

H. K. TABLER.

GATE.

APPLICATION FILED MAY 28, 1908.

913,581.

Patented Feb. 23, 1909.

2 SHEETS—SHEET 1.

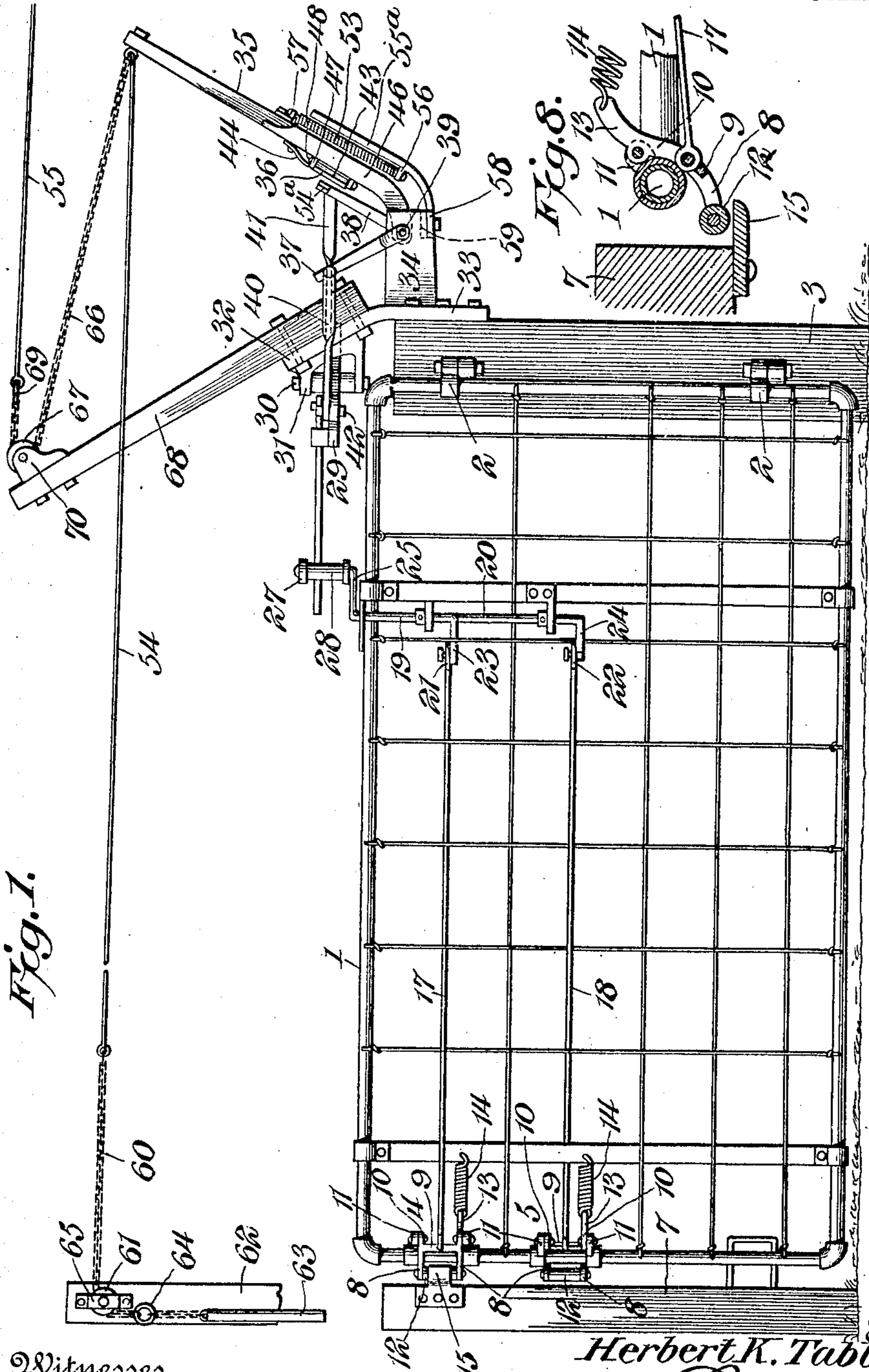


Fig. 1.

