(No Model.) 2 Sheets—Sheet 1.

W. ZELLER.

RAILROAD GATE.

No. 442,001. Patented Dec. 2, 1890.

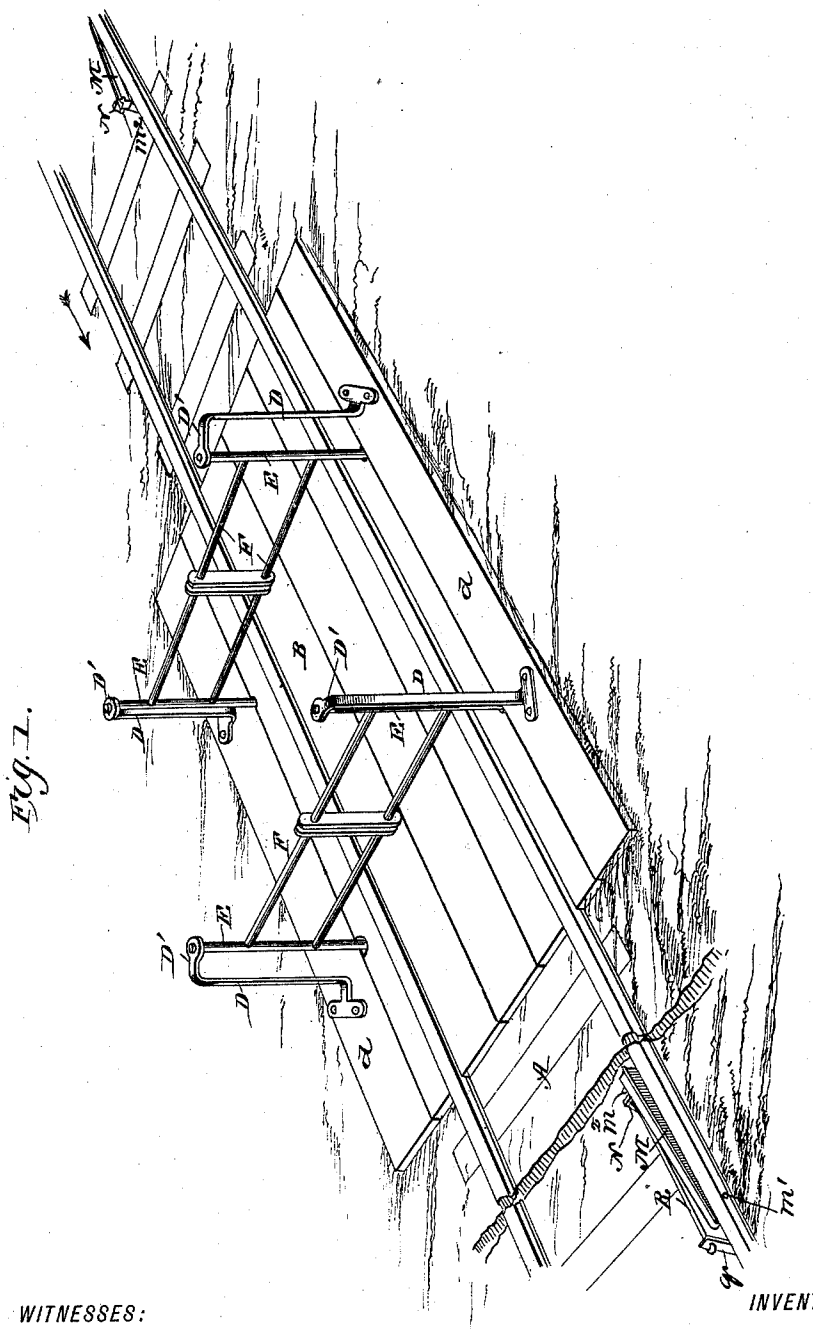

Fig. 1.

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ATTORNEY

(No Model.)

