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PATENTED OCT. 23, 1906.

J. E. EADER.  
GATE.

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2 SHEETS—SHEET 2.

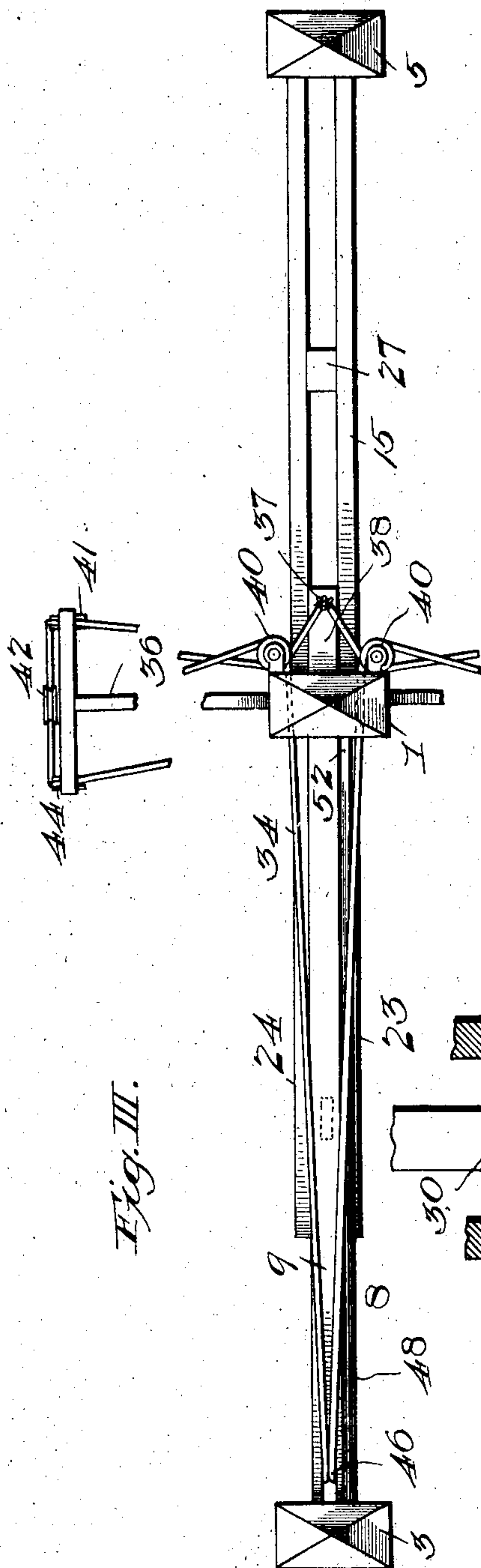


Fig. III.