Fig. 8.

Witnesses

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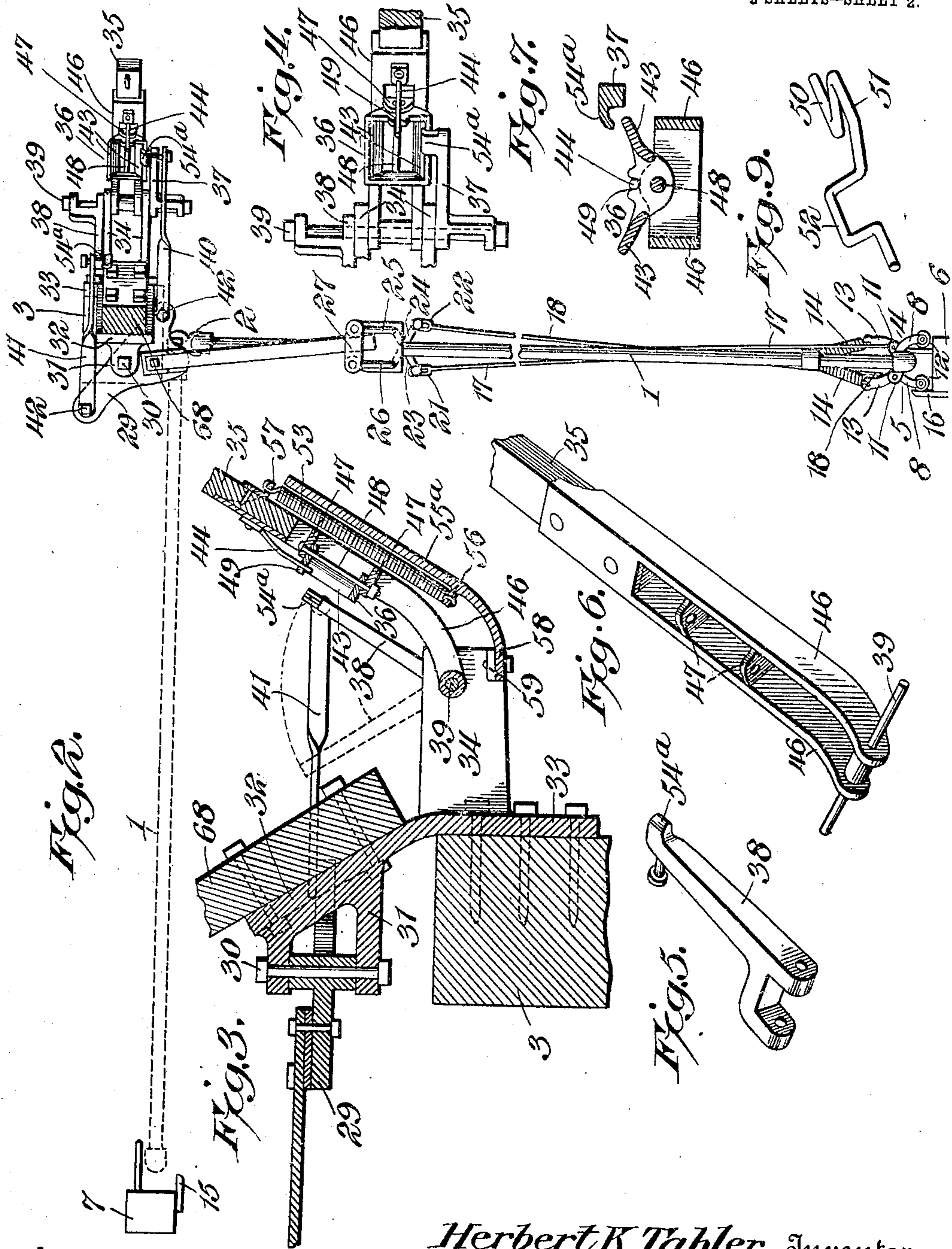
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UNITED STATES PATENT OFFICE.

HERBERT K. TABLER, OF PLYMOUTH, ILLINOIS.

