

No. 619,766.

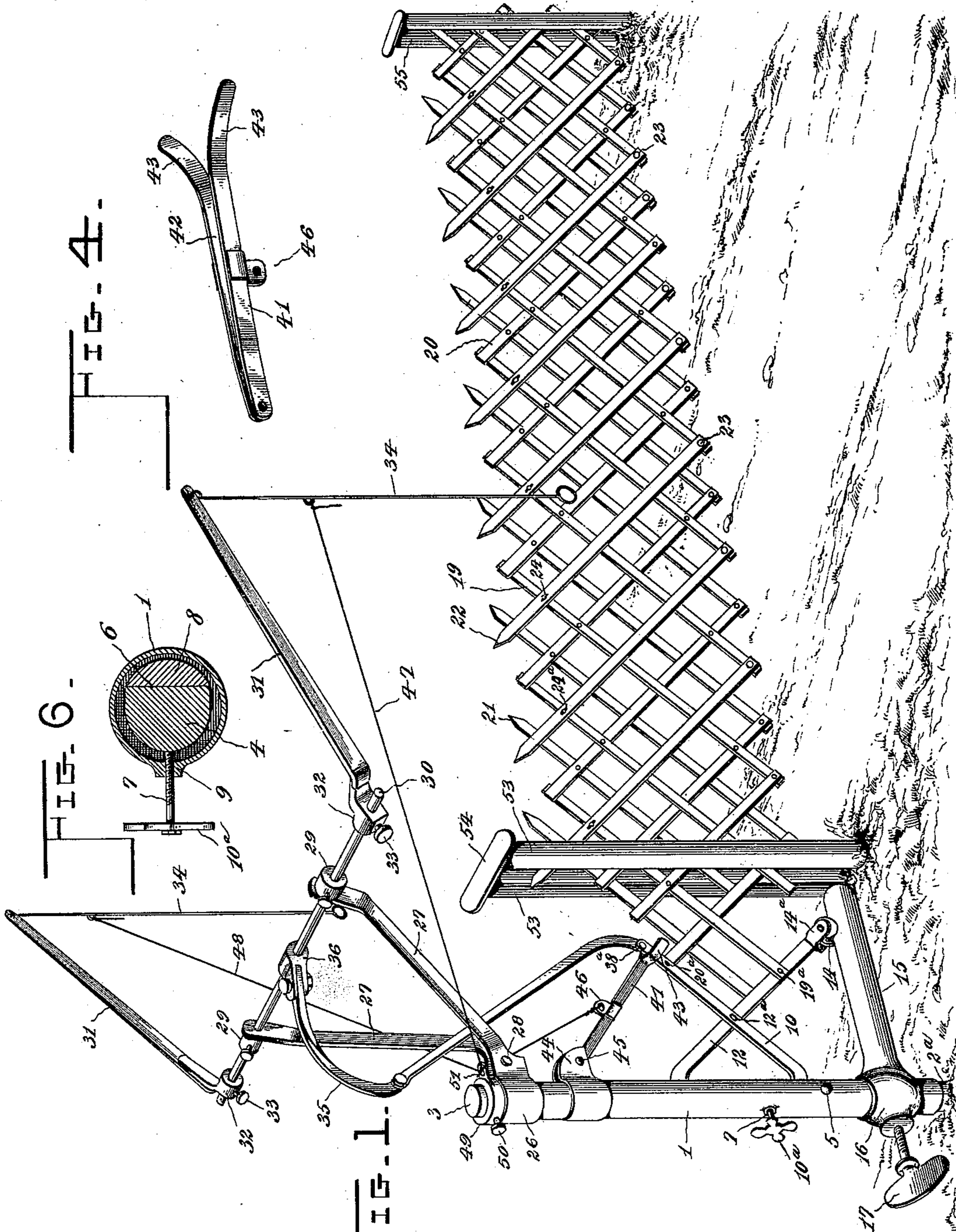
Patented Feb. 21, 1899.

