(No Model.) 2 Sheets—Sheet 1.

J. F. MURPHY.

GATE.

No. 588,165. Patented Aug. 17, 1897.

FIG. 4.

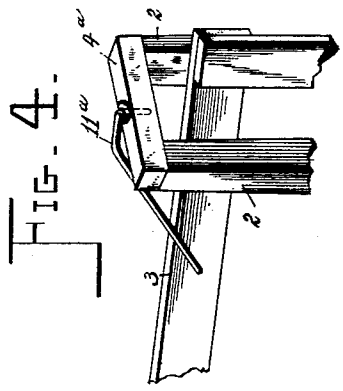


FIG. 1.



Inventor

Witnesses

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By his Attorneys, John F. Murphy.

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(No Model.) 2 Sheets—Sheet 2.

J. F. MURPHY.

GATE.

No. 588,165. Patented Aug. 17, 1897.

FIG. 2.

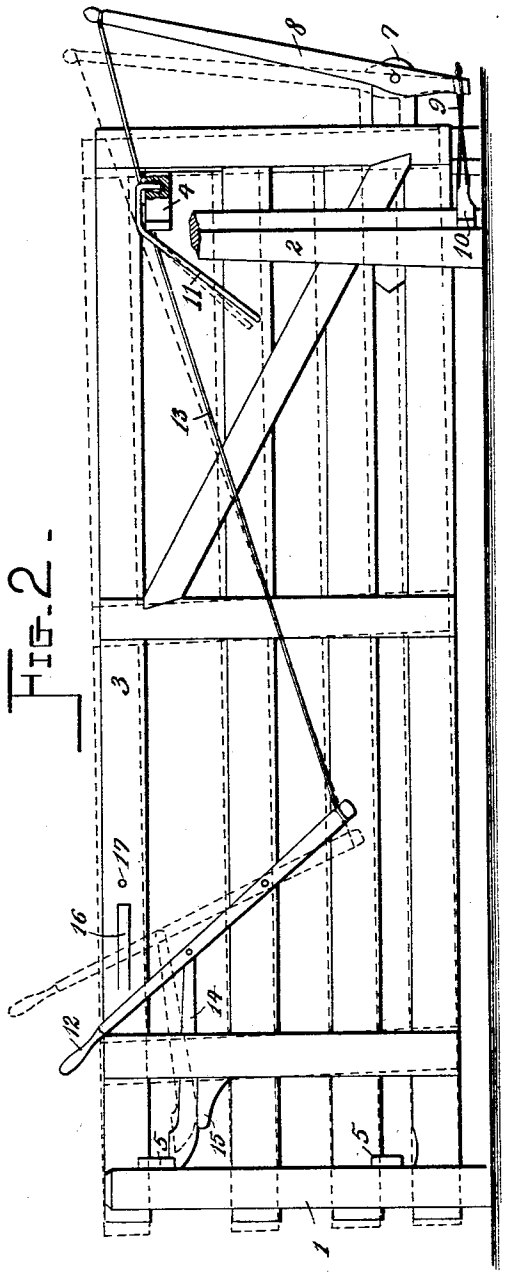
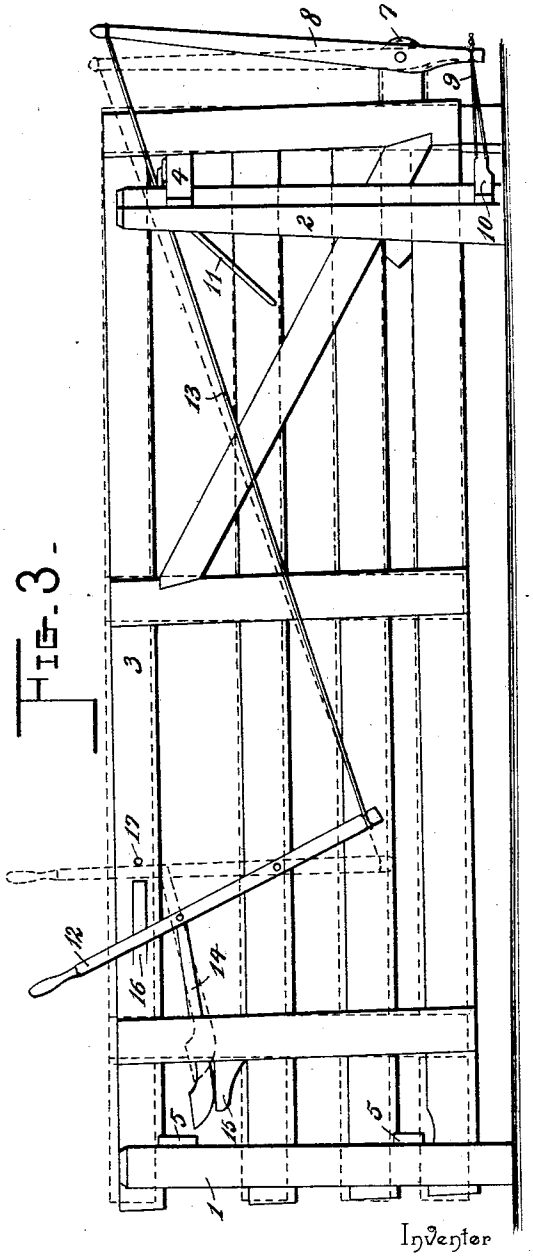


FIG. 3.