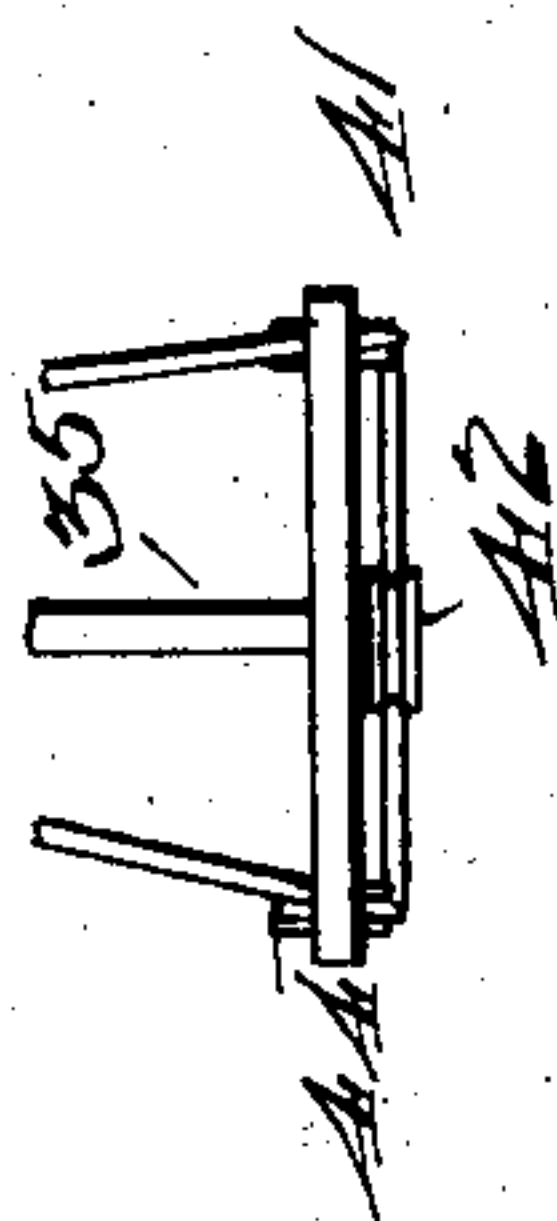
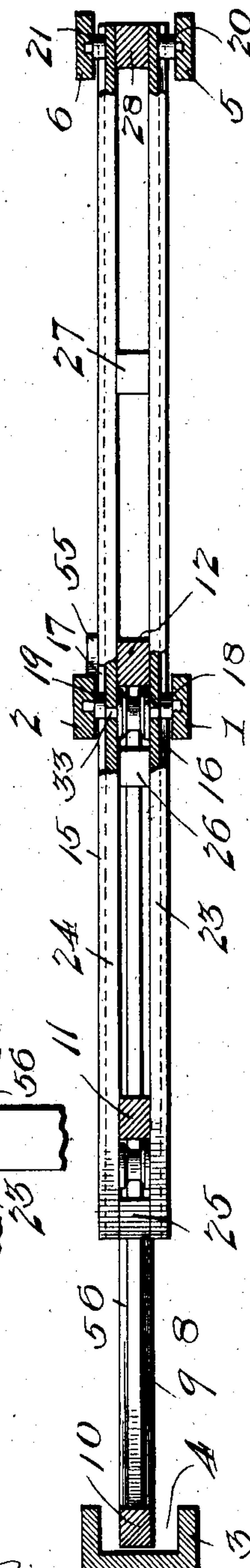


Fig. V.

Fig. IV.



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# UNITED STATES PATENT OFFICE.

JAMES EDGAR EADER, OF BENLD, ILLINOIS.

## GATE.

No. 834,112.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed November 21, 1905. Serial No. 238,350.

*To all whom it may concern:*

Be it known that I, JAMES EDGAR EADER, of Benld, county of Macoupin, State of Illinois, have invented certain new and useful Improvements in Gates, of which the following is a specification.

The object of my invention is to produce an improved gate of the type that is adapted to be opened and closed from a vehicle or from horseback without alighting, one in which the means of suspension, whereby its ready actuation in the manner specified is facilitated, is materially reduced in extent with respect to the space such mechanism occupies in gates of the same class, and one in which the mechanism for opening and closing the gate is contrived to actuate automatically an improved latch mechanism that is adapted to afford specially secure and reliable means for holding the gate shut whenever it is closed.

In the accompanying drawings, which form a part of this application, Figure I is a side elevation of my gate in the closed position and the next adjacent panel of the fence of which it forms a movable section, parts of the gate and panel being broken away the better to illustrate the mechanism. Fig. II is a sectional view at right angles to that shown in Fig. I, showing the disposition of the flexible actuating member. Fig. III is a top plan view of the subject-matter of Fig. I, the flexible actuating member being broken away in order to accommodate the figure to the available limits of space on the sheet. Fig. IV is a horizontal longitudinal section of Fig. I, illustrating the gate-supporting mechanism. Fig. V is a detail view, on an enlarged scale, of the principal gate-supporting mechanism shown in the middle of Fig. IV, but in vertical section instead of horizontal section, as shown in that figure.

Referring to the numerals on the drawings, 1 indicates one of the gate-supporting posts, and 2 the other.

3 indicates the gate-post, which forms the last post of a fence, to and from which the gate works in opening and closing. It is preferably shown as provided with a recess 4, into which the end of the gate passes when closed; but that is a variable detail of construction.

5 indicates a fence-post, and 6 a companion post preferably provided in conjunction with the post 5 to secure stability.

The posts 1 and 5 are connected by a fence-panel 7, representatively illustrated by an assemblage of parallel bars, boards, or strips nailed or otherwise secured to said posts, respectively.

8 indicates a gate, which is preferably an oblong rectangular frame made up of longitudinal members or stringers 9 and cross-pieces 10, 11, and 12, assembled in any usual or preferred manner.

