

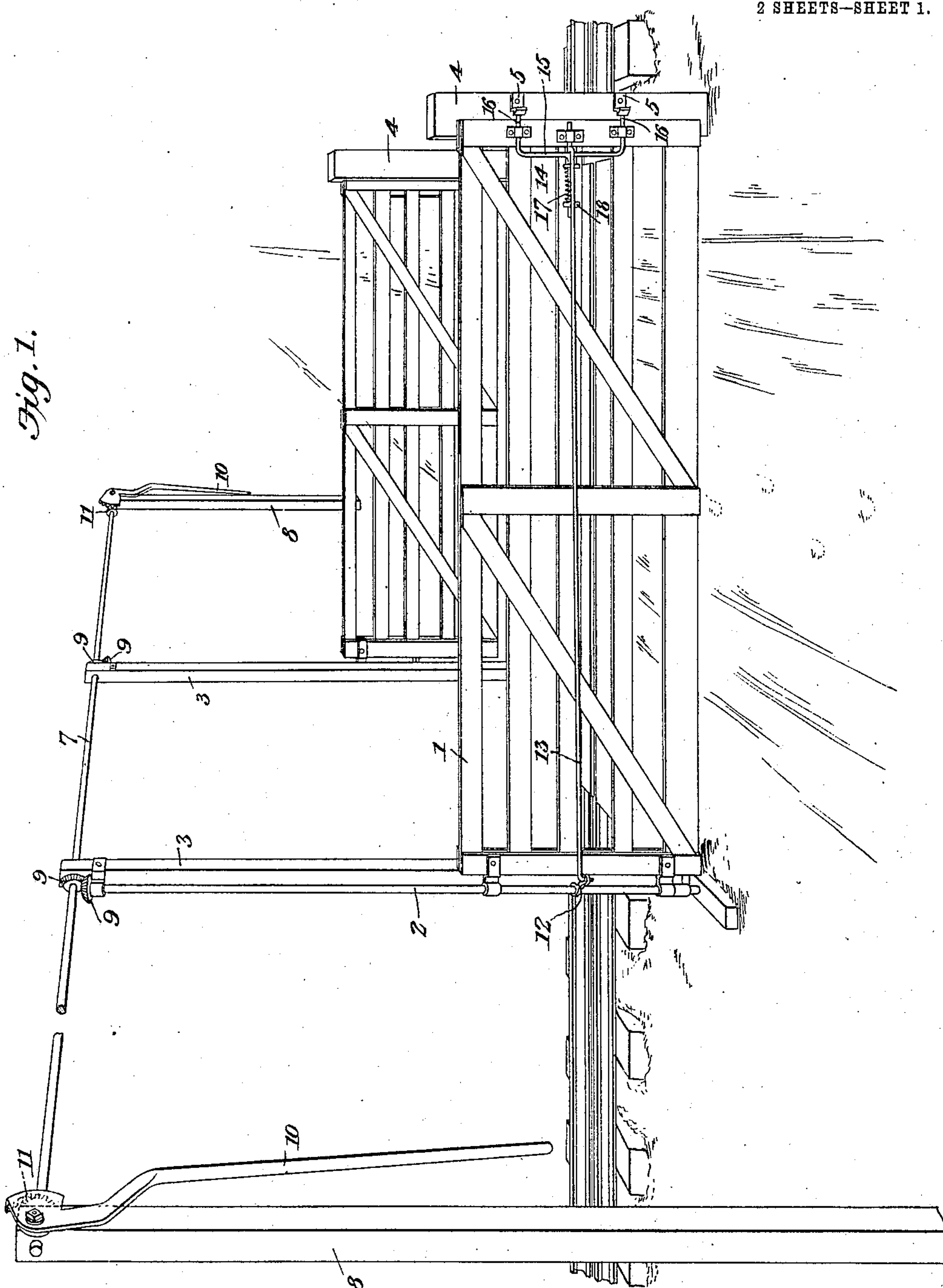
No. 843,617.

PATENTED FEB. 12, 1907.

