(No Model.) 2 Sheets—Sheet 1.

W. W. WERT.

GATE.

No. 562,105. Patented June 16, 1896.

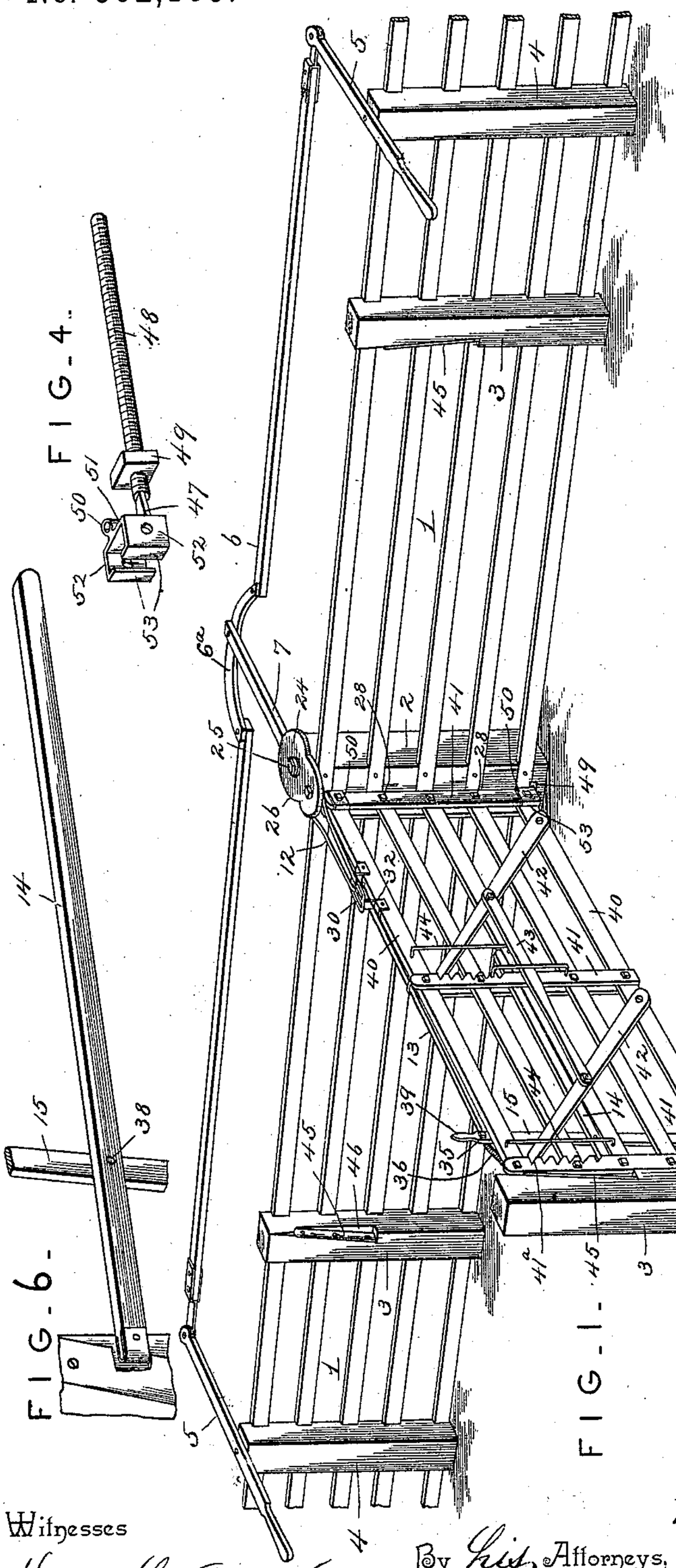

FIG. 4.

FIG. 6.

FIG. 1.