J. S. LEWIS.
GATE.

(Application filed Mar. 21, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
John F. Deufferwiel
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By his Attorneys,
James S. Lewis Inventor

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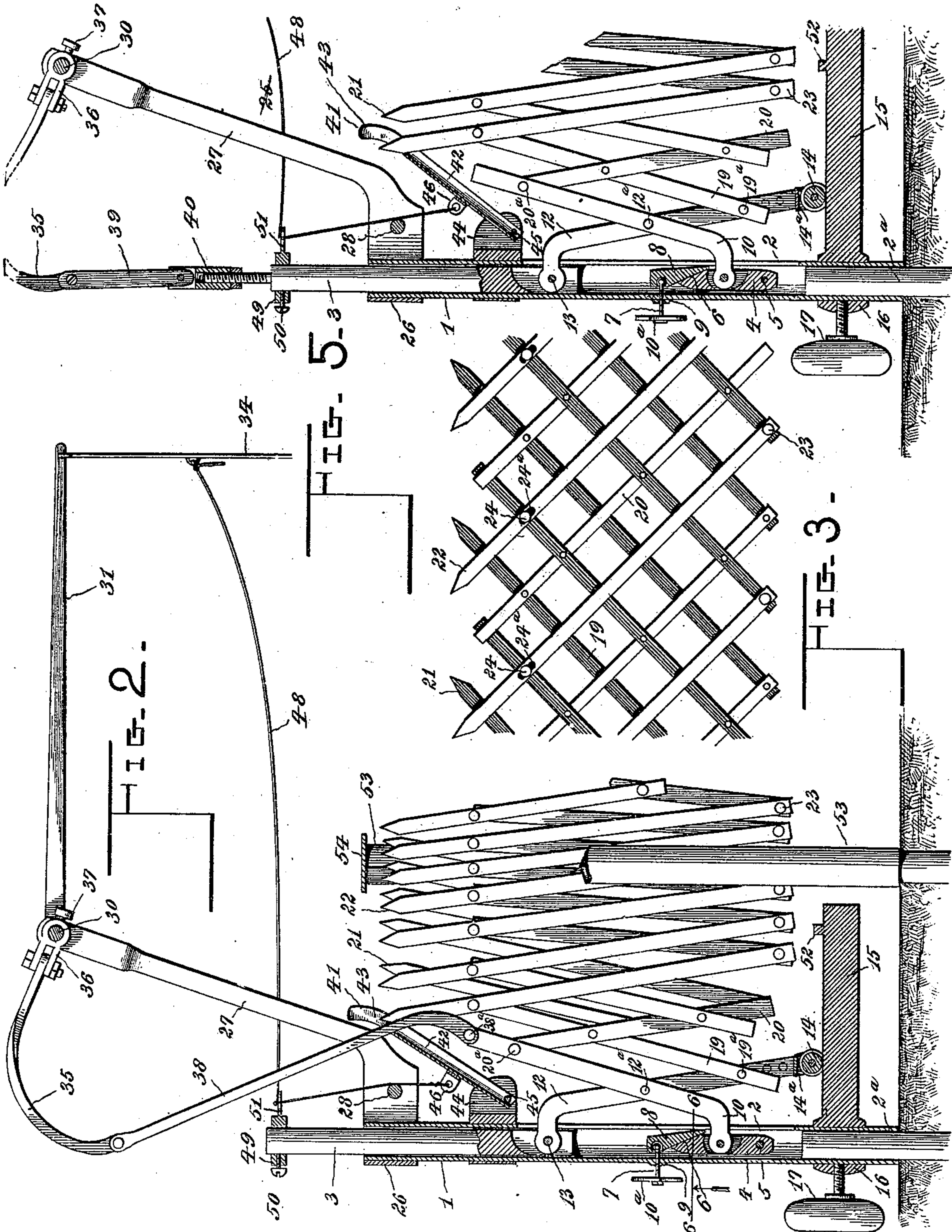
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES S. LEWIS, OF SHENANDOAH, VIRGINIA, ASSIGNOR OF ONE-HALF TO
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GATE.

