C. A. HALE.

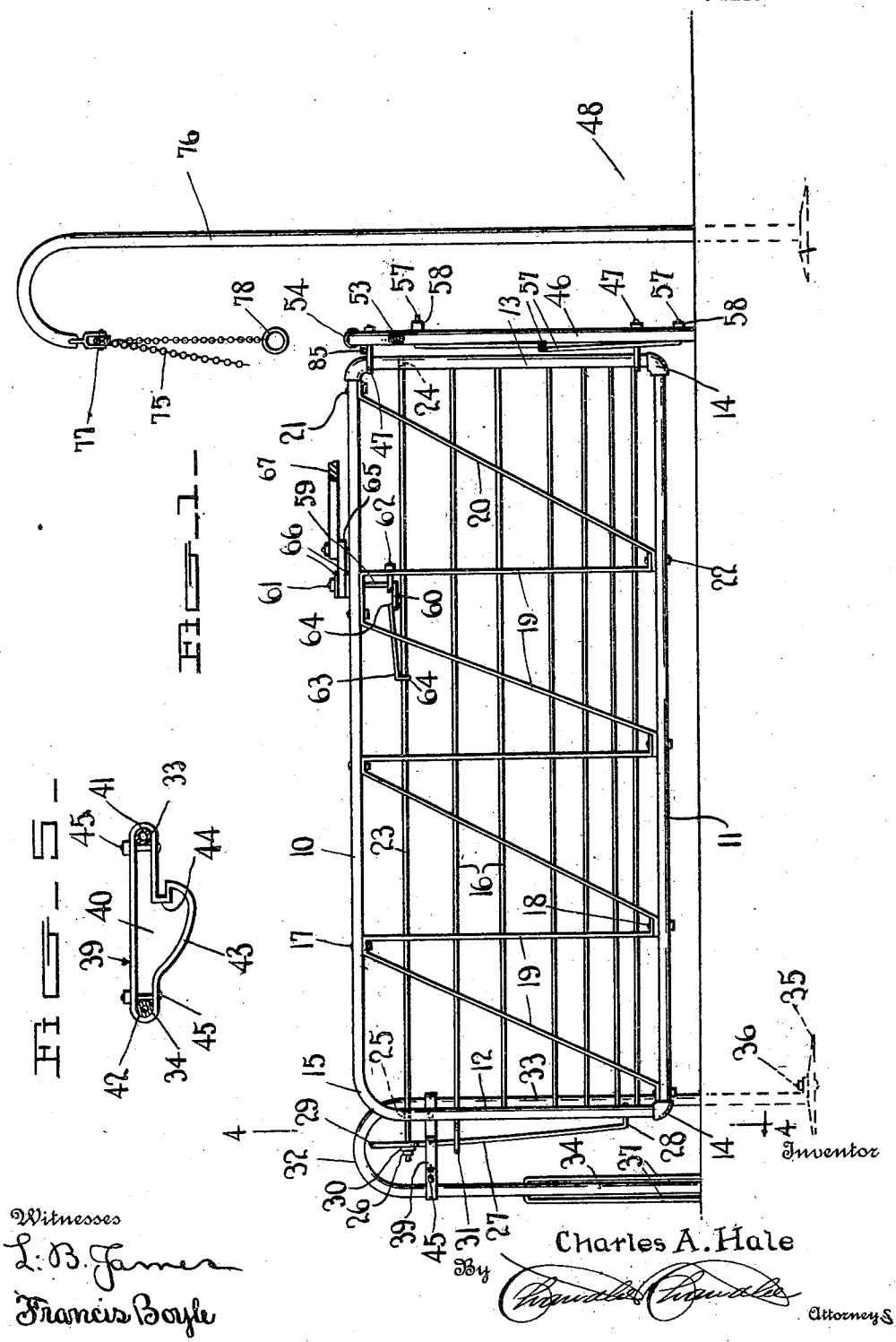
GATE.

APPLICATION FILED APR. 25, 1910.

990,435.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 1.