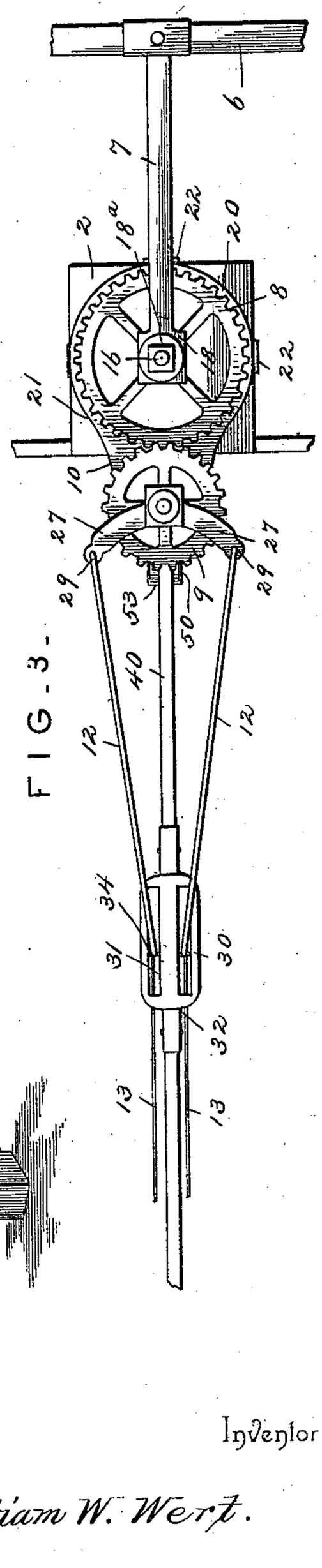

FIG. 3.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

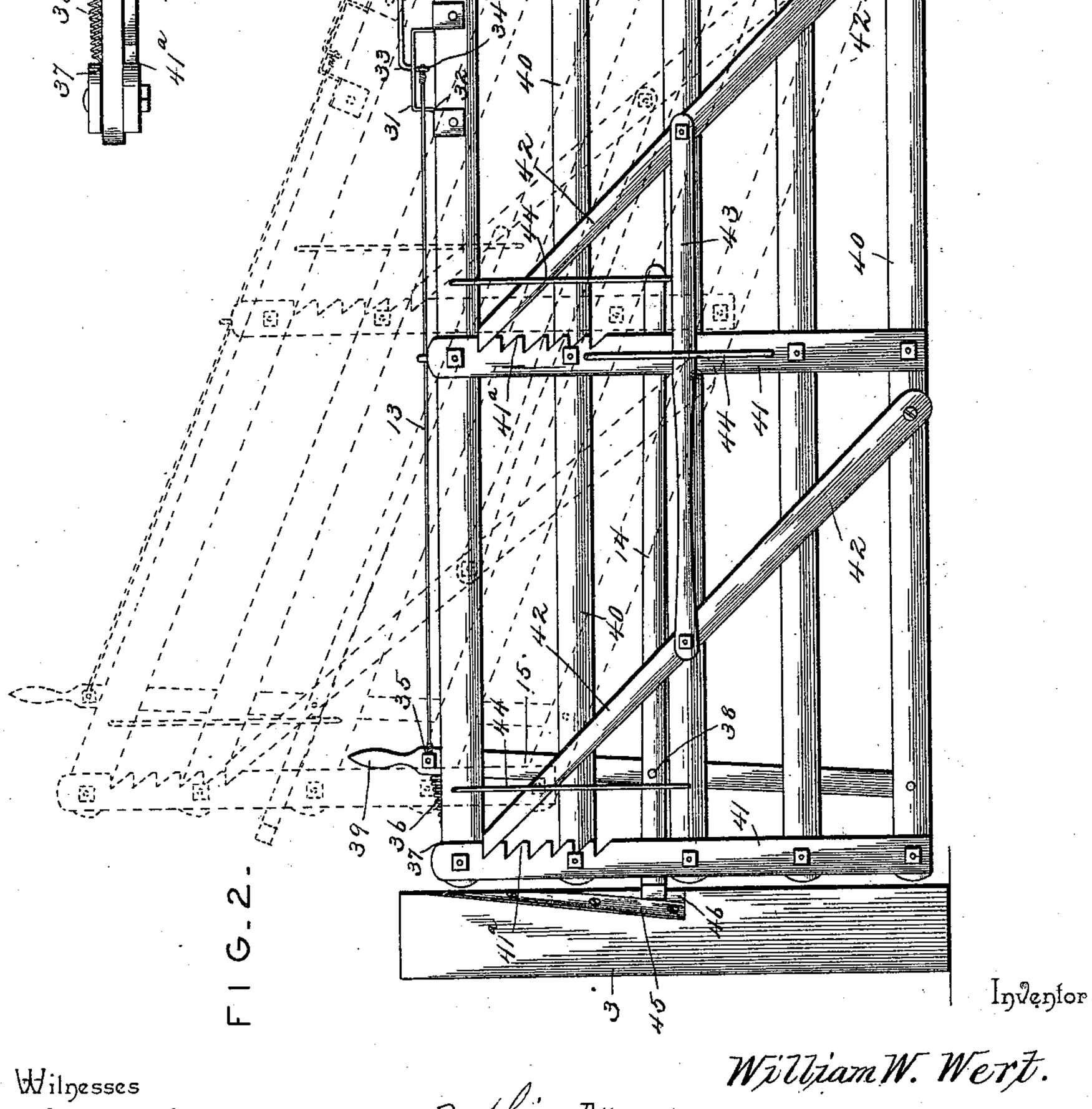
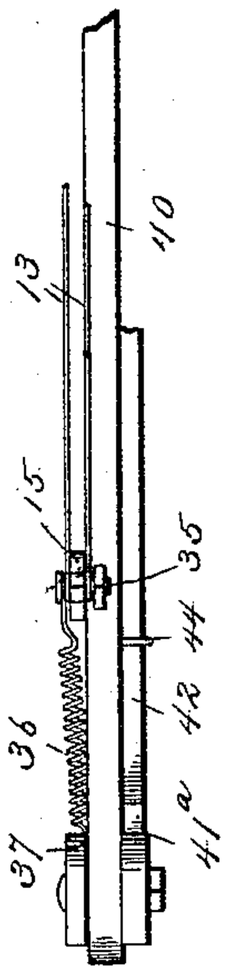


