(No Model.) 3 Sheets—Sheet 1.

W. R. WHITE.

GATE.

No. 493,539. Patented Mar. 14, 1893.

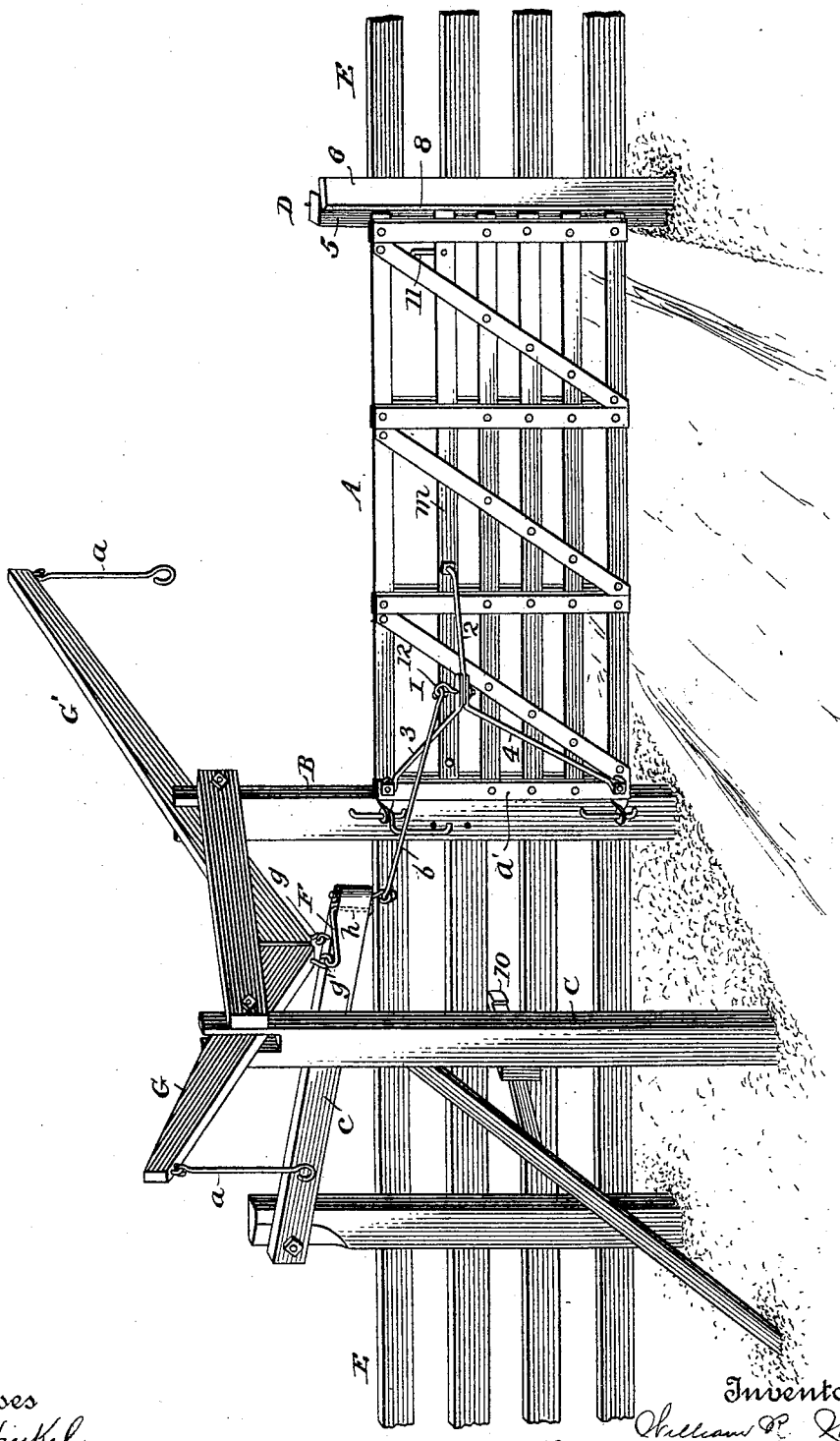

Fig. 1.

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Fig. 2.

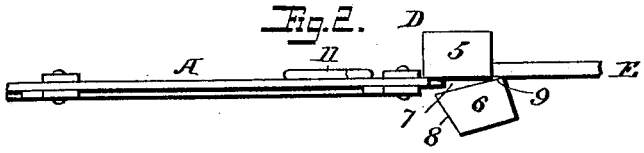


Fig. 3.

