

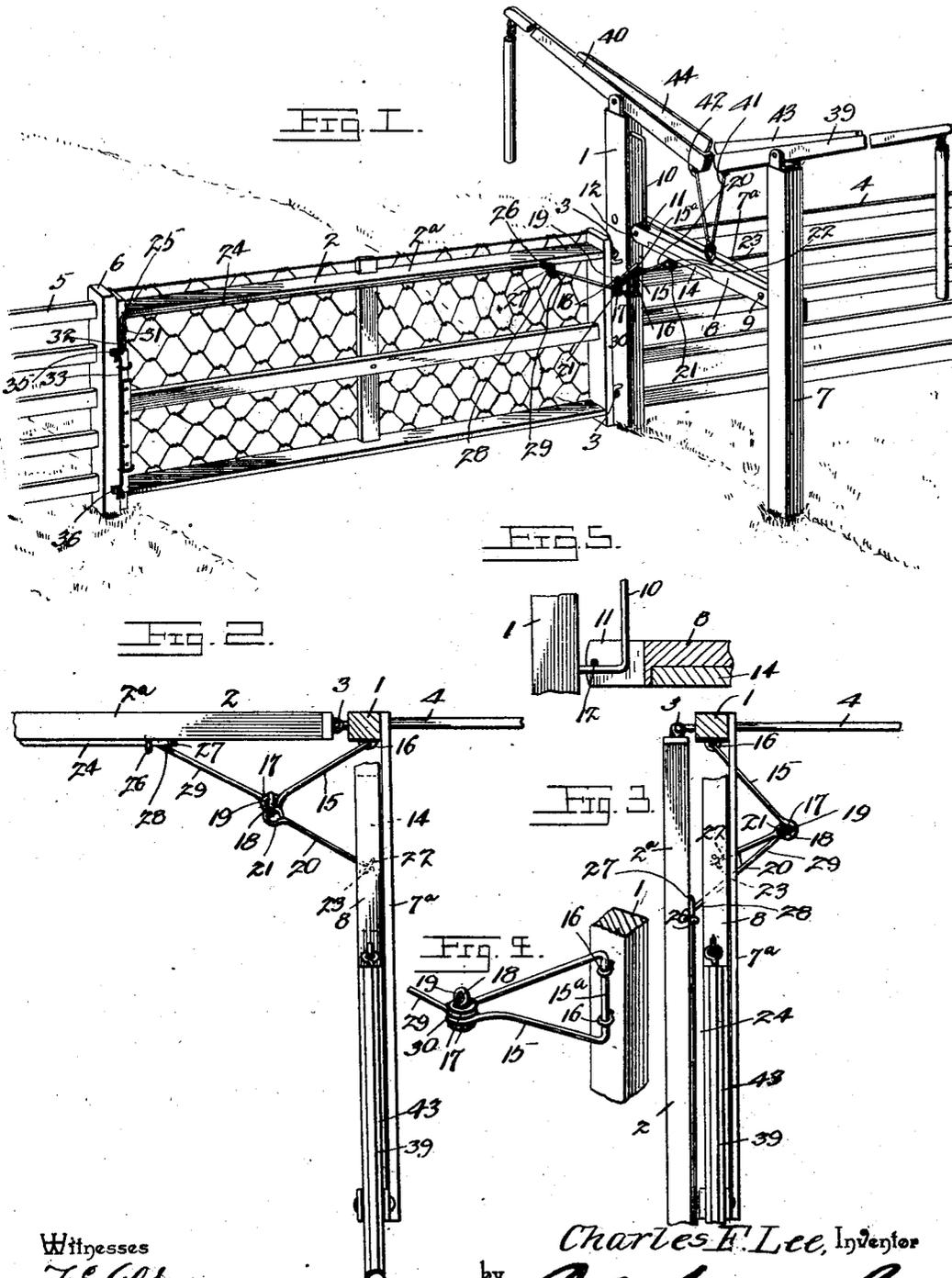
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Patented Apr. 15, 1902.

C. F. LEE.
GATE OPENER.

(Application filed May 20, 1901.)

(No Model.)



Witnesses
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CHARLES F. LEE, OF ASTORIA, ILLINOIS, ASSIGNOR OF ONE-HALF TO
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GATE-OPENER.

SPECIFICATION forming part of Letters Patent No. 697,501, dated April 15, 1902.

Application filed May 20, 1901. Serial No. 61,130. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. LEE, a citizen of the United States, residing at Astoria, in the county of Fulton and State of Illinois, have invented a new and useful Gate-Opener, of which the following is a specification.

This invention relates to gates of the class which are adapted to be operated from a distance; and the invention consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claims.