FIG. 5.



Inventor

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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM W. WERT, OF ITHACA, OHIO.

GATE.

SPECIFICATION forming part of Letters Patent No. 562,105, dated June 16, 1896.

Application filed September 11, 1895. Serial No. 562,173. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. WERT, a citizen of the United States, residing at Ithaca, in the county of Darke and State of Ohio, have invented a new and useful Gate, of which the following is a specification.

My invention relates to road-gates, particularly to those which can be opened at a distance therefrom without getting out of the wagon or off of the horse to approach the gate, and which can then be closed in the same manner after having ridden through the passage-way.

My object is to provide an operating mechanism for a swing gate that will bring the opening pull on the free end of the gate, at the same time unlocking it.

In the accompanying drawings, illustrative of my invention and which constitute part of the specification, Figure 1 is a perspective view of my improvements applied to a section of fence. Fig. 2 is a side elevation of the gate closed, showing its elevated position in dotted lines and showing the rear post in vertical section. Fig. 3 is an enlarged top plan view of my operating mechanism with the cover-plate removed. Fig. 4 is an enlarged perspective of the pivot-hinge. Fig. 5 is a top plan detail of the latch-lever and spring. Fig. 6 is a detail view of the catch.

Reference-numeral 1 designates the ordinary fence at the roadside either of the public or private driveway or lane, which is to be provided with my gate. 2 is the pivot-post, or post at the rear end of the gate, and is of considerable size, so as properly to sustain the gate from sagging. Latch-posts 3 are provided at either side and in front of post 1, removed therefrom the length of the gate, and beyond the side posts 3 a convenient distance are posts 4, to the top or sides of which are horizontally pivoted the road-levers 5, in convenient reach of the driver in a vehicle or of a man on horseback. These road-levers carry the outer ends of the operating-rod 6, which runs behind and parallel to the fence and is connected to the gate-swinging mechanism by arm 7, pivoted thereto and arranged parallel to the road-levers 5. This rod may be in one piece, or in two pieces connected together and to arm 7 by a curved connecting-link 6^a.

The gate-swinging mechanism consists of two intermeshing cog-wheels 8 and 9, the latter of which carries a bar 27, connected at its ends with rods 12 and wires 13, which reciprocate the latch-bar 14 by means of lever 15 sufficiently to unlock the gate, and then continue to pull on said lever until the gate is swung around.