Witnesses

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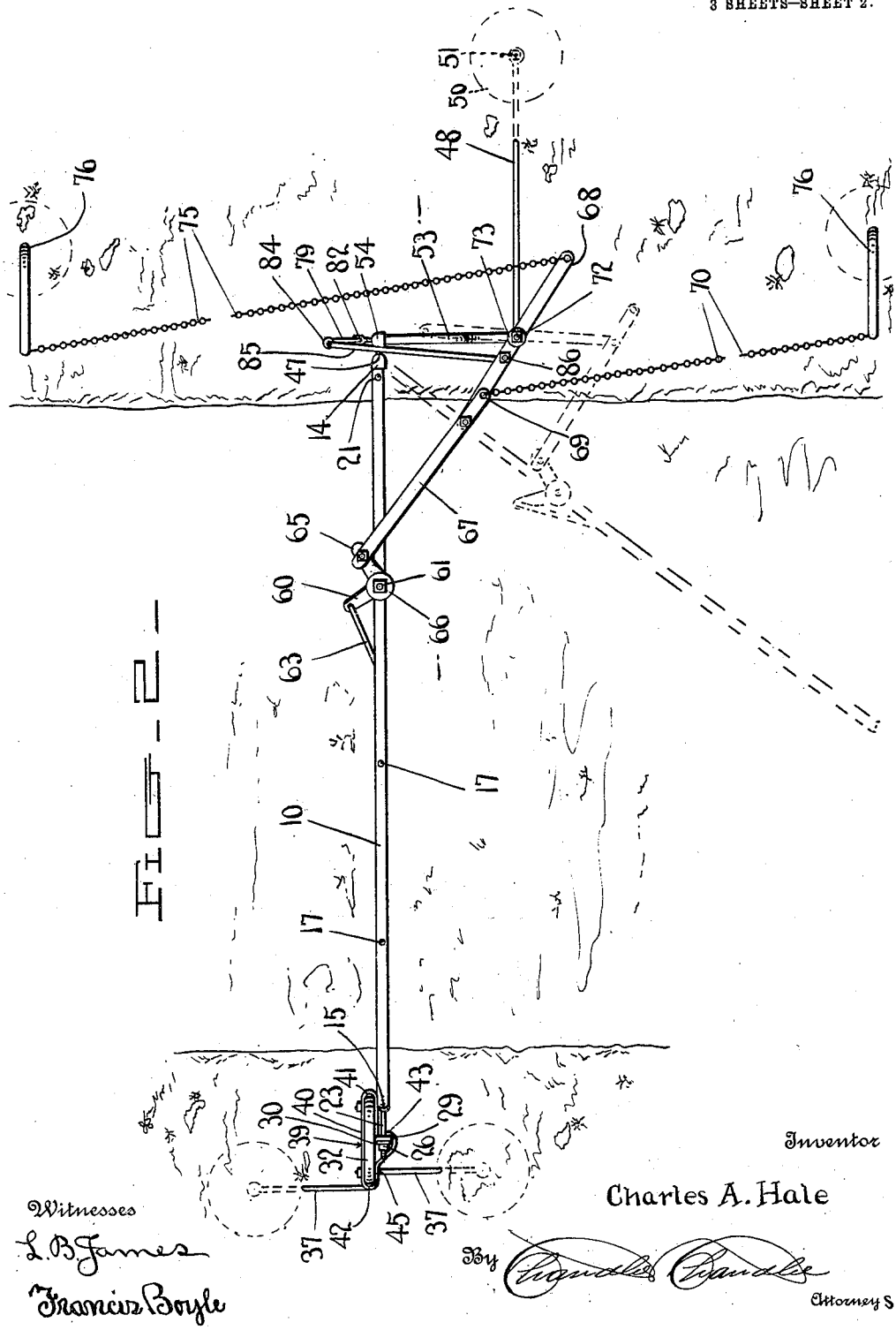


FIG. 2.

