

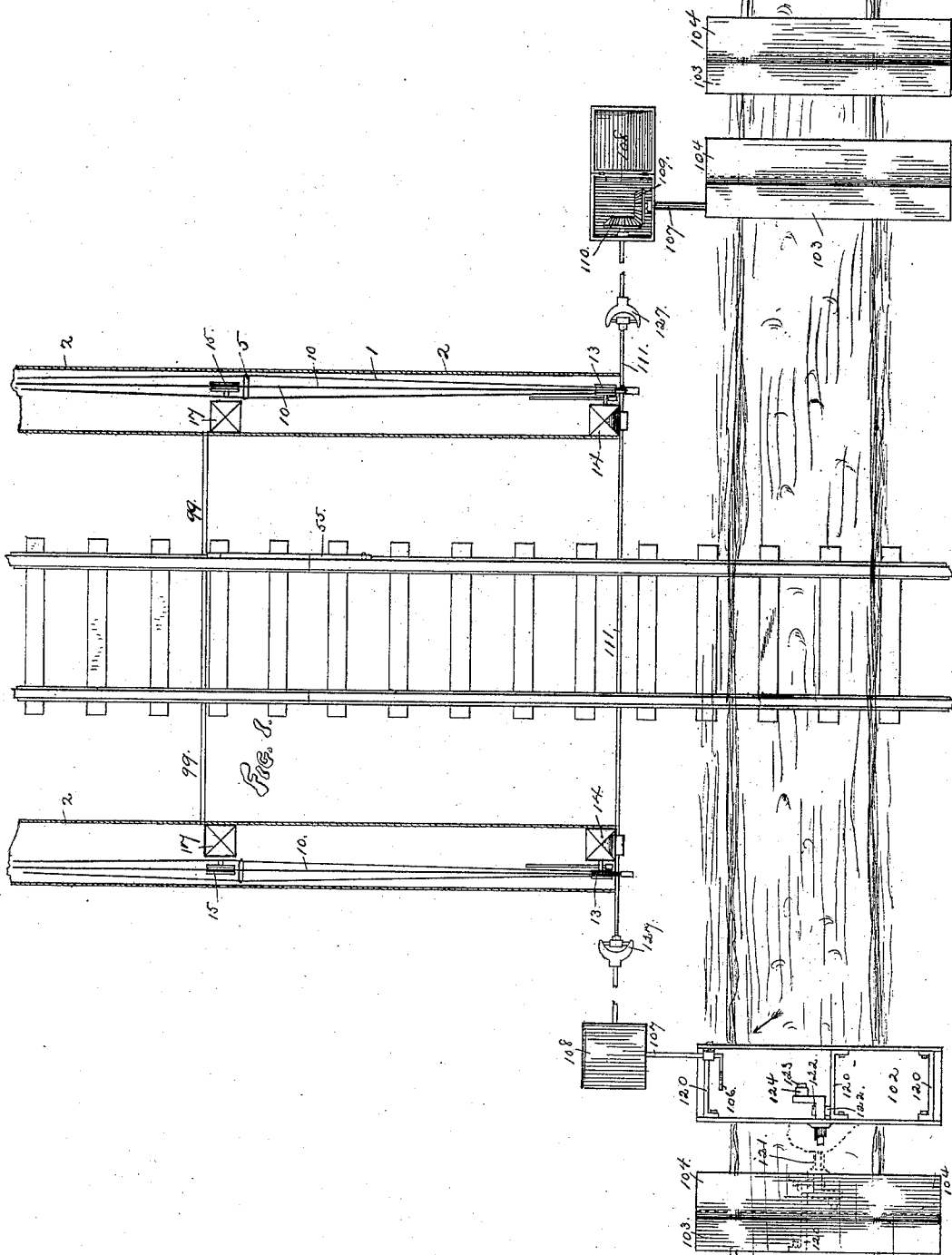
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7 Sheets—Sheet 1.

S. J. WETMORE. RAILROAD GATE.

No. 311,277.

Patented Jan. 27, 1885.



WITNESSES:

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C. E. Jones

INVENTOR:

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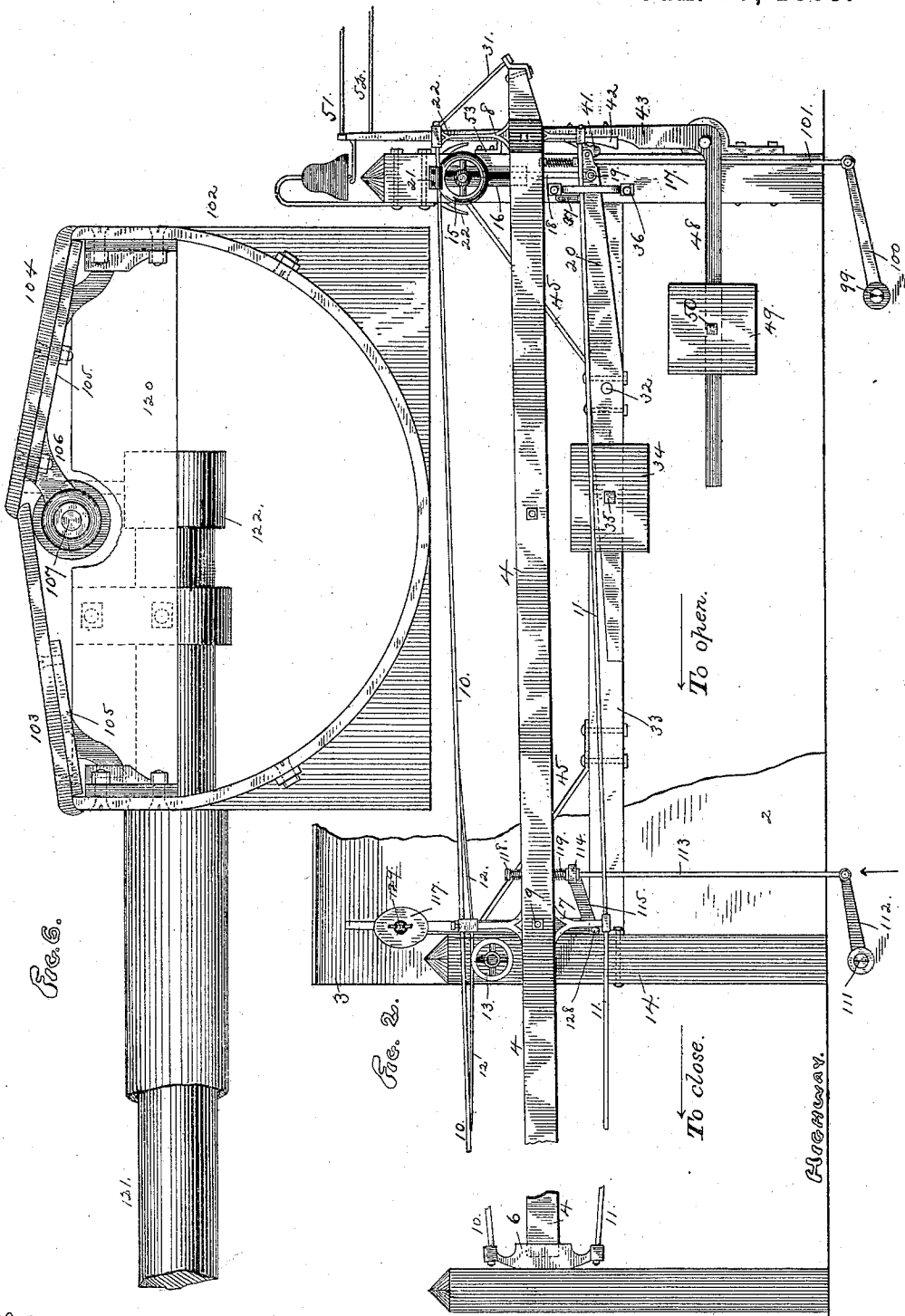
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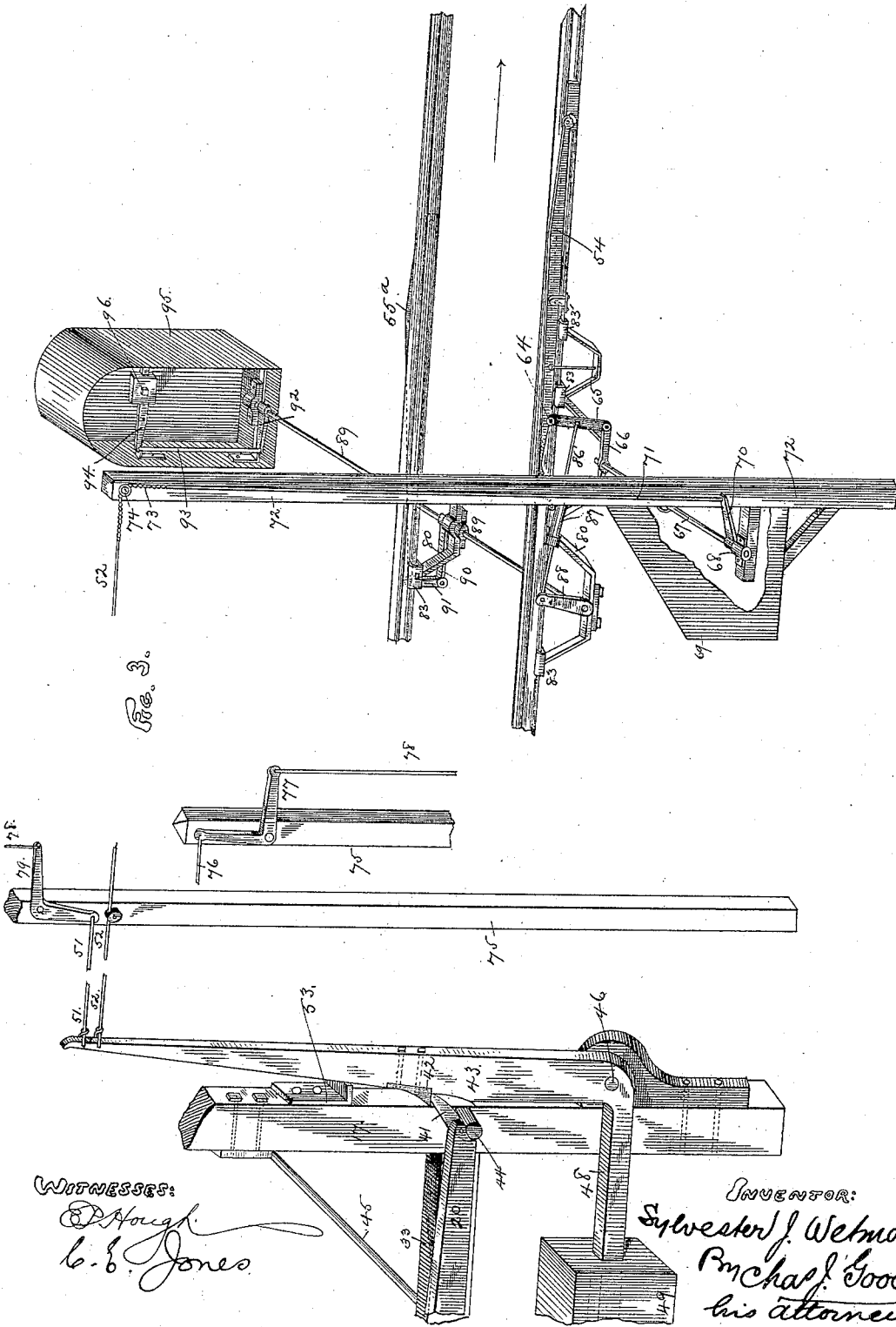
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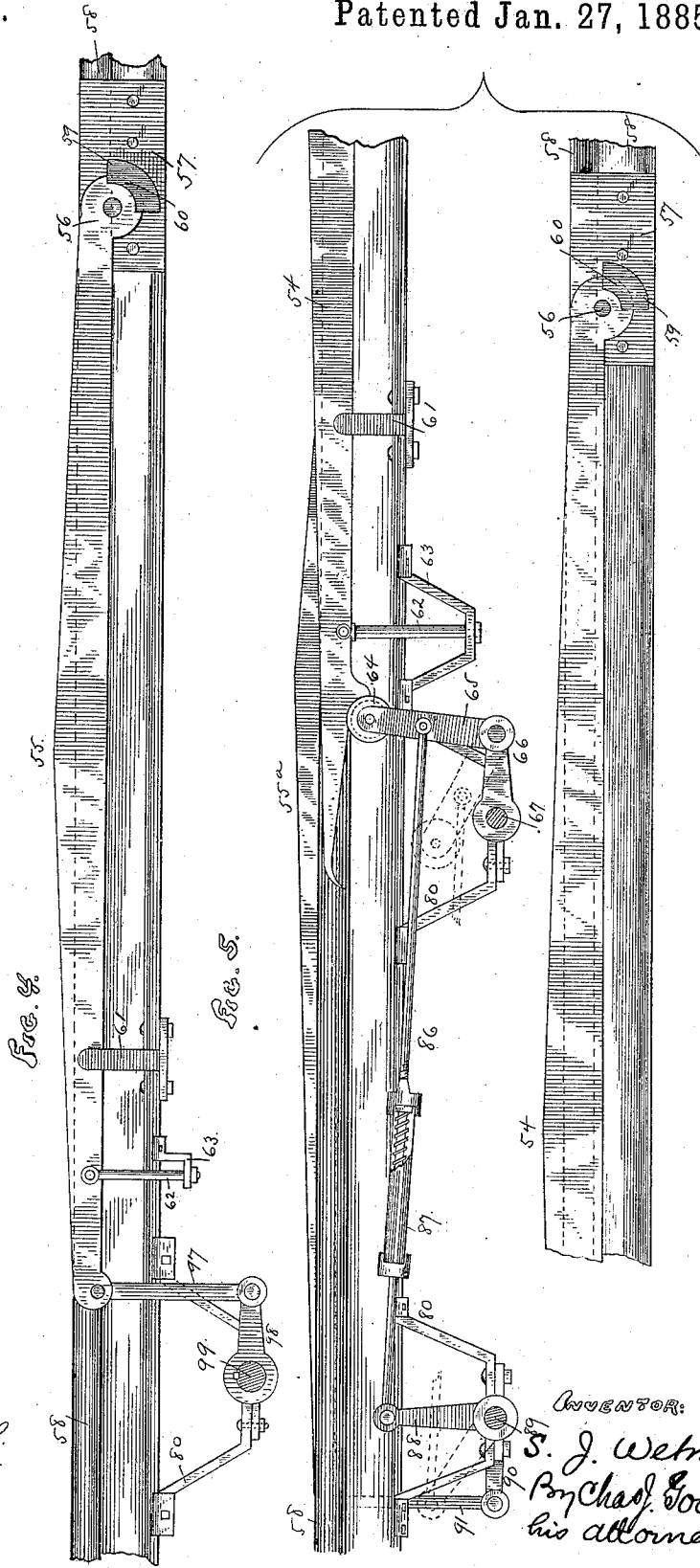
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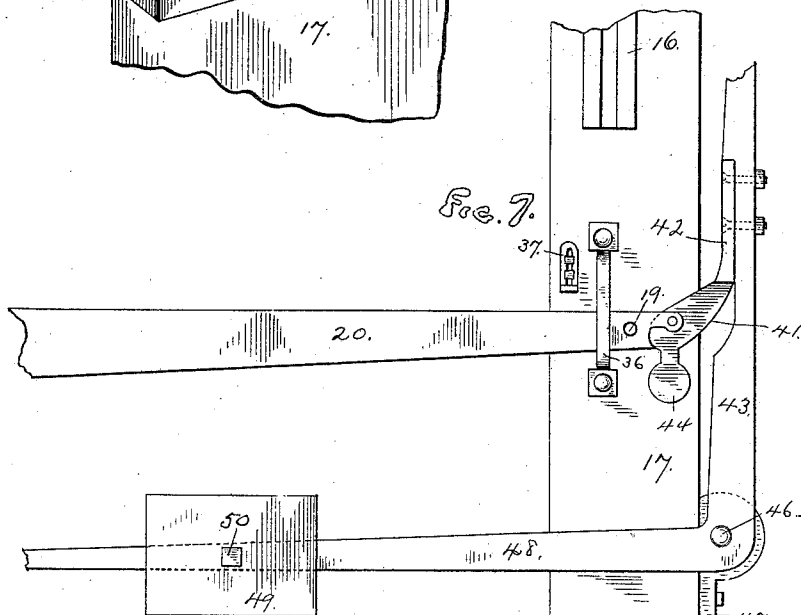
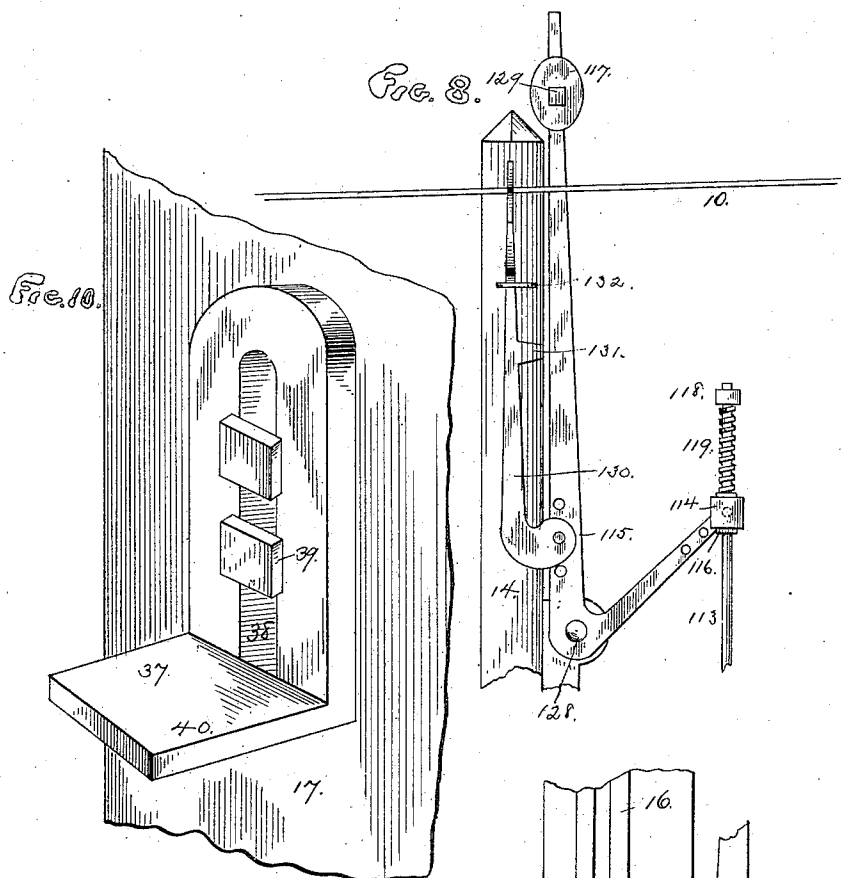
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No. 311,277.