Inventor

John F. Murphy.

Witnesses

John F. Dewhurst

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By *his* Attorneys,

C. A. Snow & Co.

THE NORRIS PETERS CO., PHOTO-LITHO. WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN F. MURPHY, OF ADRIAN, MICHIGAN, ASSIGNOR OF THREE-FOURTHS TO OTIS A. CLAPP AND JAMES MURPHY, OF SAME PLACE.

GATE.

SPECIFICATION forming part of Letters Patent No. 588,165, dated August 17, 1897.

Application filed May 11, 1897. Serial No. 636,075. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. MURPHY, a citizen of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented a new and useful Gate, of which the following is a specification.

My invention relates to gates of the swinging type, and has for its object to provide a simple and efficient construction and arrangement of means for suspending a gate whereby its vertical position may be varied to insure its avoidance of obstructions during its swinging movement, to provide gate operating or elevating devices which are so constructed and arranged as to affect the position of the gate at both ends, and to provide gate-operating devices in connection with a retaining-latch, the parts being so arranged as to cause the elevation of the gate at its opposite ends successively, whereby opportunity is given for the withdrawal of the retaining latch or bolt before the vertical movement of the free end of the gate is commenced.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a gate constructed in accordance with my invention. Fig. 2 is a side view of the same, showing in full lines the positions of the parts when the gate is locked and in dotted lines the positions of the parts at the end of the first portion of the opening operation when the rear or hinge end of the gate has been elevated. Fig. 3 is a similar view showing in full lines the positions of the parts at the end of the first step in the operation of releasing the gate and in dotted lines the positions of the parts when the gate has been wholly released and is free to be swung laterally. Fig. 4 is a detail view of a portion of the hinged end of the gate, showing a slightly-modified arrangement of the suspending-link.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a latch-post, and 2 separated hinge-posts, between which the rear or hinged end of the gate 3 is located, said hinge-posts being connected contiguous to their upper ends and below the plane of the uppermost bar of the gate by a brace 4 to prevent the complete dismounting of the gate and at the same time prevent the relative displacement of said posts. The latch-post preferably carries a plurality of fixed catches 5, arranged respectively contiguous to the planes of the lower edges of bars of the gate and having notches 6 to engage the lower edges of said gate-bars, thus providing for the locking of the gate contiguous to both its upper and lower edges, to prevent injury to the same by the attacks of stock or by wind-pressure. In order to disengage the free end of the gate to allow it to swing, it is necessary to elevate said free end, and the means which I employ for accomplishing this operation is fully described hereinafter.

Fulcrumed upon a rearward extension 7 of the gate is an operating-lever 8, having its lower and shorter arm flexibly connected, as by a wire loop 9 or its equivalent, with a fixed point, such as a lower cross-bar 10, connecting the hinge-posts near the surface of the ground. Also suspending the rear end of the gate is a link 11, pivotally connected to one of the gate-bars in advance of the hinge-posts and inclining rearwardly toward its upper end to its point of attachment to the upper cross-bar 4, said point of attachment being pivotal to allow the link to swing both in a vertical plane and in a horizontal plane. It is obvious that forward movement of the upper end of the operating-lever will strain the loop connection between its lower arm and the lower cross-bar of the hinge-posts and will impart longitudinal forward movement to the gate as a whole, and said forward movement by reason of the suspending-link 11 will elevate the rear or hinge end of the gate.

The means which I have illustrated for actuating the operating-lever consist of a hand-lever 12, fulcrumed upon one of the gate-bars and flexibly connected, as by a wire 13 or its equivalent, with the upper end of the operating-lever, and it is obvious that while the first effect of the movement of the hand-lever is to swing the upper arm of the operating-lever forwardly, and thus elevate the rear or

hinged end of the gate, the continuation of said movement of the hand-lever will result in applying an upward strain through the hand-lever to the free end of the gate, and thus elevating the latter to disengage its bars from the catches. Hence when the hand-lever is swung rearwardly at its upper end the first effect is to elevate the rear or hinged end of the gate to remove it from contact with the upper and lower cross-bars, by which it is supported when at rest, and during this first portion of the operation of the hand-lever it withdraws the retaining-latch 14 from beneath one of the catches to release the gate for vertical movement at its free end, said latch being supported by a guide 15 and serving, when the parts are in their normal positions, to prevent said vertical movement of the free end of the gate, and hence insure the permanent locking thereof, and subsequently as the strain upon the flexible connection increases the gate is tilted upon the pivotal point of the lower end of the suspending-link 11 as a center to elevate the free end of the gate sufficiently to disengage its bars from the catches. A beveled holding device 16 is arranged upon the gate in the path of the hand-lever to deflect said lever laterally or from the gate as it is swung toward the stop 17, and when said hand-lever reaches the stop it engages the abrupt rear end of said holding device and is locked in position to maintain the gate in a condition of suspension preparatory for swinging movement.