SPECIFICATION forming part of Letters Patent No. 619,766, dated February 21, 1899.

Application filed March 21, 1898. Serial No. 674,669. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. LEWIS, a citizen of the United States, residing at Shenandoah, in the county of Page and State of Virginia, have invented a new and useful Gate, of which the following is a specification.

My invention relates to improvements in gates of that class in which a lazy-tongs structure is provided for movement across the line of a road or street; and among other things the objects are, first, to provide an improved gate structure in which the spaces between the links or members are closed or filled to prevent the passage of small stock below the gate; secondly, to provide means for leveling the lazy-tongs gate and accommodating the latter to unevenness or inequalities in the surface of the ground; thirdly, to provide an automatic locking mechanism situated at the end of the gate at which the operating devices are provided and which locking mechanism is actuated by the gate-operating devices preliminary to opening the gate; fourthly, to provide an operating mechanism which may be adjusted to either of several positions to adapt the structure to different positions, and, finally, to simplify and improve the construction with a view to promoting its ease of adjustment and increasing its efficiency and durability.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view illustrating the gate projected or closed across a road or street. Fig. 2 is a vertical sectional elevation through the gate-post and a part of the operating devices for the gate. Fig. 3 is a view in side elevation of a fragment of the gate, illustrating the lazy-tongs structure and the filling bars or links forming a part of my improved gate. Fig. 4 is a detail perspective view of the latch, showing the latter in an in-

verted position. Fig. 5 is a view, partly in section and partly in elevation, of a modified form of the link connection between the rock-shaft and the slidable plunger or piston. Fig. 6 is a detail view, in horizontal section on the plane indicated by the dotted line 6 6 of Fig. 2, illustrating the means by which the lazy-tongs gate may be leveled.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

In carrying my invention into practice I employ a vertical post 1, which is erected at a suitable place adjacent to the line of a roadway or street. This gate-post is preferably a tubular metallic structure which is provided with a longitudinal slot 2, that may extend from the open upper extremity of the post to a point some distance above the lower end thereof; but in practice it is not necessary to extend this slot throughout the entire length of the post. The post 1 may be planted in the ground, or its lower open end may be fitted to a stub-post 2^a, which is planted in the ground and is received within the tubular post to support the latter firmly in its vertical position.

In the upper part of the hollow or tubular post is fitted a slidable piston or plunger 3, which constitutes the slidable joint for the lazy-tongs gate, and in the lower part of this tubular post is arranged a block or support 4, that forms the fixed pivotal joint for the lazy-tongs gate; but this relatively-fixed support or block 4 is capable of a limited movement or adjustment in a horizontal plane under the influence of a suitable adjusting mechanism for the purpose of adjusting the gate structure a limited distance in a horizontal plane and enabling the gate to be leveled, thus adapting the improved structure to inequalities in the ground. This support or block 4 is fitted in the tubular post at or near the point where the lower end of the slot 2 terminates in said post, and said support is of such size that it may be moved in a horizontal direction for a limited distance within said post. I preferably support the block 4 on a pin or bolt 5, which is passed through the post and the block, and the upper part or end of this

block is made wedge-shaped in vertical section by forming on one or both faces of the block the inclines or bevels 6. The horizontal adjustment of the support or block 4 is effected by an adjusting-screw 7, which has a threaded bearing 9 in the tubular post, and the protruding exposed end of this adjusting-screw has a hand-wheel or operating-piece 10^a, by which the screw may be conveniently rotated by hand. The inner end of this adjusting-screw, which projects into the tubular post, impinges against or is connected to a wedge-plate 8, which is interposed between said screw and the wedge-shaped or beveled end 6 of the support or block 4. It will be observed that the bolt 5 supports the block 4 in position within the post against vertical movement therein, thus making the block 4 a fixed point for the attachment of the non-sliding pivot for the lazy-tongs gate; but at the same time the block 4 is capable of a limited adjustment in a horizontal plane, because the wedge-plate 8 will coact with the wedge-shaped end of the block or support and with the adjusting-screw to vary the position of said block 4 with relation to one of the gate-operating levers.