Patented Jan. 27, 1885.



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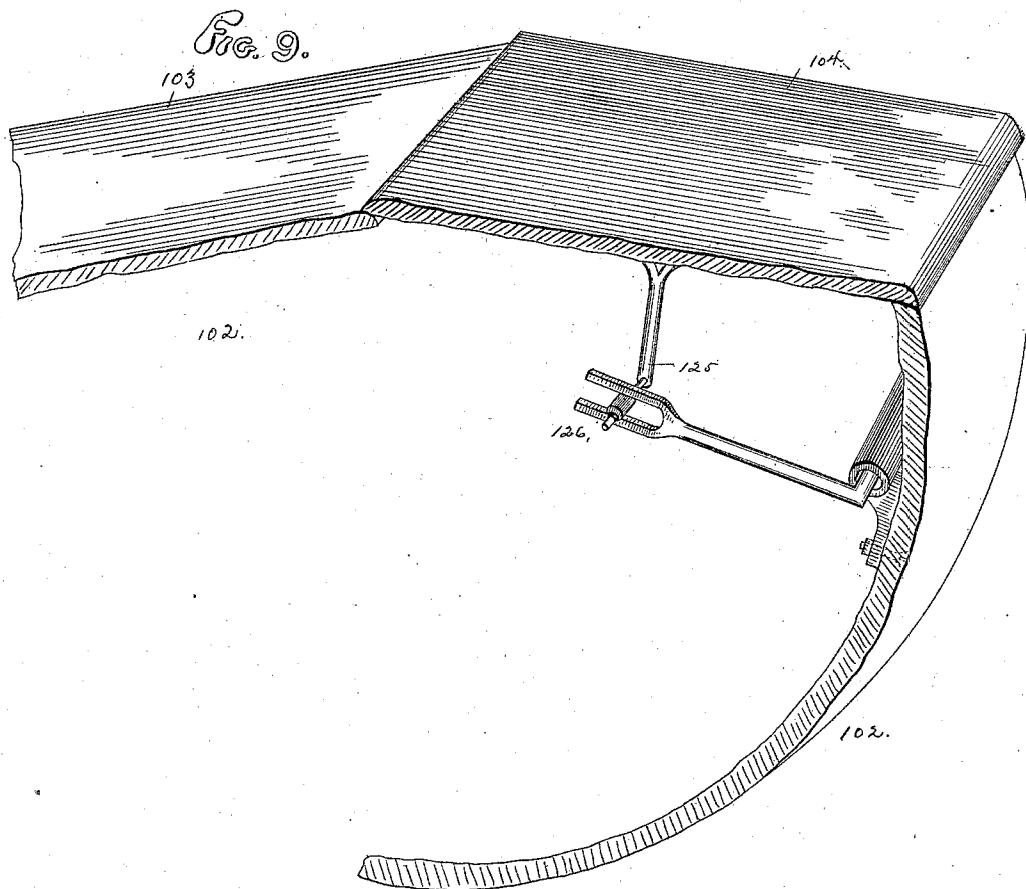
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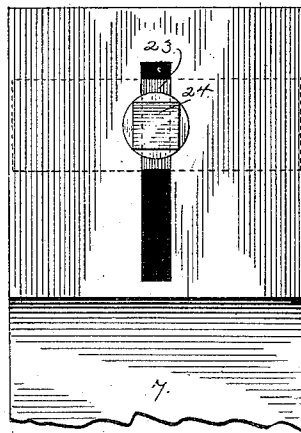
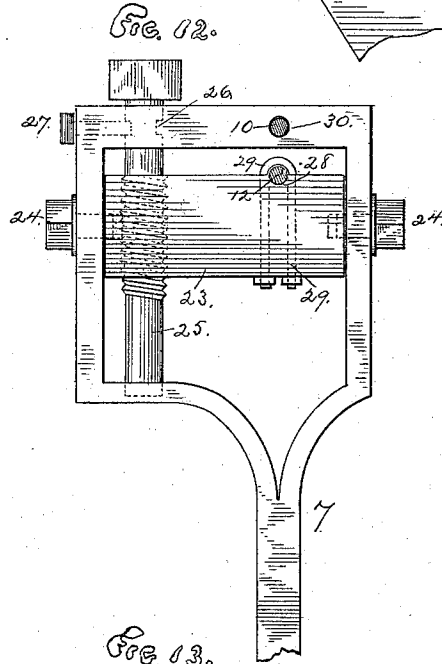
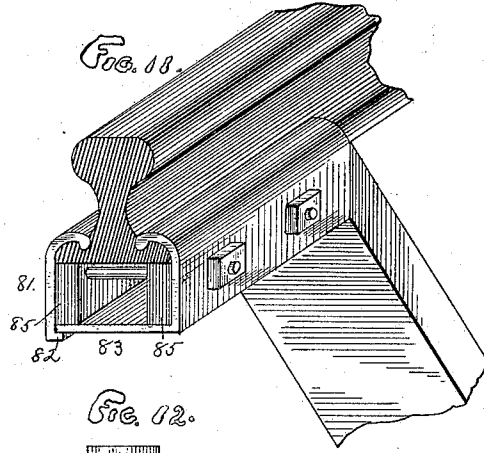
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Patented Jan. 27, 1885.