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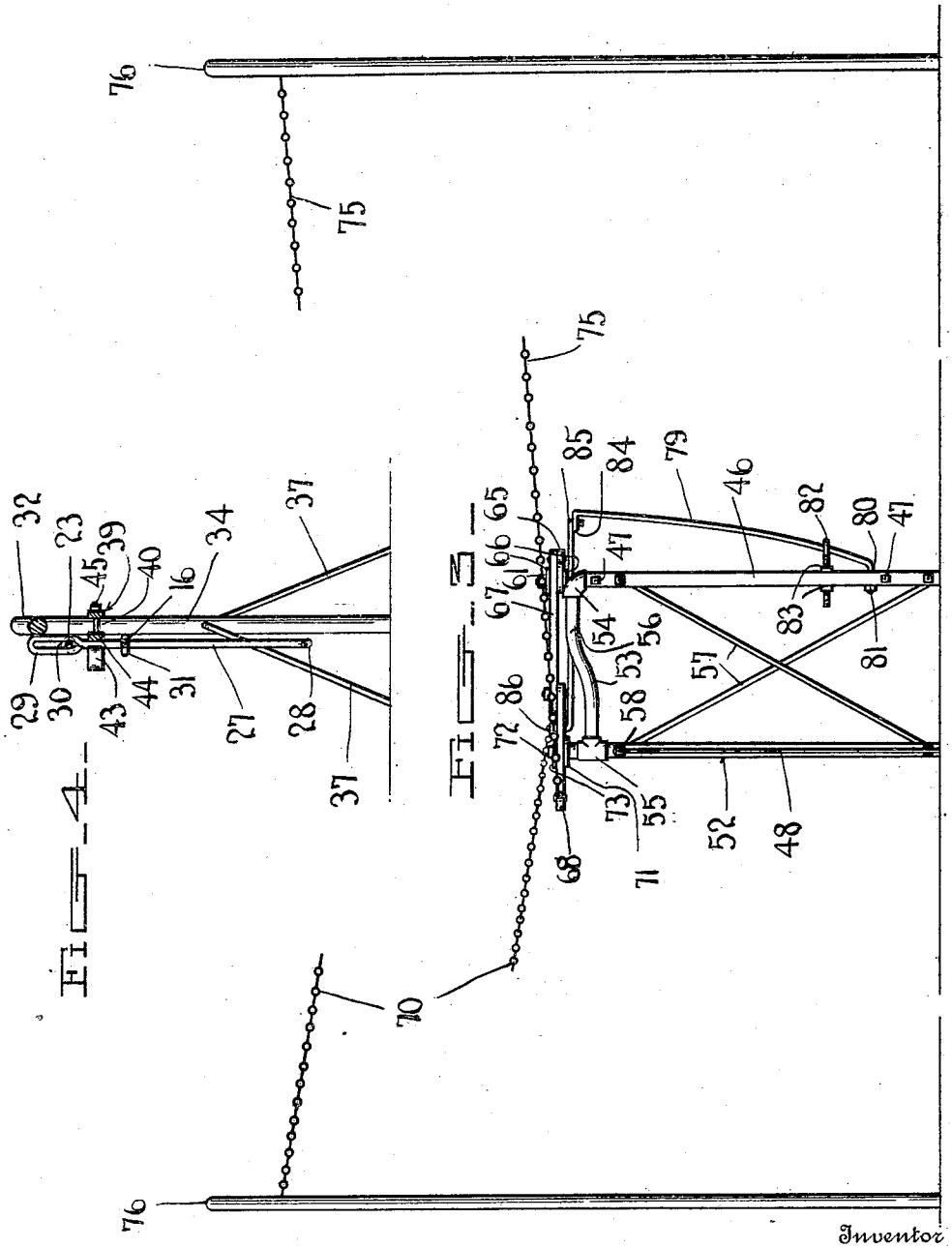


FIG. 4.

FIG. 5.

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UNITED STATES PATENT OFFICE.

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GATE.

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Application filed April 25, 1910. Serial No. 557,376.

To all whom it may concern:

Be it known that I, CHARLES A. HALE, a citizen of the United States, residing at Harrisonburg, in the county of Rockingham, State of Virginia, have invented certain new and useful Improvements in Gates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to gates and has for an object to provide a gate having novel means for simultaneously unlatching and swinging the gate to open position.

A further object is to provide novel means for automatically swinging the gate to closed position and latching the gate.

A further object is to provide a light, strong and durable gate that may be opened from either side.

To attain the above ends, the invention consists of the novel details of construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings forming part of this specification: Figure 1 is a sectional front elevation of a gate constructed in accordance with my invention. Fig. 2 is a plan view of the gate closed and shown dotted in half open position. Fig. 3 is an end elevation of the gate. Fig. 4 is a cross sectional view taken on the line 4—4, Fig. 1. Fig. 5 is a longitudinal sectional view of the latch keeper.

Referring now to the drawings, the gate frame comprises a top rail 10, bottom rail 11, and stiles 12 and 13, these rails being formed of ordinary pipe connected together at their meetings by elbows 14. The stile 12 at the free end of the gate is preferably formed integral with the top rail 10 and the meeting of these parts is arcuate in outline as shown at 15, this arcuate portion being of considerably greater radius than the elbows. The stiles 12 and 13 are provided with alined openings in which are fixed the opposite ends of horizontally disposed rods 16. The top and bottom rails are provided with bolt openings through which bolts 17 and 18 are engaged. Arranged between the top and bottom stiles are a plurality of inverted V shaped braces 19 the apexes of these braces being provided with openings to receive bolts 17 carried by the upper rail and the terminals of the legs of these braces being bent laterally and provided with openings to receive the bolts 18 carried by the bottom rail. One leg of each brace is disposed to extend approximately perpendicular to the top and bottom rails. These braces are so arranged that the perpendicular leg of the final brace is spaced a slight distance from the secured stile 13 of the gate frame and this space is crossed diagonally by a brace 20 which extends approximately parallel to the inclined sides of the inverted V shaped braces and the ends of which are bent laterally and provided with openings to receive the terminal bolts 21 and 22 of the series carried by the upper and lower rails. These braces are all preferably formed from flat metal.