10 designates one of the levers for opening and closing the gate, and said lever is fulcrumed at its lower end to the support or block 4, said end of the lever 10 passing through the slot 2 in the post and extending upwardly from the block 4 in a vertically-inclined position alongside of the post. The other lever for opening and closing the gate is indicated by the numeral 12, and its upper end passes through the slot 2 in the post to enable said end of the lever 12 to be pivoted or fulcrumed, as at 13, to the lower part of the vertically-movable plunger 3. Said lever 12 crosses the lever 10 at a point intermediate of the length thereof, and the levers 10 12 are pivoted together by a suitable pin or bolt, as at 12^a. The lower end of the lever 12, which is connected to the piston or plunger, has a roller or wheel 14, loosely journaled in a suitable bracket 14^a, rigidly attached to the lever 12, and this roller or wheel is adapted to travel on a fixed track 15 to sustain the gate structure against vertical displacement and prevent the weight of the gate, particularly when it is extended across the roadway or street, from unduly straining the pivotal connection of the levers 10 12 with the support 4 and the plunger 3. This track 15 is in the form of a metallic arm cast in a single piece of metal, with a collar 16, and as the gate is capable of a limited adjustment in a horizontal plane when the screw 7 is rotated the track 15 should be correspondingly adjusted with relation to the gate-lever 12 to enable the roller 14 to properly sustain the gate in position. The collar 16 of the track-arm is fitted over and around the hollow gate-post 1, so as to permit the track-arm to extend from the post in a horizontal direction, and said track-arm is held rigidly on the gate-post by a clamp 17,

preferably in the form of a set-screw having a threaded bearing in the collar 16 and adapted to bind against the tubular post 1.

The clamping-screw 17 may be released to permit the collar 16 to slide on the post for the purpose of adjusting the track-arm 15 to correspond to the position of the gate, after which the clamping-screw 17 should again be tightened against the post and maintain the track-arm in a fixed horizontal position to sustain the gate against sagging.

The gate which I employ is in the form of a lazy-tongs structure consisting of the series of links 19 and 20, which cross each other and are pivotally connected together at numerous points, a pair of links 19 and 20 at the end of the gate adjacent to the post 1 being pivoted to the levers 10 and 12 at the points indicated at 19^a and 20^a, respectively, whereby the lazy-tongs gate is operatively connected with the pivoted levers 10 and 12 to be projected across the line of the roadway or street when the plunger or piston 3 is lowered. A simple lazy-tongs structure is not well adapted to serve the purposes of a farm-gate, because the spaces between the links at the lower end of the gate provide relatively large openings through which small animals may pass; but to overcome this objection I employ the filling-bars 21 and 22, which are arranged in the intervals between the links forming the lazy-tongs structure. These filling-bars are arranged in two series, the bars formed by the series 21 lying in a plane on one side of the gate-links, while the bars of the other series 22 are in a plane on the opposite side of the links forming the gate, and as these two series of bars are in the intervals or spaces between the links of the gate they are so arranged that when closely folded together all of the bars will not appear either at the front or back of the gate, but two series of such bars will be entirely covered by the two other series of bars. Each filling-bar is pivotally connected at its lower end, as at 23, to an extended lower end of a lazy-tongs link, and said filling-bar has its upper end extended above the corresponding end of the lazy-tongs link, the upper end of each filling-bar being confined in place by a pivot-pin 24, which passes through a longitudinal slot 24^a, provided in the bar at a point intermediate of its length. It will thus be seen that the filling-bars, which are disposed alternately to the lazy-tongs links, are adapted, in connection with extended lower ends of said links, to close the spaces at the lower edge of the gate, and the links and bars form a barrier at said lower edge of the gate to prevent small stock from passing below the gate when it is closed. The upper ends of the filling-bars cross or lap, as shown by Fig. 1, because certain of the bars are disposed on one side of the gate and other bars on the opposite side thereof, and, if desired, the upper ends of the links 19 20 may be extended above the slidable joints 24 to make the up-

per edge of the gate present a neat appearance.