The main or drive cog-wheel 8 is horizontally pivoted on a stub-axle 16, which projects vertically from the center of the upper end of post 2, and is provided on its upper side with a central hub 17, squared to receive the correspondingly square-socketed end 18 of arm 7, by means of which it is revolved. Washers are threaded over axle 16 above and below drive-wheel 8, and a jam-nut 18^a firmly secures said parts in place. Cog-wheel 9 is arranged in horizontal alinement to mesh with drive-wheel 8, and is fixed on the upper end of hinge-shaft 19. These two wheels, the drive-gear 8 and the countergear 9, are retained in their adjusted relations by means of a base-plate 20, properly perforated therefor, which also serves as a protecting cap to the post at its rear end 21. This plate 20 is secured to post 2 by means of lugs 22, one at either side, and one at the rear thereof, which are fastened to the post by bolts or screws 23. At the upper faces of said gear-wheels is a cover-plate 24, properly perforated to provide bearings for the stub-axle 16 and the hinge-shaft 19, which project therethrough to receive the securing-nuts 25. Plate 24 extends beyond the cog-wheels and is deflected at its edges 26 to provide a cover for the mechanism beneath, whereby it is protected from the weather.

Adjacent to the transmitting-gear 9 on its upper side is a transverse bar 27, which is fixed to said shaft by a square socket, or by a key, or by other suitable means, so as to move with gear-wheel 9. This bar is outwardly curved at either end to extend beyond the periphery of wheel 9 to form arms, and so that its two ends will be in the same vertical plane with the rear pivots 28 of the gate, for a purpose presently to be explained. At either end bar 27 is perforated to receive the hooked ends 29 of rods 12, which rods extend parallel to the upper edge of the gate and reciprocate in slots 30 of the guide-plate 31. Guide-

plate 31 comprises a flat horizontal guide-bed vertically slotted in its projecting sides, and end knees 32, carrying at their lower ends U-shaped securing-brackets which grasp the top bar of the gate on either side. The depending ends 33 of rods 12 are provided with enlarged eyes 34, which serve to hold said ends 33 in the slots or ways 30, and also to receive pull-wires 13. At their farther ends wires 13 are fastened to either projecting end of a transverse bolt 35 through the upper free end of lever 15. Also secured to said bolt adjacent its inner end is a coiled tension-spring 36, which is fastened at its opposite end to the outer end piece 37 of the gate. This spring 36 is provided to keep the latch-bar 14 normally projected. Said latch-bar is pivoted at 38 to lever 15, and is arranged to reciprocate horizontally in suitable guides about midway of the height of the gate. Lever 15 is also provided at its upper end with a handle 39, so as thereby to operate latch-bar 14 at that point, if desired.

The gate is composed of longitudinal slats or bars 40 and transverse end and intermediate cross-pieces 41, which embrace said slats 40 in pairs, one on either side. The cross-pieces are pivotally secured to the longitudinal slats by bolts or headed pins, so that the gate can be raised vertically at one end, as illustrated in Fig. 2 by dotted lines.

To retain the gate in its raised or adjusted position, I provide notches 41ª on the rear sides of one of each of the forward two pairs of cross-pieces and long pawls 42 to engage therewith pivoted to the bottom slat of the gate and connected in parallel alinement by bar 43, whereby said pawls move in parallel-ruler fashion and engage corresponding notches, respectively, in the end cross-piece and intermediate cross-piece. Suitable keepers 44 retain the parts in position against the gate. To compensate for this vertical radial swing of the gate-slats, and hence of the latch-bar 14, I provide a curved latch-plate 45 on each latch-post 3. This plate is obliquely slanted edgewise to present a sloping surface to receive the latch-bar, being provided behind the same with a slit or recess 46 to hold the latch-bar, and is curved to correspond with the path of the end of the latch-bar when it is raised with the gate. For the same purpose the arm 27 is bent so as to bring the pivots 29 in line with the rear bolts 28, so that as the gate is raised there is no tendency to shorten the wires 13, inasmuch as their pivots coincide with those of the gate, and the rods 12 are parallel to the gate.

