

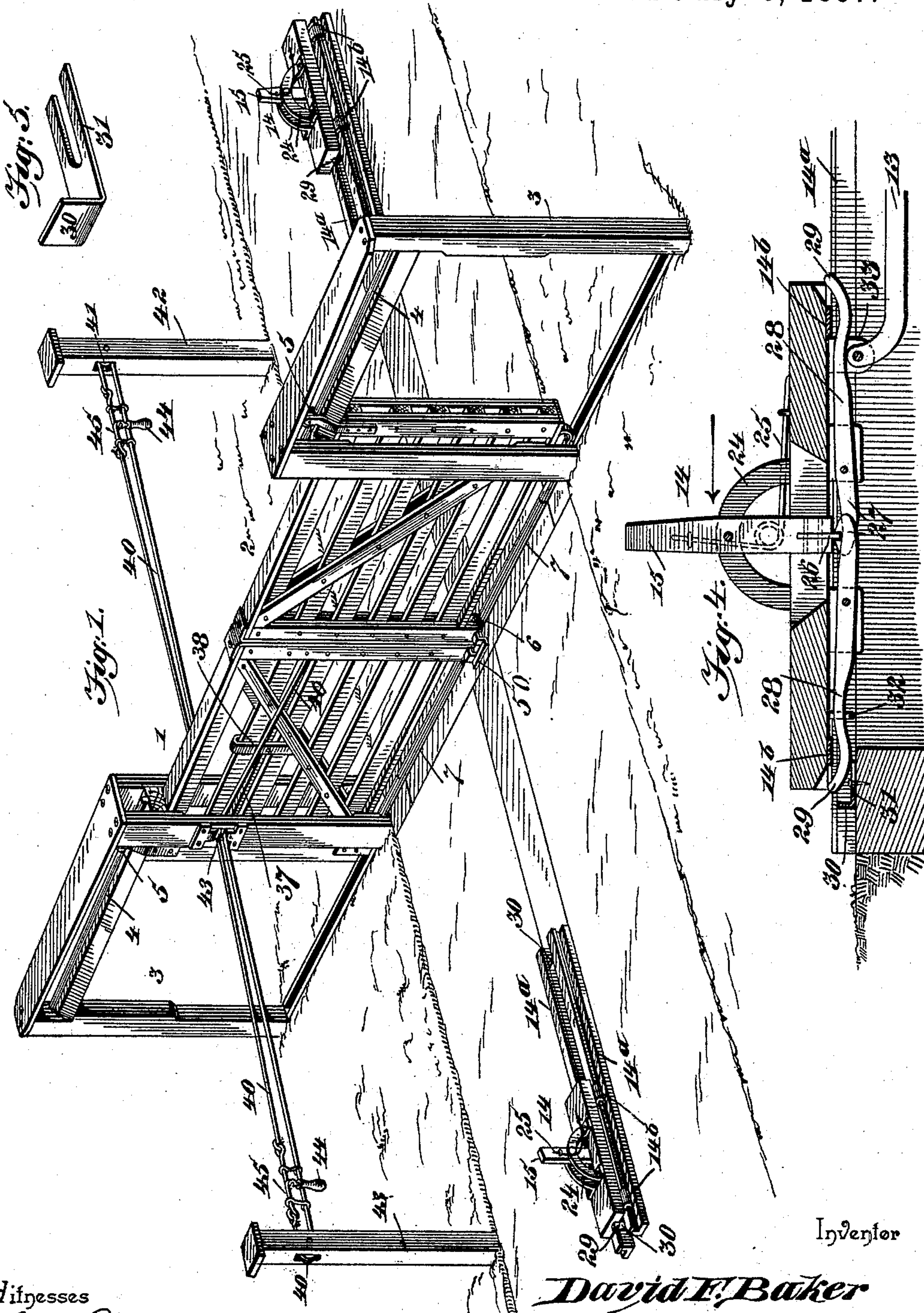
(No Model.)

2 Sheets—Sheet 1.

D. F. BAKER.  
AUTOMATIC GATE.

No. 585,881.

Patented July 6, 1897.