GATE.

No. 913,581.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed May 28, 1908. Serial No. 435,481.

To all whom it may concern:

Be it known that I, HERBERT K. TABLER, a citizen of the United States, residing at Plymouth, in the county of Hancock and State of Illinois, have invented a new and useful Gate, of which the following is a specification.

The invention relates to improvements in gates.

10 The object of the present invention is to improve the construction of swinging gates, more especially the means for operating the same, and to provide simple, inexpensive and efficient combined gate-actuating and latch-operating mechanism, adapted to posi- 15 tively open and close a gate, and capable of swinging the same either slowly or rapidly by a single continuous pull.

A further object of the invention is to 20 provide gate-actuating mechanism, designed for operating gates opening in one direction only, and to enable such gates to be opened to an angle of ninety degrees so as not to obstruct the road-way.

25 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims 30 hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing 35 any of the advantages of the invention.

In the drawings:—Figure 1 is an elevation of a gate provided with operating mechanism, constructed in accordance with this invention, the gate being open. Fig. 2 40 is a plan view partly in section, the gate being shown closed in full lines and open in dotted lines. Fig. 3 is an enlarged vertical sectional view of a portion of the operating mechanism. Fig. 4 is an enlarged plan 45 view, illustrating the construction of the side levers and the shiftable device of the intermediate lever. Fig. 5 is a detail perspective view of one of the side levers. Fig. 6 is a detail view of the lower portion of the 50 intermediate lever. Fig. 7 is a detail sectional view of the intermediate lever, the shiftable device and one of the side levers. Fig. 8 is a detail sectional view, illustrating the construction of the latches. Fig. 9 is a 55 detail view, illustrating a modification of the

shiftable device for the intermediate actuating lever.

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

1 designates a swinging gate, designed to be constructed in any preferred manner, and connected by suitable hinges 2 to a hinge post or support 3. The gate is equipped with upper and lower reversely arranged 60 latches 4 and 5, adapted to engage suitable stops or keepers of a main latch post 6 and a supplemental latch post 7. As the gate swings in one direction only, the latch post may be equipped with any suitable number 70 of stops or buffers for limiting the swing of the gate, and the latter will thereby be effectually prevented from swinging past a latch post and there will be no danger of the gate being forced open by pressure at either 75 side of it.

Each latch consists of a lever frame, preferably in the form of a casting and composed of upper and lower outwardly projecting arms 8, a vertical connecting bar or 80 portion 9 and inwardly extending ears 10. The ears 10 are pivoted between a pair of spaced ears or eyes 11 of the gate, and the outwardly projecting arms support a vertical roller 12, which is adapted to engage a 85 keeper. The latch is also equipped with an inwardly extending arm 13, projecting from the lower ear of the latch and connected with a coiled spring 14, secured to the gate and adapted to hold the latch in 90 position for engaging its keeper. The upper latch is adapted to engage a keeper 15 of the supplemental latch post, and the lower latch is adapted to engage a keeper 16 of the main 95 latch post 6.

The upper and lower latches of the gate are connected by upper and lower rods 17 and 18 with vertical rock shafts 19 and 20, located at opposite sides of the gate and mounted in suitable bearings. The connect- 100 ing rods, which are crossed, connect the rock shafts at one side of the gate with the latch at the opposite side of the gate, and they are provided at their inner or rear ends with loops 21 and 22, connected, respectively, to 105 lower arms 23 and 24 of the vertical rock shafts 19 and 20. The loops are adapted to permit a limited play of the parts to enable the latches to automatically engage their respective keepers, but instead of employing 110

the rods 17 and 18, wires or other suitable flexible connections may be used, and a small amount of slack may be provided to effect this result.