In Fig. 4 I have shown a slightly-modified arrangement of the supporting devices for the hinged end of the gate, wherein the upper cross-bar 4^a is arranged above the top gate-bar and the link, which is indicated at 11^a, is mounted at its lower end in the upper gate-bar. The advantage of this construction is mainly with relation to heavy gates, in that it provides greater leverage and hence facilitates the elevation of the swinging or free end of the structure.

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

Having described my invention, what I claim is—

1. A gate provided at an intermediate point with a suspending-link mounted for horizontal and vertical swinging movement, an operating-lever fulcrumed at an intermediate point upon one end of the gate below the plane of the lower end of said suspending-link, and having its lower arm flexibly connected with a fixed object contiguous to the axis of the gate, and means mounted upon the gate upon the opposite side of the suspending-link from said operating-lever, and connected with the upper arm of the lever, for swinging the latter toward the axis of the gate, whereby the gate is elevated at both ends, substantially as specified.

2. A gate having a suspending-link mounted at its upper end for horizontal and vertical swinging movement in the plane of the axis of the gate, and pivotally connected at its lower end with the gate to allow independent vertical swinging movement of the latter, said link inclining downwardly and forwardly from the axis of the gate, gate-locking devices from which the gate is adapted to be disengaged by upward-swinging movement, an operating-lever fulcrumed upon the gate in rear of said suspending-link and having its lower arm flexibly connected with a fixed object contiguous to the plane of the axis of the gate, and means mounted upon the gate adjacent to its front end, and flexibly connected with the upper end of the operating-lever, for swinging the latter forwardly, whereby the rear and front ends of the gate are successively elevated, substantially as specified.

3. A gate having a suspending-link pivotally connected therewith for swinging movement in a vertical plane, inclining upwardly and rearwardly, and mounted at its upper extremity for vertical and horizontal swinging movement in the plane of the axis of the gate, an operating-lever fulcrumed upon the gate in rear of its axis and flexibly connected at its lower extremity to a fixed object approximately in the plane of the axis of the gate, and a hand-lever fulcrumed upon the gate in advance of said suspending-link and flexibly connected with the upper extremity of the operating-lever for imparting forward-swinging movement to the latter, substantially as specified.

4. A gate having a suspending-link pivotally mounted, for swinging movement in a vertical plane, upon the gate in advance of its axis, inclining upwardly and rearwardly from said point of connection, and mounted at its upper extremity for vertical and horizontal swinging movement in the plane of the axis of the gate, an operating-lever fulcrumed upon the gate in the rear of its axis and having its lower arm flexibly connected with a fixed object approximately in the plane of the axis of the gate, stationary catches for engagement with the gate contiguous to its free end, a retaining-latch for securing the free end of the gate normally against upward movement, and a hand-lever fulcrumed upon the gate in advance of said suspending-link, flexibly connected with the upper arm of the operating-lever for imparting forward-swinging movement to the latter, and operatively connected with said retaining-latch, substantially as specified.

5. A gate having a suspending-link pivotally mounted, for swinging movement in a vertical plane, upon the gate in advance of its axis, inclining upwardly and rearwardly from said point of connection, and mounted at its upper extremity for vertical and horizontal swinging movement in the plane of the axis of the gate, an operating-lever fulcrumed upon the gate in rear of its axis and having its

lower arm flexibly connected with a fixed object approximately in the plane of the axis of the gate, stationary catches for engagement with the gate contiguous to its free end, a retaining-latch for securing the free end of the gate normally against upward movement, a hand-lever fulcrumed upon the gate in advance of said suspending-link, flexibly connected with the upper arm of the operating-lever for imparting forward-swinging movement to the latter, and operatively connected with said retaining-latch, and stop and holding devices arranged in the path of the hand-lever and adapted, respectively, to limit the operative movement of the hand-lever and secure the same against accidental movement in the opposite direction, substantially as specified.

6. The combination with spaced hinge-posts having upper and lower cross-bars, and a latch-post provided with fixed notched catches for engagement with gate-bars, of a gate arranged at its hinged end between said hinge-posts, and adapted to normally rest upon the cross-bars which extend between the gate-bars, an upwardly and rearwardly inclined suspending-link pivotally connected at its lower end to the gate and at its upper end to the upper cross-bar, an operating-lever fulcrumed upon the gate in rear of the hinge-posts, a flexible connection between the lower arm of the operating-lever and the lower cross-bar, a hand-lever fulcrumed upon the gate in advance of said link, and a flexible connection between the lower arm of the hand-lever and the upper arm of the operating-lever, substantially as specified.

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

JOHN F. MURPHY.

Witnesses:
JOHN H. SIGGERS,
ROBERT E. CRUMP.