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UNITED STATES PATENT OFFICE.

SYLVESTER J. WETMORE, OF WATSON, NEW YORK.

RAILROAD-GATE.

SPECIFICATION forming part of Letters Patent No. 311,277, dated January 27, 1885.

Application filed March 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER J. WETMORE, a citizen of the United States of America, residing at Watson, in the county of Lewis and State of New York, have invented certain new and useful Improvements in Railway-Gates, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain improvements in the construction of sliding gates for railroad-crossings, and in means for actuating the same.

15 The invention consists in certain improvements in the construction of the gates, in the suspension thereof within a protecting-casing, with capability of readily sliding back and forth, in devices by means of which said gates may be closed and opened by the passing train, in devices by means of which the gates may be 20 locked by teams passing along the highway as they cross the track, and in other details, all hereinafter as fully described and claimed.

25 In the drawings, Figure 1 represents a plan view of a portion of the railroad-track having the gate-closing mechanism connected therewith and with the gates, the gates, and a portion of the highway-crossing with the gate locking and unlocking mechanism. Fig. 2 30 represents a vertical elevation of one of the sliding gates with the parts connected therewith. Fig. 3 represents in perspective that portion of the track having the gate-closing mechanism connected therewith, the gate-closing 35 mechanism, and that portion of the mechanism immediately connected with the gates for opening the same in whichever direction the train is passing. Fig. 4 represents a side elevation of a portion of one of the railroad-rails with the gate-operating lever and its 40 connecting mechanism. Fig. 5 represents a similar view of a portion of a rail with the gate-closing lever and its attachments connected therewith. Fig. 6 represents an end view of 45 one of the gate braking or locking latches which are operated by the wheels of the vehicle passing along the highway. Fig. 7 represents a side elevation of a portion of the gate-latching mechanism and the device for regulating the movement thereof. Fig. 8 represents a vertical elevation of the brake or rod

clamping mechanism for securely holding the gates open; and Fig. 9 represents a sectional perspective view of one of the brake-boxes, viewed in the direction of the arrow, Fig. 1. 55 Figs. 10, 11, 12, and 13 represent details views of portions of the device shown in the figures previously referred to.

Heretofore automatic operating gates for forming barriers to the passage over railroad-crossings of teams passing along the highway have not been provided with mechanism by means of which such passing teams could prevent the closing of such gates or barriers in such a way as to either inclose them between 65 such gates while they were upon the track, or else they have been so arranged that there was danger of the gates running into or falling upon the teams during their passage over railroad-crossings.

70 It is the object of my invention to provide the railroad-crossings with gates which shall form an efficient barrier on both sides of the track, which gates can be readily operated by the wheels of locomotive or train to slide said gates across the crossing while said train is some distance (say one-fourth of a mile) from the crossing, said gates being suspended upon and adapted to slide slowly along grooved pulleys, and an alarm being sounded simultaneously 80 with the train operating the gate-closing mechanism, in order that parties on the highway may have sufficient notice of the approaching closing of the gates; also, to provide efficient mechanism by means of which parties desiring 85 to pass over the crossing can, by the operation of the wheels of their vehicle upon a lever or plate extending transversely across the roadway, effectually lock or brake the gates and prevent their movement across the highway 90 until after said team has passed beyond both gates, when the wheels of the vehicle then come in contact with a similar lever or plate, and, releasing the brake or gate-locking mechanism, admit said gates to slide across the high- 95 way.

1 represents the gates, one on each side of the track or road-bed. These gates, when open, are contained within a box or casing, 2, having a suitably-shaped roof or top, 3, for 100 the purpose of inclosing and protecting the gates and the parts immediately connected

therewith from the weather. This gate is composed of two bars or beams, 4 4, connected together at their respective ends, and centrally trussed or bolted by means of the block 5, Fig. 1, which spreads said bars apart to form a truss, said bars being held in position by castings 7 and 8, the ends of the wooden bars 4 being connected to the end castings, 6 and 8, and being bolted at 9 to the central casting, 7.

10 and 11 represent truss-rods, the upper one, 10, of which passes through and is secured at its respective ends to the castings 6 and 8, and has on its under side and centrally thereof an angularly-arranged steel or spring rod, 12, which, with the rod 10, also passes through a slit in the upper end of the central casting, 7, the angular arrangement of such spring-rod 12 being such that when the gate is started in either direction it will assist the movement of the gate by causing it to slide at a downward angle until the lowest point of angularity is reached, when the momentum of the gate will carry it up the opposite angular face of the rod 12, and thus store up the momentum so gained, which will be utilized for a similar movement of the gate in the reverse direction, when desired.

13 represents a grooved wheel or roller, mounted upon the central post, 14, over which the spring-rod 12 and upper truss-rod, 10, travel as the gate slides back and forth.