5 The vertical rock shafts are provided at their upper ends with rearwardly extending cranks 25 and 26, connected at the top by a transverse link 27 and carrying anti-friction rollers 28. The cranks are adapted
10 to be oscillated horizontally to unlatch the gate, and this operation is accomplished by means of a horizontally disposed oscillatory lever 29, fulcrumed on a vertical pivot
15 30 between upper and lower horizontal portions of a bearing bracket 31. The bearing bracket 31 is located above the hinge post or support 3, and is secured to an inclined upwardly extending arm 32 of a supporting bracket 33. The lever 29, which extends
20 transversely of the road-way or gate-way, has its front portion located between the cranks of the vertical rock shafts, and when the lever 29 is oscillated, it is adapted to engage one of the cranks for unlatching the
25 gate. When the vertical crank shafts are partially rotated by the lever 29, the lower arms are swung rearwardly and the latches are withdrawn from engagement with the keepers. The coiled springs operate to re-
30 turn the latches to their engaging position as soon as they are free to move. A continued movement of the lever operates to swing the gate on its hinges.

The supporting bracket 33 is provided
35 with a vertical attaching portion, which is secured to the rear face of the hinge post or support. Extending from the supporting bracket are rearwardly projecting arms 34,
40 between which is pivoted an upwardly extending intermediate or central lever 35, carrying a shiftable device 36, adapted to alternately engage and actuate a pair of side levers 37 and 38. The side levers 37
45 and 38 are arranged at the outer faces of the rearwardly extending arms 34 of the supporting bracket, and they are connected with the same by a pivot 39 of the intermediate or central lever 35. The side levers
50 37 and 38 are connected by suitable rods or bars 40 and 41 with the horizontal oscillatory latch-operating and gate-actuating lever 29 at opposite sides of the pivot or fulcrum thereof by means of bolts 42, or other suitable fastening devices. The horizontal os-
55 cillatory lever is provided with lateral extensions or portions to which the front ends of the connecting bars or rods 40 and 41 are secured, and the said connecting rods, which are located approximately at right angles to
60 the forwardly extending portion of the horizontal lever, are adapted to oscillate the same to open and close the gate. The connecting rod or bar 40 lies in advance of the pivot 30 and the lever 37 is adapted to be oscillated
65 to open the gate. The other rod or bar 41 is

located in rear of the pivot 30, and its lever 38 is adapted to be oscillated to close the gate. The side levers are alternately en-
70 gaged by the intermediate actuating lever, and when one of the side levers is swung forwardly or inwardly towards the hinge post by the intermediate lever, the other side lever is carried outwardly or rearwardly through its connection with the horizontal
75 oscillatory lever 29.

The shiftable device, which is centrally pivoted to the intermediate lever 35, is approximately V-shaped in cross section, and is provided with inclined or angularly dis-
80 posed sides 43, and it is held at an intermediate or central position by a spring 44. The lever 35 is provided at its lower portion with spaced sides 46, and is equipped with transverse webs or connecting portions 47,
85 pierced to form ears for the reception of a pintle 48, which pivots the shiftable device to the intermediate lever. The spring 44, which is secured at one end to the lever 35 at a point above the shiftable device, has its free
90 end fitted in a central notch 49 of the upper end of the said device. The shiftable device may be in the form of a shaft 50, provided with opposite loops or arms 51 and 52, as
95 illustrated in Fig. 9 of the drawings, or any similar construction may be employed, as the shiftable device consists essentially in oppositely disposed sides or wings normally held at an intermediate position and ar-
100 ranged to successively engage the side levers.

After each operation of the gate the inter-
105 mediate lever is automatically swung rearwardly by a coiled spring 53, and when it is swung forwardly by either of the operating connections 54 and 55, the shiftable device engages the rear one of the side
110 levers, and is forced laterally through such engagement against the proximate side of the lever 35, forming a rigid engaging member for actuating such side lever, which is carried forward with the lever 35, thereby
115 oscillating the horizontal lever 29 and opening or closing the gate. This movement of the shiftable device also carries its other side or wing clear of the other side lever, which is moved rearwardly as the intermediate
120 lever is swung forwardly. The intermediate lever is returned to its initial position by the spring 53, and the shiftable device is caused to assume its normal position through the action of the spring 44. This will cause the
125 shiftable device to engage and actuate the other side lever at the next operation of the gate. The side levers are provided at their upper ends with inwardly projecting lugs 54^a, which are grooved at their rear faces, as
130 clearly shown in Fig. 7 to engage the sides or wings of the shiftable device.