A. E. MILLER.
GATE MECHANISM.

APPLICATION FILED MAY 21, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

E. J. Stewart
Chattin Bradway.

Austin E. Miller INVENTOR

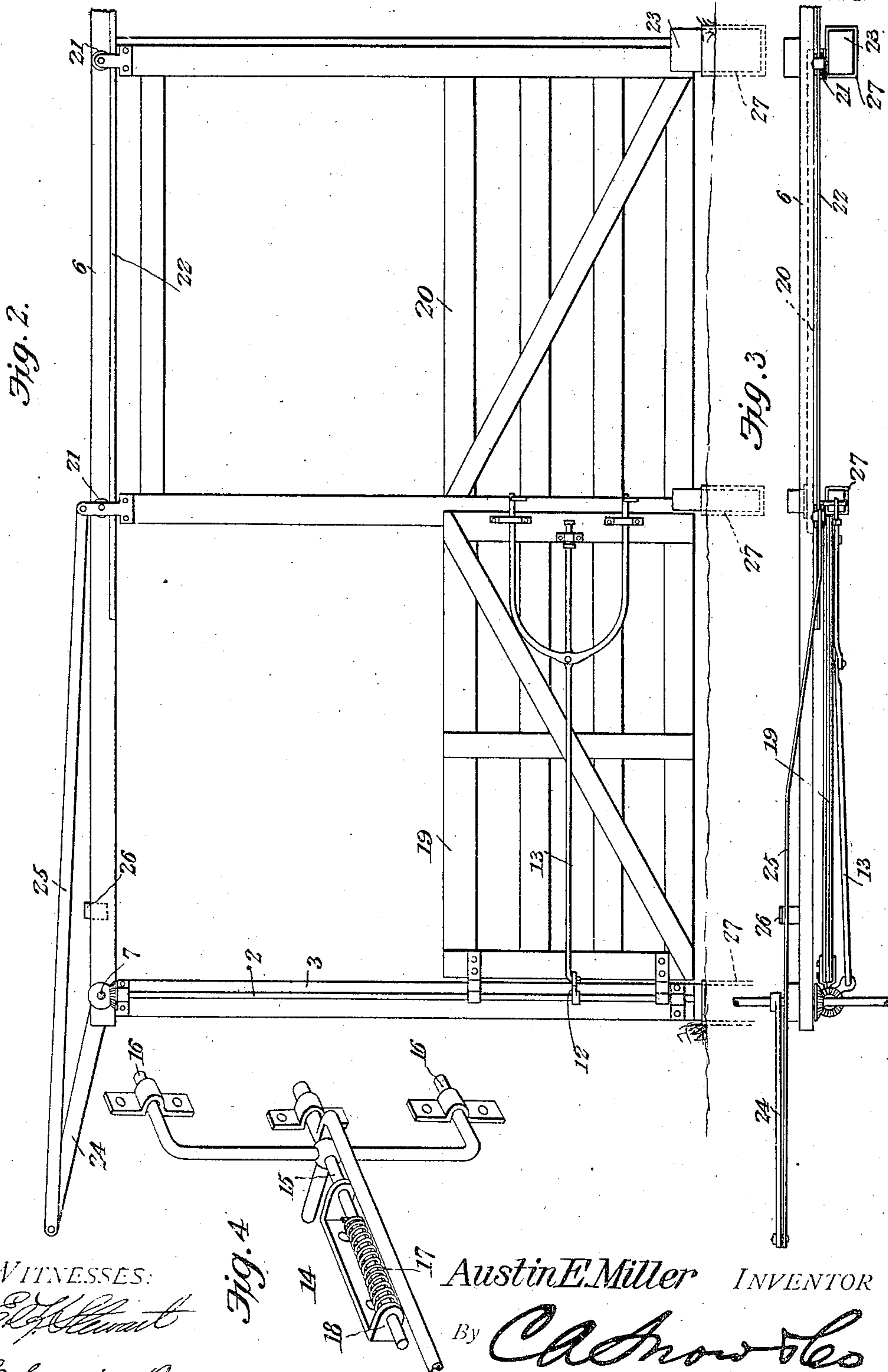
By *C. A. Snow & Co.*
ATTORNEYS

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ATTORNEYS

UNITED STATES PATENT OFFICE.