Arranged below the top rail of the gate frame is a rod 23 one extremity of which is slidingly fitted in an opening 24 formed in the secured stile 13 of the gate frame and the opposite extremity of which is slidingly fitted in an opening 25 formed in the free end stile 12 of the gate frame. The extremity of the rod 23 projects forwardly beyond the stile 12 and terminates in a threaded end which carries a retaining nut 26. A resilient rod 27 is provided at its lower end with a laterally bent extremity 28 which is fixed in an opening formed adjacent the lower end of the stile 12. The resilient rod is of sufficient length to extend to nearly the top rail of the gate and is bent at its upper end to form an oblong eye 29 through which the extremity of the rod 23 projects. A washer 30 is interposed between the flat face of the retaining nut 26 and outer faces of the eye 29, this washer being disposed to slide vertically upon the eye. The rod 27 lies in the vertical plane of the gate frame and inclines outwardly from the stile 12. This rod when in its outward limit of movement engages in a keeper hereinafter described and may be sprung inwardly by a pull upon the rod 23 and disengaged from this keeper. The rod 27 will be hereinafter referred to as the latch and the rod 23 as the latch rod. In order to guide the latch in its movement, one extremity of the horizontal rod 16 arranged just below the latch rod is extended through the stile 12 and is provided with an oblong eye 31 which surrounds the latch and prevents lateral play of the latch.

An abutment post 32 consists of a length of pipe bent U shaped, one of the legs 33 being extended considerably beyond the

terminal of the mating leg 34 and equipped at its extremity with a circular anchor plate 35 which is designed to be buried in the ground, the connection between the anchor plate and leg being made by a rivet or bolt 36. The anchored leg 33 of the abutment post provides an abutment against which the gate bears when in closed position. The short leg 34 of the abutment post is driven in the ground and is braced by guys 37, these guys being preferably formed in a single piece and engaged through a suitable opening formed in the short leg and having their extremities anchored in the ground in any suitable manner. These guys in conjunction with the anchor plate prevent the post being jarred from position by the slamming of the gate.

Spanning the legs of the anchor post is the above referred to latch keeper 39. This latch keeper is preferably formed from a single piece and comprises a body 40 which is sufficient in length to extend slightly beyond the legs of the abutment post and is provided adjacent its extremities with openings 41 and 42 which receive the legs 33 and 34 of the abutment post. Projecting laterally from one side of the body is a jaw 43 having a depressed portion 44 sufficient in size to engage the latch when the latter is in its outer limit of movement. Bolts 45 are engaged transversely through the body of the keeper and bear against the opposed faces of the abutment post legs sufficiently hard to prevent the gravitation of the keeper.

The hinge post 46 of the gate is formed from a length of pipe and has its lower end buried in the ground. Disposed in suitable openings formed in this post are the shanks of eye bolts 47, the eyes of these bolts encircling the stile 13 of the gate frame and permitting the gate frame to swing as will be readily understood. The hinge post is braced by an inclined guy 48 the upper end of which is provided with an eye 49 that is secured to the post as will presently be described and is equipped at its lower end with a circular anchor plate 50 which is bolted or otherwise rigidly secured to the guy as shown at 51.

For releasing the latch from the keeper, the following construction is employed:— Arranged to one side of the hinge post 46 is an auxiliary post 52 the lower end of which is buried in the ground and the upper end of which terminates in the horizontal plane of the upper end of the hinge post. The tops of the hinge post and auxiliary post are connected by a tubular cross bar 53 which is connected to the hinge post by means of an elbow 54 and is connected to the auxiliary post adjacent its upper end by a T connection 55. The cross bar 53 is depressed downwardly as shown at 56 adjacent the auxiliary post to permit of the latch releasing mechanism hereinafter described sliding over the cross bar. The hinge post and auxiliary post are braced by diagonally disposed rods 57 which have their opposite ends bent laterally at right angles to the body of the rods and passed through suitable openings in the hinge post and auxiliary post, and then equipped with retaining nuts 58 which engage the outer portions of the posts and prevent the displacement of the rods. The laterally bent extremities of one of these rods passes through the above mentioned eye of the inclined guy 48 which braces the hinge post and the retaining nut 58 carried upon this bent extremity engages the eye and prevents the displacement of the guy 48.