15 represents another grooved wheel or roller, upon the rear post, 17, which supports the rear end of the gate and within which the upper truss-rod, 10, travels. The shaft or wrist of the wheel or roller 15 is mounted with capability of freely sliding therein within the slotted plate or slide 16, which is bolted to the rear post, 17.

18 represents a rod which at its upper end is connected to the wrist or spindle of the wheel or roller 15, which slides within the slotted plate 16, its lower end being connected at 19 with the gate-latching beam 20, in order that, as said beam 20 rises and falls, it will raise and lower said wheel or roller 15, and consequently raise and lower the rear end of the gate and bring it to the desired angle for automatically sliding in either direction as the end of the upper truss-rod, 10, is raised or lowered.

21 represents a lip or curved projection, bolted to the wrist of the rear wheel or roller, 15, which projects in a downwardly-curved direction over the rim of the wheel or roller 15, for the purpose of forming a guard for retaining the truss-rod 10 within the groove of said roller.

22 represents springs or buffers attached to the post 17, which receive the impact of the casting 7 when the gate is slid open, and of the casting 8 when it is slid closed across the highway, as shown in Fig. 2. The lower truss-rod, 11, is connected with the castings 6, 7, and 8 in a similar manner to the upper truss-rod, 10. The upper end of the central

casting, 7, as shown in Fig. 12, is formed hollow, and is provided with a block, 23, having a screw-threaded slot or hole, said block being bolted to said casting by bolts 24, moving in slots therein, and rendered vertically adjustable within the hollow portion of said casting by means of a thumb-screw or screw-threaded rod, 25, which has a circumferential recess or groove, 26, and is held rigid by a screw, 27, which passes through said casting to and enters the groove 26. Additional means for holding said vertically-sliding block 23 steadily in position is afforded by one of the screw-bolts 24, whose inner end is serrated to adapt it to engage with the screw-thread on the rod 25. The spring track or rod 12, on the upper truss-rod, 10, rests within a slot or recess, 28, in the vertically-sliding block 23, and is held in position therein from upward and outward movement by a clevis, 29, which passes through said sliding block.

30 represents the hole or slot in the top of the central casting, 7, through which the upper or main supporting truss-rod, 10, passes and within which it is supported. It will thus be seen that the truss rods or tracks 10 11 and the beams 4, forming the gate, are securely held and braced by the castings 6, 7, and 8, the degree of angularity of the spring-track being regulated by means of the vertically-sliding block 23, as on turning the screw-bolt 25 to force said block down the incline of the track is increased, and vice versa.

31 represents a brace-rod for supporting the casting 8 and preventing its pitching ahead. The gate-latching beam 20 is pivotally connected at 32 with the beam or girt 33, which is bolted at either end to the posts 14 and 17.

34 represents a centrally-slotted weight, which is held in position on said gate-latching beam 20, with capability of longitudinal adjustment thereon by means of a thumb-screw, 35. By means of this longitudinally-adjustable weight the facility with which said latching-beam oscillates on its pivot 32 during the locking or unlocking operation of the gate is regulated according as said weight is adjusted toward or from the pivotal connection of said latching-beam with the beam or girt 33.

36 represents a keeper or staple bolted to the post 17 for the purpose of holding the latching end of the latching-beam 20 in position; and 37 is a vertically-adjustable stop having a vertically-slotted back plate, 38, through which the bolts 39 are passed to secure the same to the post 17, its lower end having an outwardly-extending projection or lug, 40, which projects above and across the path of the latching-beam 20. By loosening these bolts 39 the stop 37 can be vertically adjusted upon the post 17, and thus bring the lug or horizontally-projecting portion 40 thereof nearer to or farther from the top edge of the latching-beam 20, and thereby regulate the extent of the vertical movement of said beam, and also thus regulate the amount of the angular pitch of the gate during its sliding move-

ment when its locking mechanism is released and the gate-operating mechanism, to be presently described, is actuated.

41 represents a pawl or catch, which is pivotally attached to the end of the latching-beam 20, for the purpose of engaging with the metal catch 42, which is bolted to the lever or arm 43. When the pawl or catch 41 is in engagement with the catch 42, it will hold the latching-beam 20 down and lock the gate open, as shown in Figs. 3 and 7. When the gate is closed across the highway, said pawl 41 is out of engagement with the catch 42, as in Fig. 2. The pawl 41 is pivoted to the beam 20, and preferably within a vertical slot or fork in the end thereof, in order to avoid wear and friction. It and the catch 42 can be readily removed and renewed or replaced by other similar parts whenever desired or necessary. The pawl 41 is provided at its lower portion with a weight or enlargement, 44, whose office it is to draw the pawl to and hold it in locking position in contact with the catch 42. By forming the catch 42 of metal separate from the lever or arm 43, it can, when worn, be readily removed and another substituted therefor. 45 45 represent braces bolted, respectively, to the beam or girt 33 and the posts 14 and 17, for the purpose of securely bracing said beam and posts together, and forming a firm support for the gate and the operating mechanism connected therewith. The elbow-shaped lever or arm 43, upon which the latch 42, with which the pawl 41 engages, is bolted, is pivoted at 46 either directly to the post 17 or to a plate, 47, attached thereto, as clearly shown in Figs. 3 and 7. The horizontally-extending portion 48 of this lever is provided with a centrally-slotted weight, 49, which is held with capability of longitudinal adjustment thereon by means of a thumb-screw, 50. By adjusting the position of this weight 49 longitudinally upon said arm the ease with which said arm or lever 43 is operated is either increased or diminished, according as it may be desired to render it more or less difficult to operate the same. To the upper end of this lever or arm 43 are attached rods 51 52, whose other ends connect with mechanism, to be presently described, a defined distance along the track in either direction from the gates, and which is operated by the passage thereover of trains passing in either direction along the track, to draw back the upper end of said lever 43, and thus pull the catch 42 away out of engagement with the pawl 41.

53 represents a stop bolted to the post 17, for the purpose of limiting the forward movement of the catch-lever or arm 73 and preventing its moving too far to engage with the pawl 41. The mechanism which an approaching train operates to draw the lever or arm 43 away from the pawl 41, and thus release the gates, and by means of which the gates are started forward across the highway, is located some distance (say, one-fourth of a mile) from the gates and along the track in

both directions, so that trains approaching in either direction can equally well operate the mechanism.

54 represents the lever which the wheels of a train depress as they pass over the same along the rail for the purpose of closing the gates across the highway; and 55 represents the lever, by depressing which the gates are drawn back from across the highway, so as to leave the same clear for the passage therealong of teams, &c. Both of these sets of levers are at one end, 56, pivotally mounted within a block or plate, 57, bolted to the outside face of the railway-rail 58.

59 represents a lug on and extending outwardly from the block or plate 57, within which the pivotal end of said lever works, and is for the purpose of relieving the strain of the pivot pin or bolt by which the lever is connected to the block 57.

60 represents a flange which extends upwardly from the lug 59, to operate as a side guard for the lever, to prevent its being driven sidewise away from the rail by the pressure thereon of the locomotive-wheels.

61 represents a plate bolted at its lower end to the flange of the railway-rail, and which extends upward to form an additional guard, to prevent the sidewise motion of the levers and keep them in operative position.