Hinge-shaft 19 is pivoted at its lower end in the eye end 47 of a long bolt 48, which is secured through post 2 by means of nuts 49, adjustable thereon adjacent to the opposite faces of the post. Intermediate of its length said shaft 19 passes through the socket portions 50 of the gate-hinge pieces, each of which comprises a back plate 51, to which said socket is secured, and an ear 52, projecting forward therefrom at either side and flanged inwardly at its outer edge 53, so as to grasp the end pieces of the gate firmly and relieve the fastening-bolt 28 of most of the shearing strain. This form of hinge-piece prevents the end piece of the gate from being split, as would be the tendency if all the strain came on the fastening-bolt.

The operation of my improved gate is as follows: As a mounted person approaches the closed gate he leans over and pulls on the road-lever 5 at post 4. This moves the operating-rod 6 and arm 7, and by means of the square socket connection 18 of the latter, revolves gear-wheel 8 and transmits motion thereby, through wheel 9, rods 12, wires 13, and lever 15, to retract the latch-bar 14. Tension-spring 36 permits this releasing of the latch-bar from the catch or latch plate 45, but resists further retraction of lever 15, so that the farther wire 13 pulls on the gate through said lever and swings the gate away and into engagement with the distant latch-post 3. After riding through, the person closes the gate in the same manner by pulling on the farther road-lever 5.

If a cog breaks in either wheel 8 or 9, the swinging mechanism is not thereby rendered useless, because all that is necessary is to disconnect the squared socket connections and turn the wheel so as to bring an unbroken segment into gear. If the gate does not swing freely clear of the ground, it is lifted at its outer end and the pawls 42 are engaged with notches 41ª.

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

What I claim is—

1. The combination of a post, a swinging gate provided with a latch, a guide-plate secured to the gate and provided at opposite sides with ways, a pinion mounted at the back of the gate and provided with laterally-extending arms, rods arranged at opposite sides of the gate, pivoted at their rear ends to the laterally-extending arms and having their front ends arranged to reciprocate in the said ways, connections between the front ends of the rods and the latch, and operating mechanism meshing with the pinion, substantially as described.

2. The combination with a swinging gate, of operating mechanism therefor, consisting of intermeshing horizontally-pivoted gear-wheels, one on the fixed pivot-post and the other at the back of the gate, a bottom journal-plate therefor, a top combined journal and cover plate therefor, the same having overhanging deflected edges, a guide-plate secured to the top of the gate, rods pivoted at their rear ends to either end of a horizontal arm fixedly secured across said gate gear-wheel, and adapted to reciprocate in said guide-plate, a latch-bar and a latch-lever,

wires connected at their respective ends to said lever and to said rods, and a spring arranged to hold said latch-lever normally in forward position, all substantially as described.

3. The combination of a gate composed of longitudinal bars and cross-pieces pivoted to the bars and located at the ends of the gate, a locking device for holding the front end of the gate at any desired vertical adjustment, a latch mounted on the gate, laterally-extending arms located at opposite sides of the gate and having their terminals arranged in the vertical plane of the pivots of the adjacent end of the gate, a guide-plate mounted on the gate and provided at opposite sides with ways, rods located at opposite sides of the gate, connected at their rear ends to the laterally-extending arms and having their front ends reciprocated in the ways of the guide-plate, wires connecting the front ends of the rods with the latch, and means for operating the laterally-extending arms, substantially as described.

4. The combination of a gate composed of longitudinal bars and cross-pieces pivoted to the bars and located at the ends of the gate, a locking device for holding the front end of the gate at the desired vertical adjustment, a latch mounted on the gate, laterally-extending arms projecting from opposite sides of the gate and having their terminals arranged in the vertical plane of the pivots of the adjacent end of the gate, rods located at opposite sides of the gate and connected with the latch and hinged to the gate at the ends of said arms, whereby they are adapted to swing with the said gate in the vertical adjustment thereof, a horizontal pinion mounted at the rear end of the gate and connected with the said laterally-extending arms, a gear-wheel located in rear of the gate and meshing with the pinion and provided with a rearwardly-extending arm, and means for oscillating the arm, 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.

WILLIAM W. WERT.

Witnesses:
H. C. RICE,
E. M. TOWNSEND.