In my improved gate I employ a bracket which is detachably and adjustably fastened to the post 1 to enable the gate-operating devices to be used in various positions. This bracket is formed with a clip 26 and the diverging arms 27. The clip is fitted or slipped over the post, and it is adapted to be compressed thereon by a clamping-bolt 28, which serves to hold the bracket tightly and rigidly in the position in which it may be adjusted. In the drawings I have represented the bracket as applied to the post for the arms 27 to extend upwardly above the post and permit the arms to diverge laterally, so as to have their upper free extremities terminate in vertical planes on opposite sides of the vertical line of the post; but it is to be understood that the bracket is not necessarily adjusted to this position, because it may be inverted or it may be reversed, according to the option of the user.

In erecting the gate in some roadways it will be found that trees or shrubbery will interfere with the application of the bracket to the post in one position, and hence it is desirable that the bracket shall be constructed for attachment to the post in different positions to avoid the obstructions. The bracket may be applied so that its diverging arms will overhang the gate, or it may be reversed to lie on the opposite side of the post from the position shown by the drawings. Again, the bracket may be inverted to cause its diverging arms to extend downwardly from the clip and to lie on the opposite side of the post from the gate. All of these adjustments of the bracket are permitted by the construction shown and described; but I prefer to apply the bracket as represented by Figs. 1 and 2, because the gate-operating devices are arranged overhead and out of the way.

In the free ends of the diverging arms 27 of the bracket are provided openings or bearings that receive the horizontal rock-shaft 30, which is held against endwise movement by suitable stop-collars 29, clamped on the rock-shaft on opposite sides of the diverging arms 27. The rock-shaft extends beyond the line of the gate on opposite sides thereof, and to its extremities are clamped or attached the operating-arms 31, which extend outwardly from the rock-shaft and lie over the roadway or street, so that they may be readily operated by persons who pass along the road. Each operating-arm 31 is provided at its inner end with a collar 32, which is fitted on one terminal of said shaft 30, and each collar is equipped with a binding-screw 33, adapted to impinge against the shaft and hold the operating-arm 31 rigidly thereon. The described construction of the operating-arm permits the same to be clamped to the rock-shaft at different angles or positions, and said operating-arms may thus be raised or lowered on the rock-shaft, as desired. When the rock-shaft is arranged

in the overhead position shown, I prefer to employ arms 31, which are quite long and extend over the road, and under these conditions each arm 31 has a depending handle 34, which is loosely connected to the arm and arranged within reach of the passer-by, thus permitting the gate to be readily opened or closed from the overhead operating mechanism.

The rock-shaft is operatively connected with one or the other of the levers 10 or 12 for the purpose of actuating said levers to project or retract the gate. In the embodiment of the invention as represented by Figs. 1 and 2 I employ an arm 35, which is provided with a collar 36, fitted on the rock-shaft at a point between the diverging bracket-arms 27 and clamped rigidly to said rock-shaft by a binding-screw 37. This arm 35 extends outwardly from the rock-shaft to overhang the post 1, and to the free end of said arm 35 is connected the upper extremity of a link 38, the lower end of which link is pivotally attached, as at 38^a, to the upper end of the lever 10. In lieu of this long link connection between the arm 35 and the lever 10 I may employ the short pitman 39. (Represented by Fig. 5.) This pitman is pivoted to the arm 35, and its lower end is fitted between and pivotally attached to the forked upper end of a short post 40, which is fixed to the head or upper end of the slidable plunger 3, whereby the rock-shaft is connected, through the arm 35, the pitman 39, and the plunger 3, with the lever 12 to operate the gate.

