate be closed, close the gate, if the gate be open, no matter in what direction the operator is approaching the gate, thereby doing away with the necessity of independent opening and closing devices.

With these and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that will be hereinafter fully described and claimed.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a gate constructed in accordance with my invention; Fig. 2 is a face view thereof; and Fig. 3 is a detail perspective view of some of the operating parts hereinafter specifically described.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawing, the letter A designates the gate proper which of itself may be of any desired size, construction or design, except as hereinafter noted, the same in the present instance embodying spaced standards 1, a lower sill 2, an intermediate sill 3 and an upper sill 4, the said sills being secured at their ends to the standards 1 in any desired way, as by the angle brackets shown. The gate may be filled out in any desired way between the lower sill 2 and intermediate sill 3, as by line wires 5 and braces 6.

To the upper ends of the standards 1 roller hangers 7 are connected, the same being mounted upon rails 8 in such a manner that the rollers will not become derailed. The rails 8 are two in number, as shown, and are secured in any desired way, respectively, to beams 9 and 10, the same being pivotally connected intermediate of their ends, as indicated at 11 to a horizontally disposed supporting beam 12 which is in turn supported by the spaced posts 13, 14 and 20. Preferably, the rails are sloped near their ends, as clearly illustrated in the drawings, whereby the gate will tend to slow up at the limit of its movement. The tilting beams 9 and 10 are limited in their tilting movements about horizontal axes in one direction, preferably by iron supports 15 attached to the supporting beam 12 on both sides of the center post 20. In addition to these iron supports 15 I may employ stop blocks 15<sup>a</sup> which project out from the posts 13 and 14 near the upper end thereof, and which also serve the additional function of stops for the gate A.

The adjoining ends of the beams 9 and 10 are connected together by means of a chain or other flexible bond 16, said bond extending over a pulley 17 depending from the projecting end of a horizontally disposed bar 18 supported at one end on a post 19 and at its other end on a post 20, the latter post being set substantially in alinement with the posts 13 and 14. By this means it is evident that when the inner end of one beam is depressed, the corresponding end of the other beam will be lowered.

Bracket irons 21 are connected to the adjoining ends of the respective beams 9 and 10. Each of these bracket irons is formed with a laterally and upwardly projecting



recessed hook 22. Hanger rods 23 are formed at their upper ends with hooks 24 by which they are designed to be hung into the recessed hooks 22 of the irons 21, the free  
 5 suspended position of said hanger rods being such that arms 25 secured to their lower ends and projecting laterally therefrom as shown, will be held in position to take under and be engaged by the laterally projecting finger 26  
 10 which is formed on the upper end of a pull rod 27. This pull rod 27 is mounted for a vertical movement in guide straps 28 secured to the intermediate post 20. The arms 25 are adjustably mounted on the lower ends  
 15 of the respective hanger rods 23, as shown, being held at the proper position thereon by nuts 29 screwing on the lower threaded extremities of the rods and whereby the arms may be raised or lowered relative to their  
 20 corresponding rod so as to be properly engaged by the finger 26 in the downward movement of the pull rod 27. Between the nuts 29 and the arms 25 curved guides 30 are secured, the same being preferably strips of  
 25 band iron or the like, one portion of which is substantially straight so as to be clamped between the arm and the nut, while the other portion curves downwardly underneath the lower extremity of the rod 23.  
 30 These guides 30 are designed to prevent the interference of one rod 23 by the other when one rod is pulled downwardly by the hanger rod 27 and the other is raised by being carried up by the inner end of the beam to  
 35 which it is secured.

The rod 27 is pivotally connected intermediate of its ends to a link 31, the manner of attachment in the present instance consisting of an off-set end formed on the link  
 40 passing through the loop 32 of the pull rod. The lower end of the link 31 is pivotally connected to an actuating lever 32<sup>a</sup> which is fulcrumed nearer one end than the other, as at 33, on the side of the post 20, the preponderance of weight of said lever being in  
 45 the rear of its pivot so that its forward end will tend to move upwardly. The rear arm of the lever 32<sup>a</sup> has movement within a vertical guideway 34 with which the post  
 50 19 is provided, as shown. The rear extremity of the lever 32<sup>a</sup> projects through and beyond this guideway and has actuating cords or cables 35 connected to it. These cables extend upwardly from the lever and pass  
 55 in opposite directions over pulleys 36 supported by the bar 18. One cable extends forwardly and passes downwardly over a pulley 37 supported by a cross arm 38 on the upper end of a post 39. The other cable  
 60 extends rearwardly and passes over a corresponding pulley 40 carried by a cross arm 41 mounted upon a post 42, said posts 39 and 42 being arranged at opposite sides of the gate and at any required distance there-

from. Hand-holds 43 of any desired character are secured to the outer free end of the respective cables 35.

In order to latch the gate to prevent its accidental movement after it has reached its fully opened or closed position, the posts  
 70 20 and 14 are provided with latches 44 designed to engage a keeper 45 secured to the standard 1 of the gate A. In order to remove all jar when the gate reaches the limit of its movement in either direction,  
 75 the lower ends of the standards 1 are oppositely beveled, as indicated at 46, these beveled ends being adapted to engage with bevel surfaces 47 formed on a block which projects from the lower end of the middle  
 80 post 20. The gate is guided in its movement at its lower end by vertically disposed rollers 48 one of which is journaled in suitable brackets secured to the post 20 near the lower end thereof and the other of which  
 85 is journaled in brackets secured to a relatively short post 49. 50 designates a bracket which projects from the post 14 and which is designed to receive the adjacent standard of the gate when the latter is moved to a fully  
 90 closed position, thereby, with the guide rollers 48, serving to hold the gate from swinging or rattling by the force of the wind.