Inventor

David F. Baker

Witnesses

H. G. Dieterich

By His Attorneys,

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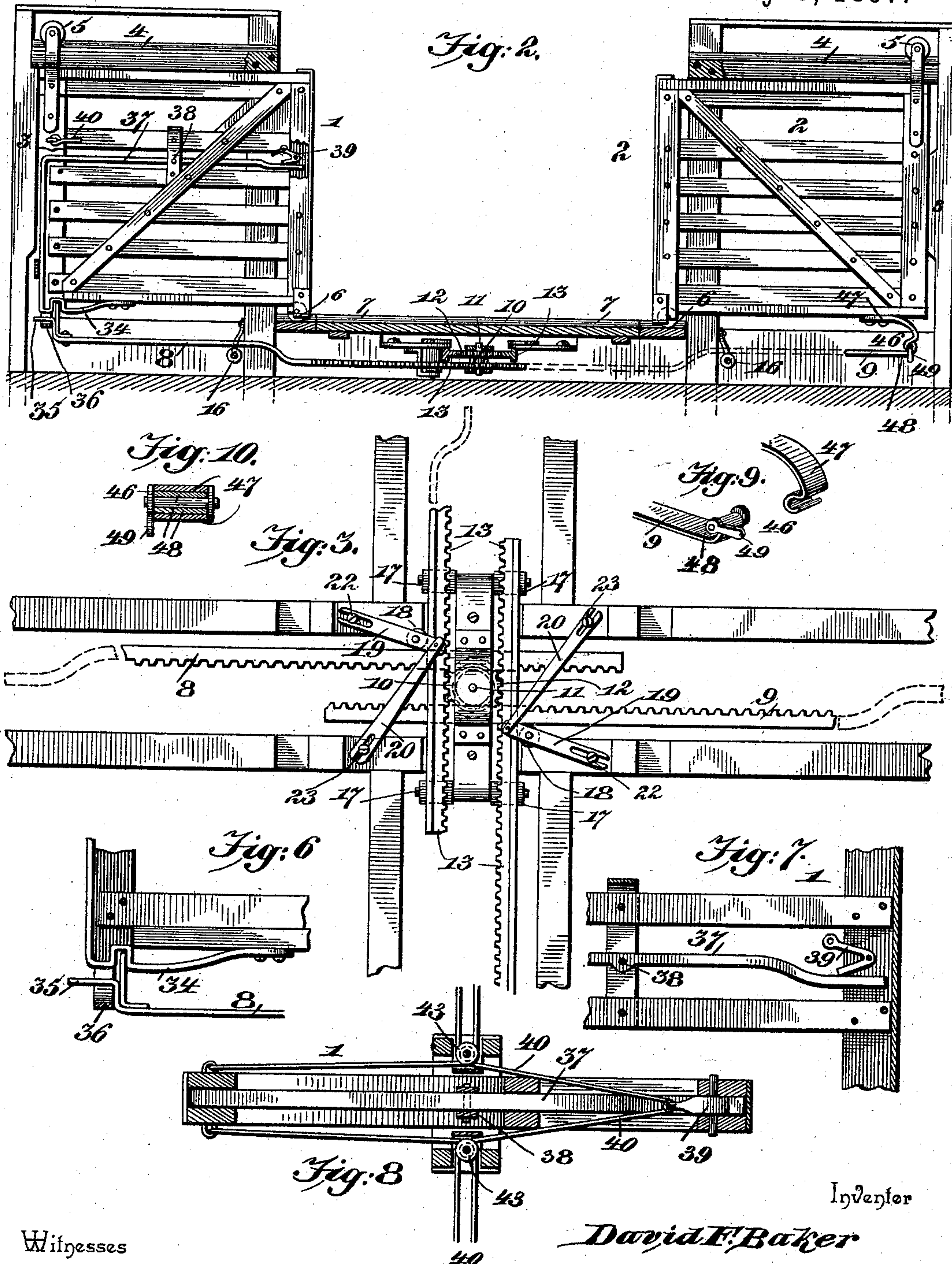
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# UNITED STATES PATENT OFFICE.

DAVID F. BAKER, OF VERNONIA, OREGON.

## AUTOMATIC GATE.

SPECIFICATION forming part of Letters Patent No. 585,881, dated July 6, 1897.