The coiled spring 53, which is arranged at an inclination when the lever 35 is at the limit of its rearward movement, is secured

at its upper end to the lever 35 and at its lower end to a bar or member 55^a. The bar or member 55^a is bolted or otherwise secured to the rearwardly projecting arms, and is provided with a lug 56 for the attachment of the lower end of the spring, and the upper end of the latter is secured to an L-shaped plate 57, which is carried by the lever 35. The lower end of the bar or member 55 is equipped with a cross piece 58, which is bolted to lugs 59, projecting from the inner faces of the arms 34 and located above recesses in which the terminals of the cross pieces 58 are fitted. The bar or member is curved at its lower portion and its upper portion is inclined to form a stop for the lever 35.

The operating connection 54, which may consist of a wire, or other suitable connection, is provided at its outer end with a chain 60, extending over a guide pulley 61 of a post or upright 62 and carrying a depending handle 63, adapted to be grasped by the operator for oscillating the lever 35. The chain 60 is equipped with a stop ring 64 for limiting the backward movement and stop of the lever 35 by engaging the bracket 65 in which the pulley 61 is mounted. The other operating connection 55, which is designed to extend to a suitable post or upright (not shown), is equipped at its inner end with a chain 66, extending from the lever 35 to a pulley 67, mounted on an inclined bar or member 68, secured at its lower end to the inclined arm 32 of the supporting bracket. The chain is equipped at its outer portion with a stop ring 69, arranged to engage the bracket 70 in which the pulley 67 is mounted. Each of the operating connections is adapted to swing the intermediate lever 35 towards the inclined supporting bar or member 68, and as one inward movement of the lever 35 opens the gate and the next inward movement closes the gate, it will be apparent that the gate may be opened and closed from either side by the use of the single operating connection, thereby avoiding the confusion resulting from the employment of a pair of operating ropes at each side of the gate.

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

1. The combination with a swinging gate, of latches mounted on the gate, a pair of spaced rock shafts also mounted on the gate and connected with the latches, and gate-operating mechanism including an oscillatory member extending between the rock shafts and adapted to engage the same for operating the latches.

2. The combination with a gate, of latches mounted on the gate, spaced rock shafts also mounted on the gate and provided with cranks, connections between the rock shafts

and the latches, and gate-operating mechanism including an oscillatory member extending between and arranged to engage the cranks of the rock shafts for operating the latches and for also actuating the gate.

3. The combination with a swinging gate, of latches mounted thereon, vertical rock shafts also mounted on the gate and connected with the latches and provided with cranks, means for connecting the cranks, and gate-operating mechanism including an oscillatory member extending between and adapted to engage the cranks.

4. The combination with a gate, of latches mounted thereon, vertical rock shafts also mounted on the gate and provided with cranks and having arms, connections between the arms and the latches, anti-friction devices mounted on the cranks, and gate-actuating mechanism including an oscillatory member extending between and arranged to oscillate the cranks.

5. The combination with a gate, of a horizontal latch pivoted at an intermediate point on the gate to form inner and outer horizontally swinging portions, a spring connected with the inner portion of the latch, a rock shaft having an arm connected with the outer portion of the latch, and gate-operating mechanism including means for engaging the rock shaft to operate the latch and swing the gate.

6. The combination with a gate, of a latch mounted thereon and pivoted at an intermediate point and composed of upper and lower outwardly extending arms, a vertical connecting bar, and an inwardly extending arm, a roller mounted between the outwardly extending arms, a spring connected with the inwardly extending arm, a rock shaft connected with the latch, and gate-actuating mechanism including means for operating the rock shaft to actuate the latch and swing the gate.

7. The combination with a swinging gate, of gate-operating mechanism including a horizontally swinging lever, means for connecting the same with the gate, spaced side levers connected with the horizontally swinging lever at opposite sides of the pivotal point thereof, and an intermediate actuating lever provided with means for alternately engaging the side levers.