From the foregoing description in connection with the accompanying drawings, the  
 95 operation of my improved gate actuating mechanism will be apparent. In the practical use of the invention, when a person approaching the gate from either direction,  
 100 in a vehicle say, arrives at either the post 39 or post 42, it will only be necessary to pull downwardly upon one of the hand-holds 43 which will draw upon the corresponding cable 35 and cause the actuating  
 105 lever 32<sup>a</sup> to rock about its axis 33 in a direction to pull downwardly upon the link 31. Through the instrumentality of this link, the rod 27 will be pulled downwardly and its upper bent extremity or finger 26  
 110 will engage whichever of the fingers 25 happens to be uppermost at the time. This will, of course, rock both of the beams in the same direction so as to cause the gate to roll. In the example assumed, it is manifest that the gate will move toward the  
 115 open position and as soon as the operator has driven through the gateway and reached the opposite handhold, it is only necessary to again pull downwardly upon the latter and a reverse movement of the gate will be  
 120 effected, the pull rod 27 acting upon the hanger rods 23 alternately, the same passing each other in their upward and downward movement without any interference between them, owing to the guides 30. At  
 125 the limit of their movement one of them will be thrust underneath the finger 26 so that a subsequent actuation of the lever 32



and a consequent downward movement of the pull rod 27 will pull downwardly upon the hanger rod 23 which is then uppermost and will reverse the parts and likewise cause the gate to move in a direction opposite to that in the preceding operation.

Further describing the operation of the device, it is to be noted that the pull rod 27 is guided for movement in a true vertical plane, while the hanger rods 23 are so arranged that they will tend to swing toward each other and assume inclined or oblique positions as illustrated best in Fig. 2. Hence as the pull rod 27 is moved downwardly with its finger 26 in engagement with one of the arms 25, it will move down below the upper end of the guide 30 of the other arm which will have become the uppermost arm of the two. Subsequently then, when the pull rod 27 is released, and is moved upwardly again, it will push aside the curved guide of the arm which is then uppermost and finally when the finger 26 is at a sufficient elevation, such arm will swing inwardly underneath it preparatory to being engaged by said finger at the next operation of the pull rod.

Having thus described the invention, what is claimed as new is:

1. In gate operating mechanism, the combination of a gate, suspending means therefor including rails along which the gate is adapted to roll, tiltable beams to which said rails are connected, a connection between said beams whereby they will both tilt in the same direction, and means arranged to be actuated from a distance and connected to each of said beams alternately and arranged to tilt the beams in a direction to move the gate to a closed position when the gate is opened and in a direction to move the gate to an open position when the gate is closed.

2. In gate operating mechanism, the combination of a gate, suspension means therefor including tilting beams arranged when tilted in one direction to move the gate toward the open position and when tilted to the opposite direction arranged to move the gate to a closed position, and means designed to be actuated from a distance and arranged for connection to each of said beams alternately, as and for the purpose set forth.

3. In gate operating mechanism, the combination of a gate, suspending means therefor including tiltable beams arranged to tilt in the same plane, rails carried by said beams and from which rails the gate is hung, and on which it is adapted to roll, whereby the gate will be moved to open or closed position according to the direction of tilting the beams, a connection between the adjoining ends of said beams whereby they will

both move in the same direction when tilted, hanger rods suspended from the adjoining ends of the beams, and means arranged to pull down upon whichever hanger rod is uppermost at the time of the actuation of such beams, whereby the gate will be closed if it is open at the time of such actuation, and be opened if it is closed at such time.

4. In gate operating mechanism, the combination of a gate, tiltable supported beams therefor along which the gate is adapted to move, said beams being arranged to tilt in the same plane, a connection between the adjoining ends of the beams whereby they will both tilt in the same direction when actuated, hanger rods suspended from the adjoining ends of the respective beams, a vertically movable pull rod, a support therefor, the pull rod being arranged when depressed to engage whichever of the two hanger rods is uppermost at the time, an actuated lever arranged to be operated at a distance, and a connection between said actuating lever and said pull rod.

5. In gate operating mechanism, the combination of a gate, tiltable beams arranged to tilt in the same plane and supporting said gate, the gate being adapted to move along the beams upon the tilting of the latter, a connection between the adjoining ends of the beams whereby they will both move in the same direction when tilted, hanger rods suspended from the adjoining ends of the beams and each provided with a laterally projecting arm, a vertically movable pull rod formed with a laterally projecting finger adapted to engage the arm of whichever hanger rod is uppermost at the time of the actuation of said pull rod, a support for said pull rod, and means for actuating said pull rod at a distance.

6. In a gate operating mechanism, the combination of a gate, tiltable beams arranged to tilt in the same plane, the gate being supported by and movable along the beams, and a connection between the beams whereby they will both move in the same direction when tilted, hanger rods depending from the adjoining ends of the beams, said hanger rods being provided with laterally projecting arms, a vertically movable pull rod adapted to engage the arm of whichever hanger rod is uppermost at the time of the actuation of the pull rod, guides secured to the respective pull rods and arranged to insure the proper passing of the same without interference in the up and down movements of the rods, and means for actuating said pull rod at a distance.

7. In a gate operating mechanism, the combination of a gate, tiltable beams by which said gate is supported and along which it is adapted to move, a connection between said beams whereby they will both

move in the same direction when tilted, bracket irons connected to the adjoining ends of the respective beams, said bracket irons being formed with recessed hooks, 5 hanger rods formed with downwardly facing hooks adapted to take into the recesses of the first-named hooks whereby the hanger rods are suspended from the beam, a pull rod arranged to engage, when actuated,

whichever of the hanger rods is uppermost 10 at the time, and means for actuating said pull rod at a distance.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY L. COATS. [L. s.]

Witnesses:

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M. J. ATKINS.