The gate is movably supported by the posts 1 and 2, between which it is horizontally movable back and forth for closing or opening the space between the posts 1 and 2 on the one hand and the post 3 on the other hand. The gate is not, however, and this is an important feature of my invention, mounted directly upon a post, but is mounted upon a movable elongated supporting member 15. The supporting member 15 is upon its opposite sides, respectively, provided with grooves 16 and 17, extending from one end to the other of it, wherein are provided for its support and reciprocatory movement stud-supported pulleys 18 and 19, 20 and 21, the first pair being carried by the posts 1 and 2, respectively, and the second pair by the posts 5 and 6, respectively.

The supporting member 15 is preferably constructed of two parallel pieces 23 and 24, provided with spacing-blocks 25, 26, 27, and 28, upon which they are rigidly assembled into a unitary member. The gate 8 is mounted between the side pieces 23 and 24 in a manner to permit its movement with as well as independently of the supporting member 15. The gate is for that purpose provided with a supporting-bar 30, parallel to and corresponding with the members 9 of the gate, but distinguished by its function, and, it may be, by specially secure means for fastening it to the cross-pieces 10, 11, and 12. The supporting-bar 30 works upon grooved pulleys 31 and 32, mounted, respectively, upon suitable journals 33, working in bearings provided for them in the parallel side pieces 23 and 24 of the supporting member 15.

The gate, being by aid of the mechanism above described freely movable between the posts 1 and 2 and the post 3, is preferably equipped with suitable mechanism for actuating it in opposite directions. I prefer to employ for that purpose two corresponding flexible members 34, which may be rope, cord,



or chain and which being directed about suitable guide-pulleys is attached to opposite ends of the gate and being stretched taut about the guide-pulleys aforesaid is adapted to impart motion to the gate in one direction or the other in response to a pull in the required direction upon the flexible member aforesaid. In the drawings a preferred disposition of the flexible member is shown, a description of one member 34 being equally applicable to both. In the said form of embodiment of my invention illustrated 35 indicates one pulley-support, and 36 the other, located upon opposite sides of the gate and at suitable distances, respectively, from the posts 1 and 2. The member 34 is secured at one end, as indicated at 37, with the upright 12, or preferably a projection 38 therefrom. From the point of connection with said upright or projection 38 it is guided by a guide-pulley 40 about a pulley 41 upon the support 35. Thence passing under a supporting-pulley 42, from which is suspended a weight 43, it is carried around a pulley 44 upon the support 35 to a guide-pulley 45 on the post 1, about which it is bent, and carried to a guide-pulley 46 upon the cross-piece 10 of the gate. Beyond the pulley 46 the member 34 is secured, mediately or immediately, to that end of the gate 8 which is opposite to the projection 38 previously referred to. It will be seen that one end of each member 34 is attached to one end of the gate and the other end thereof to the other end of the gate.

The flexible member 34 being drawn taut between its two points of connection with the gate by the weight 43 a pull upon either member 34 exerted in either direction in which the gate is free to move will cause the gate to travel in that direction, thereby affording means for opening and closing the gate at pleasure.

The end of the flexible member, which is secured to the gate after passing around the pulley 46, is preferably secured, as indicated at 47, to a latch-bar 48, preferably pivoted, as indicated at 49, to the cross-bar 11 and extending diagonally from one end to the other of the gate. It is preferably spring-actuated, as by a tension-spring 50, secured at one end to the end 47 of the latch-bar and at the other, as indicated at 51, to a cross-bar of the gate. The tendency of the spring 50 is to lift the rearward end 52 of the latch-bar into engagement with a cross-piece 53, extending between the tops of the posts 1 and 2, under which the latch-bar passes yieldingly when the gate is being driven to the closed position. When the gate reaches that position, the latch-bar is lifted by tension of the spring 50 to engage with the cross-piece 53, from which it must be disengaged before the gate can be opened. By the arrangement specified and illustrated, the flexible member 34 being secured to the latch-bar at 47, any

pull upon said flexible member which tends to open the gate is exerted against the tension of the spring 50 and serves to disengage the end 52 of the latch-bar from its cross-piece 53, after which a continued pull in the same direction upon the flexible member 34 may serve to open the gate.