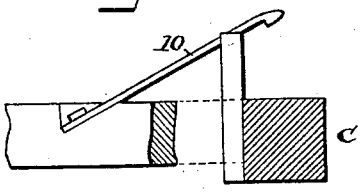


Fig. 4.

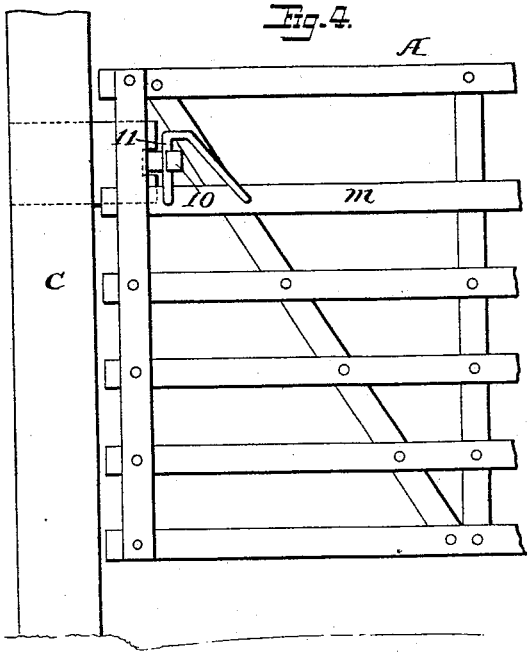


Fig. 5.

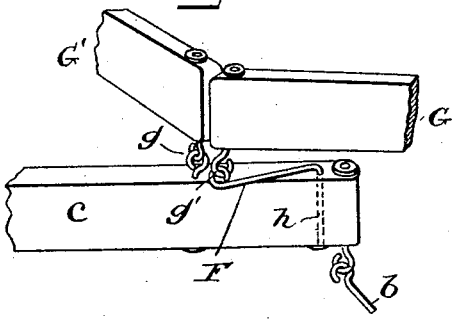
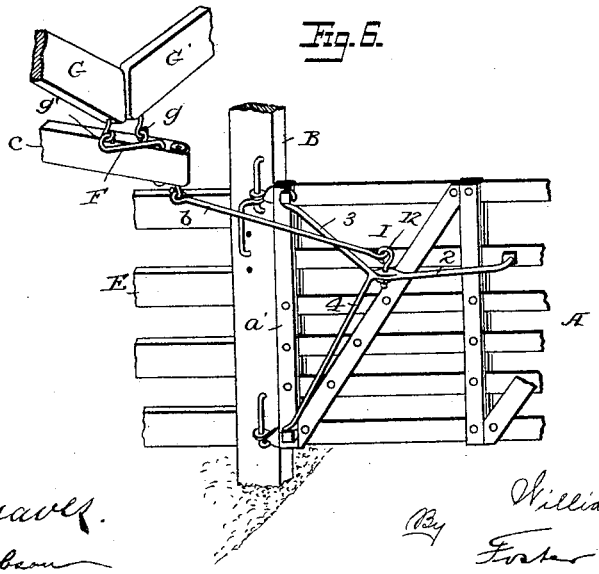


Fig. 6.



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(No Model.) 3 Sheets—Sheet 3.

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GATE.

No. 493,539. Patented Mar. 14, 1893.