In the drawings illustrative of the invention, Figure 1 is a perspective view of the gate complete and closed. Fig. 2 is an enlarged sectional detail of the gate-operating parts, showing the gate closed; and Fig. 3 is a similar view showing the gate open. Fig. 4 is an enlarged perspective view of the link-bracket detached. Fig. 5 is an enlarged sectional detail of the lever-arm.

This device is adapted to be erected to close any-sized gateway-opening and consists in a vertical post 1, to which the gate 2 will preferably be hinged in the ordinary manner, as at 3. The gate may be constructed in any of the well-known forms, and in the drawings an ordinary form of gate is shown, arranged to close the gateway-opening between the fence-sections 4 and 5, the section 5 having an ordinary abutting-post 6.

7 is a post set in alinement with the post 1 and connected thereto by one or more braces 7^a, so that the two posts 1 and 7 will retain their vertically-parallel relations.

8 is a lever-arm hinged by one end to the post 7 or to the cross-brace, as at 9, and engaging with its outer free end a vertical guide-rod 10 on the post 1 by a slot 11, the slot extending far enough into the lever-arm and the guide-rod 10 projecting far enough from the post 1 to insure the vertical movement of the lever-arm without binding. A pin 12 passes transversely through the end of the arm 8 inside the loop of the guide 10 to form a stop to the lever-arm and limit its downward movement, as illustrated more fully in Fig. 5, which illustrates an enlarged detached detail of this feature of the invention. The lever-arm 8 will be formed heavy

enough to exert considerable downward force by its gravity and will preferably be provided with a metal weight 14 to increase its power.

15 is a triangular bracket pivotally attached by its upright member 15^a to the post 1 by eyes 16, so that while the bracket is free to swing in horizontal lines upon its connections 16 it will be firmly held from all vertical movement. The structure of this bracket is clearly shown in Fig. 4.

The bracket is shown formed of a single piece of wire and with the outer converging ends formed with eyes 17 to receive a pivot-bolt 18, the latter passing through both the eyes 17 and having an eye 19 in its upper end.

20 is a connecting-rod having eyes 21 22 in its ends, the eye 21 adapted to engage the eye 19 in the pivot-bolt 18 and the eye 22 engaging an eyebolt 23 on the lower side of the lever-arm 8, as shown. By this means a flexible connection is provided between the lever-arm 8 and the bracket 15.

Secured horizontally along the top rail 2^a of the gate 2 is a rod 24, supported in position, as by staples 25 26 at its ends, so that while the rod is free to turn in the staples it is held from all longitudinal movement. One end of the rod 24 is bent downward and formed into an eye 27, affording means for the reception of an eye 28 on one end of a rod 29, the other end of the rod 29 being also provided with an eye 30, which is engaged by the pivot-bolt 18 between the eyes 17 of the bracket 15, as shown. By this means a flexible connection is formed between the free end of bracket 15 and the rod 24, so that the latter will be turned when the bracket is moved, as will be readily understood. The outer end of the rod 24 is likewise turned downward and formed with an eye 31 and connected, as by a link 32, to a vertical latch-bar 33, supported to slide upon the outer member 2^b of the gate, the bar being guided by keepers, as shown. The ends of the bar 33 are turned off at right angles to the bar, as at 35 36, and engage notches in catches on the abutting post 6, so that when the bar is in its lowermost position the ends 35 36 engage the catches and lock the gate closed.

The bar 33 will preferably be weighted or otherwise provided with means for retaining it normally in its downward position, so as to keep the downwardly-turned ends of the rod 24 in their downward positions. By this arrangement when the lever-arm 8 is in its downward position, as in Fig. 1, the connecting-rods 20 and 29 are nearly in horizontal alinement, so that they serve in a measure to aid in locking the gate closed. Thus if the catch-bar should become disarranged or disconnected by any means the coercion of the rods 20 29 and the bracket 15 could be depended on to prevent the gate from opening of its own accord. This is an important feature of the invention, as it provides a double means for securing the gate. By this arrangement also the gate is firmly "locked" in its open position, as the weighted lever 8 must be raised to close the gate.

By elevating the free end of the arm 8 the gate will be released and opened. The first action will be to draw the depending ends of the rod 24 outward and upward, and thus release the latch-bar 33, and then the continued movement of the lever-arm will draw the bracket 15 and its connections, including the gate, around toward the post 7. As the gate continues its course toward the post 7 the bracket 15 passes beneath the arm 8. The highest point reached by the lever-arm 8 will be when the bracket is directly beneath it. As the bracket passes the lever-arm, the operating connections being released, the weight of the lever-arm is thereafter exerted downwardly and outwardly upon the bracket through the rod 20, and therefore exerts a pushing force upon it and assists in completing the full opening of the gate.