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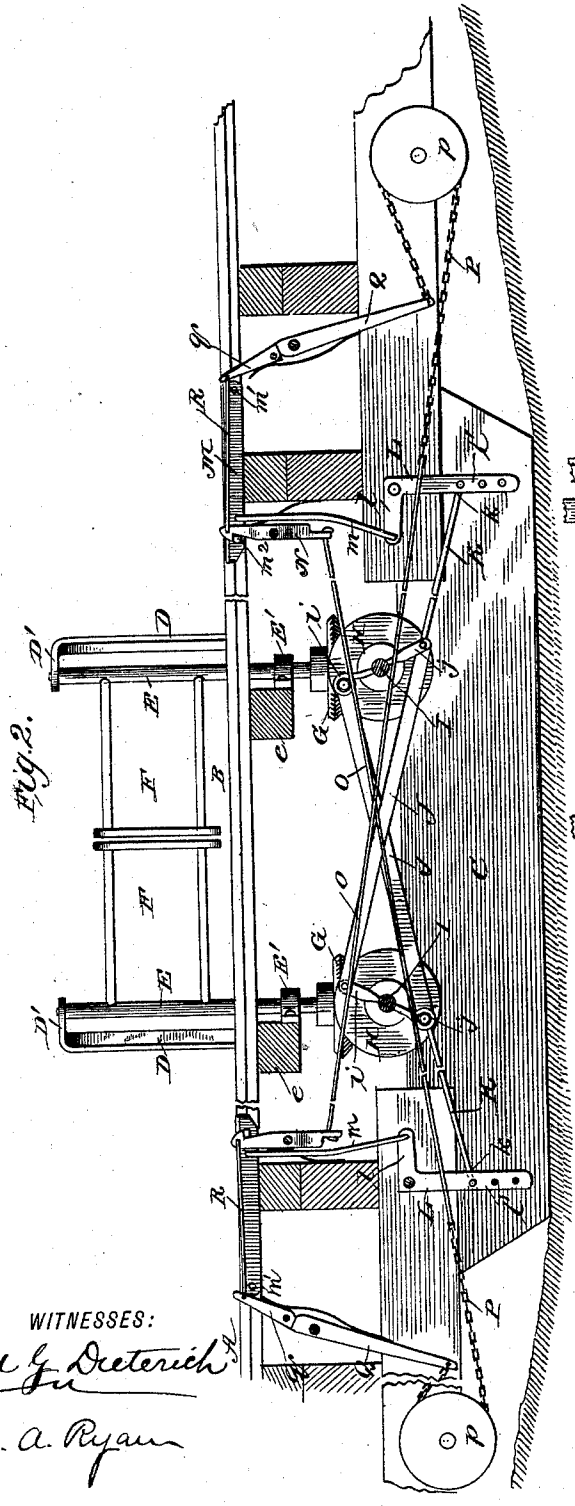

Fig. 2.

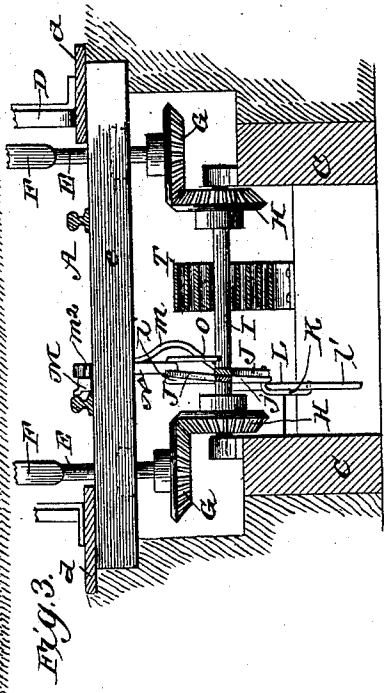

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM ZELLER, OF MOORHEAD, MINNESOTA, ASSIGNOR OF ONE-HALF TO HALVOR RASMUSSON, OF SAME PLACE.

RAILROAD-GATE.

SPECIFICATION forming part of Letters Patent No. 442,001, dated December 2, 1890.

Application filed July 8, 1890. Serial No. 358,080½. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ZELLER, residing at Moorhead, in the county of Clay and State of Minnesota, have invented certain new and useful Improvements in Railroad-Gates, of which the following is a specification.

My invention relates to that class of railway-gates which are employed at railroad-crossings to prevent persons, teams, &c., from crossing the railroad-track when a train is approaching, and which are automatically operated by the trains as they pass in either direction, so that the roadway will be open when no train is passing and closed by the gate as the train is passing.

My invention consists in the novel construction and peculiar arrangement of parts, all of which will hereinafter be fully described in the annexed specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved railroad-gate. Fig. 2 is a central longitudinal section thereof, and Fig. 3 a transverse section of the same.

In the accompanying drawings, A indicates the railroad-bed, and B the crossing, at which point a suitable framing C is embedded below the tracks, which forms the support for the gate-shifting devices, hereinafter described.

D indicates four brackets secured upon timbers *d* and arranged one at each corner of the crossing, the upper ends of which brackets are bent inward at D′ to form the upper bearings of the vertical rock-shafts E E, the lower ends of which are mounted in bearings E′ E′, secured upon the transverse timbers or cross-ties *e e*, as shown. Each of the shafts E forms part of a gate-section F, and they are adapted when rocked to swing the gate-sections to and fro.