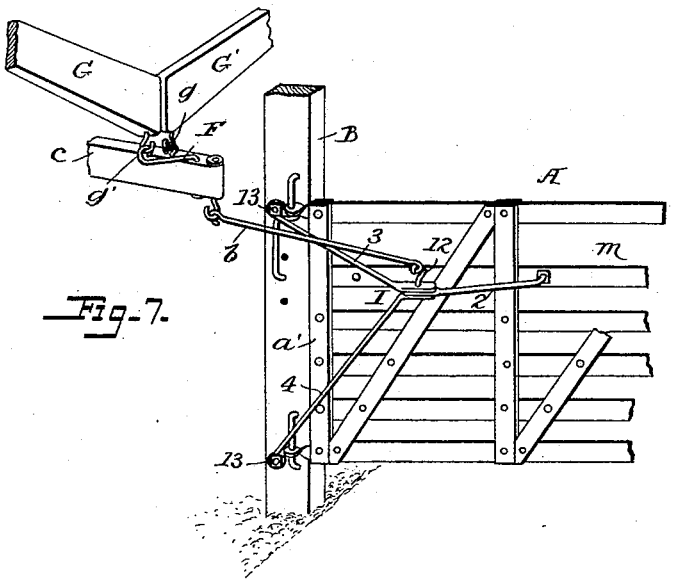
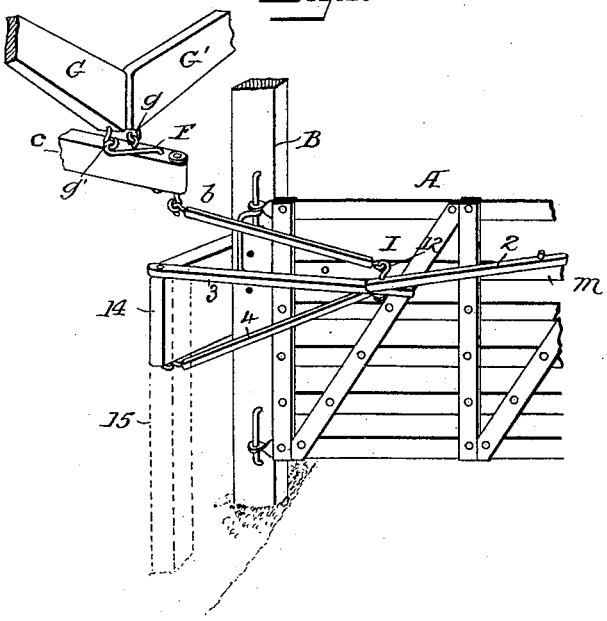


Fig. 7.

Fig. B.



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UNITED STATES PATENT OFFICE.

WILLIAM RICHARD WHITE, OF BLOOMINGTON, ILLINOIS.

GATE.

SPECIFICATION forming part of Letters Patent No. 493,539, dated March 14, 1893.

Application filed August 18, 1892. Serial No. 443,394. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RICHARD WHITE, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Gates, of which the following is a specification.

My invention relates to gates, and it consists of the improved means for opening and closing the same, means for locking and unlocking the gate both in its open and closed positions, and in various improvements in the details of construction of the gate, all of which will be hereinafter set forth, and which are illustrated in the accompanying drawings, of which:

Figure 1 is a perspective view of a gate embodying my invention. Fig. 2 is a detail plan view illustrating the post against which the free end of the gate swings when closed. Fig. 3 is a detail view in plan showing the catch for holding the gate open. Fig. 4 is an elevation of the gate, partly broken away and the catch for holding it open. Fig. 5 is a detail perspective view illustrating the means for connecting the operating levers with the steadying or guide bar or arm. Figs. 6, 7, and 8, are views illustrating different forms of the frame I, from that shown in Fig. 1.

In the drawings, A, represents the gate hinged to a post, B, and arranged to swing to and from a post, D, placed in line with the post, B, and to which one end of the fence, E, is secured.

C, is a post situated beside the roadway to which the gate swings when opened as is usual in this class of gates.

The gate is operated from the roadway, on either side of the gate by means of operating levers, G, G′, to which may be secured handles, *a*, the operating levers being connected with the gate through the media of connecting rods, bars or arms and a frame projecting laterally from the gate. This laterally projecting frame may be variously constructed and I have in the drawings illustrated several different forms thereof, and have in the several views designated it as a whole by the letter, I.

b is a connecting rod situated between this laterally projecting frame and the operating levers. I have shown one connecting rod, *b*, and this is at its upper end connected to the inner end of the vibrating guide or steadying arm, *c*, to which the operating levers are connected. It will be evident that two connecting rods extending directly from the ends of the operating levers to the frame, I, might be employed in place of the construction shown, and such a construction as I have just suggested is shown in my application Serial No. 434,136, filed May 24, 1892.

The inner ends of the operating levers are steadied by connection with the arm, *c*, but it is evident that other means for steadying and guiding them might be employed, examples thereof being illustrated in my other said application. When a single vibrating steadying arm, *c*, is employed, I prefer to connect the end of the operating levers therewith as illustrated in detail in Fig. 5. As therein shown one of the levers is connected directly to the arm at some distance from its end by a loose or hinged joint, *g*, while the other lever is connected with the arm by a link, F. This link is loosely connected or hinged, at *g′*, to the end of the lever, while its connection with the arm, *c*, is such that it can turn in a horizontal plane, such a connection being secured by bending a portion of the link, *h*, at right angles to the main part thereof and passing it vertically through the arm, *c*, near its outer end.