Rotatably mounted in a suitable opening formed in the top rail 10 of the gate frame is a vertical post 59 this post terminating at its lower end in a laterally disposed crank 60 and its upper end being provided with a nut 61 disposed a slight distance above the top rail 10. An eye bolt 62 is fixed to the vertical leg of one of the inverted V shaped brace rods 19 and its eye encircles this post 59 and forms a bearing for the post adjacent its crank. A link 63 is provided at its opposite ends with laterally bent extremities 64 which project through suitable openings in the crank 60 and latch rod 23 and are then clenched upon the under sides of these parts to prevent withdrawal. It is now clear that the rotation of the post 59 through the instrumentality of the crank and connecting link will move the latch rod 23 and disengage or engage the latch with the keeper as the case may be.

For rotating the post and for simultaneously rocking the gate upon its hinges a short link 65 is fixed to the post 59 above the top rail of the gate frame, the link being held between the washers 66 arranged on the shank of the post above the top rail. This link is extended from the post at approximately right angles to the crank 60 so that the actuation of this crank arm clockwise will operate to rotate the post clockwise and release the latch from the keeper. A lever 67 is pivotally connected adjacent one end of the short link 65 and is pivotally connected intermediate its ends to the extremity of the lever 68, the free end of the first named lever 67 being provided with an opening 69 through which an operating chain 70 is engaged. The auxiliary post is provided upon its top with a peripheral flange 71 and has rigidly secured in its bore one extremity of a bolt 72. A washer 73 is fitted on the shank of this bolt and engages the top face of the lever 68. A retaining nut is threaded upon the bolt and prevents the displacement of the lever. The bolt 72 projects through an opening formed interme-

diate the ends of the lever 68, one end of this lever as before stated being pivoted to the lever 67 and the opposite end of this lever being extended beyond the auxiliary post and equipped with an actuating chain 75 which extends oppositely to the actuating chain 70, these actuating chains permitting of the gate being opened from either side as will now be described.

By pulling the chain 70, the pivotally connected inner ends of the levers 67 and 68 are actuated so as to decrease the angle included between these levers as in a toggle lever. This movement of the levers operates to rock the link 65 clockwise and free the latch from the keeper. A continued actuation of the levers operates to swing the gate frame upon its hinges until the gate frame is in abutting contact with the auxiliary post 52 in which position the gate is opened to its widest extent. By pulling the chain 75, the same movement of the levers 67 and 68 is accomplished as by pulling the chain 70.

Arranged upon each side of the gate and preferably in alinement with the auxiliary and hinge posts are a pair of posts 76, these posts being provided with pulley blocks 77 over which the extremities of the actuating chains are trained, these chains terminating in rings 78 by means of which the chains may be pulled.

For automatically returning the gate to closed position upon the release of the actuating chains a resilient rod 79 is provided at its lower ends with a laterally bent extremity 80 which is engaged through a suitable opening in the hinge post 46 and carries upon its extremity a retaining nut 81 which bears upon the outer face of the post and prevents withdrawal of the rod. The rod inclines outwardly from the hinge post and extends wholly in the plane of the hinge and auxiliary posts. An eye bolt 82 is engaged through a suitable opening in the hinge posts and its eye encircles the shank of the rod 79 adjacent its lower extremity. Set nuts 83 are arranged upon the shank of the eye bolt and engage the outer faces of the hinge post, these set nuts permitting of the eye of the eye bolt being retracted adjacent to the hinge post or spaced considerably from the hinge post in order to vary the tension of the resilient rod 79. The resilient rod is provided at its upper end with an eye 84 through which is engaged the hooked extremity of a link 85, this link terminating at its opposite end in a hooked extremity which is engaged through the lever 68 and is provided with a nut 86 which bears against the top face of the lever and slides easily thereupon, thus pivotally securing the parts together. When the levers 67 and 68 are actuated to open the gate, the free end of the rod 79 will be drawn toward the hinge post through the instrumentality of the link 85 and the rod 79 placed under tension. Upon the release of the actuating chains, the rod 79 will swing to its initial position and through the instrumentality of the link 85 return the levers 67 and 68 to their initial position, thus closing the gate. It is clear that when the levers are in their initial position that the latch will have been advanced into engagement with the keeper so that the gate is automatically locked upon its return to closed position.

What is claimed is:—

The combination with a swinging gate, of a pair of posts, one of which hingedly supports the gate, a toggle lever carried by the other post operating to swing open the gate, an inclined leaf spring carried by the hinge post, a link connection between said spring and toggle lever operating to move the toggle lever whereby to close the gate.

In testimony whereof, I affix my signature, in presence of two witnesses.

CHARLES A. HALE.

Witnesses:

WM. F. FRY,

IDA R. THOMAS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."