It should be observed that the pull upon the flexible member which tends to open the gate causes the gate to travel toward the open position upon the grooved pulleys 31 and 32. At the same time the supporting member 15 may travel in the same direction upon its pulleys 18 to 21, inclusive. When, however, the gate reaches its limit of travel upon the pulleys 31 and 32, the cross-piece 10 of the gate engages the spacing-block 25 of the supporting member, the cross-piece 11 engages the spacing-block 26, and the cross-piece 12 engages the spacing-block 27. Thereupon the supporting member 15 retreats until the gate is completely open, when both the gate and its supporting member come to a full stop in consequence of engagement, preferably, between a stop-piece 55 upon the supporting member 15 and the post 6. Other stop mechanism can of course be substituted for that specified, if preferred.

It should be observed that the independent movement of the gate toward the closing position is limited by engagement of the cross-piece 11 with the pulley 31 and of the cross-piece 12 with the pulley 32, as clearly shown, for example, in Fig. I. In that position the weight of the gate is supported upon the two pulleys and any tendency of the gate to tip forwardly is prevented by operation of the force of gravity. If preferred, however, a lower guide-bar 56, parallel to the supporting-bar 30 and corresponding, like it, to one of the stringers 9, may be provided for engagement with the under sides of the pulleys 31 and 32.

When the gate is in the closed position, as shown, for instance, in Fig. I, its weight is supported mainly upon the supporting member 15, which in turn rests upon the pairs of pulleys 18 and 19 and 20 and 21, respectively. The distance between those pairs of pulleys determines the leverage which in the supporting member is opposed to the downward pull of gravity upon the unsupported end of the supporting-lever. A proper distance should therefore separate the posts 5 and 6 from the posts 1 and 2; but by reason of the independent travel of the supporting member and the gate relatively to each other the distance between those posts and between the posts 1 and 2 and the post 3 may be made substantially equal and equal to the length of the gate itself. This is an important advantage inasmuch it makes it possible to considerably reduce the expense and to diminish the weight of the construction as



compared with what is necessary in those particular in building balanced sliding gates of the ordinary kind.

What I claim is—

5 1. The combination with a plurality of posts, of pulleys carried thereby, a supporting member provided with lateral grooves adapted to receive said pulleys, and a gate horizontally movable upon said supporting  
10 member.

2. The combination with a plurality of posts, of pulleys carried thereby, a supporting member comprising two parts united by spacing-blocks and provided with lateral  
15 grooves adapted to receive said pulleys, and a gate horizontally movable upon said supporting member.

3. The combination with a plurality of posts, of pulleys carried thereby, a supporting member comprising two parts united by spacing-blocks, and provided with lateral  
20 grooves adapted to receive said pulleys, pulleys carried by said supporting member, and a gate mounted thereon.

4. The combination with a plurality of posts, of pulleys carried thereby, a supporting member comprising two parts united by spacing-blocks and provided exteriorly with lateral grooves adapted to receive said pul-  
25 leys, pulleys mounted between the two parts of said supporting member, and a gate provided with a supporting-bar adapted to work upon said pulleys.

5. The combination with a plurality of posts, of pulleys carried thereby, a support- 35 ing member comprising two parts united by spacing-blocks and provided exteriorly with lateral grooves adapted to receive said pulleys, pulleys mounted between the two parts of said supporting member, and a gate pro- 40 vided with a guide-bar and a supporting-bar adapted to work upon said pulleys.

6. The combination with a gate, gate-post, and gate-supporting post, of a spring-actuated latch-bar pivoted to the gate and ex- 45 tending diagonally from one end to the other thereof and adapted to engage and disengage the gate-supporting post.

7. The combination with a gate, gate-post, and gate-supporting post, of a spring- 50 actuated latch-bar pivoted to the gate and extending diagonally from one end to the other thereof and adapted to engage and disengage the gate-supporting post, and a gate-actuating mechanism operatively con- 55 nected with the latch-bar, whereby power applied to the actuating mechanism first actuates the latch-bar to unfasten the gate and then actuates the gate to open it.

In testimony whereof I have hereunto 60 signed my name in the presence of two subscribing witnesses.

JAMES EDGAR EADER.

Witnesses:

HENRY MORGAN,  
WALTER BROWN.