In my improved gate I dispense with a latch to confine the free end of the gate, and in lieu of such latch I employ the latch 41 at the end of the gate adjacent to the post 1. The latch 41 is preferably a metallic construction, provided in its under side with a longitudinal groove 42, and the free end of the latch is forked or bifurcated, as at 43, to provide arms which embrace the link 38 to confine the free end of the latch in proper relation to the lever 10 and the link 38. The heel of the latch is pivoted, as at 45, in a clip 44, which is fitted around the post 1 at a suitable point below the bracket-clip 26, and said latch 41 is provided at a point intermediate its length with an eye 46, to which are connected the inner ends of the operating-cords 47 48, which diverge laterally from the gate-post 1 for connection with the depending handles 34 on the operating-arms 31.

The latch 41 is adapted for use in connection with the gate opening and closing levers 10 and 12 whether the pitman 39 or the link 38 is used to connect the rock-shaft with the lever 12 or the lever 10. When the link 38 is used, as shown by Figs 1 and 2, the forked end 43 of the latch loosely engages with the lever 10 and the link 38; but when the link 38 is omitted the grooved lower side of the latch engages with the lever 10, so as to hold the latch in its proper position. The clip 44 and the pivotal connection between the latch

and the clip lie above the lever 10, thus making the latch assume an inclined position to bear against the lever 10 and prevent it from moving or the gate from closing until the latch is raised free from the lever, and the cords 47 and 48 are of such length that a horizontal pull on the depending handles 34 will operate to lift the latch before the arms 31 are pulled downwardly to retract the gate.

In the preferred embodiment of the invention a stop-collar 49 is fitted to the upper end of the piston or plunger 3, and this stop-collar is provided with a clamping-screw 50, that binds against the piston 3. The stop-collar is provided on one side with a horizontally-extending guide-eye 51, through which pass the inner ends of the operating-cords 47 48; or, if desired, said cords may be attached to a single strand which passes through the guide-eye 51 on the stop-collar and is fastened to the eye 46 on the latch. The stop-collar 49 serves a twofold purpose in that it limits the downward movement of the plunger within the post, because said collar is adapted to abut against the upper end of the post, and the collar also serves as a cap or closure to the open upper end of the post to prevent water from flowing into the post and interfering with the operation of the plunger. In addition to providing the collar 49 as a means to arrest the movement of the plunger I may provide the track-arm 15 with a vertical fixed stop 52 in the path of the roller 14 on the lever 12, thus preventing the gate from moving beyond its proper extended position when it is projected across the roadway or street.

In the drawings the gate is represented as adapted to travel between the vertical posts 53, joined at their upper ends by a suitable cap 54, said posts being suitably arranged and shaped to permit of the free movement of the gate between the same. The gate when extended is adapted to be confined or held against swaying movement by means of the posts 55, erected on the opposite side of the roadway or street from the gate-post 1 and the posts 53, the posts 55 being in alinement with said posts 53. It is not necessary, however, to employ the posts 53 and 55, as they may be dispensed with; but I prefer to employ the two pairs of posts, as they prevent the gate from swaying when the wind blows against the gate.

The operation may be described as follows:

Assuming that the gate is in its extended position across the roadway or street, the operator grasps one of the handles 34 and pulls the latter outwardly in a horizontal direction to cause one of the cords to lift the latch, and the handle 34 is now pulled downwardly to depress the arm 31 and turn the rock-shaft 30 in its bearings. The rock-shaft actuates the arm 35, which in turn moves the link 38 or pitman 39 to pull the levers 10 and 12 together, the roller 14 of the lever 12 traveling on the fixed track-arm 15 and the plunger 3 moving in an upward direction within the

post as the gate is retracted and closed together. During the closing movement of the gate the lazy-tongs and the filling-bars assume the compactly-folded position represented by Fig. 2 and the latch rides upwardly to the inclined position shown. To project the gate across the roadway, it is only necessary to press upwardly against one of the handles, thus rocking the shaft 30 in the reverse direction and opening the levers 10 12 to cause the roller 14 to travel in an outward direction on the track-arm 15 and the plunger 3 to move in a downward direction until its stop-collar 49 abuts against the post 1. The adjusting-screw 7 may be rotated in its bearing in the post 1 to force the support or block 4 and the lever 10 toward the gate, the effect of which is to slightly raise the gate in a horizontal line; but when the screw 7 is turned in a reverse direction the weight of the gate on the lever 10 causes the block or support 4 to be moved in a reverse direction, thus lowering the horizontal position of the gate.