Application filed February 19, 1897. Serial No. 624,151. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID F. BAKER, a citizen of the United States, residing at Vernonia, in the county of Columbia and State of Oregon, have invented a new and useful Automatic Gate, of which the following is a specification.

The invention relates to improvements in automatic gates.

The object of the present invention is to improve the construction of sliding gates and to provide a simple and comparatively inexpensive one adapted to be opened by a vehicle approaching it and to be closed after the vehicle has passed through it without necessitating a person leaving the same and capable of being readily operated by a person on horseback without dismounting.

A further object of the invention is to provide a gate which may be readily operated by a person on foot and which will effectually resist the efforts of stock to open it.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of an automatic gate constructed in accordance with this invention. Fig. 2 is an elevation of the gate, partly in section. Fig. 3 is a plan view illustrating the construction of the gearing for operating the gate. Fig. 4 is an enlarged sectional view of one of the slides which are operated by an axle of a vehicle. Fig. 5 is a detail view of one of the stops for operating the trip-levers of the slide. Figs. 6 and 7 are detail views of the latch mechanism of the sliding gate-section which is operated by a person on foot or on horseback. Fig. 8 is a sectional view illustrating the arrangement of the operating ropes or cables. Fig. 9 is an enlarged detail perspective view of the catch for connecting one of the sliding gate-sections with its rack-bar, the parts of the catch being separated. Fig. 10 is an enlarged sectional view of the same.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 and 2 designate sliding gate-sections guided by oppositely-disposed supporting-frames 3, which are provided at their tops with track-bars 4, the latter receiving rollers

5, arranged at the rear end of the gate and at the top thereof and mounted in suitable hangers, whereby the rear end of the gate is suspended from the track-bars. The inner ends of the sliding gate-sections are provided at their bottoms with lower rollers 6, arranged on a track 7, which is disposed transversely of the roadway.

The sliding gate-sections are detachably connected, by means hereinafter described, with transverse rack-bars 8 and 9, provided at their inner edges with teeth located at opposite sides of and meshing with a pinion 10 of a vertical shaft 11, whereby when the shaft is rotated the sliding gate-sections will be simultaneously operated to open or close them, according to the direction of the rotation of the pinion 10. The shaft 11 also carries a pinion 12, which meshes with a pair of longitudinally-disposed rack-bars 13, that extend from the gate in opposite directions and are connected at their outer terminals with slides 14. The lower pinion 10 is of less diameter than the upper pinion in order that the sliding gate-section may move slower than the slides and to reduce the power necessary to operate the gate. The slides 14 have upwardly-extending bars 15 mounted upon them in position to be engaged by an axle of a vehicle in order that when the vehicle approaches the gate it may engage the bar 15 of one of the slides and move the latter in the direction of the gate and cause the shaft 11 to rotate in the proper direction for opening the gates. The slides move in and out simultaneously, and after a vehicle has passed through the gateway it engages the other bar 15 and moves the slide away from the gate to close the gate-sections.

The rack-bars are supported by horizontal rollers 16 and 17, and they are held in mesh with the pinions of the shaft 11 by vertically-disposed rollers 18, which engage the outer edges of the said rack-bars and which are mounted in loops of adjustable plates or bars 19 and are supported by adjustable braces 20. One of the rollers 18 is arranged at the outer edge of one of the longitudinal rack-bars and engages the same and the adjacent transverse rack-bar, and the other roller 18 engages the other rack-bar. The plate 19 and the brace 20 are slotted at their outer ends and are secured at any desired adjustment by screws 22 and 23, arranged in said slots and mounted



on a suitable support or framework which forms a boxing or casing for the gearing.

Each slide 14 is slotted to receive the lower portion of the bar 15, which is pivoted between curved supports or brackets 24 and which is adapted to oscillate in the said slot when the slide reaches the end of its movement to free the axle of the vehicle, and the lower end of the pivoted bar, which is normally held in a vertical position by a spring 25, is provided with a lug or projection 26, adapted to engage oppositely-disposed shoulders 27 of a pair of longitudinally-disposed trip-levers 28, fulcrumed in suitable supports at the lower face of the slide.