62 represents rods or stops, by means of which the height of the gate opening and closing levers 55 54 above the rails is regulated. These rods are pivoted or bolted at their upper ends to their respective levers, as shown, their lower ends being screw-threaded and passed loosely through Z-shaped brackets 63, which at their upper ends are provided with an inwardly and downwardly turned flange which enters a longitudinal groove or recess in the railway-rail. The upper end of this bracket is bolted to the rail. As the levers reciprocate vertically, the rods 62 slide up and down within the lower end of the brackets, being held from entire withdrawal therefrom by suitable nuts, by screwing which up or down upon said rods the height at which said levers project beyond the rails can be regulated, and the raising thereof so high above the rails as to receive any severe blow from the passing train prevented.

The gate-closing latch or lever 54 is located some quarter of a mile along the track, beyond the gates in each direction, in order that they may be operated by trains passing in either direction. The object of placing these levers so far from the gates is that thereby due notice of the approaching closing of said gates may be given to parties approaching the railway-crossing, and time given them either to cross before the gates slide across the highway, or to cross over if they are already thereon when the locomotive strikes the gate-closing lever.

It is contemplated to attach a bell or gong or other signal to the mechanism for closing the gate, in order that due warning may be

given to parties near the crossing of the approach of the train and the closing of the gates. When the gate-closing lever is operating by the wheels of the locomotive, the movement forward of the gate will be gradual and slow enough to permit of the passage over the track of any team thereon before the gates close. If the team has not got on the track at the time the locomotive strikes the gate-closing lever, the wheels of the vehicle will, in passing over the crossing, operate other devices, to be presently described, whereby a brake will be thrown upon the upper truss-rod of the gate, and said gate braked and prevented from sliding across the highway until said team has passed entirely over, when the wheels of said team operate other mechanism to throw the brake off the gate and permit it to close over the highway. The gate-closing latch 54 at its forward end rests within a grooved roller, 64, the groove of which is of a size and shape corresponding with the edge of the latch. This roller rests and is pivoted within the upper forked or recessed end of a connecting rod or arm, 65, which, at its lower end, is pivotally connected with an arm, 66, keyed to the inner end of a rock-shaft, 67, which extends outwardly across the road-bed at the side of the track, and is mounted in a bearing, 68, within a projecting box, 69, at the side of the railroad.

70 is an arm keyed to the outer end of the rock-shaft 67, whose other end has connection with a rod, 71, which extends up the side of a post, 72. The upper end of this rod 71 has connection by means of a chain, 73, with one of the rods 51 or 52, which extends in a horizontal direction from the top of said post 72 to the top of the gate-latching lever or arm 43. This chain 73 works within a grooved roller, 74, pivotally mounted on the post 72. It will thus be seen that as the wheels of the locomotive force down the latch or lever 54, as the front end of said lever passes downward it will force down the rod 65, connecting said lever with the rock-shaft 67, which will rock the rock-shaft, and through the medium of the arm 70 draw down the rod 71, which will pull back the rod 51 and 52 to whichever it is attached, and thus draw back the lever or arm 43 and release the catch 42 from engagement with the pawl 41.

In Fig. 3 of the drawings the rod 71 is shown as adapted to connect with the rod 52, attached to the catch-lever 43.

The post 75 in Fig. 3 shows the means by which the rod 51 is connected with the gate-closing mechanism, located at a distance beyond and in rear of the gates, the previous description having referred to such mechanism in a position on the track facing the front of the gates, in which arrangement the rod connected to the rock-shaft 67 connects by means of a chain, as 73, with a rod, 76, which extends to and is connected with one end of a bell-crank lever, 77, pivoted on said post 75. To the other arm of said bell-crank is attached

a vertical rod, 78, which connects with the upper arm of another bell-crank lever, 79, pivoted to said post 75 below the pivotal connection thereto of the bell-crank 77. To the lower arm of this lower bell-crank, 79, one end of the rod 51 is attached, its other end connecting with the upper end of the catch-lever 43; therefore, as the movement of the catch-lever is in a single direction when releasing the catch from the gate-locking bar, in whichever direction a train is traveling, the operation thereby of the gate-closing latch 54 will operate the catch-lever.

The brackets or hangers 63, for supporting the stops 62, and those 80, for supporting the several rock-shafts, are each formed in two parts, the following description of the hanger 80 applying equally to the hanger 63—viz., the one part, 81, of the hanger 80 81 being provided at its under edge with an turned lip or ledge, 82, for supporting the bottom plate, 83, of the remaining member. The upper edges of these hangers are curved inwardly and downwardly, as shown in Fig. 11, said curved edges being received in grooves or recesses formed in the base-flange of the rail, and the two members being securely fastened together in position by means of bolts 84, passed therethrough and through bearing-blocks 85. By this construction the hangers are securely clamped to the rails, and afford a firm support to the parts held by them.

86 represents a rod formed in two parts and connected together by a spring-joint, 87, composed of a spiral spring encircling one end of said rod, which slides within a tubular connecting-piece. A nut on the end of said spring-encircled rod serves to prevent the withdrawal of said rod from the tube. The object of this arrangement is to provide for the automatic lengthening of said rod 86 when both gate-operating levers are depressed. This rod connects at one end with the connecting rod or arm 65, and at its other end with an arm, 88, keyed to a rock-shaft, 89, which runs underneath and across the rails, and is supported in suitable bearings in hangers 80, and is connected by means of an arm or strap, 90, and an arm, 91, with the free end of the gate-opening lever 55, as shown in Fig. 3.

92 represents an arm keyed on the opposite end of the rock-shaft 89, and connecting by means of an upright arm, 93, with a horizontal arm or beam, 94, at the roadside, and having thereon a longitudinally-adjustable weight, 96, by which means the ease with which the rock-shaft 89 oscillates may be regulated. When a train has passed and depressed the lever 55 and rocks the shaft 89 to open the gates, and reaches the distance-post 72, (traveling in the direction indicated by the arrow, Fig. 3,) the wheels of the locomotive will strike that portion of the lever 55, which is of substantially similar construction to that of the lever 55. That portion of this lever 55 which projects above the rail is somewhat in advance of the upwardly-projecting por-

tion of the gate-closing lever 54, consequently the locomotive-wheels will strike and depress it before reaching the closing-lever. As this lever 55^a is depressed, it forces down the arms 91 and 90 and rocks the shaft 89 back, and, drawing back the arm 88 and rod 86, draws from beneath the free end of the gate-closing lever 54 the arm 65 and roller 64, as shown in dotted lines in Fig. 5. Thus the support to said closing-lever 54 is removed, and said lever drops down below the top of the rail, and, consequently, removes said lever from possibility of contact with the wheels of the passing train. Without some such provision for depressing the closing-lever the result would be that a train would first close the gates, then pass across the highway, and then, by operating the lever 55 at the gates, open the same, and then on reaching the distance-post 72, some quarter of a mile beyond the gates, operate the closing-lever there, and thus again close the gates over the highway when there would be no occasion for having them closed. After the train has passed beyond the lever 55^a the rock-shaft 89 is automatically rocked back by its connections in box 95, as hereinafter described, and the levers 54 and 55^a and parts connected therewith again raised to the position shown in full lines, Figs. 3 and 5. Then, when a train approaches in a direction along the rails opposite to the direction indicated by the arrow in Fig. 3, the wheels of the locomotive will first strike the raised portion of the gate-closing lever 54, which will result through the operation of its connections in depressing the arm 65 and 66, in rocking the shaft 67, and drawing down the rod 71, as herein described. The lever 55^a has no other function than to cause the depression of the gate-closing lever 54 when a train which has already crossed the highway approaches the lever 54 in the direction of the arrow, Fig. 3. After the lever 54 has been operated by the passing train and the whole of the train has passed thereover, the weight 96 draws down the arm 94, raises the arm or rod 93 and arm 92, rocks the shaft 89, and, through the medium of arm 90, pushes up the arm 91, and raises the lever 55 up above the rail in readiness for being again operated by a passing train. The free end of the gate-opening lever 55 is connected by means of a depending rod or arm, 97, and arm 98 with a rock-shaft, 99, to which said arm 98 is keyed. As shown in Fig. 4, this rock-shaft passes under the rails, and, as shown in Fig. 2, is provided with an arm, 100, to which is attached the lower end of an upright rod, 101, attached at its upper end to the outer end of the gate-latching beam, 20. It will thus be seen that as the lever 55 is depressed and the shaft 99 rocked, the rod 101 will, the catch having been previously released by the pulling away therefrom of the lever-arm 43, as already described, pull down the gate-latching beam 20, which, as it drops down, will, through the medium of the rod 18, con-