AUSTIN E. MILLER, OF CHENEY, WASHINGTON.

GATE MECHANISM.

No. 843,617.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed May 21, 1906. Serial No. 317,998.

To all whom it may concern:

Be it known that I, AUSTIN E. MILLER, a citizen of the United States, residing at Cheney, in the county of Spokane and State of Washington, have invented a new and useful Gate Mechanism, of which the following is a specification.

The present invention relates to gate constructions for roadways and drives; and it relates more particularly to a mechanism for locking or unlocking and opening or closing the gate or gates.

It has for its object to improve the construction of apparatus of this character, so that the same can be operated either automatically or by hand with facility.

In the following description, taken in connection with the accompanying drawings, the details of construction and arrangement of parts have been more fully set forth, while the features of novelty will be specified with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate certain embodiments of the invention, Figure 1 is a perspective view of the gate mechanism adapted for use at railroad-crossings. Fig. 2 is a front view of a modified form adapting the invention to a combined swinging and sliding gate construction. Fig. 3 is a plan view of a modified construction. Fig. 4 is an enlarged perspective view of the latch mechanism for the swinging gate.

Referring to Fig. 1 of the drawings, a single swinging-gate construction is shown for the roadway, one gate being employed on each side of the railroad. Both gates are of the same construction, hence a description of one will be sufficient. The gate 1, which may be and preferably is of the usual rectangular-frame construction, is hinged at one edge to a vertical shaft 2, that is suitably journaled in bearings on the upright 3. At the opposite end of the gate is a post 4, to which are attached the catches 5 of the latch mechanism. These posts are planted in the ground or secured in any desired manner. Extending parallel to the roadway, either adjacent the ground or in an elevated position, is a rock-shaft 7. In the present illustration this shaft is mounted at its ends in posts 8 and posts 3 intermediate its ends. This rock-shaft is connected to the shafts 2 of the gates in order to transmit motion thereto by means of miter-gears 9. The rock-shaft is adapted to be actuated by means of levers 10, mounted on the posts 8 and geared there-

to by means of a crown-wheel segment and pinion-gear 11. The levers are so disposed with respect to the drive or road way that they can be actuated either by the driver from the vehicle-seat or by suitable devices, such as projecting arms, carried by the vehicle itself. Furthermore, the arms are suitably pivoted, so that they are in the best position to be operated as the vehicle approaches and leaves the gate—that is to say, when the lever for opening the gate is pushed forwardly the lever on the opposite side of the gate will be moved oppositely, so that after the vehicle has passed through the gate the latter lever can be moved forward by the operator or the vehicle, so as to close the gate, and after being so moved be in the position for opening the gate when the vehicle travels in the opposite direction.

On the shaft 2 is an arm or crank 12, which, by means of the pitman 13, first unlocks the latch mechanism (indicated at 14) and then swings the gate open. The latch mechanism comprises a slide 15, which is forked at one end to form latches 16, that engage with the catches on the outer post. The slide is mounted in bearings on the gate and is actuated and held in locked position by means of a spring 17, fixed thereto, with one end abutting on one of the bearings 18. The gate is loosely journaled on the shaft 2 and is not rotated thereby, but rather by the crank and pitman. There is a limited amount of lost motion in the crank and pitman connection which permits the latch to be withdrawn during the first part of the movement of the crank, after which the gate is swung open by means of the crank. It will thus be seen that the gates can be unlatched and swung open by simply actuating either one of the levers 10 on the rock-shaft 7.