The gate will naturally acquire considerable momentum by the time it is one-half open, at which time the lever-arm is at its highest position and the bracket at its central position, so that the momentum of the gate will be certain to carry the bracket past the center, and thus insure the reverse action of the weighted lever-arm, as above stated, to assist in completing the action of opening the gate. The same action takes place in closing the gate, but in the reverse order, so that the lever-arm acts in double capacity, as above noted. A quick upward movement of the lever-arm is all that is required to actuate the gate.

Any suitable means may be employed to actuate the lever-arm 8; but for the purpose of illustration I have shown two levers 39 40, pivoted upon the posts 1 and 7 and connected by links 41 42 to the lever-arm 8, as shown. The levers 39 40 will be long enough to be within reach of the driver from a vehicle without leaving his seat and will preferably be weighted, as at 43 44, to assist the action of the lever-arm 8 by increasing the weight of the lever-arm, and thereby to that extent increasing its force or power.

The lever-bar 8 may be arranged to move

bodily in vertical lines instead of by one end only, if preferred; but this would sacrifice some mechanical advantage and would accomplish precisely the same results as in the structure shown.

The bracket 15 and gate 2 may be connected to different supporting means, if desired; but the arrangement shown is preferable.

What I claim as new is—

1. In a device of the class described, the combination of a support, a horizontally-swinging gate, a vertically-movable operating-bar arranged at right angles to the gate, when the latter is closed and held against lateral and longitudinal movement, a horizontally-swinging bracket mounted on the support and arranged to swing horizontally across the path of the vertically-movable bar and located at one side of the same when the gate is open and at the opposite side thereof when the gate is closed, operating mechanism connected with the vertically-movable bar, and means for connecting the bracket with the gate and with the vertically-movable bar, said means forming a lock for holding the gate in its open and closed positions, substantially as described.

2. In a device of the class described, the combination of a support, a horizontally-swinging gate, a vertically-movable operating-bar arranged at right angles to the gate, when the latter is closed and held against lateral and longitudinal movement, a horizontally-swinging bracket mounted on the support and arranged to swing horizontally across the path of the vertically-movable bar and located at one side of the same when the gate is open and at the opposite side thereof when the gate is closed, operating mechanism connected with the vertically-movable bar, and links extending from the bracket to the gate and to the vertically-movable bar and forming a lock for holding the gate in its open and closed positions, substantially as described.

3. In a device of the class described, a support, a gate disposed to swing horizontally, a bar arranged at right angles to the gate when the latter is closed and pivotally supported at one end and movable vertically by the other end, said bar being held against lateral movement, a bracket hinged by one end to said support and free to swing across the path of said bar, means for connecting the movable part of said bar to the free end of said bracket, and means for connecting said gate to the free end of said bracket, substantially as described.

4. In a device of the class described, the combination of a support, a horizontal-swinging gate, a vertically-movable bar arranged at right angles to the gate when the latter is closed and pivoted at one end and held against lateral movement, a bracket mounted on the support and arranged to swing across the path of the vertically-movable bar to points at opposite sides of the same, links connecting the bracket with the gate and with the bar and

forming a lock for holding the gate in its open and closed positions, and means for operating the bar, substantially as described.

5. In a device of the class described, a vertical support, a bracket hinged by one end to said support, a gate disposed to swing horizontally, a rod disposed upon said gate and with downwardly-turned ends, a latch-bar connected to one of said downwardly-turned ends, a vertically-movable bar, means for connecting the free end of said bracket with said bar, and means for connecting the free end of said bracket with the other downwardly-turned end of said rod, substantially as described.

6. In a device of the class described, the combination of a vertical support, a gate hinged to the said support, a bracket hinged at one end to the support, a vertically-movable bar having its free end located directly above the hinged end of the bracket, a connecting-rod pivotally united at its ends to the free end of the bracket and to the said bar, a rod pivotally united at its ends to the free end of the bracket and to the gate, and means for elevating said bar, substantially as described.

7. In a device of the class described, a sup-

port, a gate disposed to swing horizontally, a bracket hinged by one end to said support, a vertical guide upon said support, a bar hinged by one end and engaging said guide by the other end, means for connecting the free end of said bracket with said gate, and means for connecting the free end of said bracket with the movable part of said bar, substantially as described.

8. In a device of the class described, a vertical post, a gate hinged to said post, a bracket hinged by one end to said post, a second post vertically disposed in alinement with said gate-post, a bar hinged by one end to said second post, and free to move vertically by its other end above said bracket, means for connecting the free end of said bracket to said gate, and means for connecting the free end of said bracket with the movable part of said bar, 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.

CHARLES F. LEE.

Witnesses:

S. D. SMITH,
W. SCRIPPS.