necting the beam 20 and the roller 15, draw down said roller, and consequently draw down that end of the gate to an angle sufficient to cause it to automatically slide forward upon the rollers 13 and 15 to and across the highway.

In order to prevent the gates sliding into a team when passing over the railroad-crossing, I employ a novel gate braking or locking device, by means of which the movement forward toward the crossing of said gates after the operation of the gate-closing levers by the locomotive will be effectually prevented. This brake apparatus is operated by means of flaps or shutters arranged transversely of the highway, a short distance outside of the railroad, said flaps or shutters being arranged in pairs on each side of the track, and so adapted that one of each pair shall always remain elevated on either side, in order that in whichever direction a team passes along the highway the wheels thereof shall, by passing over said raised flap, depress the same and throw the brake upon the top truss-rod, 10, of the gate, and as said team passes over said flap and closes the same the mechanism, within the casings of which said flaps are the covers, will cause the other flap of the pair to rise in readiness for operation by a succeeding team. This operation is the same in both pairs of brake-latches.

102 represents a semicircular iron box or case, which is inserted within the roadway in pairs on either side of the track, as shown in Fig. 1, the two nearest the rails being placed some ten or more feet from the line of travel of the gates.

103 104 represent latches or flaps, which at their rear edges are connected by a knuckle-joint with the top edge of the semicircular brake-box 102, having on their under faces stops 105, which prevent the sliding rearward of said latches or flaps out of connection with the brake-box of said latches or flaps. Flap 103 forms an incline for the purpose of leading the wheels of the team up to the flap 104, and also for the purpose of preventing the entrance to the brake-box of any sand or dirt. The flap 104 is the operating-flap, and is connected on its under face, by means of the arm 106, with one end of the shaft 107. This shaft extends outward to the box 108, and has on its end a bevel-pinion, 109, which engages with a similar bevel-pinion, 110, on one end of the rock-shaft 111, to which is keyed an arm, 112, to whose other end is connected an upright rod, 113. The arm 106 is at its upper end bolted to the under face of the flap 104, and at its lower end is keyed or otherwise connected with the end of the shaft 107, so that upon said flap 104 being depressed said arm 106 will rock the shaft 107. The upper end of the rod 113 is screw-threaded, and connects with a pivot-nut, 114, attached by a tenon or wrist to the bell-crank-shaped arm 115 of the brake, to be presently described.

116 represents a lifting-nut screwed onto the

rod 113, beneath the pivot-nut 114, in order that when the shaft 111 is rocked in the direction indicated by the arrow in Fig. 2 said nut 116 will force upward said bell-crank-shaped-arm 115 and raise the weight 117 off the upper truss-rod, 10.

118 represents a nut at the top of the rod 113, and 119 represents a spiral spring, which encircles the rod 113 for the purpose of taking up any extra movement of the rod 113, and also securing a uniformity of pressure upon the breaking device, said spring being held in place and having movement between the nut 118, at the top of the rod 113, and the pivot 114.

120 represents girts or beams bolted at either end to and extending transversely across the brake-boxes 102, for the purpose of forming a bearing or support for the latches or shutters 103 and 104 when pressed down.

121 represents a shaft inclosed in suitable tubing or gas-pipe, as shown, and forming a connection between each pair of brake-boxes. The respective ends of this shaft extend within the adjacent boxes, and are supported therein by a hanger or bearer, 122.

To the central girt or beam, 120, is bolted a crank-wrist, 123, having a roller, 124, thereon. These crank-wrists extend from the shaft 121 in opposite directions, said wrists serving to raise the flaps or shutters at the proper moment, as follows: The shaft 121 is so mounted between each adjacent pair of levers that the crank-wrists 123 shall always rise and rest against the under side of the operative flap or shutter when raised. The wrists are, in Fig. 1, shown in the position they would assume were the operating-flap nearest the track on the left-hand side of the figure elevated and the outside flap of that pair depressed. The outside flaps are some twelve feet distant from the inside flaps, in order to insure the operation of each pair independently, as were they close together a wagon might depress the lever-flaps of each of a pair at the same moment, and thus render the braking device inoperative. Excepting when a wagon is upon the crossing and between the gates, the outside flaps are down and the inside ones raised.

Then when a team passes over the inner operating-flap the wheels of the wagon will depress the lever or shutter 104, to whose under side is attached an arm, 125, connecting with the inner forked end, 126, of the rock-shaft 107, and rock said shaft and operate the brake, as before mentioned. As the wagon depresses the lever-flap 104, the closure therefore forces down the crank-wrist 123, resting against the under face thereof, and, rocking the crank-shaft 121, raises the crank-wrist at the opposite end of said shaft, and thus forces up and opens the lever-flap 104 of the inside brake-lever. The brake now being on the gate, it cannot slide across the crossing, and the team proceeds over until it strikes the inner member of the pair of brake-levers at the opposite

side of the track, which is similarly depressed, and in closing acts to open the outside latch. Then when the team passes over this outer latch it depresses and closes the flap or shutter 104 thereof, by which means a rocking motion the reverse of that just described is imparted to the crank-shaft 121, which will force up the flap 104 of the inner brake-lever, and as this flap rises it will draw upward the forked end 126 of the rock-shafts 107 and rock said shaft and the rock-shaft 111 in an opposite direction to that in which they were rocked when closing said flap and pulling on the brake, and consequently will release the brake from the truss-rod 10, and also open the inner brake-lever of the pair at the opposite side of the track in readiness for being operated by a passing team.

127 represents a knuckle-joint connection on the rock-shaft 111, to admit of the brake-latches being placed in position either higher or lower than the railroad-track.

The gate-brake is composed of a bell-crank-shaped arm, 115, pivotally connected at 128 to either the post 14 or to a suitable casting thereon, and to whose lower arm the operating-rod 113 is connected, as before described. To the upper end of this arm 115 the weight 117 is attached by means of a set-screw or other suitable device, 129, with capability of adjusting said weight vertically upon said arm, in order that the amount of pressure thereof upon the upper truss-rod may be regulated.

130 represents the brake-staff, which at its lower end, is pivoted, with capability of vertical adjustment thereon, to the bell-crank-shaped arm 115. This staff is made of spring-steel, and has on one edge a horizontally-projecting stop, 131, for the purpose of forming an elastic cushion for limiting the inward movement of the bell-crank-shaped arm when the rod 113 is raised and preventing its moving too far back. The upper end of the brake-staff 130 has a V-shaped slot, through which the upper truss-rod, 10, passes.