When the operating levers are in their horizontal positions their inner ends are close together, but when the latter are raised or lowered they are somewhat separated, and the connection of one of the levers with the arm, *c*, through the medium of the link, F, permits the ends of the levers to move toward and from each other without the straining or binding of any parts.

The connecting rod, *b*, is secured to the frame, I, at a point opposite the vertical line which would pass across the gate about one fifth of the distance from the hinges to the free end thereof, while its other end is connected to the steadying arm, *c*, at a point which is above the central portion of the gate when it is swung open. This arrangement of the connecting rod overcomes the danger of the gate's stopping on a dead center either upon being opened or upon being closed, and also requires very little sweep or motion on

the part of the operating levers in order to effect the opening and closing of the gate. It also permits the operating levers to be inclined so that their outer ends extend above or partially across the roadway and the depending handles, *a*, may be grasped without having to turn from the roadway to reach them. Ordinarily this is impracticable because the levers in moving up and down would interfere with the tops of covered vehicles, loads of hay, &c., whereas with the arrangement of the gate operating devices just described, the movement of the levers is so small—from ten to fourteen inches at their outer ends,—that they can be arranged at a practicable height, and yet not interfere with vehicles or their loads. It will be further observed that when the gate is closed the connecting rod, *b*, inclines forward or toward the free end of the gate, while when the gate is open the connecting rod inclines away therefrom. The advantages resulting from this construction will be pointed out hereinafter.

The connection of the operating levers with the gate through the frame, I, serves as a means of automatically locking and unlocking the same both in its open and closed positions. *m* is a sliding bolt or bar to which is connected one member, 2, of the frame, I, the other members of the frame, 3 and 4 being variously arranged and secured as shown in the drawings and as will be hereinafter described.

The post, D, may be provided with a catch of any suitable description adapted to receive the forward end of the bolt or latch, *m*. I prefer however that this post should be constructed as illustrated in Fig. 2. That is to say, the post, D, is made up of two posts 5 and 6, the former being the one against which the gate swings when closed, and the latter being set at an angle thereto and on that side of the post 5 occupied by the gate. The post 6 is also set back somewhat so that the gate swings past or in front of it in opening and closing. The V-shaped recess 7 between the two posts is utilized to receive the locking end of the bolt, *m*, which thereby holds the gate in its closed position until the bolt is withdrawn. The inclined face 8 of the post 6 may be faced with iron to prevent undue wear from the rubbing of the end of the bolt, as the gate is repeatedly closed.

At 9, the post 6 projects beyond the post 5 on the side away from the gate and forms a shoulder against which the end of the fence, E, may rest and be secured.

10 is a spring catch or hook carried by the post, C, and adapted to engage with the bar or bolt, *m*, and hold the gate in its open position. In order that it may easily engage with the bolt, *m*, I provide the latter with a projecting pin 11 upon which the hook catches when the gate is opened. The bolt, *m*, receives its motion to lock the gate both in its closed and its open positions from the momentum. of the parts constituting the gate operating devices. Thus, when the gate is being closed the momentum of these parts carries the bolt forward into the recess 7 in the post, D. when the gate is suddenly stopped by coming against such post. When the gate is being opened and is arrested by contact with the post, C, the momentum of the gate operating devices tends to carry the bolt backward in position to engage with the catch, 10.

The inclination of the rod, *b*, toward the forward end of the gate when the same is closed, and away therefrom when it is open, as hereinbefore described, gives proper direction to the inertia or momentum of the gate operating devices to effect the movements of the gate bolt or latch just described. When the hand levers are operated, the direction of the force transmitted through the connecting rod, *b*, is the reverse of that which it receives from the inertia of the gate operating devices, and hence the gate is unlocked thereby.

In my aforesaid application I have shown a construction wherein the gate operating devices were connected to a frame projecting laterally from the gate, a member or part of which frame was connected with the gate bolt or latch which was withdrawn to unlock the gate when the operating devices were moved. In such application, the part or member of the laterally projecting frame had a rocking or turning motion. In the forms of my invention herein shown the part or member of the laterally projecting frame which connects with the gate latch or bolt has a lateral instead of a rotary or turning motion to effect the movement of the latch or bolt.

The member or part 2 of the frame, I, is the one connected with the locking bolt of the gate and to which a lateral motion is imparted as above described. The other members 3 and 4 of the frame serve as braces, one of them inclining upward and the other downward by preference. The three members of the frame, I, are connected together at their outer ends, and it is at or adjacent to their point of union that the connecting rod, *b*, is preferably secured to the frame, I. The construction of the frame, I, can be varied to a considerable extent, and I will now describe the different forms thereof shown in the drawings.