8. The combination with a swinging gate, of gate-operating mechanism including a horizontally swinging lever, means for connecting the same with the gate, spaced side levers connected with the horizontally swinging lever at opposite sides of the pivotal point thereof, and means provided with an automatically operable shiftable device arranged to alternately engage the side levers.

9. The combination with a swinging gate, of gate-operating mechanism including a horizontally swinging lever, means for con-

necting the same with the gate, spaced side levers connected with the horizontally swinging lever at opposite sides of the pivotal point thereof, and means provided with an automatically operable shiftable device having oppositely disposed sides or wings arranged to alternately engage the side levers.

10. The combination with a swinging gate, of gate-operating mechanism including a horizontally swinging lever, means for connecting the same with the gate, spaced side levers connected with the horizontally swinging lever at opposite sides of the pivotal point thereof, means provided with an automatically operable shiftable device having sides or wings set at an angle and arranged to alternately actuate the side levers, and a spring for maintaining the shiftable device normally in a central position and for returning the shiftable device to such position after engaging the side levers.

11. The combination with a swinging gate, of gate-actuating mechanism including a horizontally swinging lever, spaced side levers connected with the said levers and movable in the opposite direction, an intermediate actuating lever, a centrally pivoted shiftable device provided with oppositely extending sides or wings set at an angle, a spring connected with the shiftable device for maintaining the same normally in a central position, and operating connections extending in opposite directions.

12. The combination with a swinging gate, of latch mechanism therefor, a horizontally swinging lever, means for connecting the lever with the latch mechanism for actuating the same and for also swinging the gate, spaced side levers connected with the horizontally swinging lever, an intermediate actuating lever provided with means for alternately actuating the side levers, and operating connections extending in opposite directions from the gate.

13. The combination with a swinging gate, of a horizontally swinging lever connected with the gate, a supporting member extending above the said lever, spaced side levers connected with the horizontally swinging lever and movable in opposite directions, an intermediate actuating lever provided with means for alternately engaging the side levers, a connection attached to one side of the intermediate lever and extending from one side of the gate, guiding means mounted on the supporting member, and a separate connection extending from the other side of the gate to the guiding means and then from the other side of the gate, and means carried by the said connections for limiting the swing of the intermediate lever.

14. The combination with a gate, of operating mechanism including a horizontally swinging lever connected with the gate, side levers movable in opposite directions and

connected with the horizontally swinging lever, an intermediate lever provided with means for alternately engaging the side levers, a spring connected with the intermediate lever for moving the same in one direction, and operating connections for moving the intermediate lever in the opposite direction.

15. The combination with a support, of a swinging gate hinged to the same, a supporting bracket secured to the support and provided with an inclined upwardly extending arm and having rearwardly projecting arms, a bearing bracket secured to the inclined arm, a horizontally swinging member mounted in the bearing and connecting with the gate, a supporting member also mounted on the inclined arm, spaced side levers pivotally mounted on the rearwardly extending arms and connected with the horizontally swinging lever, an intermediate lever also pivoted to the rearwardly extending arms and provided with means for alternately engaging the side levers, a stop secured to the supporting bracket for limiting the rearward movement of the intermediate lever, a spring connected with the stop and with the intermediate lever for swinging the same in one direction, and operating connections extending from the gate in opposite directions and connected to the intermediate lever, and guiding means mounted on the supporting member and receiving one of the operating connections.

16. The combination with a swinging gate, of a horizontally swinging lever connected with the gate, side levers movable in opposite directions and connected with the horizontally swinging lever and provided at their inner sides with projecting lugs grooved at their rear faces, an intermediate lever movable between the side levers, and a shiftable device provided with opposite sides or wings arranged to engage the grooved lugs of the side levers.

17. The combination with a swinging gate, of latches mounted thereon, vertical rock shafts connected with the latches and provided with spaced cranks, a horizontally swinging lever extending between the cranks and arranged to engage the cranks for operating the latches and for also swinging the gate, side levers connected with the horizontally swinging lever and movable in opposite directions, and an intermediate lever provided with means for alternately operating the side levers.

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

HERBERT K. TABLER.

Witnesses:

FRED. C. DALLAM,
E. L. DALLAM.