132 represents a staple for holding the brake-staff 130 to the post 14 and limiting its side movement. When the rock-shaft 111 is rocked through the agency of the operating-flaps in the highway operated by a passing team and the mechanism connecting said levers with said rock-shaft, so as to throw the arm 112 down, the rod 113, connecting said rock-shaft 111 with the brake, will be drawn down, and as it passes down it will draw the bell-crank-shaped arm 115 outward and downward away from the post 14, and bring the upper weighted end of said arm 115 with clamping force upon the upper truss-rod or track, 10. At the same time the brake-staff 130 will, by the rearward and downward movement of the lower end of the said arm 115, be forced down, and its lower end, being also forced rearwardly, will cause the upper V-shaped portion of said staff to bind against and clamp

the upper truss-rod immovably. When the team passes over the outer operating-flap, and thereby rocks the rock-shaft back to its former position, the arm 112 will be raised, and will force upward the rod 113 and release the brake upon the upper truss-rod, 10, and restore the braking device to the position in Fig. 8. Should a train strike the gate-closing latch or lever while a team is opposite to or between the two gates, the brake having been placed upon the gates by the operation of the brake-latches by the wheels of the vehicle, as heretofore described, said gates would be unable to slide forward toward the crossing; consequently the only effect such operation of the closing-latch would have would be to cause said gates to rise up on the inclined spring-track 12 and remain stationary until the brakes are released by the passing over the outside flap of the passing team. Then, the braking device being restored to its inoperative position, as shown in Figs. 2 and 8, the gate is free to slide forward to and across the crossing. As the train approaches the crossing the wheels of the locomotive strike the gate-opening lever 55, which rocks the shaft 99, changes the incline of the gates, which thereupon slide back and open, and remain so until one of the closing-levers 54 is again struck by the wheels of a passing locomotive or car.

Having thus described my invention, what I claim is—

1. A railway-gate composed of a central beam composed of two parts trussed together at their respective ends, and an upper and a lower truss rod or track, and end and central vertical braces for bracing said central beam and truss-rods together, substantially as set forth.

2. A railway-gate having a truss-rod provided with an inclined spring-track, and means for raising and lowering the front end of said gate to adapt it to automatically slide horizontally in either direction.

3. A railway-gate having a truss-rod provided with a spring-track, and a central supporting-post provided with a fixed supporting grooved roller, 15, and a rear post having slotted plate 16, a vertically-adjustable grooved roller mounted within said slotted plate, pivoted gate-latching beam 20, and rod 18, connecting said roller 15 and gate-latching beam 20, for the purpose of raising and lowering said adjustable roller, and thereby changing the incline of the gate, substantially as and for the purpose set forth.

4. A horizontally-sliding railway-gate having at one end a vertically-sliding support, means for reciprocating said sliding support, a pivotal latching-beam, mechanism for reciprocating said latching-beam, and a catch adapted to engage said latching-beam and to be operated by the wheels of a locomotive or car passing along the track.

5. The combination, with a pivotal gate-

latching beam, of a vertically-adjustable stop for the purpose of limiting the vertical movement of said latching-beam, substantially as set forth.

6. A gate-latching beam having a weighted pawl pivoted in one end thereof, in combination with a suitable catch adapted to engage with said pawl and hold said beam rigid, substantially as set forth.

7. The lever or arm 43, pivotally connected with one of the gate-supporting posts, and having a catch, 42, adapted to engage with the pawl 41, and having at its upper portion suitable rods connecting with a lever or latch adapted to be operated by the wheels of a passing locomotive or car, to draw said catch 42 from engagement with the pawl 41, substantially as described.

8. The pivotal lever or arm 43, having a longitudinally-adjustable weight, 49, for the purpose of returning said arm 43 and catch 42 into locking engagement with the pawl 41.

9. The gate-closing lever or latch 54, pivotally connected at one end with the railway-rail guard 61, to prevent the sidewise movement of said latch, vertically-adjustable stop 62, and bracket 63, for regulating the projection of said latch above the rail, roller 64, arm or rod 65, arm 66, and rock-shaft 67, for the purpose of affording a yielding support to said latch, and means, substantially as described, for connecting said latch with the gate-closing mechanism.

10. The gate-opening latch or lever 55, pivotally connected at one end with the railway-rail, in combination with guard 61, vertically-adjustable stop 62, rod or arm 97, arm 98, rock-shaft 99, bracket 80, and mechanism, substantially as described, connected with said rock-shaft, for raising and opening the gate.

11. The blocks or plates 57, having lugs 59, forming bearings for the pivotal ends of the gate opening and closing levers, and flanges 60, for the purpose of guarding against sidewise movement of said levers, substantially as set forth.

12. The post 75, supporting a rod, 52, connected with one gate-closing latch or lever for operating the gate-catching lever or arm 43, and having bell-cranks 77 and 79, for the purpose of connecting the rod 51 respectively with said lever and with another gate-closing latch in the track in an opposite direction to that of the gate-closing latch connected with the rod 52, substantially as set forth.

13. The combination, with a gate-closing lever or latch, 54, and the latch 55^a, of connecting-arms 90, 91, and 88, rod 86, and arm 64, rock-shaft 89, arm 92, rod 93, and weighted arm 94, for the purpose of automatically restoring said latches 54 and 55^a to operative position above the rail after depression by a passing train.

14. The combination, with a gate having a spring-track, 12, of a vertically-reciprocating block, 23, adapted to receive and hold said

track, and to diminish or increase the degree of angularity of said track as said block is raised or lowered, substantially as set forth.

15 54, of a lever, 55^a, having pivotal connection at one end with rock-shaft 89, arm 88, rod 86, and arm 65, for the purpose of releasing the free end of the closing-lever 54 and permitting it to drop down out of operative position, substantially as and for the purpose set forth.

16. In combination with a gate having a truss rod or track, a reciprocating brake staff, 130, adapted to engage with and clamp said truss rod or track, and means for operating
15 said brake-staff, substantially as set forth.

17. In combination with a gate having a truss rod or track, a bell-crank arm, 115, having at its upper end a vertically-adjustable weight, 117, and means, substantially as described, for operating said arm and gripping
20 said weighted arm upon the truss-rod.

18. The combination, with a gate having a truss rod or track, of the rod 113, and means, substantially as described, for reciprocating
25 the same, of the weighted bell-crank-shaped arm 115, and the vertically-adjustable brake-

staff, for the purpose of clamping the truss-rod and holding the gate rigid, substantially as set forth.

19. The combination, with a sliding rail-
30 way-gate, of brake mechanism adapted to grip said gate and hold it rigid, and mechanism extending across the highway, and adapted to be operated by passing vehicles, for placing said brake mechanism in contact
35 with and removing the same from the gate.

20. The combination, with sliding railway-gates and brake mechanism for holding said gates rigid, of a rock-shaft secured transversely across the track, vertical rods connecting said rock-shaft with the brake mechanism, and levers or arms connected with the
40 respective ends of said rock-shaft, and extending across the highway and adapted to be automatically operated by passing vehicles to
45 alternately lock and unlock said gates.

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

SYLVESTER J. WETMORE.

Witnesses:

CHAS. J. GOOCH,

E. P. HOUGH.