I am aware that changes in the form and proportion of parts may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of the invention, and I therefore reserve the right to make such modifications as clearly fall within the scope of the invention.

Having thus described the invention, what I claim is—

1. The combination of a lazy-tongs gate, an operating mechanism for opening and closing the gate in a horizontal plane, and leveling devices operatively connected with a member of the lazy-tongs to change the horizontal position of the gate with relation to the ground-line, substantially as described.

2. The combination with a gate-post, of a lazy-tongs gate, an operating mechanism mounted on said post, levers connected with the operating mechanism and with the gate to open and close the latter, and a leveling mechanism substantially as described carried by said post and connected with one of the levers to operate the lazy-tongs in effecting changes in the horizontal position of the gate without interference with the opening and closing movement of the gate by the operating mechanism, substantially as described.

3. The combination with a post and extensible gate, of levers for opening and closing said gate, means connected with one of said levers to vary the position of the gate with reference to the ground-line, and operating devices connected with said levers to expand or retract the gate, substantially as described.

4. The combination with a post and a lazy-tongs gate, of levers connected with said gate, a pivoted support to which one of the levers is fulcrumed, means for varying the position of said support with relation to the lever and the post, and operating devices connected with said levers, substantially as described.

5. The combination with a post and a lazy-

tongs gate, of a shiftable support mounted within said post, levers connected with said gate and one lever fulcrumed to the shiftable support, an adjusting device acting against the shiftable support in opposition to the weight of the gate, and operating devices connected with said levers, substantially as described.

6. The combination with a post and a lazy-tongs gate, of levers connected with said gate, a support to which one of the levers is fulcrumed and pivotally mounted on the post for movement in a horizontal direction thereon, an adjusting-screw, wedge devices between the adjusting-screw and the shiftable support, and operating devices connected with the levers, substantially as described.

7. The combination of a tubular post, a reciprocating plunger fitted therein, a relatively-fixed support below said plunger, levers pivoted together at points intermediate of their length and attached to the plunger and their support respectively, a shoe or roller for supporting one of said levers, a rock-shaft connected with the other lever, and means for operating said rock-shaft, substantially as described.

8. In a gate, the combination of a tubular post, a fixed support therein, a lever fulcrumed to said support, a movable plunger fitted in the post, another lever pivoted to said plunger and to the first-named lever and provided at its free end with a suitable shoe, a horizontal track-arm on which the shoe is adapted to travel, a gate pivoted to said le-

vers, and a rock-shaft operatively connected with one of said levers, substantially as described.

9. The combination with a post, a lazy-tongs gate, and means for operating said gate including the pivoted levers, 10, 12, of a gravity-latch arranged to engage with one of said levers, and operating devices connected with said latch, substantially as described.

10. The combination with a post, of the levers, 10, 12, having fixed and slidable connection with the post respectively, a lazy-tongs gate connected to said levers, a latch pivoted above the lever, 10, and engaging therewith, a rock-shaft operatively connected with the levers, and the handles connected to said rock-shaft and loosely connected with the latch, substantially as described.

11. The combination with a post, of a bracket detachably clamped to said post and comprising a clip and the diverging arms, a rock-shaft journaled in said arms, the levers having the fixed and slidable connection respectively with said post, a lazy-tongs gate attached to said levers, and means for operatively connecting said rock-shaft with the levers, 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.

JAMES S. LEWIS.

Witnesses:

JOHN H. SIGGERS,
FRANCES PEYTON SMITH.