In Fig. 1 the three parts, 2, 3, and 4 of the frame are composed of separate pieces of metal, preferably of rod-form, their outer ends being brought together, and united by a bolt 12. The inner ends of the parts 3 and 4 are connected to the upper and lower ends respectively of the rear or inner upright piece, *a'*, of the gate.

In Fig. 6, the construction of the frame, I, is similar to that shown in Fig. 1 except that the outer ends of the parts 2, 3, and 4 of the frame are welded together instead of being connected by the bolt 12. This form does not possess the flexibility of construction shown in Fig. 1, but has sufficient spring to allow the member 2, to move laterally under the influ-

ence of the gate operating devices and so to move the latch or bolt *m*.

In Fig. 7, the frame I, differs from the form shown in Fig. 1, in that the members 3 and 4, of the frame are connected to the post B, at 13, 13, adjacent to the hinges of the gate.

In Fig. 8, the members 3 and 4, of the frame are connected to a support situated at some distance from the post B. Such a support may be in the form of an arm 14, projecting from the post B, or in the form of a short post 15, situated between the posts B and C, indicated by the dotted lines.

The different members or parts of the frame I, may be of wood instead of metal in each of the constructions except that shown in Fig. 6. Where the post 15, is used, wood is the material best adapted for use.

What I claim is—

1. The combination with a swinging gate, of a bolt or latch therefor, the vibrating gate operating levers having their inner ends above and both on the same side of the gate, a laterally projecting frame arranged between the ends of the gate and projecting from the side thereof toward the inner ends of the operating levers so as to move under the inner end of the gate-operating levers as the gate moves from its closed to its opened positions, and vice versa, the said frame having a laterally movable member connected with the latch and with the gate operating levers, substantially as described.

2. The combination of a gate, the sliding bolt or latch, the gate operating devices, and a laterally projecting frame with which the gate operating devices are connected, consisting of a laterally movable member 2, connected with the gate bolt or latch, and the two bracing pieces 3 and 4, one inclining upward and the other downward substantially as described.

3. The combination of a gate, the sliding bolt or latch, the gate operating devices and the laterally projecting frame, I, to which the gate operating devices are connected, consisting of the laterally movable member 2, connected with the sliding bolt and the bracing members 3 and 4, the outer ends of the members 2, 3 and 4 meeting and being connected at their outer ends by a bolt 12, substantially as described.

4. The combination of a gate, a sliding bolt or latch, the gate operating devices and the laterally projecting frame, I, having a member 2, connected with the sliding bolt and laterally movable, and the members 3 and 4 connected at their outer ends with the member, 2, and at their inner ends turning on supports situated adjacent to the inner end of the gate, substantially as described.

5. The combination of a swinging gate, a sliding locking bolt or latch, a laterally projecting frame having a movable member connected with such latch, the gate operating levers, the connecting rod, *b*, connected with the operating levers and with the said frame and arranged when the gate is closed to incline toward the forward end of the gate and when the gate is open to incline rearward or away from the forward end of the gate, whereby the momentum of the operating levers is transmitted to the latch, moving it in one direction when the gate is opened and in the opposite direction when the gate is closed, and the catches with which the latch engages by reason of such momentum arranged to hold the gate in its closed and open positions substantially as described.

6. The combination with a swinging gate, and the sliding latch therefor, of the post B, composed of the part 5 situated in the path of the gate and against which the free end thereof swings when the gate is closed, and the part 6 set at an angle to the part 5 and back of or out of line of the movement of the gate whereby there is formed a recess 7 into which the sliding bolt enters, substantially as set forth.

7. The combination with the gate, of the post against which the free end of the gate rests when closed, composed of the two posts 5 and 6 set at an angle to each other to form the recess 7 and to form a shoulder 9 on the side away from the gate against which the end of the fence may rest, substantially as described.

8. The combination of a swinging gate, the operating levers, the single vibrating guiding or steadying arm to which the inner ends of both the levers are connected,—the connection between one of the levers and the arm being a link,—and the connecting rod between the said arm and the gate, substantially as described.

9. The combination of a swinging gate, the operating levers, G, G′, the single vibrating guiding or steadying arm, *c*, to which one of the levers is directly connected, the link, F, uniting the other lever to the arm, and the connecting rod, *b*, connected with the arm *c*, and with the gate, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM RICHARD WHITE.

Witnesses:

U. A. GREGG,

MATTIE WHITE.