In the practical adjustment of my devices the gates F are so arranged that during the intervals between the passing trains the gates will stand across the track, as shown in Fig. 1 of the drawings, and when a train approaches and engages the gate-shifting devices the gates will be swung to the position shown in Fig. 2.

By reference to said figure it will be seen that upon the lower end of each of the vertical shafts E is arranged a bevel-gear G, which meshes with similar pinions H on the transverse shafts I, which are rocked by the passing trains in the following manner:

Each of the shafts I is provided with oppositely-projecting ears or lugs *i j*. The upper one *i* of one axle is connected by means of a pitman J with the lower lug *j* of the opposite axle. To each of the lower lugs *j* is also connected one end of a rod or bar K, the outer ends *k* of which are connected to the long arms *l′* of bell-crank levers L, the short arms *l* of which are connected by means of the pitman-rods *m* with the outer ends of vertically-swinging rail-sections M, pivoted at *m′* to the main rails, as shown. By this construction it will be seen that as the train passes in either direction the wheels will depress the pivoted rail-sections M, which will, through the medium of the bell-crank levers and the rods K, cause the shafts I to make a quarter-turn and thereby serve, through the bevel-gear connections between said shafts and the gate post or shaft, to swing the gates from the position shown in Fig. 1 to that shown in Fig. 2.

Suitable means are provided which serve to temporarily hold the gates over the cross-road as the train passes, and which are also thrown out of operative position by the passing train, so as to permit the gates to close in automatically over the trackway after the train has passed.

By reference to Fig. 2 it will be seen that the inner end of each of the rail-sections is provided with a lateral lug m^2, which when the said rail-section M is depressed will engage spring-actuated pivoted locking-latches N, the lower ends of which are connected by means of the rods O and the chain-sections P, which pass over the pulleys *p p* with the lower ends of pivoted levers Q, the upper ends *q* of which project slightly above the main rails, said ends *q* being connected by means of the rods R with the upper ends of the locking-levers N, as shown. By this construction, when the train passes in the direction indicated by the arrow in Fig. 1 the wheels will depress the section M, and its lug m^2, engag-

ing the latch N, will be thereby held down in a locked position. Now, when the train has passed by the cross-road the forward wheel will engage the projecting end of the lever Q and force it forward, pulling the adjacent latch N back and allowing the section M which it holds to fly up. As the upper end of lever Q is pushed back, as described, its lower end will pull upon the chain P and rod O and swing the opposite latch N from engagement with its respective rail-section M, and thereby allow the gate-swinging mechanism to turn back to its normal position, the shafts I being provided with suitable coiled springs T, which always act to rock them in one direction of movement.

From the foregoing description, taken in connection with the drawings, the advantages of my improved gate will readily appear. The same is simple in construction, can be cheaply put up, and will be positive in its desired operation.

While I have shown the operating-levers in connection with but one of the main rails, it is manifest that a duplicate set can be applied to the opposite rail and both sets joined below the rail-bed, so as to obtain an additional power for swinging the gate-sections.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an automatic railway-gate, the combination, with the gate-sections, formed each with a vertical rock-shaft E, the transverse rock-shafts I, (the said vertical and transverse shafts geared together, as shown,) the pivoted rail-sections M, the bell-crank levers L, the rods K, connecting said levers and the shafts I, the rods *m*, connecting said bell-cranks with the sections M, and means for automatically rocking the shafts I back to their normal position, substantially as and for the purpose described.

2. In an automatic railway-gate, the combination, with the gate-sections, each formed with a vertical rock-shaft or support E, the spring-actuated rock-shafts I, geared therewith, the rail-sections M, formed with lateral lugs pivoted to the main rails and adapted to be depressed by the passing train, and the connections intermediate between the sections M and the rock-shafts I, of the pivoted spring-actuated latch-levers N, adapted to hold said sections down when depressed and also the gate-sections in their outward adjustment, substantially as and for the purpose described.

3. In an automatic railway-gate, the combination, with the gate-sections, the transverse rock-shafts geared therewith, the rail-sections M, formed with lateral lugs m^2, and the intermediate devices connecting the sections M and the rock-shafts I, of the spring-actuated locking-latches N, adapted to engage the lugs m^2 and hold the sections M down when depressed, the pivoted levers Q, connected with their upper ends to the adjacent latches N and with their lower ends with the lower ends of the opposite latches N, (said connections consisting of the rods O, the chain-connections P, and the pulleys *p*, over which said chain-sections pass,) the upper ends of the levers Q projecting above the main rails adjacent thereto, whereby the passing train will move said levers Q outward, and thereby release the latches N from the sections M, all arranged substantially as and for the purpose described.

WILLIAM ZELLER.

Witnesses:
A. G. LEWIS,
DANIEL TETERS.