The trip-levers 28 extend inward and outward from the center of the slide, and the shoulder 27 of the inwardly-extending lever is engaged by the lug of the pivoted bar when the slide moves inward and the shoulder of the other trip-lever 28 is engaged by the pivoted bar when the slide moves outward. The spring 25, which is substantially L-shaped, is provided at its angle with a coil, and it has one arm secured to the pivoted bar 15 and its other arm attached to the upper face of the slide. The outer ends 29 of the trip-levers are slightly curved, as shown, and present lower inclined edges adapted to be engaged by vertical flanges 30 of adjustable plates 31 when the slide arrives at the end of its movement, whereby the engaged shoulder 27 will be dropped out of such engagement to permit the bar 15 to swing downward and allow the axle which engages it to pass over it. The outer portion of the outwardly-extending trip-lever 28 is arranged in a suitable guide 32 and the other trip-lever is supported by a pair of perforated ears 33, to which the outer end of the adjacent longitudinal rack-bar is pivoted. Each slide is mounted on a pair of longitudinally-disposed track-bars 14<sup>a</sup>, which are provided with upper horizontal flanges, and the slides are provided at their side edges with depending flanges 14<sup>b</sup>, which are interlocked with the horizontal flanges of the track-bars.

The sliding gate-section 1 is adapted to be operated independently of the other gate-section and the said gearing, and it is provided with a catch 34, arranged at the bottom of the gate-section 1 and provided with a rectangular bend receiving a vertical projection or arm of the transverse rack-bar 8, and the latter is also provided with a horizontal arm 35, which fits in a depending loop 36 of the gate-section to prevent the rack-bar from moving laterally and thereby becoming disengaged from the catch 34. The catch 34 is formed integral with a lever 37, which is substantially L-shaped, having one arm arranged vertically on the outer end of the gate-section 1 and its other arm disposed horizontally between two of the horizontal rails or bars of the said gate-section and pivoted at a point between its ends at 38 in a suitable support. The inner end of the latch-lever is adapted

to be engaged and depressed by a substantially V-shaped operating-lever 39, which is fulcrumed at its angle on the inner end of the gate-section 1 and which is connected with one end of each of a pair of operating ropes or cables 40.

The operating ropes or cables 40, which extend from the gate in opposite directions, are arranged on pulleys 41 of posts 42, and extend therefrom to the adjacent supporting-frame, which is provided at opposite sides with upper and lower horizontal pulleys 43. Each operating rope or cable is doubled on its pulley 41 to form two portions which extend from the adjacent pair of pulleys 43 in opposite directions and have their terminals secured to the outer end of the gate and to the said operating-lever 39. A handle 44 is connected by a sliding frame 45 with one of the portions of each operating rope or cable, and when the handle is moved in the direction of the gate the catch 34 is disengaged from the rack-bar 8 and the gate-section 1 is opened, and by moving the other handle 44 away from the gate the gate-section 1 is closed. The sliding frame 45 preferably consists of a longitudinal rod provided at its ends with eyes, to which the operating rope or cable is secured, and a pair of links having eyes at their ends to receive the rod and the opposite portion of the cable or rope. The rod is provided with a central eye, into which is linked an eye of the handle 44. Should the gate-section 1 be left open after being operated by the handle 44, the catch 34 will be automatically engaged by the rack-bar 8 should the slides be operated, and the gate-section 1 will be closed when the other gate-section 2 is closed.

The sliding gate-section 2 is detachably connected with the transverse rack-bar 9 by a locking device 46, composed of curved upper and lower sections or members 47 and 48. The upper section 47 of the locking device 46, which is secured to the bottom of the gate, is provided with an open eye or hook, and the lower section, which is adapted to be introduced laterally into the open eye or hook, is provided at one side with a stop 49 and at the other side with a pivoted arm which is adapted to engage the eye or hook to prevent the members or sections 47 and 48 from becoming separated. When it is desired to separate the sections 47 and 48, the pivoted arm is swung upward opposite the open portion of the eye or hook, and the gate-section 2 may then be readily detached from the rack-bar 9.

When the gate is closed, the sections 1 and 2 are supported by a plate 50 provided with a pair of L-shaped flanges which are engaged by horizontal lugs or flanges extending from the inner ends of the gate-sections.

It will be seen that the gate is simple and comparatively inexpensive in construction, and that it is positive, reliable, and automatic in operation.



Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

What I claim is—

1. The combination of sliding gate-sections, transverse rack-bars connected with the sliding gate-sections, longitudinally-disposed rack-bars extending from opposite sides of the gate-sections, a pair of pinions meshing with the rack-bars, and means for operating the longitudinally-disposed rack-bars, substantially as and for the purpose described.
2. The combination of sliding gate-sections, slides disposed at opposite sides of the gate-sections, the longitudinal and transverse rack-bars geared together and connected, respectively, to the slides and to the gate-sections, pivoted bars mounted on the slides, extending upward therefrom and adapted to be engaged by an axle of a vehicle, whereby the slides are moved inward and outward, and means for tripping the pivoted bars at the ends of the movement of the slides to cause the said bars to swing downward and permit an axle to pass over them, substantially as described.
3. In an automatic gate, the combination of a slide, a sliding gate-section, gearing connecting the slide with the gate-section, a pivoted arm mounted on the slide, extending upward therefrom and adapted to be engaged by a vehicle, trip-levers fulcrumed between their ends at the bottom of the slide, extending in opposite directions from the lower end of the pivoted bar and provided at their inner ends with shoulders to be engaged by the same, whereby the pivoted bar is locked in an upright position, and projections arranged to engage the trip-levers to throw the same out of engagement with the pivoted bar, substantially as described.
4. The combination of a slide, a gate-section, gearing for connecting the slide with the gate-section, a pivoted bar mounted on the slide, a spring connected with the pivoted bar and adapted to return the same to a perpendicular position, longitudinally-disposed trip-levers fulcrumed on the slide, arranged to engage the pivoted bar and provided at their outer ends with inclined edges, and projections arranged to be engaged by the inclined edges of the trip-levers, substantially as described.
5. The combination of the sliding gate-sections, slides located at opposite sides of the same, gearing connecting the gate-sections with the slides, a catch mounted on one of the gate-sections and engaging the said gearing, and operating ropes or cables extending from opposite sides of the gate-sections and connected with the said catch and the gate-section upon which the said catch is mounted, whereby such gate-section is operated independently of the slides and the said gearing, substantially as described.

6. The combination of the sliding gate-sections 1 and 2, transverse rack-bars 8 and 9, longitudinally-disposed rack-bars, gearing connecting the rack-bars, an arm extending from the rack-bar 8, a catch mounted on the gate-section 1 and engaging the said arm, a catch-lever fulcrumed on the gate-section 1 and connected with the catch, an operating-lever mounted on the gate and adapted to engage the catch-lever, and operating ropes or cables connected with the operating-lever, substantially as described.

7. The combination of the sliding gate-section 1, a rack-bar 8 provided with horizontal and vertical arms, a loop depending from the gate-section 1 and receiving the horizontal arm of the rack-bar, a catch mounted on the bottom of the gate and engaging the vertical arm of the rack-bar, gearing for operating the rack-bar, a lever 37 fulcrumed on the gate and connected with the catch, an operating-lever mounted on the gate and arranged to engage the lever 37, and operating ropes or cables connected with the operating-lever, substantially as described.

8. The combination of the sliding gate-section, operating ropes or cables extending from opposite sides of the gate-section and connected with the same, sliding frames mounted on the operating-ropes and each comprising a longitudinal rod provided with a central eye, transverse links provided with eyes receiving the rod and the opposite portion of the adjacent rope or cable, and handles having eyes linked into the central eyes of the rods, substantially as described.

9. The combination of the transverse and longitudinal rack-bars, gearing connecting the rack-bars, adjustable plates arranged adjacent to the rack-bars and provided with rollers engaging the same, and adjustable braces connected with the adjustable plates, substantially as described.

10. The combination with the sliding gate-sections, longitudinal track-bars provided with horizontal flanges, a slide arranged on the track-bars and provided with depending flanges interlocked with the same, gearing connecting the slide with the gate-sections, and a bar mounted on the slide and adapted to be engaged by a vehicle, substantially as described.

11. The combination with a gate-section and a rack-bar, of a locking device connecting the same composed of an upper section having an open eye or hook, a lower section engaging the open eye or hook and provided at one side with a stop, and a pivoted arm mounted on the other side of the lower section, substantially as described.

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

DAVID F. BAKER.

Witnesses:

THOMAS L. ADAMS,  
F. A. ZILLGITT.