Referring to the construction shown in Fig. 3, 19 represents the swinging gate, which is the same as that already described, and 20 is the sliding gate. This latter gate is mounted on rollers 21, riding over a rail 22 on the overhead beam 6, extending across the roadway. It is guided at its lower end in a guide 23. The gate is adapted to be actuated simultaneously with the opening of the swinging gate and preferably by the same mechanism. For this purpose on the rock-shaft 7 is arranged a crank-arm 24, connected to the sliding gate by a link 25. Hence as the shaft 7 is rocked one way or the other for opening or closing the swinging gate the

sliding gate is either moved into an open or closed position at the same time. In the present construction the catches for the latch are mounted on the part of the sliding gate adjacent the outer end of the swinging gate. If it is desired to operate only the swinging gate, the link 25 can be disconnected from the arm and permitted to rest in the holder 26, arranged on the overhead beam. The operation of the combined swinging and sliding construction consists in actuating the rock-shaft 7 either by hand or by the vehicle, as hereinbefore described, which movement first withdraws the latches on the swinging gate from the catches on the sliding gate, so as to permit during the continued rocking movement of the shaft the swinging gate to be swung open through the crank-and-pitman connection therewith and the sliding gate to be moved outwardly from the road by means of the arm and crank connection 24 and 25. After the gates have been opened and the vehicle has passed through the rock-shaft is moved in the opposite direction, so as to close both of the gates.

While it is intended to open the gate from the vehicle, it is of course understood that the latch can be operated directly and the gate pulled open as in the ordinary manner. In some cases it may be desirable to use only a sliding gate. This can be done by dispensing entirely with the swinging gate, or if the gate structure is of the combined sliding and swinging type, as shown in Fig. 2, all that is necessary is to disconnect the gears between the shafts 2 and 7 or to disconnect the pitman 13 from the crank-arm 12. By this arrangement the sliding gate can be opened and closed by rocking the shaft 7 without having any effect on the swinging gate.

In order to prevent the various posts or other members of the gate structure that are buried in the ground from becoming decayed, they are preferably held in metallic sockets or tubes planted in the ground, as shown by dotted lines in Fig. 2 at 27.

I have described the principle of operation of my invention, together with the apparatus, which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that the invention can be carried out by other means.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a gate-controlling mechanism, the combination of a vertical shaft, a rock-shaft extending parallel to the roadway and geared to the first shaft for actuating the same, a swinging gate, a latch for locking the gate closed, a spring arranged to move the latch to its closed position, a crank on the vertical

shaft, a pitman attached at one end to the crank and arranged to engage at the other end the latch for moving the latter to its open position, and means for mounting the gate on the vertical shaft so as to cause the rotation of the latter to first unlock the latch and then swing the gate open.

2. In a gate-controlling mechanism, the combination of a plurality of gates, a gearing for opening one of the gates, a crank-and-link connection for opening the other gate, and an actuating means common to the said connection and gearing for opening the gates simultaneously.

3. In a gate-controlling mechanism, the combination of a swinging and a sliding gate arranged normally end to end to close a passage, a supporting structure for the gates, and a mechanism arranged to simultaneously move the gates away from each other to open the passage or toward each other to close the passage.

4. In a gate-controlling mechanism, the combination of a swinging gate, a sliding gate, a rock-shaft, a gearing between the rock-shaft and the swinging gate for actuating the latter, and a crank-and-link connection between said shaft and sliding gate for actuating the said gate.

5. In a gate-controlling mechanism, the combination of a gate mounted to swing on a fixed axis, a second gate, means on which the second gate slides, a latch mechanism for locking both of the gates closed, and a single actuating means for unlocking the latch and swinging the one gate and sliding the other open or closed.

6. In a gate-controlling mechanism, the combination of a gate mounted to swing on a fixed axis, a second gate, means on which the second gate slides, a latch for locking the gates in closed position, and actuating means including a lost-motion device for first unlocking the latch and then simultaneously swinging the one and sliding the other gate open or closed.

7. In a gate-controlling mechanism, the combination of a sliding and a swinging gate, a frame supporting them, a shaft on which the swinging gate is loosely journaled, a rock-shaft geared thereto, operating-levers for actuating the rock-shaft, and a crank-and-link connection between the rock-shaft and the sliding gate for opening the latter simultaneously with the swinging gate.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

AUSTIN E. MILLER.

Witnesses:

HENRY PENHALLWINCK,
E. S. JORDAN.